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A CONCEPTUAL MODEL FOR ENHANCING THE RELEVANCE OF VOCATIONAL-TECHNICAL HIGH SCHOOL EDUCATION IN MEETING THE SOCIO-ECONOMIC NEEDS OF KOREA

The Ohio State University

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A CONCEPTUAL MODEL FOR ENHANCING THE RELEVANCE OF VOCATIONAL-TECHNICAL HIGH SCHOOL EDUCATION IN MEETING THE SOCIO-ECONOMIC NEEDS OF KOREA

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

By

Chin-Whan Joung, B. A., M.ED.

* * * * *

The Ohio State University

1982

Advisory Committee:

Dr. Donald G. Lux
Dr. Willis E. Ray
Dr. Virgil E. Blanke
Dr. George Ecker

Approved By

Dr. Donald G. Lux
Advisor
College of Education
ACKNOWLEDGMENTS

Were it not for the assistance and support of Drs. Donald G. Lux, Willis E. Ray, Virgil E. Blanke, and George Ecker this dissertation would not have been possible. They are my academic advisers whom I selected because I was hypnotized with their professional teaching and guidance. They have given me basic academic abilities. They have suggested effective ways of academic inquiry. In the whole process of developing this dissertation, they attempted to make me an able independent researcher, provided valuable suggestions and criticisms, and offered prompt answers to my questions and requests.

Especially Dr. Lux, as my major adviser, gave me father-like help. I could meet him anytime. Each time he provided many critically helpful comments and criticisms for the dissertation. I am sincerely grateful to him.

Special thanks are extended to the individuals listed in Appendix E who served to evaluate this research. My first son Gwan-Yeong's many good behavior awards in his school work and my new-born son June-Yeong's innocent smile were my spiritual helpers.
VITA

August 20, 1942 ........ Born - Choongbook, Korea

March 1963 - February 1970. . . B.A. in Education, Kongju National Teachers' College, Kongju, Korea

March 1964 - July 1966. . . . Military Service


March 1971 - February 1974. . M.Ed. in Educational Administration, Seoul National University, Seoul, Korea

September 1972 - February 1980 Researcher, Korea Educational Development Institute, Seoul, Korea

August 1977 - February 1980 . Instructor in Education, Korean Civil Aviation College, Seoul, Korea

April 1978 - March 1979 . . . Educational Planning and Management Training, UNESCO Regional Office, Bangkok, Thailand

PUBLICATIONS


FIELDS OF STUDY

Major Field: Education

Studies in Educational Administration. Professors Virgil E. Blanke and George Ecker

Studies in Industrial Technology Education. Professors Donald G. Lux and Willis E. Ray

Studies in Educational Change & Development. Professor Virgil E. Blanke
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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction

Alvin Toffler (1970) coined the term "future shock" to describe the "shattering stress and disorientations we induce in too short a time" (p. 7). In his book Toffler calls attention to the implications of the rate of change that in many respects is more important than the direction of change. He speaks of the "death of permanence", "over-choice", and the need for "enclaves of the past" as products of the greatly accelerated rate of change in industrial society, and he warns that future shock - "the dizzying disorientation brought about by the premature arrival of the future" - may well be the most important disease of tomorrow.

From Toffler's point of view, we can unconsciously recognize that we are living in a world of uncertainty. According to Hickson (1971), uncertainty has been defined as the lack of information about future events, so that the alternatives of present decisions and their outcomes are unpredictable (p. 219).
Today Korean society is turning in the whirlpool of rapid change. Nobody can predict the future events that Korea will encounter. However, some developments seem more probable than others. It is expected that the industrial-technological structure of Korea will keep abreast of the patterns of the developed countries between now and 1991 (Korean Educational Development Institute, 1978, p. 98). Also, Havighurst and Levine (1979) predicted that the Korean society of the year 2,000 will be characterized by:

1. A service-oriented occupational structure. There will be relatively more people engaged in professional and personal service occupations, more working on the processing and distribution of information, more working as technicians and fewer unskilled workers.

2. A middle age-centered society. The age groups 35 to 60 will tend to set the values, interests, and activities most representative of the society.

3. More equal income distribution. The lowest fifth of the population will secure a higher proportion of the total income of the society.

4. A stabilizing population. More participation of women in careers outside the home.

5. More expensive energy, with some tendency to use more human labor in place of high energy-consuming
machines (pp. 4-5).

Obviously, these probable characteristics of the next twenty years all have significant educational implications. In these regards, according to Lux (1979), one important thing that Korean society clearly needs to do is to change the educational system to help people cope with the forthcoming technological change. And Korea needs to do it quickly. Otherwise, Korea will not be able to respond to the challenge of the times (p. 24).

Considering this prospect, as Grant Venn (1970) pointed out, the overriding necessity apparently is to educate all youth to use technological change for the benefit of every individual and for the strengthening of the total Korean society. In a technological age, education certainly must be the basic foundation of comprehensive national manpower policy (p. 235). In particular, vocational preparation must be a fundamental part of education and a specific task of the high schools because over half of the high school graduates do not enter colleges, but they go into the world of work (see Table 1).

Thompson (1973) mentioned that historically vocational-technical high school education has been a central concern in an attempt to meet socio-economic needs, because vocational-technical education has prepared students for a wide variety of speciality and technological areas (p. 142).
### Table 1. Career Trends of High School Graduates in Korea

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of High School</th>
<th>Graduates</th>
<th>Vocational Entrants</th>
<th>Employment</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>Academic</td>
<td>82,208</td>
<td>33,040 (40.19)</td>
<td>8,394 (10.21)</td>
<td>39,995 (48.65)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>62,854</td>
<td>6,033 (9.60)</td>
<td>31,569 (50.23)</td>
<td>23,432 (37.28)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>145,351</td>
<td>39,073 (26.88)</td>
<td>39,963 (27.49)</td>
<td>63,427 (43.64)</td>
</tr>
<tr>
<td>1972</td>
<td>Academic</td>
<td>97,754</td>
<td>43,452 (44.45)</td>
<td>8,861 (9.06)</td>
<td>44,456 (45.48)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>85,754</td>
<td>9,856 (11.49)</td>
<td>36,445 (42.50)</td>
<td>38,011 (44.33)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>183,038</td>
<td>53,308 (29.05)</td>
<td>45,306 (26.49)</td>
<td>82,467 (44.94)</td>
</tr>
<tr>
<td>1974</td>
<td>Academic</td>
<td>117,343</td>
<td>49,725 (42.38)</td>
<td>10,333 (8.81)</td>
<td>56,271 (49.95)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>117,533</td>
<td>12,405 (10.55)</td>
<td>57,394 (48.83)</td>
<td>46,440 (39.51)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>234,876</td>
<td>62,130 (26.45)</td>
<td>67,727 (28.84)</td>
<td>102,711 (43.73)</td>
</tr>
<tr>
<td>1976</td>
<td>Academic</td>
<td>173,016</td>
<td>62,623 (36.19)</td>
<td>18,160 (10.50)</td>
<td>90,860 (52.52)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>137,103</td>
<td>11,058 (8.07)</td>
<td>72,338 (52.76)</td>
<td>51,654 (37.68)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>310,119</td>
<td>73,681 (23.76)</td>
<td>90,498 (29.18)</td>
<td>142,514 (45.95)</td>
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Table 1 (continued)

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of High School</th>
<th>Graduates</th>
<th>College Entrants</th>
<th>Employment</th>
<th>Unemployment</th>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>Academic</td>
<td>236,052</td>
<td>72,757 (30.82)</td>
<td>27,782 (11.77)</td>
<td>135,513 (57.41)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>164,369</td>
<td>15,448 ( 9.40)</td>
<td>97,532 (59.34)</td>
<td>51,389 (31.26)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400,421</td>
<td>88,205 (22.03)</td>
<td>125,314 (31.30)</td>
<td>186,902 (46.67)</td>
</tr>
<tr>
<td>1980</td>
<td>Academic</td>
<td>266,331</td>
<td>104,307 (39.16)</td>
<td>25,291 ( 9.50)</td>
<td>136,733 (51.34)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>201,057</td>
<td>23,019 (11.45)</td>
<td>102,812 (51.14)</td>
<td>75,226 (37.41)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>467,388</td>
<td>127,326 (27.24)</td>
<td>128,103 (27.41)</td>
<td>211,959 (45.35)</td>
</tr>
<tr>
<td>1981</td>
<td>Academic</td>
<td>279,020</td>
<td>141,934 (50.87)</td>
<td>22,368 ( 8.02)</td>
<td>114,718 (41.11)</td>
</tr>
<tr>
<td></td>
<td>Vocational</td>
<td>217,980</td>
<td>33,331 (15.29)</td>
<td>101,579 (46.60)</td>
<td>83,070 (38.11)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>497,000</td>
<td>175,261 (35.26)</td>
<td>123,947 (24.94)</td>
<td>197,788 (39.80)</td>
</tr>
</tbody>
</table>


Note: The figures in parentheses show percentages (%).
As a matter of fact, Korea generally has accepted that today's development of the national economy has been achieved in part by vocational-technical high school education. The skills of the graduates of vocational-technical high schools have been conceived as a foundation for Korean national economic development. In this regard, vocational-technical high schools have paid great attention to the acquisition of skill itself. However, a seeming overemphasis on skill training is facing serious challenges today. Some seemed to regard the graduates as parts of given machines. As a result, student frustrations began to appear because they did not possess adaptability to different situations and because Korean industry showed a tendency of rejecting the graduates of vocational-technical high schools who were unable to adjust to changing situations.

Simply speaking, the problem of irrelevance of vocational-technical high school education in Korea is seriously raised by individual students as well as by employers and society. The problem of this irrelevance must be one of the main concerns of students, parents, industry, and the total society. The relevance of education, especially vocational-technical high school education, should be enhanced so as to meet socio-economic needs of individuals and of society. To do so, first of all, it will be
necessary to refine and clarify the concepts "relevance of education", "vocational-technical education", and "high school" in response to changing conditions. This is the point of departure of this study.

Background of the Problem

The Present and Future of Korean Vocational-Technical Education

High schools in Korea are classified as academic and vocational schools. The academic ones mostly offer the courses required for college entrance. Vocational high schools offer courses required for occupational preparation.

The vocational high schools are divided into agricultural, technical (relating to industry), commercial, fishery and marine, and art high schools. In addition, comprehensive high schools also offer some occupational courses.

As Table 2 shows, there are 100 vocational-technical high schools in which 200,304 students were educated in 1981.

According to a Korean Development Institute report (1977), however, it is expected that the demand for technical manpower will increase sharply and thus bring about a change in the structure of Korean manpower. The total
Table 2. Numbers of Vocational High Schools and Students in Korea (1978, 1981).

<table>
<thead>
<tr>
<th>Kinds of Vocational High Schools</th>
<th>Number of Schools</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical high schools</td>
<td>96</td>
<td>100</td>
</tr>
<tr>
<td>Agricultural high schools</td>
<td>59</td>
<td>56</td>
</tr>
<tr>
<td>Fishery &amp; Marine high schools</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Commercial high schools</td>
<td>213</td>
<td>232</td>
</tr>
<tr>
<td>Comprehensive high schools</td>
<td>168</td>
<td>180</td>
</tr>
<tr>
<td>Others</td>
<td>25</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>570</td>
<td>621</td>
</tr>
</tbody>
</table>

employment will show an average annual increase rate of 3.3 percent to reach 20 million by 1991. This increase will be notable in the field of manufacturing and construction industries with a net increase of more than 4 million during this period. On the contrary, the number of people to engage in agriculture will decline by nearly one million with a corresponding shrinkage of their proportion of the total labor force.

The report also predicts that the manpower structure of Korea is expected to change outstandingly in response to the changing industrial and occupational requirements. The following table shows the trends (p. 142).

Taking into consideration this trend, questions may well be raised as to whether the present system of vocational education, especially, vocational-technical high school education, will be able to meet the quantitative manpower needs of the future of Korea. Similarly, the problem of the quality of skilled workers should be addressed.

Since the reform of the college entrance examination system and the policy for equalizing high schools in 1973, the enrollments in high schools have rapidly increased. However, as the result of these changes, academic high schools must admit students who do not want to enter college. In other words, the academic high schools no longer
Table 3. Changing Trends in the Total Workforce Structure (Unit: 1,000 persons).

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Economically active</td>
<td>13,061</td>
<td>15,395</td>
<td>17,878</td>
<td>20,508</td>
<td>3.7</td>
<td>3.1</td>
</tr>
<tr>
<td>Population (%)</td>
<td>58.3</td>
<td>59.6</td>
<td>61.3</td>
<td>63.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Employed population</td>
<td>12,556</td>
<td>14,933</td>
<td>17,520</td>
<td>20,303</td>
<td>4.1</td>
<td>3.3</td>
</tr>
<tr>
<td>Agriculture and fishery</td>
<td>5,601</td>
<td>5,484</td>
<td>5,101</td>
<td>4,633</td>
<td>1.4</td>
<td>-1.3</td>
</tr>
<tr>
<td>Proportion</td>
<td>44.6</td>
<td>36.7</td>
<td>29.1</td>
<td>22.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mining industry</td>
<td>2,743</td>
<td>4,166</td>
<td>5,613</td>
<td>6,860</td>
<td>11.6</td>
<td>6.3</td>
</tr>
<tr>
<td>Proportion</td>
<td>21.9</td>
<td>27.9</td>
<td>32.0</td>
<td>33.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Social overhead capital</td>
<td>4,212</td>
<td>5,283</td>
<td>6,806</td>
<td>8,810</td>
<td>4.8</td>
<td>5.0</td>
</tr>
<tr>
<td>Proportion</td>
<td>33.5</td>
<td>35.4</td>
<td>38.9</td>
<td>43.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Unemployed population</td>
<td>505</td>
<td>462</td>
<td>358</td>
<td>202</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Proportion</td>
<td>3.9</td>
<td>3.0</td>
<td>2.0</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
exercise their original function. As Table 1 showed, over half of the students in the schools need vocational education.

In addition, it also is said that vocational-technical high schools do not meet the specialized needs of most students. In a real sense, there have appeared serious complaints that the unprecedented expansion of education has been at the cost of quality. "More has meant worse", some say. With equal emphasis, most people have complained that what is imparted through vocational technical high schools today is irrelevant and unrelated to the needs of either individuals or society.

To put it more concretely, it has been said that vocational-technical high school education in Korea has been excessively oriented to only the mastery of specific skills. In other words, most vocational-technical high schools have not offered adequate education for both general and specialized needs of students in an appropriate combination. The most controversial issue is whether these schools should play the role of skill training centers. Another issue is whether technical high school education meets the socio-economic needs of Korea.

**Social Demand for Educational Relevance**

Every society attempts to perpetuate its values and action-commitments. As societies become complex, a more
formal attempt to do this is made. Thus the phenomenon called "education" arises. But, as mentioned in the preceding section, social conditions do not stand still; they are dynamic, changing. Ways of educating that were successful in transmitting cultural values and action-commitments in the past may become anachronistic; they may lose relevance.

There are many factors in modern societies that tend to increase the irrelevance of formal education. Meaningful education must make contact with cultural values, social functions, and individual lives. To do less makes education irrelevant in a world that cannot afford any more irrelevance.

As mentioned previously, education has most often been criticized by parents and students as being remote from the daily life they must face, a life in which people work for a living. Consequently, today both educators and students want a "reality-contact" between what is done in school and what is faced in life.

Benjamin Franklin recognized this problem in the early eighteenth century in the U.S.A. When he set up his academy in Philadelphia in 1751, he declared that education ideally should include all that is ornamental and all that is useful. But, he reasoned, since schools have only a limited time in which to teach a student, it becomes the
proper and serious business of the school to select what is most essential for the student to learn. It must examine life - especially the life students are likely to lead - and to prepare them to take their places in it. Since, for most people, work is a necessity, practical subjects ought to be included in the curriculum. Thus surveying, navigation, bookkeeping, and other subjects which had a demonstrable usefulness in Franklin's Philadelphia found their way into his curriculum alongside the more time-honored ones (Hunt, et al., 1968, p. 18). However, students did not select and study just one of these practical studies for vocational training purposes. All students studied them all for their general educational values.

Educational Planner's Difficulties and/or Considerations in Dealing with the Term "Relevance"

Many educational critics have filled numerous books with insights on what is wrong with our schools. At the local level, students have expressed their demands for greater relevance through varied forms of protests. Irrelevance has become synonymous with all that is wrong with the schools, and relevance has become the desired solution.

But before we can initiate vital educational reforms, we must answer the following questions: What is the proper goal of education? What are the desirable focuses for
school programs? The clarification of educational goals must precede constructive change. Nevertheless, many educational programs are plainly missing their marks.

In particular, in spite of the plea for greater relevance of vocational-technical high school education, in response to socio-economic needs of the country, whenever educational planners deal with it practically it seems to be generally accepted that the concept of "relevance" is too vague to guide action. Frankly speaking, the term still lacks a broad and systematic conceptual interpretation which enables it to correspond to changing situations.

Yet, it is requested that the roles and functions of vocational-technical high schools should be reestablished to help students cope with the future. Similarly, it is widely discussed that the present system of vocational-technical high school education must change. The change effort probably should begin with a conceptual analysis, as the first priority, about the meaning and implications of the related terms.

Relevance of Vocational-Technical High School Education to Economic Needs

In these regards, the question of the relevance of vocational-technical high school education to economic needs has been seriously raised. And there is currently a great
deal of interest in the problem. However, in spite of the continuing interest of planners, policy-makers, and administrators in linking education and work, this particular innovation has not been done effectively enough to mitigate the severity of unemployment among school-leavers. On the basis of such experience as is available, it would perhaps be a fair statement to make that the problem of educated unemployment is one essentially tied up with the economic development of a country; the role of education in solving or minimizing it may not be too great as education does not appear to be a very powerful instrument for the creation of employment or job opportunities (UNESCO Regional Office of Education in Asia, Book II, 1978, pp. 62-63).

Where a certain degree of good results have been achieved in linking education with work, the experiment has been with vocational-technical education based on real or expected job opportunities likely to be available to school-leavers. Work-oriented education in the past came to grief because there was no articulation and no bridges between the vocational and general institutions (or streams) to permit movement of students from one to the other.

The educational planner or administrator is in no position to ignore the problem of irrelevance of education to educational and economic needs—particularly to employment
opportunities—merely because the experience so far has been discouraging. It is true that the problem cannot be solved as an internal problem of the educational system. If the need is to bridge the gap between the world of education and the world of work, the responsible parties of both "worlds" have to collaborate in achieving it.

Relevance of Vocational-Technical High School Education to National Culture

Most countries have recognized the establishment of national unity and cultural identity as important national goals and have written them into objectives of national education. The development of an authentic system of education responsive to economic, social, and cultural needs of the country is urged as a priority. Considering the basic purposes of education and its severely limited capacity for self-renewal, it is doubtful if vocational-technical high school education can play more than a marginal role. However, education has to play some role in the satisfaction of economic, social, and cultural needs of the country. Educational planners have to bear this in mind as they proceed to plan education in its totality (UNESCO, Book II, Ibid, pp. 63-64).
Purpose and Specific Problems

As the title of this study suggests, the problem posed in this study is a conceptual one. That is, the basic purpose of this study is to develop a conceptual model as a basis for evaluating the extent to which Korean vocational-technical high school education meets or tends to respond to individual and socio-economic needs of the nation (the relevance of vocational-technical high school education to the socio-economic needs of Korea).

In order to reach this broad goal, an organized series of specific objectives and/or problems are derived and must be answered. The overall objectives and/or problems of this study are:

1. To solve the problem of conceptual confusion about the relevance of education;
   1-a. What exactly does the term "relevance of education" mean?
   1-b. What are the antecedent variables determining relevance of education?
   1-c. What are the subsequent variables determining relevance of education?
   1-d. How can the variables be categorized into a descriptive framework?

2. To identify and concretely describe some variables in determining the relevance of vocational-technical
high school education to the socio-economic needs of society;

2-a. What are the socio-economic considerations (needs) which may be used in planning vocational-technical high school education? Which of these are usually used, and why?

2-b. What are the established and expected roles or functions, goals or objectives, and main curriculum content of vocational-technical high school education?

2-c. What are the differences between industrial technology education and vocational-technical education?

2-d. What are the correlationships between vocational technical high school education and socio-economic needs?

3. To conceptualize the kinds of relevance of vocational-technical high school education to the socio-economic needs of the society;

3-a. What are the antecedent and subsequent variables determining relevance of vocational-technical high school education?

3-b. How can these variables be categorized?

3-c. What kinds of student-centered relevance are there?
3-d. What kinds of society-centered relevance are there?

4. To clarify further applications of the developed conceptual model and to present some specific criteria for evaluating the relevance of vocational-technical high school education under the model;
   4-a. What are the considerations in using the model in terms of educational practices?
   4-b. What kinds of specific criteria can we establish in evaluating vocational-technical high school education under the developed conceptual model?

5. To test the acceptability of the model in Korea by sending a questionnaire to selected jury members;
   5-a. Is the conceptual model theoretically sound?
   5-b. Could the model contribute to enhancing the relevance of vocational-technical high school education in Korea?
   5-c. Does the model keep its generalizability?

Basic Assumptions

In approaching the above problems, these basic assumptions are made:
1. Change will be occurring at an accelerating rate. Consequently, the attention to the specific processes by which we endeavor to guide change is worthwhile. To put it concretely, the total body of scientifically based knowledge is changing at a rate which invites obsolescence during the very act of schooling.

2. Economic growth in a given society will require a cadre of educated manpower to man the modern sector of the economy.

3. The key word, in planning vocational-technical high school education, will be relevance. Consequently, in identifying the acceptable meaning, variables, and kinds of educational relevance, the external effectiveness and productivity of vocational-technical high school education will be enhanced. Vocational-technical high school education planning also will be greatly rationalized.

4. A viable vocational-technical high school education will be built on the basis of the individual and socio-economic needs of the given society.

5. A viable vocational-technical high school education ought to be considered within the whole process of career education.
Implications and Significance

From the viewpoint of the background of the problem, it seems to be certain that Korean vocational-technical high school education must make fundamental changes immediately to cope with future needs and to discharge the present complaints being raised by many people. In fact, the issue of relevance of education, especially, of vocational-technical high school education, has become an important contemporary issue and resolutely ranks as one of the major societal problems today. It is closely related to the problem of achieving articulation between education and work.

We do not possess a systematic, clear-cut, and satisfactory vision to look into the problem, although the field of curriculum greatly requires it. As Goodlad (1958) stated, nowhere in education is there greater need for a conceptual system to guide decision making than in the field of curriculum (pp. 391-401). Perhaps one of the reasons for this, as described in the preceding section, is that the concept of relevance in education is too vague to guide action. Another reason might be that there are several difficult to measure variables related to the relevance of education.

Whenever we attempt to plan vocational-technical high school education, this proposed kind of conceptual
study or analysis is primarily necessary and significant in terms of the following four dimensions:

1. An acceptable conceptual model and/or analysis of the relevance of vocational-technical high school education would be a great contribution to knowledge in the field of education, especially, curriculum. In other words, this study can be justified as forming a fundamental link in the chain of vocational-technical high school educational theory and practice. This study is necessary in that it may be singularly effective in achieving the integration between empirical findings and analysis.

2. The justification for a conceptual analysis of the relevance of vocational-technical high school education is an overriding concern and/or need in order to make education accountable. Individual students and society strongly demand that education be made more relevant.

3. This study shows the methods of conceptual analysis by following one conceptual study, step by step. That is to say, this study is significant and necessary in that it shows and offers an example of a methodical approach to problem solving.

4. Finally, in a practical sense, this study can contribute basic guidelines for future planning and policy-making for vocational-technical high school education in countries other than Korea.
Definition of Key Terms

1. **Vocational-technical high school education**: This term refers to the total education which vocational-technical high schools offer. The curriculum of vocational-technical high schools in Korea consists of general education and technical education for occupational preparation in a wide variety of technological areas. The proportion between general and technical education is 30 to 70, respectively.

2. **Socio-economic indicators of national development**: Generally speaking, the Gross National Product (GNP) and per capita Gross Domestic Product (GDP) are useful economic growth indicators. In addition, the following indicators are mentioned in an attempt to explain the concept of national development:
   a) Distribution of population by portion of national income
   b) Distribution of population by size of land holding
   c) Distribution of population employed in agriculture, industry and services
   d) Percentage of households below poverty line
   e) Educational profile of the labor force, etc.
On the other hand, a number of social indicators are used for the purpose of explaining the concept:

a) Persons per household
b) Persons per doctor/dentist/midwife
c) Persons per hospital bed/health center/clinic
d) Cars/telephones etc. per 1,000 persons
e) Literacy rate
f) Teacher: pupil ratio, and other dimensions.

3. Socio-economic needs: Every society has socio-economic needs as a necessary and sufficient condition. These needs refer to a) national development and improvement of the quality of life, b) establishing a social welfare state—providing security, full employment and social justice, and c) creating a dynamic society.

4. Manpower: The term has many different meanings today. Sometimes the word manpower is equivalent to the term "labor" when labor is understood to be a factor of production in the basic framework of analysis used by economists. In this broad sense manpower can also be understood to mean generically "personnel" or "employees".

Also, manpower can mean the total quantitative and qualitative human assets or people in a society. In this sense the word means the power of man both in terms of the size of the population and the talents and educational levels in that population. Another possible contemporary
meaning of the term is that it can be equated with "labor force". That is, manpower can be considered tantamount to "human capital". Among many different meanings of the term, however, this study will employ the firstly mentioned meaning.

5. Human resources: Similar to the concept of manpower, the concept of human resources can be equated with "labor" in the sense of a factor of production, or simply population. Human resources may also be viewed as a kind of natural resource or a people resource just as we have mineral and forest resources. However, this study will identify the meaning of this term as "manpower".

6. Education: This term brings us to definitions of education and training. In this study, education refers to that which is concerned with teaching the members of society skills, beliefs, attitudes, and other aspects of behavior which they have not previously acquired. In this regard, this study will consider only the educational content, especially, curriculum. In other words, this study will not consider facilities, administration, and other dimensions.

7. Training: This term is used as the restricted meaning of education in a "narrow sense" or "to drill". To put it concretely, training is the formal procedure
which is used to facilitate learning so that the resultant behavior contributes to an organization's objectives. Therefore, training is not an end itself, but a means to an end.

8. General education: This term follows Rice's (1964) definition. That is, general education is concerned with the learner rather than the content, which may be organized with less regard to traditional fields. Its goals are individual development in their various aspects. It places emphasis upon behavior and social usefulness as well as intellectual development as an outcome in learning. Is manifestation in higher education provided for a wider scope of abilities and a far broader clientele (p. 11).

9. Vocational education: This term refers to education designed to develop skills, abilities, understandings, attitudes, work habits, and appreciations needed by workers to enter and make progress in employment on a useful and productive basis.

According to Lux (1970), vocational education programs provide people with the knowledge and ability to (1) gain employment, (2) progress in their environment, and (3) make productive use of the products of technology. Three factors determine what vocational education is: (1) the educational purpose of the learner, (2) the
specialization of the subject matter, and (3) the proximity of the specialized learning to its application on the job (pp. 309-312).

10. **Term**: Term is a word having a precise meaning.

11. **Conception**: This refers to a person's interpretation of a term.

12. **Concept**: This refers to a set of conceptions. A concept is an impersonal and timeless construct. This study will consider that as conceptions change, so will the concept.

13. **Conceptualization**: It is an organizing process that permits a particular phenomenon, such as a use of the term "relevance", to be viewed as part of a larger group rather than as a unique instance. It refers to a process that we impose on phenomena as a means of bringing order to their occurrences.

14. **Relevance**: This term is limited to the meaning of "the extent to which vocational-technical high school education meets or tends to respond to the individual and socio-economic needs of society. This term may well be similar to "adequacy". In a narrow sense it may be measured in terms of the degree of articulation between education and jobs."
15. **Economic institution:** This is one of the fundamental institutions of human society (Lux & Ray, 1966). Its function is to satisfy man's wants for economic goods (p. 40).

16. **Industry:** Industry is that subcategory of the economic institution which substantially changes the form of materials in response to man's wants for goods (Lux & Ray, 1966).

17. **Conceptual model:** Generally speaking, models are miniature representations that summarize data and/or phenomena and thus act as an aid to comprehension. Models can take on a variety of forms depending on the nature and complexity of what they represent, as well as the purpose to which they are put. That is, there are physical or working models, conceptual or verbal models, mathematical models, and graphic representation (Zais, 1976, pp. 91-92).

In the case of conceptual models, a verbalized concept or metaphor is imposed on phenomena as an aid to comprehension. The "systems" and "games" metaphors, used to describe and explain certain sociological phenomena, are examples of conceptual models. Another conceptual model in wide use is the familiar "business" or "industrial" model of schooling, in which students are likened to raw material that is "manufactured" by the school (factory) into a finished product. It is appropriate to note here
that models significantly affect the nature of the theories to which they contribute and hence constitute an influence on the policies for action that evolve from them (Zais, Ibid., p. 92).

Limitations and Delimitations

Limitations

This study has to recognize and accept the following limitations:

The foremost limitation of this study rests upon the research methodology because the problem posed in this study is a conceptual one and the method is conceptual analysis. In a practical sense, there is a practical limitation to the method of conceptual analysis because the analysis per se cannot be described before the outcomes have occurred. Moreover, conceptual analysis is like an effort to define a given concept. As Green (1971) aptly describes it, "A close relation exists between linguistic or conceptual analysis and the formation of definitions. We analyze a concept by studying the meanings of its related terms, and a definition, like an analysis, is always a formation of meaning. In many respects, a conceptual analysis is like a complicated and extended definition, one in which the definition is a lengthy and sometimes
intricate exploration. A complete analysis of any really basic concept like 'knowledge' or 'belief' is almost never attained. It might, and indeed does sometimes, run into several volumes. But if a complete analysis were attained, it would constitute a peculiar (sic) kind of extended definition" (pp. 14-15).

As Green mentioned, there is a relationship between analysis and definition, in that both have to do with meaning. In the case of analysis, the meaning articulated will be one that is argued for, not just asserted. Simply speaking, it is difficult to maintain the objectivity of the analysis because it can be different according to the researchers. These methodological limitations can restrict the degree to which the results of the study can be generalizable.

The second limitation of this study is associated with the complexity of the variables to be dealt with. In fact, this study must deal with a wide variety of variables related to relevance of vocational-technical high school education. The variables will be very complicated and interlinked. As a result, this study is likely to commit some tautological errors.

And finally, the usual limitations may be encountered by the researcher with regard to time and money constraints, abilities, and the availability of sources and materials.
Delimitations

Since this study proposes a conceptual analysis, the following delimitations are imposed for the purpose of this study:

1. This study will not seek to collect solely factual data or rest in the facts of verifiability.

2. This study will exclude the identification of specific facts and concepts inherent in vocational-technical high school education, being concerned, rather, with the general classes of component elements in education.

3. This study will not consider the discussion of transversal threads in vocational-technical high school education, being concerned primarily with horizontal or field blocks of information and skills.

4. This study will not discuss the problem of sequence in vocational-technical high school education because this study focuses on the conceptual meaning for the rationale of a coherent design of educational programs.

5. This study will focus on general aspects of the whole curriculum in vocational-technical high school education, not upon a particular subject matter.

6. This study is concerned with the external effectiveness and productivity of vocational-technical high school education. This study does not attempt to measure the efficiency of instruction within the system.
Summary

Korean vocational-technical high school education has been often criticized because it has not offered adequate education for general and specialized needs of students in an appropriate combination. Also, the question of the relevance of vocational-technical high school education to socio-economic needs and national culture has been heard.

However, although such educational situations have been recognized, there has been little effort to evaluate education with a well organized cognitive model. Moreover, it has been generally accepted that the concept "educational relevance" is too vague to guide action.

In these regards, the primary impetus for this study was to provide an operational definition of the term "educational relevance" and to develop a conceptual model for evaluating the extent to which Korean vocational-technical high school education is relevant.
CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Educational relevance may be pursued through the overall process of education, including the dimension of educational content, teaching method, and learning experiences as well as educational policy making, educational planning, and educational administration and management. Therefore the search for educational relevance has been widely pursued.

In fact, in a sense, it might be said that all literature and/or studies in the field of education can be related to improving educational relevance. Obviously, literature and/or studies related to the topic of this study are quite extensive and are constantly increasing. Therefore, in order to review the literature thoroughly and systematically, will take a long time and require exhaustively energy.

In this regard, the literature only will be sampled in terms of (1) empirical studies for identifying educational relevance, and (2) theoretical studies for
enhancing educational relevance. In addition, since the problem posed in this study is a conceptual one, literature related to conceptual analysis will be reviewed.

Studies for Identifying Educational Relevance

Basically, this study is related to the following question: "Does vocational-technical high school education use its resources efficiently and effectively?"

Therefore, this study will review related literature and/or empirical studies which tried to measure the external effectiveness and productivity of vocational technical high school education because these would be greatly helpful and necessary to the basic purpose of this study.

Studies conducted in the U.S.A.

1. A summary of Eninger's study: His study attempted to describe the occupational, educational, and other experiences of vocational graduates (1965, p. 1). His data are organized in relation to three major issues: (1) general versus vocational education, (2) vocational versus comprehensive schools, (3) small versus large enrollment schools. Each issue generates an independent variable in terms of which product variables are analyzed.
One hundred high schools offering three or more technical and industrial courses were selected as a stratified random sample to represent the country as a whole. About 1,000 male graduates were randomly selected from the graduating classes of 1953, 1958, and 1962 for follow-up study (Ibid., p. 1).

A four-page mailed questionnaire was developed for technical and industrial vocational graduates, and also for academic course graduates. A relatively massed seven-contact mailing schedule was adopted.

A summary of the results of Eninger's study is as follows (Ibid., pp. 9-13):

a) Vocational graduates were found to have greater employment security and stability than academic graduates, even though Negro graduates had significantly less employment security and stability.

b) No significant difference was found among all groups in the mean number of jobs held.

c) Of those jobs held, there was no significant difference among all three groups with the level of job satisfaction.

d) Jobs held by white vocational graduates were only slightly related to jobs studies in vocational schools. For Negro graduates, the jobs were unrelated.
e) There was no difference among any groups, including Negroes, in starting pay.

f) The present earnings of vocational, academic, and comprehensive groups were not significantly different after eleven years out of school.

g) Graduates in all three groups felt there was a need for further training in supervisory skills, mathematics, and interpretive reading skills.

2. A summary of the Kaufman et al. study: The primary objective of a study by Kaufman and others was to determine the impact of public high school vocational programs on current manpower utilization by describing the employment experience of graduates and the image of vocational education as held by teachers, employers, and union officials (Kaufman, et al., 1967, p. 2-1). Schools from nine communities were selected and personal interviews were held with graduates, teachers, and union officials. A mailed questionnaire was used to survey curriculum and academic graduates.

Kaufman found that graduates of the vocational curriculum obtained more manufacturing jobs while graduates of the academic and general curricula obtained more white-collar, primarily clerical, jobs. Despite these differences, graduates from all three curricula tended to earn about the same amount of money to remain on jobs for about
the same length of time, to leave jobs for much the same reasons, and to have about the same levels of job satisfaction. The differences that were associated with curricula referred to evaluations of training. The vocational graduates clearly thought that they had been better prepared for their jobs than did the academic or general graduates. These attitudes of the respondents, however, were not confirmed by their direct supervisors who rated the preparation of students provided by all three curricula about the same (Ibid., p. 12).

Kaufman concluded from the findings that a clear case cannot be made that vocational education has a direct payoff in the occupational experiences of its graduates. These graduates do believe that they are better prepared, and their schools do find jobs for greater proportions of them, as compared with the other curricula. Besides these measures, there are few objective indices that show a definite advantage to the vocational graduates (Ibid., p. 12).

Kaufman also found that vocational graduates received the most inferior job counseling of all three groups. Employers and union officials were found to be pessimistic about vocational education and felt that specific on-the-job training was better even though it had little transfer value (Ibid., p. 12).
It is suggested that advisory committee of labor and management should work closely with the establishment and operation of vocational schools to overcome these attitudes.

3. Reports of the U.S. Advisory Council on Vocational Education: According to the report of the U.S. Advisory Council on Vocational Education (1968), among the 1968 enrollees in preparatory vocational education programs available for placement, 76.0 percent were placed in a field related to their training. In this report, the term "related field" was defined as "an occupation in which successful entry and performance are dependent on skills and/or competencies learned in the vocational education instructional program" (p. 128). The unemployment rate among graduates of secondary school vocational programs was 6.5 percent.

This unemployment rate is sharply contrasted with the 14 percent unemployment rate in October 1968 for all June 1968 high school graduates no longer in school (U.S. Department of Labor, 1969, p. 68). Obviously, the great difference between the two rates indicates that graduates of vocational programs generally seem to make a more satisfactory transition into employment than those who finish high school without specific occupational training and who do not continue their education.
4. Studies by Manpower Development and Training Act (MDTA): Ehresman, et al., (1968) conducted a study of MDTA training programs in North Dakota. According to their study, 93.6 percent of MDTA graduates obtained employment. Graduates expressed satisfaction and even enthusiasm with MDTA training programs (pp. 22-28).

Silverman's study (1967) of the MDTA program conducted by Florida A and M University found that: 1) the program design was inappropriate for the area needs, 2) use of consultants in place of full time staff specialists in training and counseling diminished program effectiveness, 3) job development efforts were insufficient, and 4) the image of the employment service is not the main factor determining its use.

Also, Pucel (1968) studied 192 graduates and drop-outs of ten MDTA projects in Minnesota. Fifty-six percent of the graduates were employed in an occupation related to their training. Twenty percent were employed in an unrelated occupation, and twenty-four percent were unemployed. The highest percentage employed in a related occupation were technicians (87 percent) (pp. 2-11).

5. Other studies conducted in the U.S.A.: There are many studies related to the evaluation of vocational training programs. Most of the studies explain some aspect of educational relevance for vocational-technical high
school.

Bowlhy and Schriner (1970) studied non-wage benefits of vocational-technical training. They sent a questionnaire to survey a matched sample of 334 male and female former students of the Tennessee area vocational-technical school. Matching this group with a high school group on the basis of I.Q., grade point average, high school of graduation, father's occupation, high school curriculum studied, and county of residence resulted in two matched groups of 58 usable respondents (p. 504).

According to their study, vocational graduates had higher mean labor-force participation rates, lower mean unemployment rates, and higher mean occupational mobility rates, although not necessarily upward (p. 509). They concluded that one of the causes for this success in the labor market in addition to the actual training received was job counseling and placement services provided to vocational graduates.

Kjos (1964) compared general high school graduates with industrial arts courses and "day-trade" graduates with some on-the-job training. According to his study, employers rated day-trade graduates higher in more categories relating to performance of work, but rated general graduates higher in leadership and some technical aspects.
Taussing (1968) explained that vocational school graduates had a significantly lower unemployment rate than academic graduates and general course graduates in New York for 1963....10.5 percent versus 17.67 percent and 21.1 percent (p. 70). Seventy-six percent of the vocational graduates were employed in training-related occupations in 1965 (p. 73).

Whinfield (1969) compared a sample of students from technical institutes in Wisconsin with a sample of students who had been enrolled in University of Wisconsin's two-year branch campuses who failed to complete a bachelor's degree (pp. 43-44). A sample of 220 students was surveyed. The students who successfully completed technical programs had more favorable employment experiences, even though they had achieved less well in high school and scored lower on mental maturity tests than the two-year branch campus students. Whinfield suggested that this was so because of four possible reasons: The technical training was more relevant to employment needs in the community; technical graduates were more highly motivated; employers may prefer people with an actual certificate or diploma in hand, and the placement service of the technical schools was more effective than the branch campuses (p. 45).

Dufty and Whinfield (1969) studied characteristics of a sample of graduates of ten selected high schools in
Wisconsin to compare those that go to college with those that go to vocational school (p. 49). Preliminary analysis indicated that the percentage of students who attend college is directly proportional to rank in high school graduating class. The attendance in vocational school is almost inversely proportional to the decile rank in high school graduating class (p. 49).

Despite these studies showing the success of vocational education in reducing unemployment and obtaining higher wages for graduates, Wilensky (1967) argues that schools must become less vocational in their curriculum. He bases his argument on the fact that rapid technological change renders many skills taught in vocational schools obsolete in a short period of time. Therefore, Wilensky believes the best vocational education is a good general education in literacy, work habits, and adaptability (p. 19).

Todd (1969) agrees with Wilensky. His study of graduates from Cicero, Illinois, found that vocational-technical graduates had relatively lower incomes than general curriculum graduates. On the basis of this and other findings, Todd suggests that vocational education may be too specialized in high schools, and that the programs should remedy student weaknesses in verbal, mathematical, and other skills.
Sharp and Krasneger (1966) summarized and analyzed forty-two follow-up studies of vocational-technical education. Even though they believed the studies to be valuable, they felt that a major weakness of most of the studies is that they are too descriptive in nature at the expense of analytical examination (Chapter I).

A Report of a Special Task Force to the Secretary of Health, Education, and Welfare titled the *Work in America* (1973) pointed out the following shortcomings in an exploration of the interrelationships between work and education:

1) The market value of education has driven out its other values. One consequence of this has been to require, needlessly, ever-higher credentials for the same work.

2) Jobs have failed to change in step with the increased educational attainments and concomitant aspirations of the new workforce.

3) Vocational education in high schools has failed to give students useful skills or place them in satisfying jobs.

4) We have largely neglected the educational needs of older workers.

5) The schools themselves are a workplace, influenced by, and influencing, other workplaces. As such, the schools would benefit from a redesign of their work.

6) The high schools have not yet discovered a proper role for themselves to play in "career education" (p. 134).
While the Work in America report is now somewhat dated, current research reveals that serious questions about the relevance of vocational education still remain. Swanson (1982) reported in a survey of Ohio metal manufacturing employment directors that sixteen of eighteen personnel directors agreed with the statement:

Some business analysts say that the best job credentials a young person could have today are good math and reading skills and a general understanding of several different job skills--machining, drafting, electronics, etc. (p. 18).

In addition, some of the respondents offered clarifications of their statements of support as follows:

"I agree, but add some kind of work experience in there."

"Yes, because a more general vocational background keeps your options open."

"I agree 100 percent."

"I would rather see a more diversified person because it gives me more flexibility."

"Broader training would help kids get stuck and aren't willing to consider other kinds of jobs when there aren't any openings in their first choice area."

"I agree, but the attitude is still the most important thing--no matter how expert their skills."

"I'd favor broader vocational training over the current specialized training in vocational high schools."

"College kids have book learning and the vocational students have some specialized
job skills but slacker basic skills. What we need is someone with good academic skills and broad vocational exposure" (Ibid., p. 18).

The above strongly supports the contention that there remains a strong concern about the relevance of vocational-technical education.

There are studies dealing with the "impact" of vocational-technical (high school) education. Impact in this sense relates to the degree of relevance of education. It seems that these studies have frequently been inconclusive. According to Lecht (1975), low response rates from survey samples as well as difficulties in disentangling the contribution of the vocational programs to earnings from the effects of family socio-economic status, learning ability, motivation, the credentials effect of participating in the programs, and similar factors limited the conclusions to be drawn from the studies (p. 11).

Anyway, since vocational education programs include both educational and manpower aspects, Lecht (1974) suggested that the criteria by which their success is evaluated take into account both educational and economic dimensions. According to him, the relevant indexes of economic success include the earnings and unemployment rates of vocational students as compared with similar students in academic and general programs. The indicators
of successful outcomes should also allow for differentials in dropout rates among students in different curricula and for differences in the likelihood of their continuing with further education after leaving high school (pp. 5-6).

As already suggested previously, many people consider the impact or benefits of vocational education as synonymous with monetary advantage, expressed as differences in wage rates or earnings between vocational and high school graduates entering the labor market fulltime. One of the significant studies is by Grasso (1975). Using a national sample of young males and a statistically controlled analysis, he found no significant advantage for vocational graduates either in starting wages or in increases in hourly wage rates over time. Also, his analysis of the skill level of the jobs actually obtained by graduates failed to support the view that commercial and other vocational graduates are more able to obtain skilled jobs than youth from other curricula are (pp. 82-83).

However, Li (1981) concluded that the financial advantage of vocational students will not disappear even if both vocational and non-vocational students have the same occupations. Also, he found that the monetary advantage of vocational trainees does not disappear within ten years after graduation and that the highest gains occur about six years after high school graduation (pp. 15-16).
Grasso and Shea (1979) conducted a relatively comprehensive study on the impact of vocational education. Their findings are as follows:

1) Vocational and general students do not differ very much, on the average, with respect to social class background and mental ability. Neither the vocational nor the general program seems to be a dumping ground.

2) Vocational offerings are psychologically congenial for many young people.

3) Curriculum assignment is congruent with educational and occupational goals.

4) Wise curricular choices require adequate information about career opportunities and about the consequences of pursuing alternative education and training options.

5) Practical studies encourage young people to complete at least a high school education.

6) Enrollment in a vocational program reduces the likelihood of high school graduates completing at least one year of college.

7) Aspirations change among students in various curriculum groups.

8) The long-run, secular increase in educational attainment of the population is applauded by most Americans.
9) We failed to find convincing evidence of an alleged labor market advantage of vocational education for young men. We did, however, find consistent labor market benefits of occupational training for young women (pp. 154-156).

Studies Conducted in Korea

1. A summary of Kim and Joung's study: The general objectives of their study were to: 1) cope with the limitations of facilities for experimentation and training in existing technical high schools and to produce competent skilled workers needed for promoting heavy and chemical industries of Korea, 2) achieve qualitative improvement in skill training provided by technical high schools, and the effectiveness of capital investment made in facilities through their full utilization, and 3) diffuse the recent technical knowledge developed by advanced countries as being essential to meet changes in technical education and to establish a rational management system for practical training (Kim and Joung, 1974, pp. 5-6).

Their study, first of all, identified by nation-wide survey the following major problems in Korean vocational technical high school education: 1) technical high schools play a major role as supply sources of skilled workers
needs to promote heavy and chemical industries, 2) there are shortages of money and facilities for practical training as well as teachers, 3) all the existing facilities of technical high schools are non-economical and obsolete, and 4) industrial managers showed unfavorable attitudes toward technical high school graduates.

2. A summary of the Kim and Joung, et al. study: The primary objective of this study was to identify the degree of articulation between technical high school education and industrial needs and to compare school education with training in industry (Kim and Joung, 1978, p. 4). A follow-up survey of graduates and personal interviews were conducted with graduates, industrial managers, and teachers. Their study focused on curriculum, facilities and equipment, field training as cooperative education, and graduates' ability. A summary of the results of their study follows:

   a) The length of field training that graduates received in cooperating industries differed from one month to six months or more.
   b) Sixty five percent of graduates were satisfied with their field training.
   c) Fifty or more percent of graduates were favorable to the education that they received in technical high schools (68.4% of graduates said that the theoretical
training was helpful, and 50.7% of graduates said that the practical training was helpful).

d) The major reasons why technical high school education was not helpful were inadequate educational content based upon what industry needs, too short a period of training, and lack of teacher leadership.

e) Industrial managers evaluated the graduates as relatively well-trained workers, but they did not show satisfactory attitudes toward the general education level of the graduates.

f) The industrial managers suggested that school laboratory practice be reinforced.

g) According to industrial managers, the cognitive and psychomotor domain abilities of technical high school graduates were superior to other institutional graduates, but the affective domain of ability was low (Ibid., pp. 11-32).

3. Other studies conducted in Korea: Kim (1976) included a survey of the effectiveness of technical education and training in Korea. He analyzed the dynamics of the labor market. Also, he looked into industrial managers' attitudes and employers' viewpoints on education and training. An excerpted summary of the study follows:

a) Two thirds of industrial managers preferred middle school graduates to technical high school graduates
in employing skilled machine operators because they don't want to pay much.

b) Most employees thought that technical schools' education and training were not satisfactory in order to carry out the given task (Korean Education, Vol.3, No. 1, 1976, pp. 5-17).

Ko (1976) analyzed the present status of Korean vocational-technical high school education focusing on chemical engineering. According to his study, teachers and students of vocational-technical high schools expressed the following:

a) The chemical engineering curriculum is not well organized. It is a miniature of the engineering college curriculum.

b) The special subjects (major subjects) are too difficult.

c) Experiment and workshop activities are not implemented on the basis of the fundamental application of theories.

Kim (1978) suggested a close cooperation between school and industry in order to meet industrial needs.

Several additional studies in relation to vocational-technical high school education have been completed within the past ten years. However, the researcher is suffering difficulty in getting the data. However, the researcher
believes that most of the remaining studies were conducted by graduate students doing master's theses.

A Summary of Empirical Studies

Venn (1969) concluded that the U.S. research undertaken to date seems to indicate that a vocational-technical graduate is able to achieve a level of productivity and responsibility in three to five years that previously would have taken twelve to fifteen years of on-the-job training and study. Society thus receives a net gain of ten years of higher productivity per vocational-technical graduate (p. 10).

Because this study often reviewed the studies related to different types of vocational education and different major occupational categories, it is difficult to draw a uniform conclusion applicable to vocational-technical high school education. Graduates experience somewhat higher wages at least in their initial earnings than non-vocational graduates. Furthermore, it seems that vocational technical high school graduates are able to obtain jobs in the skills for which they were trained. It also seems that vocational technical high school graduates experience less unemployment than non-vocational graduates.

However, even if vocational-technical high school programs succeed in reducing unemployment and obtaining
higher wages for graduates, it seems to be true that this education does not offer a good general education in literacy, work habits, and adaptability. In other words, it seems that vocational-technical high school education fails to solve satisfactorily student weaknesses in verbal, mathematical, and other transferable skills.

As suggested in the *Work in America*, another important thing is that most of the literature on vocational training in high schools arrives at the same negative evaluation: technical training in schools is based on an outmoded assessment of future needs. Students are trained without any real knowledge of how they might apply their skills in the future. All they have is an increasing recognition that the technological concepts they are learning are outmoded or will be before they can use them (op. cit., p. 140).

In brief, basic research has not been conducted for the purpose of eliminating weaknesses in Korean vocational-technical high school education. This study is concerned with establishing general principles to enhance the effectiveness and/or relevance of Korean vocational technical high school education. In order to evaluate in depth the effectiveness and/or relevance of Korean vocational technical high school education, it is necessary to establish a conceptual model which can serve as a basis for the study.
Theoretical Studies for Enhancing Educational Relevance

This section is organized under subheadings to clarify the dimensions of the problem of establishing a theoretical foundation for educational relevance.

Social Foundations of Educational Relevance

Over the years educators as well as philosophers have adopted the concept that there were certain criteria commonly associated with the concept of relevance. These criteria have focused on such concepts as: students learn by doing, there should be more concern for the teaching of values, and learning experiences should be of interest to youth. The immediate task for educators was to interpret such criteria into tangible educational experiences.

On the other hand, in the social demand approach to planning education for work, special focus is given to the needs of the potential student. Copa and Maurice (1979) suggested three aspects of social demand for education for work: 1) the concept of self-perceived need, 2) the concept of job-related training, and 3) causes of self-perceived need for job-related training (p. 25).

However, some educators have supported the idea that there is no recipe for teachers to employ. Van Til (1969)
stated that some educators contend that each teacher must "use his intelligence in relating the required content to the world of the learner" (p. 17). Eccles (1965) inferred that there are aspects of human nature which prevent man from taking full advantage of the past experiences of others. This in turn acts as an impediment to human progress and prevents the development of solutions to complex problems (p. 43).

**General Education and Relevance**

According to Evans (1971), much of what is taught in schools under the name of general education is not general education at all. Nor do all persons need the most advanced courses in foreign language, industrial arts, art, music, or most other subjects currently labeled "general education" in high schools. However, much of the material taught is general education and is needed by everyone. Many students, however, do not see that they need it, and hence, many of them lack motivation to learn some of the things they will need most (p. 58).

This situation was described very well by Calkins (1969). According to him, most of those who fail to learn to figure, read, and write in schools, fail because schooling seems to them an exercise in futility. Books which are irrelevant to their interests, classes which are oriented
toward further years of schooling after the 12th grade, mathematics which seems to serve no useful purpose, do not get the attention of students brought up to solve immediate problems. ...There is where the connection between reading and employment, arithmetic and income, writing and self respect, must be made clear. To the public, these connections are obvious. The public expects that school will make them obvious to the students also (p. 2).

Similarly, investment in vocational education should be directed toward activities which yield maximum effectiveness relative to the investment made. If education about occupations, work, and the economic enterprise can develop attitudes toward work which increases individual options, eventually help meet the manpower needs of the nation, and simultaneously lend relevance to the rest of general education (Evans, p. 59).

Furthermore, Evans discusses as follows: Vocational education has paid little attention to the objective of lending intelligibility to general education. General and vocational education each have an obligation to make themselves intelligible. Just as certain disciplines such as economics are now in the process of making vocational education more intelligible to vocational and non-vocational educators and to citizens at large, so vocational education can shed light on the purposes and accomplishments of general education (p. 66).
Relevance and the Curriculum

In the question of "What can education do these days that would be relevant?, Metcalf and Hunt (1970) suggested that the schools incorporate in their curriculum a study of an important social movement, rejection by youth, and that this study emphasize examining, testing, and appraising the major beliefs caught up in his movement (p. 359).

Also, they suggested that we need the kind of educational relevance that would help and require young people to examine their most basic assumptions about the kind of world that exists, and how they propose to change the world from what it is into something preferable (Ibid., p. 359).

They identified the four basic assumptions that the young wish to examine: 1) A rejection of the liberal-reformist, 2) the relationship of means to ends, 3) the nature of rationality, and 4) the nature, worth, and necessity of violence (Ibid., pp. 359-60).

After discussing the four basic assumptions, they suggested the direction of relevant curriculum and defined it. That is, they saw that a curriculum that would assist young people in an examination of their basic assumptions about society and its improvement must deal with values and social policies. According to them, a relevant
curriculum is sometimes defined as one addressed to the personal problems of youth. This is not good enough. It is more relevant to engage young people in a study of the problems of the larger culture in which many of their personal problems have their origin. The culture of most significance to the young consists of those aspects that are problematic - that is, the large conflicts and confusions which translate into the conflicts and confusions of individuals (Ibid., p. 361).

On the other hand, Davis, et al. (1974) described some topics for inclusion in a student option questionnaire in evaluating learning systems of vocational-technical education. That is, they listed relevance of the course which the students advocate as follows:

a) I could see how the course material could be applied to my personal problems.

b) I could see how the course material is pertinent to my major field of interest.

c) The instructor made me aware of current problems in the field (p. 116).

Relevance of Teaching and Learning

Davis, et al. showed specific examples that relevance of a course can be insured. That is, according to them, relevance of a course is achieved when the instructor
carefully considers the following three steps in the process of deriving learning objectives (pp. 54-61).

The first step in deriving a learning objective for a course is to write an instructional goal. Here an instructional goal is some outcome of instruction that is of value to the students. Goals are derived from three sources: the subject matter; the educational philosophy of the instructor; and the characteristics of his students.

In order to identify the relevance of a general goal, the instructor must consider the following "notes" (a list of the questions you should answer in performing the step), and he must "check" (a list of questions you should use to check your work) his work.

Notes: Answer the questions: What is an important outcome of my course? Is achieving the goal of value to my students? What does a student have to know, or be able to do, in order to succeed in this subject?

Check: Is the goal stated in terms of outcomes of instruction (as opposed to procedures, media, equipment to be used)?

If either answer is "no", rewrite your general goal.

The second step is to state a referent situation. A referent situation is defined as a situation in which the student can use or apply what he learns in a course.
Examples of referent situations are: the next course in a curriculum, a job or profession, an avocation, or any of the many situations which students may encounter in later life.

In this step, the instructor must consider the following "notes" and have a "check".

Notes: Answer the question: Where might my students use what they have learned in my courses?

Check: Is achieving the goal useful in referent situation?

If answer is "no", select another referent situation.

The third step is to write a test of goal achievement in the referent situation. In this step, the question of the relevance of instruction must be first discussed. What does relevant instruction mean? How can a teacher make what he teaches relevant? One concept of relevance is that students can transfer what they have learned in class to their lives outside of the classroom. In other words, relevant instruction can be thought of as teaching students knowledge and activities that they can apply in referent situations.

To make his instruction more relevant, a teacher should endeavor to write learning objectives that are related to referent situations. A referent situation test
is a mechanism for relating objectives to referent situations.

In this step, the instructor must consider the following "notes" and have "check".

Notes: 1. Answer the question: If I could observe a student in the referent situation, how would I know he had achieved the goal?

2. State conditions, behavior, and standards.

Check: 1. Is the test behavior of the type required in the referent situation?

2. Are the test conditions similar to those encountered in the referent situation?

3. Are the standards of performance similar to those required in the referent situation?

If any answer is "no", rewrite the test.

A Summary of Theoretical Studies

Educational relevance involves more than providing learning experiences and teaching subject matter that students find immediately meaningful, interesting, and useful. MacDonald (1971) stated: The basic contradiction in schools as well as society resides in the paradox of the immense promise for individual happiness and well-being inherent in a technological society which is being paid for
by the dehumanization of the individual for whom promise exists (p. 4).

On the other hand, Toffler (1971) stated that "What passes for education today, even in our best schools and colleges, is a hopeless anachronism" (p. 398). Furthermore, "We must search for our objectives and methods in the future, rather than the past" (p. 399).

In brief, it is certain that educational relevance should be pursued in terms of individual student interests, needs, and concerns as well as societal needs. Also, literature and studies related to educational relevance are concentrated on curriculum and teaching and learning.

Obviously, since the late 1960s, man's search for educational relevance has been strident and ubiquitous in the efforts of theoretical studies. Despite the fact that relevance has been sought, ontologically, it apparently does not exist in sufficient amounts to satisfy those who incessantly demand relevance. Thus, it is not surprising that this study pays great attention to the problems of relevance and cognate concerns - the search for the meaning of relevance, the determinate variables of relevance, and the kinds of relevance.
Literature Related to Conceptual Analysis

Philosophy as a Means of Analysis

The main problem posed in this study is a conceptual one. According to Henze (1961), the concept of relevance "Can, perhaps, be analyzed best as a practical not a theoretical concept; i.e. by noting how it operates in arguments, not by using it to understand how arguments operate" (p. 21). This approach comes from a philosophical position which is called "ordinary language philosophy". Philosophers have proposed several theories of meaning for the purpose of language analysis.

The procedures implied by ordinary language philosophy are known as informal analysis, as opposed to formal analysis. Formal analysis emphasizes the building of a technical or artificial language to solve philosophical problems, but the "essence of the viewpoints of informalists is that natural language has the most power to remedy its own deficiencies" (Kneller, 1966, p. 169). According to this philosophical position, the way to understand and resolve the problem is to determine how our language is in fact used (Chappell, 1964, p. 2).

Two main philosophical groups have practiced ordinary language philosophy. The first group followed Wittgenstein, one of the major figures in the transition to ordinary
language, who was persuaded by failures to repudiate his earlier Tractatus. The empiricist criterion of meaning was now gasping for breath, and reductive analysis was bogged down in failures. It became apparent to Wittgenstein that philosophers had been so hypnotized by the function of language in reporting facts (scientific language), that they had overlooked the rich manifold of meaningful uses that language demonstrates in ordinary speech (Magee, 1971, p. 16). In sum, this group takes the position that philosophical problems should be solved through the usage of the ordinary language that causes the problems.

The second group includes Ryle, Austin, Strawson, and others associated with Oxford. This group has been more interested in the details of ordinary language and in drawing general philosophical conclusions (Chappell, p. 3).

Ryle (1963) expressed that the vogue of the phrase "the use of ordinary language seems to suggest to some people the idea that there exists a philosophical doctrine according to which (a) all philosophical enquiries are concerned with vernacular, as opposed to more or less technical, academic or esoteric terms; and (b) in consequence, all philosophical discussions ought themselves to be couched entirely in vernacular dictions (p. 121).
Thus, Ryle addressed himself to the concept of "use" as the key word in the phrase "the ordinary use of expression." His approach emphasizes how a concept or object is used, rather than how it is defined. Ryle advocates that it is erroneous to study the meaning of an expression because that would imply that one expression is related to another by something contained in the verb "to mean".

An emphasis on use directs attention to "teachable procedures and techniques of employing things, without suggesting unwanted correlates (Chappell, Ibid., p. 29). It also permits us to speak of mismanging, mishandling, and misemploying concepts. Here we can say that a certain expression is being used in an absurd fashion, but we cannot necessarily say that the expression has an absurd meaning.

In summary, the ordinary language philosophers assert that philosophical problems arise because of the uses of ordinary language, rather than because of an inadequacy intrinsic to the language itself. The way to solve philosophical problems, then, is to examine the problematic expression in a variety of contexts, rather than to examine the expression itself in isolation.

In brief, according to ordinary language philosophers, philosophy is not a set of doctrines but rather a process of analysis. To philosophize, therefore, is to
clarify given concepts in the context of their disciplines. In other words, philosophy as a process of analysis can be referred to as a "process of conceptual analysis".

Therefore, since the problem posed in this study is a conceptual one, philosophy as a process of conceptual analysis will sometimes be employed. To put it concretely, adequate meaning of the concept of educational relevance will be sought by conceptual analysis.

Techniques of Conceptual Analysis

Having accepted the view that philosophy is a process of analysis, the next task is to identify appropriate techniques of conceptual analysis. What techniques can this study employ in analyzing a concept of educational relevance.

Analysis cannot have a priori form or technique per se because different problems will require different approaches. However, there are some general techniques that can be described.

According to Kneller (1966), one approach to the solution of a philosophical problem is first to note the words and expressions that are involved in the problem (pp. 173-174). The analyst then examines various uses that make the most sense. Finally, he examines the philosophical problem before him to see how the words and
expressions are being used. He will attempt to show that the problem exists because words and expressions are being used in ways which are not appropriate.

A tool of analysis basic to the procedure is the identification of a paradigm case. This is achieved by referring to the standard uses of an expression. Other uses of the expression can then be compared and contrasted to a paradigm to determine whether or not they are standard.

Related to the identification of paradigm cases is the technique of presenting exemplary instances of a word or expression in given contexts. Exemplary cases can and should illustrate a variety of uses so the differences can be fully clarified.

Another analytic technique involves asking questions that precede the central inquiry. This technique can clarify thinking that might remain clouded if the central question were dealt with directly. Soltis (1968) utilizes this strategy when he confronts the question, "What is the definition of education?" (pp. 2-7). Instead of trying to answer this question immediately, Soltis raises two prior questions: What is meant by a definition? How many kinds of definitions are there?

Tests for Meaning of a Concept

In order to clearly and meaningfully define the meaning of a concept, we need to take into account and/or
look into the meaning in terms of the characteristics of the meaning: static, dynamic, and consequential. This work will also contribute as a test of the meaning of a concept. In doing so, we may try to find programmatic, dynamic, and consequential meaning of a concept.

Pratte (1973) has identified three types of definitions: descriptive, stipulative, and programmatic (p. 22). According to Pratte, a descriptive definition is a literal attempt to describe the term, either its characteristics or its use. Obviously, if a term has several uses, then it also has several descriptive definitions. Because a descriptive definition attempts to portray something at the most commonly accepted level, it usually involves the least disagreement. An example of a descriptive definition of relevance is its dictionary definition.

A stipulative definition is one that the user either adopts or gives, saying "This is the way I will use the term." The user controls the use of the term so that no disagreements occur over its meaning.

A programmatic form contains prescriptive elements and often communicates how something should be, whereas a stipulative definition presents a personal or individualistic view. A programmatic definition presents a meaning that is a standard or norm.

As we can know now, the location of meaning derived from Pratte's three types of definitions is in the person
who takes the responsibility and the control for the term. In these cases, meaning is static.

Another approach to the location of meaning lies not in deciding how a term is defined, but how it is used. In this case, the investigator examines the ways and contexts in which a term is used rather than looking at its stated meanings. Consequently, meaning is dynamic, not static.

Yet another test for meaning can be applied by asking: What difference does the definition of a term make? If a term is defined or used in one way rather than another, what are the consequences?

**Implications for this study**

From the discussion of philosophical and conceptual approaches, the researcher can identify several methods that are valid for the task of analyzing kinds of relevance for vocational-technical high school education.

The approach that views the meaning of a concept as a static truth labeled with a name has little to recommend it. For the purposes of this study, the more promising method appears to be the one that investigates the actual uses of a concept. Strawson has stated the rationale for this approach simply. "To observe our concepts in action is necessarily the only way of finding out what they can
and cannot do" (Kneller, p. 171).

There is considerable merit in the approach that looks to outcomes as the source of meaning because actions are generally more telling than words. In vocational-technical education, these outcomes would be the actual curricular practices resulting from choices among relevant alternatives.
CHAPTER III

METHODOLOGY, PROCEDURES OR TECHNIQUES

The foregoing review of literature suggested the need for research and development efforts for enhancing the relevance of vocational-technical high school education. In particular, from the literature review, this study identified the need for developing a conceptual model for enhancing the relevance of vocational-technical high school education through a conceptual analysis of the term "relevance" and/or "educational relevance". Furthermore, the literature review identified that there are some general techniques of conceptual analysis that can be used for this study.

Accordingly, this chapter describes the procedures or techniques employed in solving the research problems and/or in reaching specific objectives of this study. The research procedures or techniques are shown in Figure 1. As shown in Figure 1, this study was carried out through seven phases or steps.

The beginning phase of this study included a detailed description of the problem, the development of an appropriate research format and methodology in approaching
Figure 1. Flow Chart of the Research Procedures
the proposed problem, and the development of a proposal which will be reviewed by the researcher's Advisory Committee.

The second phase of the study involved the systematic identification, location, and analysis of documents containing information related to the research problem. These documents included periodicals, abstracts, reviews, books, and other research reports. From the review, this study identified what has already been done that related to the research problem of this study. Also, the review provided the understandings and insights necessary for the development of a logical framework into which the problem of this study fits.

The third phase of the study was concerned with solving the first problem and/or objective of this study. It was to solve the problem of conceptual confusion about the relevance of education. The approaches to this problem were twofold: The one was to define the term "educational relevance" to guide this study, describe the characteristics of "relevance", and review educators' discussions on educational relevance. Figure 2 presents the procedures.

The other was to analyze the term "relevance" itself. To solve this problem, this study employed the methods and/or procedures of conceptual analysis. The analysis led to the identification of a programmatic use of the term.
Also, it gave guidance in identifying antecedent and subsequent variables of educational relevance. The concrete procedures of the conceptual analysis were as follows:

The first step noted the words and expressions that were involved in the problem of "relevance".

The second step examined various uses of the term "relevance".

The third step identified the paradigm case of use of the term "relevance". In other words, this study established the standard use of an expression of the term "relevance". In the process of identifying the standard use of it, this study raised two prior questions: What is meant by a definition? How many kinds of definitions are there?

The fourth step tried to test the meaning of the standard use of the term "relevance". To do this, this study raised two questions: Is the meaning static,
dynamic, or consequential? Is the definition descriptive, stipulative, programmatic?

The fifth and final step identified dynamic, consequential, and programmatic meanings, in the use of the term "relevance". To do this, this study raised two questions: Does the meaning have antecedent variables? Does the meaning have subsequent variables?

Figure 3 presents the above mentioned procedures in a summarized form. With the above two efforts, this study could identify what the antecedent and subsequent variables determining educational relevance are.

The fourth phase of the study included a detailed description of socio-economic needs and the potential impacts of vocational-technical high school education. Also, this phase analyzed the roles or functions, goals or objectives and the main curriculum content of high school education, vocational education, and technical education. The results also led to the identification of some specific antecedent and subsequent variables determining the relevance of vocational-technical high school education.

To put this phase more concretely, first of all, this study observed the futurists' viewpoints of educational enterprise. From their viewpoints, this study identified some commonly mentioned viewpoints in relation to vocational-technical (high school) education. After
What is meant by a definition?

What is meant by a definition?

Is the meaning static? dynamic? consequential?

Is the meaning static? dynamic? consequential?

Is the definition descriptive? stipulative? programmatic?

How many kinds of definitions are there?

How many kinds of definitions are there?

Test the Meaning of Standard Use of the Term "Relevance"

Test the Meaning of Standard Use of the Term "Relevance"

Identify Dynamic, Consequential, and Programmatic Use

Identify Dynamic, Consequential, and Programmatic Use

Figure 3. Procedures or Techniques for Conceptual Analysis of the Term Relevance
identifying some socio-economic needs, this study discussed them in more detail in the context of vocational-technical high school education. And finally, in order to clarify the correlationship between socio-economic needs and vocational-technical (high school) education, this study tried to analyze the potential impacts of vocational-technical high school education.

On the other hand, in order to obtain a comprehensive view of vocational-technical high school education, first of all, this study established a framework for study of the relevance of vocational-technical high school education. Next, this study determined some elements to discuss under the framework and discussed the elements in detail.

Figure 4 presents the whole procedures to reach the second objective of this study.

The fifth phase of the study attempted to identify more antecedent and subsequent variables determining the relevance of vocational-technical high school education in analyzing abilities, competencies or transferable skills that the graduates must acquire. Thereafter, this phase attempted to synthesize all the preceding analyses on the basis of the work of the third and fourth phases. That is, this phase tried to categorize the variables, so that they can be clearly shown at a glance. Also, this phase
Figure 4. Procedures for Reaching the Second Objective of the Study
attempted to conceptualize the kinds of relevance for vocational technical high school education. The concrete procedures of this phase are described below.

In the first step, to develop a conceptual model of kinds of relevance, this study identified a wide variety of abilities, competencies, and transferable skills that vocational-technical high school graduates must acquire to survive in the world of work. The results of this work were combined with the results, which were derived in considering the standard use of an expression of the term relevance: this is relevant to "what" or "whom", of the analysis of vocational-technical high school education, socio-economic needs, and the potential impacts of vocational-technical high school education.

The second step classified and categorized the two types of multiple variables into a descriptive framework.

The third and final step identified the conceptual model of kinds of relevance in examining carefully the descriptive framework on the antecedent and subsequent variables related by relevance.

Figure 5 presents the procedures or methods to develop a conceptual model of kinds of relevance.

The sixth phase of the study identified some considerations in using the conceptual model of kinds of relevance and presented an example of a practical
Classify the Two Types of Variables into a Descriptive Framework

Reexamine Antecedent and Subsequent Variables Related by Relevance

Identify Abilities, Competencies, or Transferable Skills that High School Graduates must acquire

Results of Analysis of Vocational-Technical High School Education

Results of Analysis of Socio-economic Needs and Potential Impacts of Vocational-Technical High School Education

Figure 5. Procedures for Developing a Conceptual Model of Kinds of Relevance
application of the developed model. Essentially, this section was concerned with the establishment of some specific criteria in evaluating vocational-technical high school education under the developed conceptual model of kinds of relevance.

The seventh and final phase of the study involved two procedures. That is, the first was a feasibility test of the developed model by a jury of expert's representing the educational arenas of Korea and the U.S.A. This work contributed to the revision of the model. The revised model became the end-product of the study. The concrete procedures are described below. More detailed discussions are presented in Chapter VI.

Points of View of the Test: In testing the validity and feasibility of the developed model, major concerns are placed on its theoretical soundness, its contribution to enhancing the relevance of vocational-technical high school education, and its generalizability.

The method for testing will rely on the assessment by a jury of experts selected from Korean educational circles and among Americans who know the Korean situation to a certain degree. The jurists are selected for their acknowledged expertise.

The jury members received an outline of the study and an evaluation checklist. In addition to responding to
the instrument (Lickert scale), they were asked to make comments, suggestions, and any appropriate recommendations for the revision of the study. After receiving the jurists' responses, the data were analyzed by Mean (M) and Standard Deviation (SD) by each item and interpreted.

Evaluators: The temporary composition of the jury members is reported in Table 4. Each specialized area will include at least one person responsible for its policy-making or administration.

Table 4. Proposed Composition of the Jury

<table>
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<tr>
<th>Specialized area</th>
<th>Korean</th>
<th>American</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>(-)</td>
<td>(-)</td>
<td>2</td>
</tr>
<tr>
<td>Educational Administration</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Educational Change and Development</td>
<td>2</td>
<td>1</td>
<td>(-)</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Technology Education</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Vocational Technical Education</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Curriculum</td>
<td>2</td>
<td>1</td>
<td>(-)</td>
<td>3</td>
</tr>
<tr>
<td>Educational Evaluation</td>
<td>2</td>
<td>(-)</td>
<td>(-)</td>
<td>2</td>
</tr>
<tr>
<td>Manpower/Economics</td>
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CHAPTER IV

CLARIFICATION OF THE TERM EDUCATIONAL RELEVANCE

Introduction

Presumably, the term relevance suggests some easily identifiable objectives that must be considered by educational planners, policy makers, curriculum developers, classroom teachers, or whoever may be trying to revitalize education. However, educators have proved themselves adept at ascribing multiple meanings to the term.

Obviously, the problem of educational relevance has two opposite dimensions: irrelevance and relevance. Irrelevance has become synonymous with those that is wrong with the schools, and relevance has become the desired solution. But many educational programs have missed the mark.

In this regard, this study attempted to clarify the meaning of educational relevance by defining the term "educational relevance", describing the characteristics of relevance, and studying what has been done about the problem of educational relevance. Furthermore, this chapter identifies some general antecedent and subsequent variables determining relevance of education from the analysis of
relevance and its uses. Also, this chapter attempts to show a simple descriptive framework that can categorize the variables.

Meaning of the Term Educational Relevance

Definition of Educational Relevance

In the Dictionary of Education, Good (1959) defined relevance as "pertinence to a situation, relation, issue, or concern which for any reason is in the focus of attention; significantly related to the problem at hand, or to the problems with which people are struggling in a given period; some different kinds of relevance are logical, moral, cultural, religious" (p. 458).

From Good's definition of relevance, we can point out five important points. A first point is that relevance has a target, mark, or object at which it aims: issue, situation, relation, concern, or problems. A second point is that relevance has clients whom it must entertain: society and people. A third point is that relevance has the dimension of time consideration. A fourth point is that relevance has the dimension of values or significance. The fifth and final point is that relevance can be classified into some different kinds.

In relating the term "relevance" to education, Magee (1971) thought that the more basic meaning of relevance is
that students be able to see the value or significance of what they are studying (p. 125).

Magee seems to reflect Good's definition in a summarized form which emphasizes the dimension of the values or significance of education to the student.

Hunt and Wrenn et al. (1968) explained the relevance of education in much the same way as Magee. They said that it is education's capacity to help students learn how to influence their own futures instead of resigning themselves to supposed inevitabilities (p. 172). From these latter statements, we can recognize that relevance is not a static factor but a dynamic motivating factor. This aspect can be found in looking into the origin of the term "relevance". It stems from the Latin "relevare", meaning to raise up, to lift.

Also, Glasser (1969) viewed relevance as the blending of two worlds: the world of students and the world of the school (p. 53). From Glasser's statements, we can easily recognize that relevance can be thought of as having a connective function. At the same time, we can recognize that relevance can be viewed as a process in that it has such a function.

Considering the foregoing discussion, this study can support Martin's definition (1973): Educational relevance is defined as a process of introducing students to
participate in duties confronting them in the word of the given period and beyond (p. 67). Considering the foregoing discussion and Martin's definition, this study can offer the more extended following definition, which guided the study. That is, educational relevance is a process by which:

1) a teacher, student or other person
2) attempts to solve, adjust, or cope with
3) meaningfully, significantly, or valuably
4) a student's personal needs, interests, or problems as well as his social needs, situation, concerns, or problems
5) which face him now or in the future
6) through a series of educational activities including those provided by the educational curriculum, instructional method, instructional material, and other dimensions.

Looking into each statement in the definition carefully, we can recognize that each one has a few or a number of alternative choices. For example, statement 1) suggests that educational content can be selected by teachers, students, others or some combination of them. Statement 4) suggests that educational content can be related to students' personal needs, interests, and problems as well as social needs, situations, concerns, or problems.
Statement 6) implies the diverse dimensions of educational activities including curriculum, teaching method, and learning method, and other dimensions.

**Characteristics of Relevance**

Dewey once suggested that arguments about "freedom" would make more sense if, when one says or hears "freedom", he translates it as "power". At the same time, one needs to realize that one group argues against another's freedom because augmenting another's freedom entails diminishing one's own. Similarly, if, when one hears the word "relevant", he translates it as "solving my problems", and he will make more sense out of "relevance" talk.

As the existentialist says, in any event, it is the individual sufferer who chooses to call the expert and chooses to accept his advice. The existentialist informs one that some problems, like broken-down cars, electrical systems and health, can be solved. If anyone cannot solve them himself, he will, if he chooses to seek the expert and pay the price, get the problem solved. This type of problem can be called "technical". The end is known clearly; the means are available. But there seems to remain a set of problems that no expert can solve, and many would call problems in this set "human problems": What shall I do with my life? What is relevance for me and where do I
find it? How can I help solve problems like Vietnam and urban crisis? This type of problem can be called not only "human" but also "philosophical" or "telic", since they are concerned with ends (Crabtree, 1971, p. 35).

One cannot deny that questions of this third type are actual problems of human beings and genuine problems. It is precisely at this point where one ought to remind himself of the existentialist dictum that each man has to solve his own problems. In the midst of today's impasses with regard to relevance, there will be interjected a shift from the other to one's self in the search for relevance.

If "relevance" means "solving my problems", then, of course, judgments of relevance will be personal, individualistic judgments. Maxwell (1966) quoted students whom he asked as saying, "There is no objective relevance" (AAUP Bulletin, LV, p. 337). He agrees that relevance will be judged by the individual in terms of his own goals and perceptions. Hechinger (1969) pointed out this aspect of relevance when he said that "The distress the student suffers is distinctly personal, and it comes from within him" (Times, Oct. 26, p. 29).

The subjectiveness of judgments of relevance is also alluded to by Frankel (1970) who comments that meaning of life differs from man to man, from day to day, and hour to hour (p. 38). Hunt and Wrenn et al. (1968) also concur
that it is the individual who is the ultimate judge of what is relevant in his life (pp. 233-248). Relevance, then, is contextual, or relative. The problems of each man differ, depending on his experiences, his perceptions, his needs, and his goals.

Consequently, for some students, a course is irrelevant because it does not solve their problems. When a student says, "this course is not relevant", he is saying, "This course does not help me solve my problems." When he says "What's the relevance of this?" he is saying, "How will this help me solve my problems?"

On the other hand, Dewey has made us aware of the intellectual and practical difficulties of a quest for certainty. It is a quest for a phantom. If students are idealistic in the sense that they may be unaware of the complexities of problems and the impossibility of applying simple solutions, in the matter of relevance, there sometimes seems to be a search for absolute relevance, i.e., a solution to all problems. Some items in our culture approach the status of absolute relevance, in the sense that these items, judging from their peculiarity, meet many needs (Crabtree, p. 36).

For some God is not only absolute certainty, but also absolute relevance. He solves all problems, not now, of course, but one day. If a student seeks absolute
relevance, a man or an idea or an institution that in one clean sweep solves all his problems, he searches for a phantom. The only kind of relevance that exists is contextual; it is a relative relevance, applicable to the problem at hand, perceived as such and accepted by the individual sufferer (Crabtree, p. 37).

In fact, in Deweyen terms, an organism in the course of living runs into blocks to actions or problems. It immediately seeks solutions or equilibrium. The organism's solution seeking may, of course, involve a pausing to reflect, to examine more closely, and to test mental hypotheses, all of which are a part of problem solving. The point is that a need for relevance is an organism's need that will be viewed as an individualistic, subjective solution, that is viewed and accepted in terms of the organism's own needs, experiences, perceptions and choices. No one can give him relevance; he has to perceive it and choose it (Crabtree, p. 40). In this sense, relevance can be the motivating factor for solving problems of individuals (Sedlik, 1980, p. 29).

Discussions on Educational Relevance

Many educators have concentrated on the widespread confusion regarding claims of educational relevance. However, many attempts to clarify the implications of
educational relevance have been undertaken within the narrow conceptual framework of the common dictionary meaning of relevance.

In some cases, the analysis of relevance has gone beyond the limits of the dictionary meaning and has disclosed far deeper implications for education. Glasser (1968) made one of the attempts. In summary, he wrote:

Thus we have both parts of relevance:

1) Too much taught in school is not relevant to the world of the children. When it is relevant, the relevance is too often not taught, thus its value is missed when it does not exist.

2) The children do not consider that what they learn in their world is relevant to the school.

Relevance, the blending of one’s own world with the new world of school probably is poorly established for most students (pp. 52-53).

According to Glasser’s formula, the ultimate relevance would be a total merging of school and society.

Although Glasser may have identified a worthwhile instructional strategy, it can be viewed as only one of many possibilities.

The other attempt which imparts substantive significance to the analysis of relevance has been done by Metcalf and Hunt (1970) in a section on the concepts of a relevant curriculum. They wrote as follows:
What can education do these days that would be relevant? We suggest that the schools incorporate in their curriculum a study of an important social movement, rejection by youth, and that this study emphasize examining, testing, and appraising the major beliefs caught up in this movement. We need the kind of educational relevance that would help and require young people to examine their most basic assumptions about the kind of world that exists, and how they propose to change the world from what it is into something preferable (p. 359).

Here Metcalf and Hunt identified two dimensions to "educational relevance"—a content dimension ("an important social movement, rejection by youth"), and a process dimension ("emphasizing examining, testing, and appraising the major beliefs").

Another attempt to explain the implications of relevance can be seen in the following analysis by Cuban (1970):

As I use it, relevance refers to tapping students' experiences. Relevance also refers to learning style, that is, using techniques that play to the strengths of youngsters as role playing, manipulating of materials, moving from the specific to the general. Relevance refers to children's feelings—knowing that hate, anger, love, fear, self-esteem, power are universal emotions and concerns and offer excellent opportunities to examine people and times far removed from the street corner (p. 149).

Here, Cuban has identified three dimensions of relevance—students' experiences, learning style, and children's feelings. The first is similar to, but broader than, Metcalf's and Hunt's reference to an important social
movement. The second is similar to their cognitive dimension, but the third represents a new dimension -- children's feelings.

From the above three examples, we can believe that there is more to educational relevance than its dictionary usage. However, thus far, only vague suggestions have been offered. Therefore, now this study attempts to look into the more extensive analysis of educational relevance.

Hunt and Wrenn et al. (1968) stated as follows:

The thesis of this book is clearly that education, to be anything important, must touch the lives of men: hence the title, Education for Relevance ... Meaningful education must make contact with cultural values, social functions, and individual lives (p. vii).

On the other hand, they explained educational relevance in these terms:

The relevance of education is its capacity to help students learn how to influence their own future instead of resigning themselves to supposed inevitabilities. To meet this test of relevance, the schools must teach the methods to appraise intelligently the claims of those who shout "Impossible, it cannot be done!" (p. 172).

Obviously, Hunt and Wrenn et al. recognized the possibilities of multiple focuses for educational relevance. They even identified specific variables such as social change, cultural values, social functions, individual lives, and methods of appraisal.
Green (1969) presented a classification schema on useful distinctions concerning relevance in education. His classifications are based on five claims. His categories and their definitions and the form of questions for the claims are as follows (p. 13):

1) Personal relevance: claims made in the first person about the relevance of education to the speaker. How relevant is education to me?

2) Programmatic relevance: claims concerning the relevance of educational content to specific vocational goals or to an understanding of important social problems. How relevant is the educational program to (a) vocational goals? (b) important social problems?

3) Institutional relevance: claims about the relevance of institutions or organizations to their goals. How relevant is the institution to its goals?

4) Relevance of the educated man: claims that education is irrelevant to the real world.

5) Moral relevance: claims that education is irrelevant to the worth of a man. How relevant is education to the worth of a man?

In personal relevance, Green is interested in who is making the claim. In programmatic and institutional relevance, he is interested in an analytic relationship between variables. In the last two, he is interested in the validity of these claims. Obviously, not only do these points support the hypothesis that there are multiple kinds
of relevance in education, but they also suggest the kinds of questions that might be raised in analyzing claims of relevance in vocational technical high school education.

A different approach to the clarification of relevance in education has been sought by Fantini and Weinstein (1971). Their four levels of irrelevance are as follows:

1) Teaching procedures may be irrelevant to learning styles.  
2) Subject matter may be irrelevant to the learner's knowledge of his physical realm of experience.  
3) What is taught and how it is taught may be irrelevant to the learner's feelings.  
4) What is taught and how it is taught may be irrelevant to the learner's concerns (p. 87).

This classification schema identifies variables within education that can be related by the concept of relevance. On one side of the possible relationships, we have teaching procedures and material or content. On the other side, we have learning styles, learner's knowledge, learner's feelings, and learner's concerns.

On the other hand, Fantini and Weinstein concluded their analysis of relevance by offering the following definition:

It is our general hypothesis that relevance is that which connects the affective, or feeling, aspects and the cognitive, or conceptualizing, aspects of learning (p. 55).
Educational Relevance: Its Variables

Analysis of Relevance and Its Uses

From the preceding discussion, it was identified that relevance maintains a relationship between two variables. As Webster's Seventh New Collegiate Dictionary (1967) defined relevance as "a relation to the matter at hand", the dictionary use of relevance also implies a relationship between two variables. Once a subject has been identified, the task is to decide whether a given variable is related to it. The term relevance is used in our daily conversation to stipulate this kind of connection between variables.

However, the etymology of "relevance" suggests another usage that might differ from the dictionary one in appearance, although not necessary in intent. Also, the Latin "relevare", meaning to raise up, to lift, therefore relevance can be used to elevate a given variable and to indicate that it stands out in some way.

The use of relevance prompts the raising of prior questions: can something be independently relevant, or must certain conditions be present there? In other words, does relevance have to be set within a context before its meaning is clear? Kaplan (1964) provided a framework for answering these questions. That is, he found four kinds of openness of meaning: systemic openness, vagueness,
internal vagueness, and dynamic openness (pp. 63-70).

In fact, there are many terms whose meaning can be specified only as they are used together with other terms or in full sentences. This is the systemic openness of terms. All terms are to some degree vague. The internal vagueness can be contrasted with external vagueness that involves deciding whether or not something belongs to a particular class. The dynamic openness refers to the permanent possibility of change in terms' meaning.

In many cases the meaning of relevance presented in vocational-technical high school education contexts has been vague. Also, one use of relevance may vary so widely from another that a spectrum of meanings exists (internal vagueness), and an ideal use cannot be identified. Relevance also possesses dynamic openness because its precise meaning and implications depend upon the full context of its use.

In summary, however, we can know that Kaplan's systemic openness is one most applicable to the analysis of relevance in vocational-technical high school education. Although relevance is used with vagueness, and although its meanings vary from context to context, in the final analysis the word must be examined in connection with other terms.

Accordingly, at this point, we need to read carefully Wagschal's article on the concept of relevance. His
article serves to confuse the entire issue of relevance (The Phi Delta Kappan, Oct. 1969, p. 61). His linguistic murkiness leads to common ontological considerations. He contends that it is incorrect to use "relevance" without the addition of a propositional phrase. It makes no sense to him, he says, to say, "X isn't relevant." To make sense, one has to say, he continues, "X isn't relevant to me, or to the task at hand, etc."

In this regard, it is helpful to consider three theoretical uses of relevance:
A. Relevance exists.
B. This is relevant.
C. This is relevant to that (what or whom).

Only in case C is a relationship between two variables clearly demonstrated. However, case A conveys the least specific meaning. Case B also is incomplete. Probably cases A and B both fit another pattern of usage which can be described as slogans. Many statements involving uses of relevance in the context of education fall into this category.

Komisar and McClellan (1961) analyzed the characteristics and possible effects of slogans (pp. 201-202). According to them, slogans do not imply particulars and slogans are systematically ambiguous.
Antecedent & Subsequent Variables

Up to this point, this study has identified several characteristics of the term relevance and/or relevance of education. According to standard usage, relevance serves a connective function, either explicit or implicit, and either subjective or relative, between two variables. Therefore, the remaining task of understanding or clarifying a use of relevance is to identify the variables that the term connects.

This study has found that some uses of relevance conform to the description of an educational slogan. One way to determine whether relevance is being used as a slogan is to check whether variables are present, even implicitly, in the context of the use. If none can be found (case A), or if only one is present (case B), then it is likely to be a slogan. Whether a specific interpretation accompanies the usage can be determined only if curricular outcomes can be found.

The open-ended characteristics of a slogan allows a person to assign his own variables to the term. In this way, a variety of outcomes can result from a single use of relevance. In order to place meaning on a slogan in the absence of specific variables, we must look at the practical outcomes. If the practical outcomes are consistently the same, then the slogan has taken on a single
interpretation. However, practical outcomes are difficult to determine.

In sum, in order to identify the variables determining relevance of education, we need to keep in mind this case. This is relevant to that (what or whom). From this case, we can easily know that "this" is an antecedent variable, and that "that (what or whom)" is a subsequent variable. By employing case C, we can know that a wide variety of variables can be identified. That is, the variables will be varied by school level, grade level, subject matter, and many other dimensions.

In the following pages, this study will review some examples of general uses of relevance of education. The concrete and practical variables determining the relevance of vocational-technical high school education will be identified in a later chapter. In order to identify the general variables of relevance of education, first of all, this study will cite an old fable, The Animal School, cited in Crucial Issues in Education (1973). The version which this study cites was written about 1920 by Dr. G.H. Reauis, then Assistant Superintendent of the Cincinnati Public Schools.

Once upon a time, the animals decided they must do something heroic to meet the problems of "a new world", so they organized a school. They adopted an activity curriculum consisting of running, climbing, swimming, and flying. To make it easier to
administer the curriculum, all the animals took all the subjects.

The duck was excellent in swimming, in fact better than his instructor; but he made only passing grades flying and was very poor in running and climbing. The school then assigned him extra work in these two subjects until his web feet were badly worn and he was only average in swimming. But average was acceptable in school, so nobody worried about that except the duck.

The rabbit started at the top of the class in running, but had a nervous breakdown because of so much make-up work in swimming.

The squirrel was excellent in climbing until he developed frustration in the flying class where his teacher made him start from the ground up instead of from the tree-top down. He also developed "charlie horses" from overexertion and then got C in climbing and D in running.

The eagle was a problem child and was disciplined severely. In the climbing class he beat all the others to the top of the three, but insisted on using his own way to get there.

At the end of the year, an abnormal eel that could swim exceedingly well and also run, climb, and fly a little had the highest average and was valedictorian.

The prairie dogs stayed out of school and fought the tax levy because the administration would not add digging and burrowing to the curriculum. They apprenticed their child to a badger and later joined the groundhogs and gophers to start a successful private school (p. 95).

What is the moral of this fable for educators or education? Obviously, relevance is judged in terms of personal, individualistic, subjective, relative, and
contextual dimensions because each animal has different problems. On the other hand, from this old fable, educational curriculum, instructional method, and instructional materials are to be considered in terms of their effects on individual students. In other words, these are antecedent variables determining relevance of education. As the above old fable suggests, however, educational curriculum itself encompasses several dimensions (running, climbing, swimming, and flying). Likewise, instructional method is also different from subjects. Also, the animals show their own learning method.

The identification of the subsequent variables involves more complex judgments than antecedent variables because of the greater variety of references. As already mentioned, the subsequent variables answer the question, relevant to "what or whom?" A use of relevance with both antecedent and subsequent references stipulates that one of the three variables: instructional content (curriculum), instructional method, and instructional materials are or should be directly related to the subsequent variables (i.e. duck, rabbit, squirrel, eagle, eel, duck's running vs. instructional method...).

Examination of the subsequent variables suggests grouping them into two broad categories. Many of the variables focus directly upon the student: his needs, his
interests, his future, and his thinking processes. The remaining variables refer generally to the world of work. In the following lines and pages, this study attempts to suggest some specific examples of subsequent variables determining relevance of education by noting what students themselves have to say about relevance in education. In response to the question, what could schools do to educate you in ways that no other agencies could or should? According to Broudy (1972), students answered as follows:

1) Put what we learn in school into a framework or system which will help us understand it better. (Students think disconnected, unassociated content falls into the category of useless baggage.)

2) Teach us fundamentals. Nowhere except in school are you likely to gain the tools you need for thinking and serving.

3) Give us opportunities and materials in school to help us inquire, discover, and probe meaning. Getting meaning. Getting meaning is perhaps the most important thing schools can do to help us.

4) Stop attempting to compete with and to destroy what we learn elsewhere. Instead, seek to coordinate what is taught in school with what we learn outside school (Chapter VII).

From Broudy's statements we can identify that educational curriculum, instructional method, and instructional materials (antecedent variables) should be connected with student's needs, interests, future, and thinking
processes (subsequent variables). That is, they were "understanding a system better", "situations students will face", "tools for thinking", "inquiry ability", "getting meaning", "adaptability outside school situation", "solving personal problems".

More specific explanations for identifying the subsequent variables can be read in many scholars' analyses of education. Cross (1971) analyzes educational relevance for nonacademic students. According to him, most low-academic ability students are positively attracted to careers and prefer to learn things that are tangible and useful (pp. 12-26). This means that education should give more attention to correcting the weaknesses of students.

In his article, Relevant to Young of the 1970's, Kozol (1972) emphasizes that education must consider the conditions of the coming times. Venn and Super (1970) advocate education relevant to careers or jobs as essential vocational skills for students (pp. 11-16, 139-155). Wees (1971) gives an extended explanation about education for future expectations (pp. 20-36).

Postman and Weingarten (1969) state that education must be relevant to inquiry ability (pp. 33-37). Calandra (1969) mentions that education must be relevant to solid subject matter (pp. 436-437). According to Bruner (1971), education must be relevant to intellectual competence and
social problems (pp. 1-119). Smith (1970) also wrote an excellent article on education relevant to the electronic age (pp. 126-128).

From the above mentioned examples, we can easily identify that careers or jobs, future expectations, inquiry ability, solid subject matter, intellectual competence, social problems, and electronic age all can be good examples of subsequent variables determining relevance of education.

Categorization of the Variables

The procedures this study has described involved the identification of some general examples of antecedent and subsequent variables related to the concept of relevance of education. The purpose was to show some variables contained in the actual uses of relevance. Obviously, the variables are numerous and complex as this study cannot list the whole set.

However, this study attempted to categorize the numerous and complex variables to achieve systemic simplicity. From the preceding discussion, this study can now draw the descriptive framework shown in Figure 6.
Antecedent Variables

The World of Content:
- Educational Curriculum
- Instructional Method
- Instructional Material
- And Other Dimensions

Relevant To:

Subsequent Variables

Individual: Student
Access to:
- Three domains of knowledge
- Needs, Interests
- Future life
- Intellectual competence
- Inquiry ability
- Careers or jobs
- Facing situations
- Solving problems
- And other dimensions

Society: The World of Work
Access to:
- Current social problems
- Technological or mechanical age
- Changing situations
- Universal human concerns
- National cultural values
- Maintenance of social institutions
- Uncertainty absorption
- Social needs
- And other dimensions

Figure 6. A Simple Descriptive Framework of Educational Relevance
Summary

Educational relevance is a process by which a teacher solves meaningfully a student's personal needs and problems as well as his social needs, situation, and problems which face him now or in the future through certain educational activities.

As this definition suggests, the ultimate relevance comes back to individual problems. There are some problems that can be solved technically. On the contrary, there are many human and philosophical or telic dimensions that are concerned with ends. Therefore, there is no objective and absolute relevance. In other words, relevance is based on the subjective or individualistic judgments. Similarly, relevance is contextual or relative because each man differs.

The possibilities of multiple focuses for educational relevance have been identified by many educators and scholars. However, the main focus was placed on instructional strategy including content and process dimensions of education. Also, many scholars attempted to show useful distinctions concerning educational relevance by identifying subsequent variables.

With the assistance of such efforts, this study could begin a conceptual analysis of the term relevance. That is, this study identified the uses of the term
"relevance" in three ways: A) Relevance exists, B) This is relevant, C) This is relevant to that (what or whom).

Bearing the case C framework of uses of relevance in mind, this study could identify some antecedent and subsequent variables determining relevance of education. The main antecedent variables were a "content" dimension and a "process" dimension. However, this study could recognize that the subsequent variables answering the question "relevant to what or whom?" are numerous.
CHAPTER V

PRELIMINARY ANALYSIS OF THE VARIABLES DETERMINING
THE RELEVANCE OF VOCATIONAL TECHNICAL
HIGH SCHOOL EDUCATION

Introduction

As already suggested in Chapter IV, educational activity itself reflects antecedent variables. These are "content" and "process" dimensions of education. The roles or functions and goals or objectives reflect subsequent variables because they are the intended educational outcomes, for the individual students themselves and society. These outcomes can be achieved through the "content" and "process" dimensions of education.

In this regard, this chapter attempts to obtain a comprehensive view of vocational-technical high school education by looking into its roles or functions, goals or objectives, and main curriculum content. The focus is upon the identification of subsequent variables rather than antecedent variables.

Thereafter, in this chapter socio-economic needs which may be used in planning vocational-technical high school education are analyzed. Furthermore, some potential
impacts or benefits from vocational-technical high school education are analyzed. Also, in the process of carrying out these tasks, the correlation between socio-economic needs and vocational-technical high school education are illustrated. This analysis also led to identifying another kind of subsequent variable determining the relevance of vocational-technical high school education.

Vocational-Technical High School Education

This section analyzes the roles or functions, goals or objectives, and the main curriculum content of each of the following: high school education, vocational education, and technical education. In doing so the differences among vocational education, technical education and industrial arts education are explained, because they are often confused among laymen.

High School Education

The functions: A statement of the functions of the high school system of Korea defines the responsibilities of the schools - the overall duties that society has assigned to the schools and the broad social obligations with which they are charged. These responsibilities set the parameters within which the goals, purposes, and objectives of the schools should be formulated.
The primary business of Korean education is to guard, cherish, advance, and make available in the life of coming generations the funded and growing wisdom, knowledge, and aspirations of the race. In the same manner, the Educational Policies Commission of the National Education Association (1937) stated this was true for U.S.A. education. This involves the dissemination of knowledge, the liberation of minds, the development of skills, the promotion of free inquiry, the encouragement of the creative or inventive spirit, and the establishment of wholesome attitudes toward order and change - all useful in the good life for each person, in the practical arts, and in the maintenance and improvement of Korean society, as a society in the world of nations (pp. 77-78).

More comprehensive functions of the secondary schools are suggested by Alexander, Sayer, and Williams (1971). According to them, the secondary schools have the
following functions (p. 129):

1) Universal education. To provide an appropriate education for all youth of the nation.

2) Development individual potentialities. To enable each adolescent to determine what comprises his personal potentialities for growth and development and his capabilities and talents, and to provide a program of education that will enable him to develop these capabilities to the fullest extent possible.

3) Transmission of cultural heritage. To teach pupils those elements of the cultural heritage necessary and desirable for personal development and group living and to assist pupils in systematizing and organizing knowledge and formulating concepts and generalizations so that knowledge may be used effectively.

4) Development of a socially acceptable system of values. To assist each student in the formulation of value patterns and modes of behavior that are consistent with moral ideals and approved behavioral patterns of the social group.

6) Provide the basis for continual personal development. To develop in students the desire and the ability to continue to gain knowledge, discover new knowledge, and to act on the basis of new conditions and factors inherent in changed conditions.

7) Enhancement of the life of the social group. To enable youth, through properly chosen educational activities and content,
to contribute to the improvement of the society and its realization of the good life for all citizens.

8) Preparation for adulthood. To prepare youth for adulthood in whatever ways seem feasible and desirable.

The aims and objectives: The ultimate aims of education have been written down by many scholars. Spencer (1860) wrote that "to prepare us for complete living is the function which education has to discharge (p. 12)." Dewey (1916) insisted that "the educational process has no end beyond itself; it is its own end ... since in reality there is nothing to which growth is relative save more growth, there is nothing to which education is subordinate save more education ... the purpose of school education is to insure the continuation of education by organizing the powers that insure growth" (p. 326). Also, the Educational Policies Commission, a branch of National Education Association of the U.S.A. (1938) said that "the general end of education is the fullest possible development of the individual within the framework of the present industrialized society" (p. 92).

The ultimate aim of high school education must, by its very nature, be broad, inclusive, and global in scope. Consequently, it is absolutely necessary to transmit general goals into specific objectives. Spencer (1860), continuing his plea that the function of education is "to
prepare us for complete living", listed five broad types of human activities with which the school should be concerned:

1) Those activities which directly minister to self-preservation.

2) Those activities which, by securing the necessaries of life, indirectly minister to self-preservation.

3) Those activities which have for their end the rearing and disciplining of offspring.

4) Those activities which are involved in the maintenance of proper social and political relations.

5) Those miscellaneous activities which make up the leisure part of life devoted to the gratification of tastes and feeling (pp. 13-14).

On the other hand, the Commission on the Reorganization of Secondary Education reported Cardinal Principles of Secondary Education. This was the most significant and influential statement of the role and purposes of secondary education.

First, the Commission (1918) stated its conception of the ultimate aim of education:

Consequently, education in a democracy, both within and without the school, should develop in each individual the knowledge, interests, ideals, habits, and powers whereby he will find his place and use that place to shape both himself and society toward ever nobler ends (p. 9).
Then the Commission held that "in order to determine the main objectives that should guide education in a democracy it is necessary to analyze the activities of the individual." On the basis of such an analysis the Commission stated these to be the broad areas of human activities for which the secondary school should accept responsibility in the education of youth:

1) Health. The secondary school should therefore provide health instruction, inculcate health habits, organize an effective program of physical activities, regard health needs in planning work and play, and cooperate with home and community in safeguarding and promoting health interests.

2) Command of fundamental processes. The facility that a child of 12 or 14 may acquire in the use of these tools is not sufficient for the needs of modern life.

3) Worthy home-membership as an objective calls for the development of those qualities that make the individual a worthy member of a family, both contributing to and deriving benefit from that membership.

4) Vocation. Vocational education should equip the individual to secure a livelihood for himself and those dependent on him, to serve society well through his vocation, to maintain the right relationships toward his fellow workers and society, and as far as possible, to find in that vocation his own best development.

5) Civic education should develop in the individual those qualities whereby he will act well his part as a member of neighborhood, town or city, state, and
nation, and give him a basis for understanding international problems.

6) Worthy use of leisure. Education should equip the individual to secure from his leisure the recreation of body, mind, and spirit, and the enrichment and enlargement of his personality.

7) Ethical character in a democratic society becomes paramount among the objectives of the secondary school (pp. 11-15).

The Cardinal Principles of Secondary Education were widely acclaimed and accepted by educators and citizens generally and have constituted the basic document on the purposes and nature of the secondary school for the present area. Korean high schools have also been influenced by these principles since the 1950's.

The basic purpose of the Korean high school education is defined as providing "higher general education" and "specialized education" on the basis of middle school education. Specific objectives are prescribed for the fulfillment of this basic purpose, i.e.:

1) to elaborate on the accomplishments of middle school education and cultivate qualities and capabilities befitting future national cadres;
2) to cultivate proper understanding and critical judgment about the national society;
3) to develop a proper appreciation of one's duties toward the country and upgrade physical standards; and to broaden one's cultural base and impart specialized or professional skills (Education in Korea, 1979-80, pp. 51-52).
But the 1980's and future are a new era, a new day in Korean high schools; the times are significantly different from the 1950's. In other words, Korean high school education needs to prepare an extensive blueprint for the kinds of programs of high school education to cope with the changing socio-economic situations.

The high school curriculum: Because curriculum is subjective, there is a tendency for some to attempt esoteric definitions of the term. For academic disputation, such an endeavor may be satisfying. A simple definition, however, could be: curriculum is all the planned learning outcomes for which the school is responsible (Pohham and Baker, 1970, pp. 47-48). Thus, the curriculum of a high school may include: (1) The program of studies, (2) Direct instructional program, (3) Extrainstructional learning opportunities, and (4) Guidance and special services. These elements are also shown in Figure 8 (Alexander, Saylor, and Williams, 1971, p. 193).

The school's program of studies is a complete list of the instructional offerings (courses or subjects or classes) of a school. Since some part of the program of studies must be completed for graduation, frequently the total listing is thought of as synonymous with the curriculum.
(The "Curriculum Planned")
The High School Provides:

Learning Opportunities

I. Program of Studies
   - Some Required
   - Some Elective

II. Instructional Organization and Procedure
    (varying by subject field and teacher)

III. Extrainstructional or Extraclassroom
     Learning Opportunities

IV. Guidance and Other Special Services

(The "Curriculum Had")
The Student Chooses:

Electives I
(no choice as to the required studies)

Extent and Quality II
of Participation in Classes and Other Organizations

Whether and How to III
Participate in Formal Activities and Informal Relationships
with other students

Beyond Required IV
Testing and Counseling, Types of Help Desired and Available

Figure 8. Elements of the High School Curriculum ("Planned" and "Had")

The new Korean high school curricula, applicable to new students of 1977 and thereafter, allot more time to moral education and military training with a view to uplifting moral standards, strengthening the anti-communist stance and enhancing the sense of national sovereignty.
Interestingly, Japanese was added as an elective foreign language. The curriculum comprises a total of 27 subjects to be taught over a three-year period.

The revised high school curricula essentially required major revisions of textbooks. Different textbooks for such subjects as Korean history and Chinese classics were unified.

The curricula for vocational high schools were revised by Ministry of Education Ordinance No. 379 promulgated in February 1976. The curricula place primary emphasis on training qualified specialists demanded by the rapidly developing industrial society. The revised curricula newly incorporated a number of new subjects.

A vocational high school is not the only place where vocational subjects are taught. Such subjects are taught even earlier at the primary school level, and middle school curricula reserve 15 percent of the total for vocational subjects, while the ratio is 10 percent or higher at academic high schools.

It was not until the early 1960's that vocational high schools came into their own, aided by the series of five-year plans for economic development, which vastly increased technical manpower requirements. The graduates of these vocational high schools played key roles in the successful implementation of the five-year economic development plans.
Vocational Education

The functions: In case of the U.S.A., the vocational high school is an upper secondary school which offers limited or no academic courses and which usually offers a variety of vocational programs. These schools also usually offer specialized courses for employed workers and/or out-of-school youth and adults. These latter offerings are usually provided after the normal school day. But Korean vocational high schools perform only the former part of this definition.

The clear roles or functions of the vocational high school can be read in the "world of work" assumptions. Thompson (1973) presented some basic justifications for vocational education:

1) Vocational education can develop a marketable man by developing his ability to perform skills that extend his utility as a tool of production.

2) Vocational education is education for production to serve the ends of the economic system and is said to have social utility.

3) Vocational education at the secondary level is concerned with preparation of the individual for initial entry and employment (pp. 93-97).

In sum, one function of vocational education at the high school level is to provide its clientele with a broad conceptual frame of reference regarding the world of work.
It should be related to what an occupational area is all about rather than all about an occupational area. Our concern for entry employment should not be with skills for a specific job, but skills that can be generalized to a lifestyle (Ibid., p. 98).

Goals of vocational education: The generalized purpose of vocational education is to assist an individual to grow and develop, to discover a satisfying role in an occupational area. A secondary purpose is to help the labor market maintain a balance between jobs and unemployment, between employment opportunities and trained manpower (Thompson, 1973, p. 239). These general objectives or purposes are different according to grade levels - elementary, middle, senior high, and adults.

In brief, vocational education is a form of specialized education intended to assist an individual in the selection of and preparation for a particular social role in a given society. It is a form of education which certain individuals must have by virtue of the function they perform. In an industrial and technological society, it tends to satisfy a societal demand for certain manpower needs. These needs are determined primarily by the economic demands of the society. The outcomes of vocational education therefore tend to stress the development of socio-economic man.
Curriculum content of vocational education: The contemporary program of vocational education reflects a cross section of the occupational world of work as it has been divided for funding supervisory considerations. These divisions are gross categories of functional work areas, which include basic production: marketing, sales, and services; facilitating functions: personnel and public service; and home and family services. A division of vocational education is responsible for bridging the gap between the educational system and its part of the labor market; i.e., home economics education relates people employed or planning for employment in jobs requiring a knowledge of home economics; trade and industrial education relates to such job titles as mechanic, machinist, plumber, and stationary engineer; technical education relates to occupations requiring applied technical knowledge and applied technical skill, such as engineering aide, computer technologist and X-ray technician. The divisions of contemporary vocational education working with the functional work areas identified above are agriculture, trade and industrial, technical, distributive, business and office education, health occupations, and home economics.

Vocational education is now some kind of programmatic element from kindergarten through adult education. However, what this program is has not been fully communicated to
the educational community because the program has not been defined or implemented and therefore remains untested. However, vast sums of money are being rushed in to support parallel kinds of programs. Therefore, vocational education should make an effort to distinguish between the many and important programs which prepare people for job entry and those which are inseparable from common citizenship education for all youth (Lux, 1970, p. 312).

Technical Education

American technical high schools are secondary schools which offer a breadth of academic studies and require all students to take technical subjects as part of their programs. The technical subjects are not organized and taught as job training but rather as liberal education. The former part of this statement similarly applies to Korean technical high schools. But the latter part is different in Korean schools. The technical subjects in Korean technical high schools are taught as job training rather than liberal education.

However, in case of the U.S.A., technical education for job training is offered on the two-year college level. The function of two-year college technical education can be read in the definition of technical education given by the American Vocational Association's publication,
Technical education: the branch of education devoted to instruction and training in occupations above the craftsman or trade levels, but generally not professional in nature. Instruction may not be baccalaureate in content but is evaluated usually by credit criteria rather than by clock hours. The courses qualify persons for employment in paraprofessional positions and as technicians, engineering aides, and production specialists (p. 38).

According to Strong and Schaefer (1975), a technician may work under a wide variety of titles, most of which do not include the term technician. It is apparent that a sharp line cannot always be drawn to differentiate semi-professional activities such as computation, analysis or laboratory testing from those that border on skilled labor, such as installation or trouble shooting on mechanical, electrical, or electronic equipment. The degree of technical ability required by these jobs varies considerably. Figure 9 shows this distinction in terms of several general characteristics as found in what might be called broad field-oriented versus more specific job-oriented technicians (pp. 65-66).

There are many kinds of technicians, just as there are many kinds of professional scientists. In case of the U.S.A., they are usually educated in rigorous two-year post-secondary programs designed to provide them with the knowledge, skills, and attitudes necessary for them to
<table>
<thead>
<tr>
<th>General Characteristics</th>
<th>Field-oriented</th>
<th>Job-oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Usually interested in a broad technical area</td>
<td>Usually wants a specific job or has a narrow field of interest</td>
</tr>
<tr>
<td>Training</td>
<td>Formal, field-oriented, received at institute of higher learning such as technical institute or junior college</td>
<td>Formal or informal, job-oriented, received in industry or at vocational-technical school</td>
</tr>
<tr>
<td>Knowledge and Manipulative Skills</td>
<td>Minimum manipulative skills, maximum knowledge: broader treatment of mathematics and science with development of value judgment in addition to information and skills</td>
<td>Varying degrees of manipulative skills, related knowledge, mathematics, and science depending on area of technology</td>
</tr>
<tr>
<td>Initial responsibility in industry</td>
<td>Specific, usually of orientation type</td>
<td>Specific, usually of productive type</td>
</tr>
<tr>
<td>Eventual responsibility in industry</td>
<td>Broad, usually supervision or design</td>
<td>Specific, charged with specified area, usually without supervisory responsibility</td>
</tr>
</tbody>
</table>
Figure 9 (continued)

<table>
<thead>
<tr>
<th>General Characteristics</th>
<th>Field-oriented</th>
<th>Job-oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervision</td>
<td>Functions mainly on own initiative under direction of engineer or scientist</td>
<td>Requires supervision, reports to engineering technician or department head</td>
</tr>
</tbody>
</table>

Figure 9. Characteristics of Field-Oriented and Job-Oriented Technicians

perform in a specific field of applied science.

Technicians are becoming an increasingly essential part of the scientific and management team for research, development, production, and the provision of special services in all fields of applied science. The term is comprised of professional scientists, specially trained technicians, and skilled production, laboratory, or service workers.

The explosion of new scientific knowledge has caused changes in education so that the recently graduated scientist or engineer, who often has had limited laboratory experience, now functions more as a theoretical, diagnostic, interpretive, creative, or administrative professional.
He must delegate much of his scientific work to other skilled members of the scientific team. Thus, a serious shortage in trained manpower capable of giving the technical laboratory or clinical service formerly performed by the engineer or medical professional has developed. The needs for new kinds of technicians and for upgrading or updating employed technicians of all kinds will evidently continue to increase.

Programs for educating technicians have taken place in a number of institutions and settings. Figure 10 represents several of these efforts through different types of educational institutions (Strong and Schaefer, Ibid., p.68).

<table>
<thead>
<tr>
<th>Training Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single skill Occupations</td>
</tr>
<tr>
<td>Technical Institute</td>
</tr>
<tr>
<td>Community/Junior College</td>
</tr>
<tr>
<td>Vocational/Technical School</td>
</tr>
<tr>
<td>Vocational-industrial or Area Vocational School, Multiskill Centers, etc.</td>
</tr>
</tbody>
</table>

Figure 10. Overlapping Functions of Different Types of Schools
Examples of technical education programs as spelled out by Shoemaker (1969) include:

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Technology</td>
<td>Computer Programming</td>
</tr>
<tr>
<td>Electrical Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Electronic Technology</td>
<td>Junior Accounting</td>
</tr>
<tr>
<td>Chemical Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Metallurgical Technology</td>
<td>Office Management</td>
</tr>
<tr>
<td>Civil Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Home Economics</td>
<td>Executive Secretary</td>
</tr>
<tr>
<td>Dietary Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Health</td>
<td>Distribution</td>
</tr>
<tr>
<td>Dental Hygiene</td>
<td>Wholesale Management</td>
</tr>
<tr>
<td>Dental Laboratory Technology</td>
<td>Retail Management</td>
</tr>
<tr>
<td>Medical Laboratory Technology</td>
<td>Restaurant Management</td>
</tr>
<tr>
<td>Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Agriculture-Business</td>
</tr>
<tr>
<td>Agriculture-Business Technology</td>
<td>Food Processing</td>
</tr>
<tr>
<td>Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Food Processing</td>
<td>Animal Science</td>
</tr>
<tr>
<td>Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Animal Science</td>
<td>Dairy Technology</td>
</tr>
</tbody>
</table>

Also, Shoemaker attempted to define technical education and state the objectives of the education. His statements are:

If one accepts the content of technical education as a level of education, it then becomes necessary to provide it a rightful place in the total program of education. Because of the evolutionary nature of technical occupations, some misconceptions have grown up which make it difficult for technical education to take its rightful place as a (new) level of educational service in our educational organization.
Since some people became technicians by reason of upgrading of certain skilled workers or craftsmen, and because of the highly skilled nature of certain of the craft occupations, technical education has sometimes been confused with vocational education and the concept presented that technical education is vocational education with a little more technical content. On the other hand, because of the relationship of technical education to the professional and the fact that some professional people are working in technical occupations or performing technical functions as a part of their occupations, some want to adjust downward the content of some professional programs and still give college credit for such courses in order to assure status and level, although it is not clear to what professional area the college credit would apply.

It is our belief that technical education as a new field of occupation will prepare people who are related to both the skilled craftsman and the professional, but, should prepare the individual through a curriculum unique to his needs, rather than an upgraded or downgraded curriculum planned for another level of occupations (p. 21).

Figure 11 shows graphically the differences in terms of manipulative skills and technical skills needed by the worker. It should be noted, as the classification of work progresses from laborer to engineer, the amount of technical skills increase and the manipulative skills needed decrease. The dashed lines in the figure indicate that at various points the distinctions are not abrupt but "fade" into one another. Nevertheless, they do appear and are quite distinguishable in various curricular offerings (Strong and Schaefer, Ibid., p. 70).
In keeping with the concept of manipulative versus technical skill needs, various curricula have been developed to reflect the degree of differences between trade, industrial, and technical education.

In sum, technical education is a program of vocational education and training for gainful employment in technical occupations.
Vocational, Technical, and Industrial Arts Education

Industrial Arts Education

The American Industrial Arts Association defined industrial arts as the study of industry and technology in the Testimony on the Vocational Education Amendments of 1975. Also, the definition under Title II of PL94-482 regulations in Section 104-582 for implementation of the Vocational Act is as follows:

The term Industrial Arts education programs means those education programs which pertain to the body of related subject matter, or related courses, organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes and meaningful occupational choices or which prepare them for entry into advanced trade and industrial or technical education programs.

Lux and Ray (1966) defined industrial arts as an organized study of the knowledge of practice within that subcategory of the economic institution which is known as industry (p. 43).

Numerous statements of objectives of industrial arts have been offered by various organizations and individuals. All are essentially the same, although they differ in wording. The four which emerged from a recent conference
perhaps summarize the general feelings of industrial arts educators:

1) To develop in each student an insight and understanding of industry and its place in our culture;

2) To discover and develop talents of students in the technical fields and applied sciences;

3) To develop technical problem-solving skills related to materials and processes;

4) To develop in each student a measure of skills in the use of common tools and machines (Feirer and Lindbeck, 1964, p. 16).

Specifically, industrial arts can and should do at least four things to prepare youth for employment:

1) Inform them of the nature and extent of job opportunities and requirements in the various industrial occupations

2) Develop interest in following such an occupation as a career

3) Teach the basic tool skills and technical knowledge that constitute the foundation of industrial occupations


Industrial arts programs were traditionally constructed around drawing, metalworking, and woodworking, etc. Within these categories, industrial arts teachers have placed an emphasis on pre-vocational skill development,
arts and craft skills, and interpretation of industry as subject matter for their course of study (Ritz, Trocki, and Wright, 1975).

According to Warner (1947), content in the new industrial arts curriculum is derived via a socio-economic analysis of the technology and not by job and trade analysis as of old from the commoner village trades such as those of the carpenter, the blacksmith, the cabinet maker, etc. Now, the subject matter classifications are conceived of as including, 1) power, 2) transportation, 3) manufacturing, 4) construction, 5) communication, 6) management (p. 5).

Lux and Ray (1966) showed a generalized structure of industrial technology and at a more specialized level as the following Figure 12 (p. 167).

---

**Figure 12. Major Structural Elements in Industrial Technology**
While the above literature is now somewhat dated, current researches in the field of industrial arts show a consensus in the course content of industrial arts programs. According to the *Standards for Industrial Arts Programs* (1981), the philosophy of industrial arts focuses upon the broad categories of communication, construction, manufacturing, and transportation at all levels (p. 14). Consequently, course content of industrial arts is offered in these broad categories (p. 19).

Also, the *Jackson's Mill Industrial Arts Curriculum Theory* (1981) provided the same categories of content. However, this report is based on systematic and comprehensive analysis. That is, this report provided a means (see Figure 13) for the derivation of a curriculum base for industrial arts as a study of industry and technology (p. 17).

According to the model, the top circle in the figure reflects the three human adaptive systems: Ideological, Sociological, and Technological. The three systems are interrelated and exist within a man-made/natural environment. Also, human adaptive systems mutually interact with the domains of knowledge and contribute to each other. The middle section in the figure reflects a series of processes (pp. 6-17) in which people constantly seek accommodation with their adaptive systems. The report called these processes a "Universal Systems Model." The universal systems
model recognizes the importance of both technical means and societal institutions in serving human needs and social purposes. The content for industrial arts is drawn from the knowledge of the three systems of human behavior and
human technical endeavors which exist to extend human potential. The subsystems of the human technical endeavor are communication, construction, manufacturing, and transportation (p. 23).

These four subsystems exhibit common threads resulting from the application of similar organizational procedures, such as managed productive processes, and the interface among the four subsystems as well as with the other adaptive systems, Figure 14 (p. 25).

Figure 14. The Global Context of Human Technical Adaptive System
In brief, the Curriculum Interaction Model, presented in Figure 15, utilizes the universal systems model in a unique relationship with the adaptive systems called the technological/sociological adaptive systems. The model places emphasis on subject matter within human technological/sociological endeavors while providing an integration with the natural environment within a time dimension (p.18).

Figure 15. Curriculum Interaction Model
Industrial arts and vocational education

Lux (1970) discussed the relationship between industrial arts and vocational education in citing Grant Venn. The following discussion was excerpted from Lux's writings (pp. 278-79). Grant Venn (1969) states as follows:

The partnership between industrial arts and vocational education consists in the fact that one provides a general orientation to the world of work and the other specialized occupational training (p. 14).

However, Venn recognizes that the relationship is not quite that simple. He further says:

It is clear that industrial arts can be invaluable to the student as a means of orienting him to the world of work. I greatly urge much greater expansion of this task by industrial arts educators. At the same time, I would not like to see industrial arts lose sight of its other varied and important objectives (p. 17).

While he does not spell out exactly what these other objectives are, he does make it clear that some of the purposes of industrial arts are not vocationally significant. Venn states:

While vocational education might provide funds for a portion of industrial arts which is job orienting, vocational education must respect the integrity of industrial arts (p. 17).

After citing Venn in analyzing the relationship between industrial arts and vocational education, Lux concluded as follows:
Thus it still seems to be generally recognized that industrial arts does not serve other than prevocational objectives. However, though vocational or occupational monies now are intended to support new and broader program goals, they are not intended to serve these broader goals of industrial arts. Occupational education recognizes a need to liberalize, but it cannot become one with liberal education, for then occupational education becomes general education. And, presumably, it is something less than that, or else specialized funding for it becomes a farce (p. 279).

On the other hand, Bohn (1970) attempted to show the differences between industrial arts, vocational education, and occupational education by drawing the following structural diagram (p. 290).

---

**Figure 16. Educational Path - Industrial Arts, Vocational Education, Occupational Education**
Industrial Arts and Technical Education

Steeb (1979) who cited a figure drawn by the American Industrial Arts Association displayed the generally accepted relationship for industrial arts, trade and industrial, and technical education (p. 80).

Grade Level:

Post-Secondary

<table>
<thead>
<tr>
<th>Grade</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Job Entry</td>
</tr>
<tr>
<td>11</td>
<td>Industrial Trade Courses</td>
</tr>
<tr>
<td></td>
<td>Objective: Gainful Employment</td>
</tr>
<tr>
<td>10</td>
<td>Vocational-Technical Schools</td>
</tr>
<tr>
<td></td>
<td>Pretechnical Industrial Arts Courses</td>
</tr>
<tr>
<td></td>
<td>Objective: Preparation for more advanced or</td>
</tr>
<tr>
<td></td>
<td>highly skilled vocational or technical</td>
</tr>
<tr>
<td></td>
<td>programs</td>
</tr>
<tr>
<td>9</td>
<td>Junior Colleges, Universities</td>
</tr>
<tr>
<td></td>
<td>Technical Courses</td>
</tr>
<tr>
<td></td>
<td>Objective: Gainful Employment</td>
</tr>
<tr>
<td>8</td>
<td>Industrial Arts</td>
</tr>
<tr>
<td></td>
<td>Objective: Assisting pupils in making informed</td>
</tr>
<tr>
<td></td>
<td>and meaningful occupational and educational</td>
</tr>
<tr>
<td></td>
<td>choices</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Note: Objectives shown above refer only to the three objectives of the Vocational Education Act.

Figure 17. Relationships Between Industrial Art, Technical and Industrial Vocational Courses in Comprehensive Vocational Education
On the other hand, as Table 5 shows, Strong and Schaefer showed the differences between industrial arts and technical education on the basis of curriculum content (1975, pp. 222-23).

Table 5. Curriculum Comparison Between Industrial Arts and Technical Education

<table>
<thead>
<tr>
<th>Industrial Arts Education</th>
<th>Technical Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content is derived from a broad study of selected industries; including the use of tools, materials, and process.</td>
<td>The content is determined by an analysis of the various job titles in an occupational field for which training is being given, such as machine industries occupations.</td>
</tr>
<tr>
<td>Provides for the development of conceptualized skills and understandings.</td>
<td>The curriculum is developed, reviewed, and updated with the assistance of management/labor representatives from industry.</td>
</tr>
<tr>
<td>Provides opportunity to apply basic principles of the man-made world as a designer, planner, and user.</td>
<td>The content is continuously changing and is updated to reflect technological changes in the occupational field.</td>
</tr>
<tr>
<td>Programs are kept current with technological advances and changes in educational media.</td>
<td>Instructional materials include recent industrial publications and modern industrial devices and techniques as an integral part of the instructional programs.</td>
</tr>
</tbody>
</table>
**Table 5 (continued)**

<table>
<thead>
<tr>
<th>Industrial Arts Education</th>
<th>Technical Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes instructional programs which are:</td>
<td>The curriculum provides in-depth learning experience and techniques which duplicate those found in technical employment.</td>
</tr>
<tr>
<td>-Designed to acquaint students with the general functions and procedures of industry, including guidance for the broad spectrum of industrial occupations.</td>
<td>The time schedule, and level and amount of instruction must be adequate to develop necessary skills and related technical understanding essential for successful entry into and progress in a technical occupation.</td>
</tr>
<tr>
<td>-Designed to provide a study of the interrelationships of industrial activities leading to the production and manufacture of industrial products.</td>
<td>Pre-employment programs are provided immediately preceding employment in order to be most effective.</td>
</tr>
<tr>
<td>-Designed to provide an opportunity for a student to concentrate in a broad subject field such as electricity/electronics, drafting, graphic arts, automotive and power materials and processes.</td>
<td>Programs are designed to meet the full spectrum of needs, from the single-purpose operatives to the highly skilled technical craftsman.</td>
</tr>
<tr>
<td>-Designed to foster creative abilities and interests in the use of the tools and materials of industry.</td>
<td>Pre-employment education and training is usually provided from grades 9 through 14. Programs provide open-ended curriculum to permit vertical articulation from secondary to post-secondary levels.</td>
</tr>
<tr>
<td></td>
<td>Programs are provided around-the-clock and throughout the year. Such programs include pre-apprentice and apprentice</td>
</tr>
</tbody>
</table>
Table 5 (continued)

<table>
<thead>
<tr>
<th>Industrial Arts Education</th>
<th>Technical Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>training, retraining, occupational extension, and formanship, supervisory and management development training.</td>
</tr>
</tbody>
</table>

Summary

Vocational technical education on the high school level in Korea is to teach practical skills and technical capabilities in the area of engineering with a view to fostering future cadres in the field who can contribute to the advancement of national interests.

In order to effectively respond to the increasing demand for skilled workers, technical high schools were grouped into two categories on a priority basis, with their functions respectively specialized. They are "mechanical high school", "demonstrative technical high schools".

The mechanical high schools, which produce precision machine workers, rank first in the priority order of the Government's administrative and financial supports. The demonstrative technical high schools produce skilled workers
to fill manpower requirement for Korean industrial firms abroad. The specialized technical high schools, as the term denotes, have their functions specialized in electronics, steel manufacturing, architecture or railroad maintenance. The general technical high schools produce skilled workers in overall skill areas. The Korean Government has formulated a plan to provide for an incremental expansion of investment in technical education according to the priority order.

Thus, Korean vocational-technical high school education has paid great attention to the acquisition of skill itself. As the result, Korean vocational-technical high schools have not offered adequate education for both general and specialized needs of students in an appropriate combination. In other words, as Bergstrom (1967) suggested, Korean vocational technical high school education must offer "comprehensive" education along with "vocational training" (p. 25). That is, it must strengthen not only general education which includes mathematics, English, history, and other academic courses, but also vocational education which is composed of high school courses directly related to job skill requirements such as the operation of certain machines.

And then, it must be noted at this point that Grant Venn (1964) divided occupationally oriented education into
vocational education and technical education (pp. 38-64). Vocational education provides less specialized skill training and has a longer history than technical education. It is more concerned with the skills involved in various trades and crafts. However, technical education should not be confused with industrial arts education which is a broad study of industry.

At any rate, from the foregoing analysis on high school education, vocational education, technical education, and industrial arts education, this study can obtain some more specific variables determining the relevance of vocational-technical high school education.

Considering the descriptive framework of antecedent and subsequent variables shown in Chapter IV, roles or functions, goals or objectives, and the main curriculum content of education can be organized in terms of both antecedent and subsequent variables. As already mentioned, curriculum content is a kind of antecedent variable, whereas roles or functions and goals or objectives can be considered in terms of subsequent variables in that they can be achieved by the program of studies, direct instructional program, extrainstructional learning opportunities, guidance and special studies, and other dimensions.

Consequently, at this point, this study can show a set of more specific antecedent and subsequent variables
determining the relevance of vocational technical high school education. Probably this list is not totally inclusive and mutually exclusive (see Table 6).

Table 6. Lists of the Variables Affecting the Relevance of Vocational-Technical High School Education

<table>
<thead>
<tr>
<th>Antecedent Variables</th>
<th>Subsequent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>types of curriculum</td>
<td>manpower development needs</td>
</tr>
<tr>
<td>program of studies</td>
<td>complete living</td>
</tr>
<tr>
<td>direct instructional program</td>
<td>preparation for work</td>
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<tr>
<td>extrainstructional learning</td>
<td>preparation for life</td>
</tr>
<tr>
<td>opportunities</td>
<td>marketable skills</td>
</tr>
<tr>
<td>guidance</td>
<td>social obligations</td>
</tr>
<tr>
<td>special studies</td>
<td>life of coming generations</td>
</tr>
<tr>
<td>inquiry</td>
<td>liberation of minds</td>
</tr>
<tr>
<td>&quot;curriculum planned&quot;</td>
<td>creative spirit</td>
</tr>
<tr>
<td>&quot;curriculum had&quot;</td>
<td>wholesome attitudes toward order</td>
</tr>
<tr>
<td>electives</td>
<td>development of individual potentialities</td>
</tr>
<tr>
<td>participation in class</td>
<td>personal capabilities and talents</td>
</tr>
<tr>
<td>courses</td>
<td>individual ideals</td>
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<tr>
<td>subjects</td>
<td>individual habits</td>
</tr>
<tr>
<td>technical programs</td>
<td>intellectual growth</td>
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<td>shopwork</td>
<td>self-realization</td>
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<td>interpersonal relations</td>
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<td>transmission of cultural heritage</td>
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<td>socially acceptable system of values</td>
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<td>decision making</td>
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<td>continual personnel development</td>
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<td>enhancement of life</td>
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<td>preparation for adulthood</td>
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<td></td>
<td>capabilities of youth</td>
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<td></td>
<td>talents of youth</td>
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Table 6 (continued)

<table>
<thead>
<tr>
<th>Antecedent Variables</th>
<th>Subsequent Variables</th>
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<tr>
<td>self-preservation</td>
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<td>maintenance of proper social relations</td>
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<td>gratification of tastes and feeling</td>
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<td>health</td>
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<tr>
<td>command of fundamental processes</td>
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<td>worthy home</td>
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<tr>
<td>vocation</td>
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<td>citizenship</td>
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<td>new occupations</td>
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<tr>
<td>preparation for a social role</td>
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<tr>
<td>labor market</td>
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<tr>
<td>consumer knowledge</td>
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<td>worthy use of leisure</td>
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<tr>
<td>ethical character</td>
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<tr>
<td>work role</td>
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<tr>
<td>working skills</td>
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<tr>
<td>work abilities</td>
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<td>work understandings</td>
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<td>work attitudes</td>
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<td>work habits</td>
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<td>appreciations</td>
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<td>labor market balance between</td>
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<td>jobs and employment</td>
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<td>opportunities and trained manpower</td>
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<td>societal needs</td>
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<td>specific job</td>
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<tr>
<td>craftsman</td>
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<td>manipulative skills</td>
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<td>job-related knowledge</td>
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<tr>
<td>mathematics and science</td>
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<td>depending on technology area</td>
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<tr>
<td>marketable skills</td>
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<tr>
<td>technical skill</td>
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<tr>
<td>area of technology</td>
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</table>
Socio-Economic Needs (Considerations) Affecting Vocational-Technical Education

Webster's New Collegiate Dictionary defines the term "socio-economic" as "pertaining to social economics, also having a character or aspect both social and economic". That is, the term "socio-economic" is directly related to both society and the economy. According to Strong and Schaefer (1975), among the most noteworthy economic needs are mobility, structural unemployment, level of employment, occupational demands, and employment opportunities. The social needs include equality of opportunities, maintaining a balanced curriculum, status of occupations, flexibility of choice, national goals, and the like (p.208). This definition also does not seem to include all the socio-economic needs. Anyway, if we want to understand what the term "socio-economic" means, we need to analyze both societal and economic dimensions. However, this task is not the primary one of this study.

In fact, it is self-evident that there are a number of socio-economic considerations that have a vital impact on vocational-technical education. But it is not easy to analyze them all. Therefore, this study begins by citing some selected socio-economic factors which are usually discussed by scholars regarding the overall socio-economic trends and developments.
As Bell (1967) identified early, even though there might be slight differences, it is expected Korean society will encounter four primary sources of change.

The first source of change is technology. According to Bell, it opens up many possibilities of mastering nature and transforming resources, time, and space; it also, in many ways, imposes its own restraints and imperatives (p. 642).

Bell believes that the second source of change, one of the most powerful engines, represents the diffusion of existing goods and privileges in society, whether they be tangible goods or social claims on the community (p. 643).

His third source of change is structural developments in society (p. 643). In fact, the centralization of the Korean political system in the last twenty years has marked a tremendous transformation of Korean life. In other words, the source of innovation has become lodged in the intellectual institutions such as research organizations.

The fourth source of change is the changing balance of forces - both technological and moral. These forces are all questions that reach from the present into the distant future (p. 644).
On the other hand, Drucker (1968) lists four discontinuities which, while still below the visible horizon, are already changing the structure and meaning of economy, polity, and society. The major discontinuities are in four areas:

1) Genuinely new technologies are upon us . . .

2) We face major changes in the world's economy . . .

3) The political matrix of social and economic life is changing fast . . .

4) Knowledge, during the last few decades, has become the central capital, the cost center, and the crucial resource of the economy (pp. ix-xi).

Also, the "Institute for the Future" undertook an analysis of the future of vocational-technical education through trend extrapolation which assumes "a tendency for the values in a time series to increase with some steady regularity" (Hill, 1978, p. 249). According to the report, the changes in the environment facing vocational-technical education are as follows:

1) Demography: The number of young people sixteen to twenty-four will drop by 1985, and the number of persons between thirty-five and forty-four and those sixty-five plus will increase.

2) The labor force: There will be fewer young labor force entrants. Those young persons who are trying to enter the labor market may be less skilled
than those of previous years. Women will make up an increasing proportion of the labor force.

3) The economy: Business will be forced to make more effective use of capital as the labor force growth rates decline. Employers will have more difficulty recruiting skilled workers. The cost of specialized vocational programs will rise, and those that train for a particular occupation will be perceived as most cost-effective.

4) Societal expectations: Less public money will be available for vocational education. Workers dissatisfied with work roles will demand increasing benefits. Employers will become more flexible regarding where and when work is completed and how work is organized.

5) Education: College attendance of the traditional student will decline. Schools may need to cooperate with local business/industry. Public satisfaction with education could have a large impact on fund availability. The armed forces will provide a large portion of post-secondary training (cited in Ruff, Shylo, Russell, 1981, p. 15).

This study calls the changes trends, speculations, discontinuities, or continuities. Obviously, these will significantly shape the world of education, including the vocational-technical high school, in the decades ahead. Considering these changes, trends, or discontinuities, in particular, the following socio-economic conditions will directly affect the future planning of vocational-technical high school education.
1) Need for national developments
2) Manpower demand and supply: Its future planning
3) Shifts in economic sector
4) Technological developments
5) Shifts in occupational patterns or structure

Need for National Development

We can claim a role for education in most aspects of national development such as rural development, employment, population policy, and the eradication of social inequalities, prejudices, and discrimination. The most significant role which education plays as an agent of development is in the production of skilled manpower. This function is usually referred to as human resource development.

Both for developing and for maintaining a satisfactory standard of life, a country needs people with a variety of skills. We can hardly imagine how any country would be without them. Obviously, a country's development requires a host of specialized, skilled personnel and it is in the interest of the country to draw them from among the best. Education comes into the picture in two ways:

1) Education provides the basic skills which enable persons to be selected, according to their aptitude, for further training;
2) Education either imparts specific skills and knowledge which makes a person suitable for employment or gives a wide general education to serve as a foundation for job-related training (UNESCO, Book II, 1978, p. 116).

In both ways, education serves as an important economic function. In fact, a realistic appraisal of both individual and national objectives of education would show that economic viability of the individual and the society is a vital consideration. Whatever be the opinion of the traditionalists, employment is an important educational responsibility, especially of vocational-technical education.

Manpower Demand and Supply: Its Future Planning

Manpower demand and supply of a society is one of the most important forces affecting vocational-technical (high school) education. The picture of manpower demand and supply is usually shown in future manpower planning.

As portrayed by Kruger (1975), manpower planning delineates the universe of need for manpower services in a country (p. 32): it identifies the resources available to meet those needs, and in the process further identifies the gaps in needed services. In short, the overall understanding of manpower demand and supply is essential to establish realistic goals and objectives and to provide a guide to action.
Kruger goes on to state that the manpower planning process is built on the development and coordination of four important bases:

1) Population information providing data on general characteristics;

2) Employer information showing the needs of employers;

3) Program information providing data on the quantity distributions and linkages of manpower resources;

4) Program operations information providing data on the performance of ongoing programs with respect to clientele characteristics, placements, retention rates, training activities, and overall impact (pp. 32-35).

In this regard, an understanding of manpower demand and supply provides the foundation for bridging the gap between education and work. The role of vocational-technical education as one agent of national development is to contribute to the achievement of full employment. Consequently, whenever education does not satisfy such a societal need, it often falls short of this expectation in two ways:

1) It turns out people whose skills do not tally with the manpower needs of a country;

2) It produces far more than necessary in regard to some jobs and not enough in regard to others (UNESCO, Book I, 1978, p. 117).
In the first situation, what is brought about is an overall imbalance, that is, unemployment because job-seekers have had no education or training suitable for gaining available jobs. The second situation is described as a structural imbalance. Here unemployment exists side by side with a dearth of essential manpower. The contribution which education could make toward full employment is to ensure the closeness of fit between its output and the national manpower needs.

Shifts in the Economic Sector

In discussing the question of manpower and employment, we need to take into consideration the economic activities of a country. As drawn by Lux and Ray (1966, p. 69), the economic institution is one of the basic societal institutions in the total human society.

![Figure 18. Basic Societal Institutions](image-url)
The economic institution is classified by the Standard Industrial Classification Manual to include:

Division A. Agriculture, forestry and fisheries
Division B. Mining
Division C. Contract construction
Division D. Manufacturing
Division E. Transportation, communication, electric, gas, and sanitary service
Division F. Wholesale and retail trade
Division G. Finance, insurance, and real estate
Division H. Services
Division I. Government
Division J. Nonclassifiable establishments (Bureau of the Budget, 1957, pp. v-vv).

At this point, this study needs to clarify the concept of the term "industry". As defined in Chapter I, industry is that subcategory of the economic institution which substantially changes the form of materials in response to man's wants for goods. In the process, it generates knowledge of how to efficiently produce, use, and service industrial material goods. Industry essentially includes those establishments included under S.I.C. Divisions "C" and "D", that is, contract construction and manufacturing, respectively. Therefore, industry does not
include transportation, communication, utilities, banking, and marketing (Lux and Ray, 1966, p. 40).

Industry produces the material goods used in transportation, banking, communication, and in other economic activities, but non-industrial establishments operate and control these goods to provide non-material production. These latter establishments, therefore, are properly classified as wholesale and retail trade, transportation, finance, or some other sub-element of the economic institution. Only construction and manufacturing are engaged in the forming of materials to satisfy man's wants for goods, and they are the components of industry (Lux and Ray, Ibid, p. 41).

While agriculture, forestry, fisheries, and mining produce material goods, they do not essentially change their form. These generic and extractive "industries" provide industry (construction and manufacturing) with one portion of the input (raw materials) to their production systems (Lux and Ray, Ibid., p. 41).

In sum, the structure of the economic institution which lends intelligibility to its function is depicted in Figure 19. This economic institution constantly changes under the influence of industrial and technological development. Vocational-technical high school education must adapt to the changes.
Economic Institution

Provides

Economic Goods

through

Material Production

Genetic

Extractive

Industrial

- Construction
- Manufacturing

Other Economic Activity

- Communication
- Domestic
- Education
- Entertainment and Recreation
- Finance, Insurance, and Real Estate
- Health
- Marketing
- Transportation


Figure 19. Elements of the Economic Institution
Obviously, each economic activity of each economic sector must be performed by manpower. That is, each economic sector must employ the qualified manpower to produce economic goods. Accordingly, vocational-technical high schools have to aim at not only providing education and training with full employment, but also serving their function as a supplier of manpower requirements for the changing economic sector. In other words, education must be responsive to economic sector changes.

In sum, the problems caused by changes in the economy without corresponding changes in vocational-technical curricula indicates the tremendous importance of good manpower and labor force projections for vocational-technical educators. Resultant problems exist as a consequence of the isolation of vocational-technical educators from labor market economists and employers, as well as from inaccurate data.

**Technological Development**

Technology has made possible man's great advances in his control over the environment and in the utilization of natural resources. It is planned that in Korean society technology will continue to advance and will influence greatly the conditions under which people will live and consequently the social setting in which vocational-
technical education will take place.

In simple terms, technology refers to the practical knowledge of making things, doing things, and solving problems. Industry uses technology in the production of goods and services. It follows that all growing youngsters should know something about how goods and services are produced for their use. This has value for people in at least three ways, in:

1) understanding our society;
2) deciding on their life's work;
3) gaining fundamental preparation for it


Obviously, technology affects and is affected by many disciplines. Technology is rightfully credited as being the major factor in creating our exponential economic growth and increased standard of living. This calls for an awareness and understanding that has not received much educational attention until recently.

In short, the present and future vocational-technical education must carry a major responsibility for helping man utilize his technological knowledge for the enhancement of his own spirit, his own jobs of living, and his own cordial and cooperative relationships with his fellowman. In this regard, technological development of a society greatly affects the planning of vocational-technical high school education.
Certainly, the expansion of technology will exert the effects of upgrading many occupations, raising skill demands in formerly routine jobs or creating new, skilled positions. The implementation of new technologies will create a myriad of opportunities for vocational-technical education programs at all levels, if program directors are sensitive to the pace and scale of shifts in employment opportunities.

Shifts in Occupational Patterns or Structure

Most studies of vocational-technical education in every society find an institutionalized set of relationships embracing many other significant institutionalized structures, for it is directly related to the educational system and the labor market.

Simply speaking, vocational-technical education must be a formalized vehicle in a society that facilitates the allocation of occupational roles. According to Brookover and Nosow (1963), it is usually the only link between educational institutions and the institutionalized labor market (Appendix 3).

If we accept the notion that the social dimension of vocational-technical education is the formal preparation of youth for the world of work, then it can be found in all societies that have occupational structures. So the
formal preparation of youngsters for the world of work must be an important aspect of a society.

It was already mentioned that the structure within the formal allocational system (in this case vocational-technical education) has not helped to make its curriculum more relevant to its clientele or the society. In other words, vocational-technical education has been often criticized for failing to modernize and diversity its occupational offering to meet the needs of business and industry. Therefore, the offerings should be based on an analysis of present labor markets with some adjustment for future rates of growth.

However, no effective system of "opportunity forecasting" has been developed that will feed change from the occupational system into the formal allocation system. Thus, changes occur in the labor market prior to curricular adjustments in vocational-technical education. Attempts to eliminate this lag are not systematic. They occur periodically and sporadically.

In this regard, one of the most significant socio-economic conditions in planning vocational-technical education in the years ahead is the marked shift that is now occurring and probably will be extended in the occupational patterns of a society.
In brief, according to the report made by U.S. Department of Health, Education, and Welfare (1963), education in relation to the changing occupational structure has some implications.

The first implication is the increased need for all workers to have higher levels of basic general education. Skill in reading, writing, mathematics, and other general education fields are essential for acquiring specific vocational competence and the higher levels of education needed for many occupations. Therefore, it is essential for the schools to increase their efficiency in teaching the fundamental school subjects to all students (p. 36).

The second major implication of the changing occupational structure for education is the need for flexibility in occupational adjustment. Many occupations requiring sizable numbers of personnel have become obsolete during the lifetime of a given generation of workers. There is no indication that the rate of change is going to decrease. On the contrary, the rate of obsolescence and development of new occupations is likely to be accelerated in the foreseeable future. In this sense, flexibility of adjustment to new and changing occupational structures will be directly correlated to the quantity and quality of general education which the labor force has acquired. Simply speaking, readjustment to new occupations involves the
development of a set of attitudes toward change as well as high levels of knowledge and basic academic skills (pp. 37-39).

Up to this point of this section of this chapter, this study analyzed some selected socio-economic conditions which may affect the planning of vocational-technical high school education. Now this study attempts to look into the viewpoints of quite the reverse. That is, this study analyzes how vocational-technical high school education may affect socio-economic dimensions.

Impacts of Vocational-Technical High School Education

As Borus (1978) pointed out, vocational-technical high school education may affect many persons and institutions in a variety of ways. Some of these will be direct benefits which are planned. Also, there will be many other possible benefits of vocational-technical high school education which are not anticipated in the educational plan because they are side effects. Both these unanticipated effects and planned effects can be called "impacts" of the education (p. 13).

And then, does vocational-technical high school education affect "whom" and "what"? That is, for the purpose of the study, it is extremely important to note that vocational-technical high school education affects
different groups in different ways and at different levels. Borus identifies four primary parties who may benefit from vocational-technical high school education (Ibid., p. 18). These are society as a whole, students, employers, and the government. Each of the groups has different goals which they wish education to accomplish. That is, from a societal point of view, the goals of education are put in terms of aggregate changes. Examples of societal goals would be increased aggregate production, improved equity in the overall distribution of income and employment, and reductions in national unemployment.

For the individual student the goals are more limited to benefits which directly affect him, such as improvement in his earnings and increases in his satisfaction.

An employer will tend to look at education in terms of his own interests. For instance, he will be concerned with how the productivity of his labor force has been increased.

Finally, the government will view education in terms of the various societal objectives but, in addition, will seek education which aids its budgetary position by increasing revenues and reducing expenditures.

Obviously, there is a great deal of overlap among the goals of the four groups. The government acts as the
agent of society in operating vocational-technical high school education. As such, definition of the educational program success coincides in most areas for government and for society. Similarly, individual students and employers as members of society are interested in aggregate changes as well as those directly affecting them. Likewise, the effect of the education on individuals and employers will determine in part education's success in terms of society. Increased employment of participants in education is likely to improve aggregate employment, and improvement in the production of individual firms may lead to increased aggregate production (Ibid., p. 19).

Borus also presents a series of lists of potential benefits for society, individual students, employers, and government from vocational-technical high school education. As Borus addresses, the list is obviously not all-inclusive. It should, however, provide many of the most important outcomes of vocational-technical high school education.

A. Benefits for Society

1. Improved Equity in the Distribution of Income and Employment.
   a. Increased Income of the Graduates
   b. Increased Employment of the Graduates

2. Increased National Production

3. Reduced Unemployment

4. Increased Social Satisfaction
a. Increased Satisfaction with Social Institutions and Increased Social Satisfaction
b. Increased Job Satisfaction
c. Increased Overall Satisfaction

5. Stable Prices: The stability of wages and prices in those industries and occupations in which the graduates are employed.

6. Reduced Antisocial Behavior of Graduates

7. Reduced Dependency on Government

8. Increased Voluntary Leisure of Graduates

9. Improved Family Life

10. Reduced Discrimination and Improved Race Relations

11. Improved Health

12. Improved Housing (Ibid., pp. 21-23).

Among the lists, this study does not need to consider the item number seven (7) because Korea hardly pays public assistance and unemployment insurance. Also, this study does not need to keep in mind the item number ten (10) because Korea is composed of a single race.

B. Benefits for Individuals

1. The Increase in the Incomes

2. Reduced Unemployment

3. Increased Satisfaction
   a. Increased Satisfaction with work
   b. Increased Satisfaction with General Conditions
4. Increased Social Status
5. Increased Voluntary Leisure
6. Improved Health
7. Improved Family Life
8. Improved Housing (Ibid., pp. 24–25).

C. Benefits for Employers
1. Jobs of Specific Employers Filled
2. Jobs in Particular Areas Filled

D. Benefits for Government Operations
1. Reduced Costs of Government Operations
2. Reduced Transfer Payments
3. Increased Tax Revenues Through an Increased Tax Base
4. Increased number of Persons Available for Military Service or Other Public Service (Ibid., p. 27).

Benefits for Government Operations will not be considered throughout the study because this aspect is not the major concern of this study.

Obviously, Korean vocational-technical high school education is directed at improving the earnings of the graduates for at least three reasons. First, as skills are improved, the productive capability of society increased. For example, the improvement in skills of the
labor force will permit society to produce more. Simply speaking, vocational-technical high school education attempts to increase marketability by providing useful work habits and experience.

Second, the impact on earnings may affect the income distribution. Again, higher productivity provided by vocational-technical high school education should lead to higher earnings - the concept of investment in human capital.

Finally, society may be interested in improving the earnings and employment of the graduates of vocational-technical high schools. That is, society is going to replace welfare with work and place a positive value on income. In doing so, the achievement of higher earnings and employment for vocational-technical high school graduates are looked upon as a benefit of vocational-technical high school education.

There are other economic benefits to society, the government, and the individual student. However, these are indirect. For instance, to the extent that vocational-technical high school education leads to better health, it may make for a more productive labor force. To the extent that earnings are increased, crime may be reduced.

There are many noneconomic benefits which may result from vocational-technical high school education. They can
be individual student's social satisfaction, job satisfaction, security, and the like.

There may also be what are considered social benefits as a result of vocational-technical high school education. It may be thought to be socially desirable to reduce unemployment, to get people off of welfare, to have a more integrated society, to have more equal opportunity, to reduce poverty, and to improve social mobility.

On the other hand, Datta (1979) listed various individual and social benefits of vocational education in presenting illustrative criteria for evaluating outcomes of vocational education as shown in Table 7 (pp. 53-54).

Table 7. Illustrative Criteria for Evaluating Outcomes of Vocational Education

<table>
<thead>
<tr>
<th>Examples of Outcomes</th>
<th>Possible Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDIVIDUAL BENEFITS</strong></td>
<td></td>
</tr>
<tr>
<td>1. Same outcomes in specific educational objectives for vocational and non-vocational education, (e.g. basic skills, good work habits, high school completion). V/E may uniquely help some students whose learning styles and interests are not compatible with general academic preparation.</td>
<td>* Same rates of retention, career knowledge and planning, and basic skill achievement for V/E and non V/E students; more effective on these criteria for students with a concrete, action-learning style who might otherwise drop out or learn very little.</td>
</tr>
<tr>
<td>Examples of Outcomes</td>
<td>Possible Measures</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>INDIVIDUAL BENEFITS</strong></td>
<td></td>
</tr>
<tr>
<td>2. Unique outcomes in entry level skills required for jobs where applicants are expected to be prepared for work (e.g., truck driver, X-ray technologist) includes achievement of sufficient competence to obtain work, even if program is incomplete.</td>
<td>* Competency based measures of preparation for occupations for which trained, achievement of high enough levels of skills, abilities and attitudes adequate for employment.</td>
</tr>
<tr>
<td></td>
<td>* Obtains, holds, and progresses in work needing skills acquired in training, including skills transferrable from one type of work to another.</td>
</tr>
<tr>
<td></td>
<td>* Employer and learner satisfaction with skills, abilities, and attitudes believed to be developed in vocational education.</td>
</tr>
<tr>
<td>3. Unique outcomes in preparation for further training, apprenticeship or on-the-job training where learner is expected to bring foundation levels of skills, abilities, and attitudes.</td>
<td>* Achievement of minimum levels needed to enter further training as measured by competency based assessment</td>
</tr>
<tr>
<td></td>
<td>* Enters, progresses in, and completes further training which requires skills developed during V/E, including skills transferrable from one type of occupational training to another.</td>
</tr>
</tbody>
</table>
### Table 7 (continued)

<table>
<thead>
<tr>
<th>Examples of Outcomes</th>
<th>Possible Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDIVIDUAL BENEFITS</strong></td>
<td></td>
</tr>
<tr>
<td>4. Unique outcomes in consumer competencies and competencies for nonpaid work (e.g., student enrollment in automechanics in order to repair own cars, to be better consumer in purchasing cars and in arranging for car repairs).</td>
<td></td>
</tr>
<tr>
<td>* Achievement of minimum competencies required for self-help and prudent consumer choices as measured by performance tests or subsequent learner reports of application of skills.</td>
<td></td>
</tr>
<tr>
<td>5. Same outcomes for V/E and non V/E students in broad educational objectives (e.g., citizenship, enthusiasm for learning, sense of competency and achievement).</td>
<td></td>
</tr>
<tr>
<td>* Same rates of achievement on measures of these attitudes, knowledge, and abilities; more effective for students with action-learning style.</td>
<td></td>
</tr>
<tr>
<td>6. Supplementary skill outcomes where skills contribute to or are needed for other meaningful work (e.g., typing skills may be valuable in further education, provide an extra chance for employment between jobs or during high unemployment, contribute to nonpaid community service work, etc.).</td>
<td></td>
</tr>
<tr>
<td>* Achievement of minimum competencies required for supplementary use.</td>
<td></td>
</tr>
<tr>
<td><strong>SOCIAL BENEFITS</strong></td>
<td></td>
</tr>
<tr>
<td>1. Equity outcomes: increasing the proportion of minority, bilingual, handicapped persons who are prepared for skilled employment and technical</td>
<td></td>
</tr>
<tr>
<td>* Reduction in correlation between gender, native language, race, ethnicity, handicapping condition, and occupational preparation and entry.</td>
<td></td>
</tr>
</tbody>
</table>
Table 7 (continued)

<table>
<thead>
<tr>
<th>Examples of Outcomes</th>
<th>Possible Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOCIAL BENEFITS</strong></td>
<td></td>
</tr>
</tbody>
</table>

Work where there are job opportunities, and where the proportion of such persons in professional and managerial work is not reduced.

2. Economic adjustment: supply side. Skilled technical personnel are neither in over-supply nor under-supply for business, industrial, government, and self-employment needs.

3. Economic adjustment outcomes: demand side. Modification of the structure of the workplace so the workplace and the nature of the work are changed in keeping with changing numbers, skills, values, and interests of the work-force.

4. Optimum use of vocational education and training resources in schools, business, industry, and government through coordination of secondary and post-secondary, public and private sector, and DOL/USOE resources.

* Comparison of occupational competencies and interests in labor pool supplied by vocational education with labor market needs.

* Survey of SACVE/NACVE effectiveness in influencing employer adaptations to changing work-force.

* Evidence of reduced costs with equally good or better educational quality and access; or evidence of improved quality and greater access with same or increased costs. Greater effectiveness and efficiency in matching where, when, and how training is given with employer and learner needs.
### Table 7 (continued)

<table>
<thead>
<tr>
<th>Examples of Outcomes</th>
<th>Possible Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCIAL BENEFITS</td>
<td></td>
</tr>
<tr>
<td>5. Regional economic development through preparation of learners for work that does not presently exist, then attracting new industry by the availability of skilled employees; or, preventing loss of industry by remedial training for new population groups who otherwise would not be attractive employees.</td>
<td>* Analysis of the economic situation over a five to ten year period, tracting the attraction of new industries versus loss of existing industries to changes in the calibre and skills of the local work force.</td>
</tr>
</tbody>
</table>

### Summary

This section analyzed some selected socio-economic needs which may be considered or used in planning vocational-technical high school education. This analysis led to a number of alternative choices of subsequent variables for vocational-technical high school education. That is, it should respond (or be relevant) to the references shown in Table 8, although the list is not totally inclusive and mutually exclusive.
Table 8. Examples of References to which Vocational-Technical High School Education Must Respond

<table>
<thead>
<tr>
<th>Social mobility</th>
<th>Occupational demands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment opportunities</td>
<td>Status of occupation</td>
</tr>
<tr>
<td>National goals</td>
<td>Need for national development</td>
</tr>
<tr>
<td>Technological changes, developments</td>
<td>Age of higher technology</td>
</tr>
<tr>
<td>Structural development in society</td>
<td>Changing balance of economic forces</td>
</tr>
<tr>
<td>World's economy</td>
<td>Changing social and economic life</td>
</tr>
<tr>
<td>Accumulating knowledge</td>
<td>Demographic change</td>
</tr>
<tr>
<td>Labor force structure</td>
<td>Social expectations</td>
</tr>
<tr>
<td>Shifts in economic sector</td>
<td>Shifts in occupational patterns</td>
</tr>
<tr>
<td>Manpower demand and supply</td>
<td>Entry skills for job</td>
</tr>
<tr>
<td>Good work habits</td>
<td>High school graduate competencies</td>
</tr>
<tr>
<td>Work performance abilities</td>
<td>Employer satisfaction</td>
</tr>
</tbody>
</table>

The potential impacts or benefits from vocational-technical high school education also were analyzed. The analysis led to the following conclusions: Vocational-technical high school education should contribute (or be relevant) to bringing the benefits to society, students and employers as shown in Figure 20.
From Figure 20, we can recognize that numerous subsequent variables determining the relevance of vocational-technical high school education can be isolated. In sum, vocational-technical high school education and socioeconomic conditions are closely related to each other. The close response of vocational-technical high school education to socio-economic needs is desirable.

The degree of the closeness can be called a relevance indicator. It may be presumed that the relevance
indicator should be maximized toward 1.0. That is the unique and most important mission of vocational-technical high school education.

The achievement of total relevance is not to be expected because vocational-technical high school education has to respond to continuously - changing socio-economic needs. Accordingly, it can be said that a certain gap between vocational-technical high school education and socio-economic needs essentially cannot be avoided. This may be called "essential irrelevance".
CHAPTER VI

CONCEPTUALIZATION OF KINDS OF RELEVANCE
FOR VOCATIONAL-TECHNICAL HIGH SCHOOL EDUCATION

Introduction

This chapter reports an analysis of the abilities, competencies, or transferable skills that vocational-technical high school graduates need to acquire for themselves and society. This analysis supplements the preceding analysis. That is, more specific subsequent variables were identified.

After finishing this further task, this chapter attempted to synthesize all the preceding analyses. This synthesis led to the identification of antecedent and subsequent variables determining the educational relevance of the vocational-technical high school. Also, this chapter categorized the variables into a more detailed descriptive framework and conceptualized the kinds of relevance for vocational-technical high school education.

This chapter also described some considerations in using the conceptual model of the kinds of relevance, presented some examples of the practical application of the model, and finally described the results of the selected
Vocational-Technical High School Graduates'
Abilities, Competencies, or Transferable Skills

At this point, this study needs to raise a few simple questions: Through whom can we achieve the goals or objectives of vocational-technical high school education? Through whom can vocational-technical high school education meet individual student's, society's, and employers' needs and bring the potential benefits to them? If the answer is the individual students, through their "what"? The answer to this question would be the individual student's abilities, competencies, or transferable skills that vocational-technical high school graduates must and/or should acquire for themselves and society.

The subsequent variables, which were identified in Chapter Five of the study, reflect the dimension of abilities, competencies, or transferable skills that vocational-technical high school graduates must acquire for themselves and society. However, the list is very rough. Accordingly, it is necessary to attempt to further identify and/or measure them.

Wiart (1977) identified transferable skills on the basis of employers' viewpoints as shown in Table 9 (p.10). This list is somewhat specific.
<table>
<thead>
<tr>
<th>Intellectual/Aptitudinal</th>
<th>Interpersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating (44)</td>
<td>Working With, Getting Along With, or Relating to Others (28)</td>
</tr>
<tr>
<td>Problem Solving (17)</td>
<td>Managing, Directing, or Supervising (13)</td>
</tr>
<tr>
<td>Analyzing/Assessing (15)</td>
<td>Empathizing, or Being Sensitive to Others</td>
</tr>
<tr>
<td>Planning/Layout (15)</td>
<td>Teaching, Training, or Instructing</td>
</tr>
<tr>
<td>Organizing (14)</td>
<td>Counseling</td>
</tr>
<tr>
<td>Decision Making (13)</td>
<td>Motivating</td>
</tr>
<tr>
<td>Creativity/Imagination/Innovation</td>
<td>Gaining Acceptance, or Building Rapport</td>
</tr>
<tr>
<td>Problem Identification/Definition</td>
<td>Helping, or Cooperating</td>
</tr>
<tr>
<td>Managing One's Own Time</td>
<td>Cultivating Cooperation</td>
</tr>
<tr>
<td>Basic Computation</td>
<td>Selling</td>
</tr>
<tr>
<td>Logical Thinking</td>
<td>Accepting Supervision</td>
</tr>
<tr>
<td>Evaluating</td>
<td>Delegating</td>
</tr>
<tr>
<td>Ability to Relate Common</td>
<td>Instilling Confidence</td>
</tr>
<tr>
<td>Knowledge or Transfer Experiences</td>
<td>Team Building</td>
</tr>
<tr>
<td>Coping with the Labor Market and Job Movement</td>
<td></td>
</tr>
<tr>
<td>Understanding Others</td>
<td>Understanding Others</td>
</tr>
<tr>
<td>Synthesizing</td>
<td>Synthesizing</td>
</tr>
<tr>
<td>Marshalling Available Resources</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Accommodating Multiple Demand</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Judgment</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Foresight</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Trouble Shooting</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Job Awareness</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Mechanical Aptitude</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Typing</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Accounting</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Implementing</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Self-Understanding, Awareness, Actualization</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Situational Analysis</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Assessing Environments/Situations</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Understanding Human System</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Interactions</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Organizational Savvy</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Conceptualization</td>
<td>Marshalling Available Resources</td>
</tr>
<tr>
<td>Generalization</td>
<td>Marshalling Available Resources</td>
</tr>
</tbody>
</table>
Table 9 (continued)

<table>
<thead>
<tr>
<th>Intellectual/Aptitudinal</th>
<th>Attitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Setting</td>
<td>Reliability</td>
</tr>
<tr>
<td>Controlling</td>
<td>Risk Taking</td>
</tr>
<tr>
<td>Quantitative Thinking</td>
<td>Compromising</td>
</tr>
<tr>
<td>Dealing with Work</td>
<td>Kindness</td>
</tr>
<tr>
<td>Situations</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td></td>
</tr>
<tr>
<td>Tool Usage</td>
<td></td>
</tr>
<tr>
<td>Bookkeeping</td>
<td></td>
</tr>
<tr>
<td>Artistic Ability</td>
<td></td>
</tr>
<tr>
<td>Business Sense</td>
<td></td>
</tr>
<tr>
<td>Tolerance of Ambiguity</td>
<td></td>
</tr>
</tbody>
</table>

Note: Items are listed in approximate order of frequency within each category. Most frequently mentioned items are followed by a figure in parenthesis to indicate relative frequency; thus "Communicating" was mentioned about 44 times as often as "Tolerance of Ambiguity."

Miguel (1977) identified the following five areas of skill to increase an individual's chances for making successful occupational transfers: 1) Task performance skills common to occupations, 2) Skills for applying broadly usable knowledge, 3) Personal and interpersonal effectiveness skills, 4) Self-analysis skills, and 5) Career management and productivity skills (p. 5). He also analyzed each area in more detail.

Schenck (1979) attempted to identify high school graduation competencies. The competency areas identified

Industries also have continuously attempted to measure employees' intellectual, psychomotor, and mechanical abilities that affect work performance. These abilities are studied in depth because the categories are very comprehensive.

1) Intellectual abilities: Because early efforts to measured ability focused on school success, psychologists quite naturally focused on intellectual abilities. The current definitions of intelligence tend to emphasize that intelligence represents the individual's ability to solve problems that society regards as important (Weschsler, 1975, pp. 135-39).

A related problem has to do with the organization of intelligence, its specificity or generality. One approach has viewed intelligence as a global characteristic. People's performance on one intellectual dimension was assumed to be predictive of (highly related to) their performance on any other dimension. Another approach assumed that intelligence involved many separate (independent) abilities.
The theoretical debate has now largely subsided with the growing recognition of truth in both views. People appear to have both general (all dimensions tend to be somewhat related) and specific (people differ in their patterns of abilities) intelligence (Tyler, 1974, pp. 82-83). These special intellectual abilities are often assumed to fall into the major categories: verbal comprehension, word fluency, number aptitude, inductive reasoning, memory, perceptual speed, spatial aptitude (Dunnette, 1966, p. 47-49). These categories refer to the cognitive or mental abilities.

2) **Psychomotor abilities**: The abilities that affect work performance have to do with physical, not cognitive, capabilities which are often called psychomotor abilities. Dunnette (1966) classified them with eleven different categories of physical abilities: control precision, multilimb coordination, response orientation, reaction time, speed of arm movement, rate control, manual dexterity, finger dexterity, arm-hand steadiness, wrist-finger speed, and arming (Ibid., pp. 52-53). Research has also shown that these are quite specific: there is little relationship among them (McCormick and Tiffin, 1974, pp. 147-48).
3) **Mechanical abilities**: Many different mechanical abilities have been measured. While they are primarily cognitive in nature, they have been specially measured for semiskilled and skilled mechanical jobs (McCormick and Tiffin, Ibid., pp. 142-143). The first of these is a general mechanical ability that involves comprehension of mechanical relations, recognition of various tools and their uses, and identification and use of mechanical principles. The other ability is spatial relations - the ability to visualize how parts fit together into a whole.

Hall and Jones (1976) offered a more systematic and well-organized taxonomy of competencies, which is a bit different from those proposed by Bloom, Krathwohl, and others, for the specification of competencies. It included the following:

1) **Cognitive competencies**, which specify the knowledge, intellectual abilities, awareness, and skills that are to be demonstrated.

2) **Affective competencies**, which relate to values, attitudes, interests, and appreciation.

3) **Performance competencies**, which require the demonstration of behaviors, include psychomotor skills in such areas as physical education or technological education programs. In most cases performance competencies
have as a prerequisite some type of cognitive competencies - knowledge of theory being prerequisite to demonstrating a skill, competency, or subcompetency.

4) Consequence or product competencies, which require the demonstration of the ability to bring about change in others.

5) Exploratory or expressive competencies are considered by some as cop-outs. However, there are things that instructors want their students to experience (pp. 48-50).

Categorization of the Variables Determining the Relevance of Vocational-Technical High School Education

Up to this point, this study has attempted to define the term "educational relevance," clarify the characteristics of relevance, look into what has been done about the problem of educational relevance, and indicate what the antecedent and subsequent variables determining educational relevance are. Through a conceptual analysis of the term "relevance," this study also found that the antecedent variables are composed of "content" and "process" dimensions. Also, this study showed some examples of subsequent variables which answer the question, relevant to what or whom?

In the process of carrying out the tasks, this study recognized that the subsequent variables must be deeply
analyzed. And so, Chapter Five of the study attempted to obtain a comprehensive view of vocational-technical high school education for the purpose of identifying subsequent variables. Also, the chapter could identify other kinds of subsequent variables through the analysis of socio-economic needs which may affect vocational-technical high school education and of the potential impacts of the education. Furthermore, this chapter supplemented the previous analyses.

Summarizing such preceding analyses in a schematic form, Figure 21 shows a set of tentative conceptual dimensions of kinds of relevance for vocational-technical high school education.

Thus, the preceding analyses showed numerous antecedent and subsequent variables determining the relevance of vocational-technical high school education. Consequently, now this study needs to categorize them into a more generalized framework. But this study already suggested a descriptive framework in Chapter Four. It was an acceptable one. Therefore, this section will explain it more concretely in a more persuasive description.

Antecedent Variables

As already analyzed in Chapter Four, this study found that antecedent variables affecting educational
Antecedent variables

Subsequent variables

"Whom" Dimension

"What" Situation (or time) and Benefit (or needs) Dimension

"What" Ability, Skill, or Competency Dimension

Educational Curriculum
Instructional Method
Instructional Material, and Others
in Vocational-Technical High School Education

Must and/or Should be Relevant to Solving or Giving

Student's
Employers'*
Society's*

Present and Future Socio-Economic Needs or Conditions

Direct Economic Benefits
Indirect Economic Benefits
Non-Economic Benefits

By Realizing

Roles or Functions/Goals or Objectives of Vocational-Technical High School

Note: *The two dimensions can be combined with Socio-Economic conditions.

Figure 21. Dimensions of Relevance for Vocational-Technical High School Education
relevance are composed of a "content" dimension and a "process" dimension. Also, this study found that the dimensions are to be considered in terms of their effects on individual students. Again, this study found that the dimensions can be categorized into four kinds of configuration: 1) content, 2) teaching method, 3) learning method, and 4) support system.

The first category can be grouped under the heading "content" which refers largely to instructional material. This content category can cover several dimensions and can be narrowed even more. However, this study will be satisfied with only the general category of content.

At this point, it may be necessary to note that the locus of control over curricular decisions has been in the hands of the teacher and other adults responsible for school curricula. That is, student interests largely have been ignored, and a curriculum has been more liable to remain static or grow stable under the weight of tradition. Therefore, in order to enhance the relevance of vocational-technical high school education, the individual student can not be omitted from the decision making processes that concern his own individual growth because the judgment of relevance is subjective.

The second category can maintain the title of "teaching method" which refers to the method of instruction.
In relation to this category, in order to enhance the relevance of vocational-technical high school education, the more systematic and effective methods of instruction should be pursued. According to Dunkin and Biddle (1974), they can include:

1) Blending the student's experiences outside of school with those in school.

2) Having the student assume the role of active creator of materials.

3) Using action-oriented learning experiences (games, simulations, role playing, etc.).

4) Maintaining a classroom environment of truth and openness.

5) Giving students a voice in the decision-making process (pp. 17-36).

The third category includes all educational activities that refer to the "learning method". The creation of this category assumes that teaching and learning are not identical. However, some of the variables might refer to either teaching or learning methods, or both.

According to Ausubel and Robinson (1969), meaningful learning requires that these three conditions hold:

1) The material itself must be relatable to some hypothetical cognitive structure in a nonarbitrary and substantive fashion.

2) The learner must possess relevant ideas to which to relate the material.
3) The learner must possess the intent to relate these ideas to cognitive structure in a nonarbitrary and substantive fashion (p. 53).

On the other hand, Ausubel and Robinson explain a hierarchically organized set of psychological processes, ranging from representational learning at the lowest to creativity at the highest. That is, they show kinds of meaningful learning methods in a hierarchical set: 1) Representational learning, 2) Concept learning, 3) Proposition learning, and 4) Discovery learning (Ibid., pp. 59-72).

The fourth and last category includes all educational activities that are not placed in one of the three categories—content, teaching method, or learning method. This category can refer largely to the dimension of educational administration as a series of service activities for the accomplishment of educational goals. But this category is very vague in communicating what should be made relevant. Presumably, this category can be connected with either content, teaching method, or learning method. In this sense, this study does not consider it significantly.

Subsequent Variables

The antecedent variables such as educational content, teaching method, and learning method are to be considered in terms of their effects on individual students. But the
subsequent variables determining educational relevance reflect the dimension of the individual and social problems to be solved by the input of the antecedent variables. That is, the subsequent variables answer the question, "Are the antecedent variables relevant to what or whom?" Therefore, a use of relevance with an antecedent and subsequent reference stipulates that one of the three variables - content, teaching method, and learning method is directly related to the subsequent variable.

This study has attempted to identify numerous subsequent variables in Chapter Five and the first section of this chapter. Therefore, in order to categorize them into a generalized descriptive framework, this study needs to carefully observe Table 6, Table 7, Figure 21, Figure 22 and the first section of this chapter.

Looking into the subsequent variables carefully, they can be essentially grouped into three broad categories: individual student, employer or industry, and society. There is some room for misplacement or double usage among the variables.

In particular, there is great double usage between the last two variables. Accordingly, they should be integrated in a combination from socio-economic conditions. Then, the subsequent variables are grouped into two broad categories: 1) individual student and 2) socio-economic conditions.
This division of variables is supported by Bruner (1973). That is, he wrote as follows:

The word relevance has two senses. The first is that what is taught should have some bearing on the grievous problems facing the world, the solution of which may affect our survival as a species. This is social relevance. There is personal relevance: What is taught should be self-rewarding, or "real", or "exciting", or "meaningful". The two kinds of relevance are not necessarily the same, alas (p. 114).

Bruner's two senses of relevance--social relevance and personal relevance are similar to the two groups which this study suggested.

Examining carefully the subsequent variables related to individual students, we can recognize that they can be reorganized into six types of categories: 1) cognitive, 2) affective, 3) performance, 4) interpersonal, 5) surrounding, and 6) future roles. Obviously, a number of subsequent variables focus on the individual student's intellectual growth, or his cognitive domain. These references include:

- liberation of mind
- logical thinking
- intellectual abilities
- self-preservation
- inductive reasoning

creative spirit
problem solving
free inquiry
adaptability to changing needs
work understandings...
This subcategory can be classified "Individual Student Cognitive", since it emphasizes the cognitive domain of the student.

A second subcategory can be made from the non-cognitive dimensions conveyed by attitudes, needs, interests, and appreciation of the student. This subcategory can be called "Individual Student Affective". These references include:

- Wholesome attitudes toward social order and change
- Attitude toward the value of work
- Acceptance
- Self-actualization
- Willingness to learn
- Perseverance
- Patience
- Self-confidence
- Ambition
- Pride

A third category focuses on students' performance competencies which require the demonstration of behaviors. This third category can be called "Individual Student Performance". These references include:

- Work skills
- Manipulative skills
- Mechanical abilities
- Reaction time
- Rate control
- Technical skills
- Manual dexterity
- Practice
- Control precision
- Arm-hand steadiness...
A fourth category focuses on students' interpersonal abilities. This category can be called "Individual Student Interpersonal". These references include:

- communication
- ideation
- emphasizing
- cooperating
- self-analysis
- self-expression
- relating to others
- team building...

A fifth subcategory focuses on surroundings that students are familiar with. These references can include such entities as industry, social life, society, consumer, and social policies. This category can be called "Individual Student Surroundings".

- preparation for work
- career
- vocation
- work role
- individual mobility
- preparation for life
- preparation for adulthood
- citizenship
- preparation for a social role
- employment opportunities...

This subcategory includes the specific references to the individual student's future socio-economic requirements and many other dimensions of roles. This grouping can be called "Individual Student Future Roles".

Now, this study will look into the second major category--"Socio-Economic Conditions". It also can be broken down into eight subcategories: 1) present situation,
2) future concern, 3) institution output goal, 4) system goal, 5) product goal, 6) derived goal, 7) maintenance, and 8) cultural values.

Looking into Table 7, the researcher can recognize that one can make a time-oriented distinction. That is, the following variables seem to reflect present conditions.

- employment opportunities
- labor force structure
- status of occupation

However, the following variables obviously focus on the future.

- social mobility
- shifts in economic sector
- demographic change
- preparation for a social role

Therefore, one dimension of the former can be called "Current Socio-Economic Situations", and the other can be called "Future Socio-Economic Concerns". Although these subcategories are not explicit, they certainly establish the time dimension.

And then, as already suggested in Chapter Five, the present and future socio-economic aspects embrace and/or
create needs to maintain their own organizations and/or institutions. According to English and Kaufman (1975), a need is the presence of a gap between a future desired condition and the status quo (p. 93). This means that it constantly changes. Bradshaw (1972) differentiates between normative need, felt need, comparative need, and expressed need (pp. 640-643). Therefore, their prescription is to make the antecedent variables relevant to certain socio-economic requirements (needs). If so, what are the socio-economic requirements? In answer, we can cite two dimensions of a society. They are people and institutions.

Concerning the first dimension, we could say that serving the needs of the individual is the same as serving the socio-economic needs because socio-economic institutions consist of individuals. However, socio-economic institutions have requirements beyond those of the individual. These requirements can be called maintenance. That is, one dimension of the socio-economic needs is the need to maintain the socio-economic institution as one of the fundamental institutions of human society.

At the same time, socio-economic institutions establish some types or levels of goals in an attempt to meet the need to maintain their own institutions and/or organizations. Perrow (1970) distinguished five categories of organizational goals in focusing the question of whose
point of view is being recognized - society, the customer, the investor, the top executives, or others:

(1) Societal goals. Referent: society in general. Examples: produce goods and services; maintain order; generate and maintain cultural values. This category deals with large classes of organizations that fulfill societal needs. We will not discuss this group since it has little to do with functioning organizations.

(2) Output goals. Referent: the public in contact with the organization. This category deals with types of output defined in terms of consumer functions. Examples: consumer goods; business services; health care; education. Our concern will be with shifts in output categories, as when a producer of consumer goods also undertakes to train Job Corps applicants or when penal establishments seek to control the sentencing of offenders.

(3) System goals. Referent: the state or manner of functioning of the organization, independent of the goods or services it produces or its derived goals. Examples: the emphasis upon growth, stability, profits, or upon modes of functioning, such as being tightly or loosely controlled or structured. Organizations have options in these respects, and the way the system functions and what it generates irrespective of products can become goals for the members.

(4) Product goals (or, more exactly, product-characteristic goals). Referent: the characteristics of the goods or services produced. Examples: an emphasis upon quality, variety, styling, availability, uniqueness, or innovativeness of the products. Organizations vary widely and deliberately in this respect.

(5) Derived goals. Referent: the uses to which the organization puts the power it generates in pursuit of other goals.
Examples: political aims; community services; employee development; investment and plant-location policies which affect the state of the economy and the future of specific communities. Organizations generate considerable power which they may use in consistent ways to influence their own members and the environment. This power is used independently of product goals (pp. 135-136).

The potential impacts of vocational-technical high school education can be viewed in relation to Perrow's classification of organizational and/or institutional goals. Also, this study can recognize that socio-economic institutions establish goals from the analysis of socio-economic needs which may be used in planning vocational-technical high school education.

Now, at this point, first of all, let's take a look at Perrow's socio-economic institution "societal goals." Looking carefully into the goals, they can be divided into two broad categories. As already discussed, one dimension of the goals is derived from the need to maintain the socio-economic institution. This dimension becomes a distinct subcategory in that vocational-technical high school education must respond to meet it. This subcategory can be called "Socio-economic Institution Maintenance." These references include:

- manpower development needs
- manpower demand
needs of the present
gratification of tastes and feeling
maintenance of proper social relations
labor market balance between jobs and employment
production of goods and services

The other dimension of the societal goals emphasizes the generation and creation of cultural values. According to Katz, values are behavioral systems of attitudes having affective loadings which cause them to be rather central to personality and thus difficult to change. Others prefer to think of values as components of attitudes. From the analytical view, values are internalized aspects of super-ego development. Some of those interested in social change see values as assumptions about human nature and particularly about the nature and control of motivation to which individuals are connected and which govern their interactions with others. For others, values are mostly seen as internalized social norms which require social support and therefore are situationally modifiable (Hornstein, et al., 1971, p. 18).

In brief, values are the nature of social order. They include the ideas, norms, behaviors, and practices of a culture. One of the broad purposes of formal educational institutions is to transmit and generate the cultural heritage. Similarly, the cultural values dimension must
become another distinct subcategory in the vocational-technical high school education must assume such a responsibility. This subcategory can be called "Socio-Economic Institution Cultural Values." These references include:

- wholesome attitudes toward social order
- social obligations
- proper social order
- social expectations
- socially acceptable system of value
- command of fundamental processes
- ethical character
- social norms.

Furthermore, this study can create four more subcategories focusing upon such goals. They are "Socio-Economic Institution Output Goal," "Socio-Economic Institution System Goal," "Socio-Economic Institution Product Goal," and "Socio-Economic Institution Societal Goal."

In summary, from the preceding discussion, this study can now draw the following descriptive framework for the uses of relevance in the context of vocational-technical high school education (see Figure 22). This framework starts with the school and moves to the individual student and the socio-economic conditions because not only the school is in a central position to determine educational relevance but also all factors in the school can affect the individual student and the socio-economic conditions.
Antecedent Variables

Content
Teaching Method
Learning Method
Support Systems

Relevant To

The Individual Student
Student Cognitive
Student Affective
Student Performance
Student Interpersonal
Student Surrounding
Student Future Roles

The Socio-Economic Condition
Present Situation
Future Concern
Institution Output Goal
Institution System Goal
Institution Product Goal
Institution Derived Goal
Institution Maintenance
Institution Cultural Values

Subsequent Variables

Figure 22. Descriptive Framework for the Uses of Relevance for Vocational-Technical High School Education
Conceptual Model of Kinds of Relevance for Vocational-
Technical High School Education

Now, this study can move from the above descriptive framework (Refer Figure 20) to a conceptualization of the kinds of relationships that relevance can make between the categories. Because the variables have been identified from the analysis of vocational-technical education, of socio-economic needs which may affect education, and of the potential impacts of the education, the result can be referred to as a conceptualization of kinds of relevance for vocational-technical high school education. The results of the conceptual analysis can be presented in outline form (See Table 10).

Slogan relevance: As already discussed in Chapter Four, Slogan Relevance is characterized by vagueness of meaning because of the lack of references. That is to say, when relevance is used without specifying at least one variable, then such a use can properly be named a slogan. However, if the term is used to communicate a specific educational meaning, then it can approach the status of a concept.

Standard relevance: This relevance is based on the requirement that relevance should be used to draw a relationship between two or more variables in response to
Table 10. Kinds of Relevance for Vocational-Technical High School Education

<table>
<thead>
<tr>
<th>Slogan Relevance</th>
<th>Standard Relevance (Dictionary Relevance)</th>
<th>Individual Student-Controlled Relevance</th>
<th>Non-Individual Student-Controlled Relevance</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Individual Student-Centered</td>
<td>Cognitive Relevance</td>
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<td></td>
<td></td>
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<td>Affective Relevance</td>
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<td>Performance Relevance</td>
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<td>Surrounding Relevance</td>
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<td>Future Roles Relevance</td>
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<td></td>
<td></td>
<td>Socio-Economic Condition-Oriented</td>
<td>Cognitive Relevance</td>
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<td>Affective Relevance</td>
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<td>Future Roles Relevance</td>
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<td>Present Situation Relevance</td>
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<td>Future Concern Relevance</td>
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<td>Institution Output Goal Relevance</td>
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<td>Institution Derived Goal Relevance</td>
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<td>Institution Maintenance Relevance</td>
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<tr>
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<td></td>
<td>Institution Cultural Values Relevance</td>
<td>Institution Cultural Values Relevance</td>
</tr>
</tbody>
</table>

Self-Producing Uncertain Relevance
its definite grammatical usage. This study already suggested that this kind of relevance can be represented as Dictionary Relevance. Dictionary Relevance is the appealed existence of a relationship between two references, even though the references do not meet any particular specifications.

**Individual student-controlled relevance:** In examining the descriptive framework (Refer to Table 6, Figure 19) showing the variables in uses of relevance, a prior question can be asked: Who specifies what is relevant or irrelevant to what? Two broad patterns of answers are possible - the individual student in vocational-technical high schools, and a person who can be identified as an educator (teacher).

In prescribing that an antecedent variable should be relevant to a subsequent variable, it is significant to consider who it is that will make the particular decision. If it is a non-individual student, then the non-individual student can choose the variables that are related through relevance. This study will call this kind of vocational-technical high school education relevance "Non-Individual Student-Controlled Relevance". As with Dictionary Relevance, the references for this kind of relevance do not have to conform to any prior specifications.
On the contrary, if the individual student himself can choose the variables that are related through relevance, then this kind of vocational-technical high school education relevance can be called "Individual Student-Controlled Relevance".

**Individual student-centered relevance:** This relevance is different from "Individual Student-Controlled Relevance" in that the latter depends on who is at the locus of control, whereas the former depends upon the focus of the subsequent references, regardless of who specifies them. Under Individual Student-Centered Relevance, there can be six possible subcategories from the relationship presented by the specific variables:

- Individual Student-Cognitive Relevance
- Individual Student-Affective Relevance
- Individual Student-Performance Relevance
- Individual Student-Interpersonal Relevance
- Individual Student-Surrounding Relevance
- Individual Student-Future Roles Relevance

**Socio-economic condition-oriented relevance:** In case of Individual Student-Centered Relevance, the focus of the antecedent variables was placed on the individual student - his cognitive, performance, affective, interpersonal, and his future roles. However, vocational-technical high school education uses of relevance have other
focuses that can be grouped under the heading "Socio-Economic Conditions". A phrase that uses this non-individual student focus to describe a second broad category is "Socio-Economic Condition-Oriented Relevance". This relevance also can be divided into eight subcategories:

Present Socio-Economic Situation Relevance
Future Socio-Economic Concern Relevance
Socio-Economic Institution Output Goal Relevance
Socio-Economic Institution System Goal Relevance
Socio-Economic Institution Product Goal Relevance
Socio-Economic Institution Derived Goal Relevance
Socio-Economic Institution Maintenance Relevance
Socio-Economic Institution Cultural Values Relevance.

Self-producing uncertain relevance: So far, kinds of relevance for vocational-technical high school education have been conceptualized on the basis of: (1) the locus of control and (2) the antecedent and subsequent variables. The next kind of relevance is determined on the basis of neither of these. The specific dimensions of "self-producing uncertain relevance" are shown in the instructional experience itself and stipulate no prior outcomes. Each student may have different feelings.
Some Considerations in Using the Model of Kinds of Relevance

It seems to be necessary that we keep in mind the following considerations whenever we use the conceptual model of kinds of relevance.

First, the kinds of relevance are not mutually exclusive. For example, "Present Socio-Economic Situation Relevance" can be pursued in emphasizing "Individual Student Cognitive Relevance". Also, "Individual Student-Future Role Relevance" and "Socio-Economic Output Goal Relevance" may coincide if the former is preparing for the assumption of a role vital to the output of the socio-economic institution. Accordingly, the main point of the model is not to reduce the range of choices regarding relevance, but to help facilitate decision making based on consideration of all possibilities.

Second, Individual Student-Centered Relevance focuses directly upon the dimensions of the individual student. Therefore, as already mentioned in the second section of this chapter, when we make curricular decisions, the individual student must be involved.

Third, we must keep in mind that many students want immediate productive and stimulating learning experiences. Therefore, although most school experiences are future-oriented, learning activities must be justified in their own right. That is, an approach must be pursued to solve
the issue of time. Here it is important to draw a distinc-
tion between goals and objectives. Whereas goals
resembling the relevance categories may be realized long
after the learning experience itself, objectives for the
learning experiences should be concerned with present per-
formances (Mager, 1962, pp. 3-5). Therefore, the educa-
tor's task is to specify immediate objectives for the
classroom that offer the best evidence that progress
toward the larger goals is being made.

Fourth, the conceptual model of kinds of relevance
can be used in decisions on content alternatives. But, it
is one thing to identify a content area in terms of its
relation to a kind of relevance, and quite another to
determine how to put that relationship into practice. The
model itself does not offer clear guidelines on methodo-
logical approaches.

Fifth, the questions on how to achieve kinds of
relevance must be approached more systematically. Examples
of systematic and effective teaching and learning methods
were suggested in the second section of this chapter.

And finally, we must consider evaluating for rele-
vance. As Scriven suggested, formative evaluation and
summative evaluation should be implemented. On the other
hand, in order to evaluate, it is necessary to know the
alternatives to be judged and the criteria for judging
them. Using the relevance schema, we can decide what directions to pursue, and what criteria we will accept as evidence that we are making progress. Each kind of relevance thus represents a possible decision, and each requires its own evaluative design. However, here is a question: How do we evaluate a program when its goals are future-oriented? Here the important understanding is that program objectives need to be defined in such a way as to be realizable in the present. Thus the criteria on whether a kind of relevance is achieved must define performance levels that can be attained in the current program.

Some Criteria for Evaluating Vocational-Technical High School Education under the Model

In the preceding section, a few evaluational viewpoints on relevance were presented in terms of educational practices. But this section presents some evaluative criteria to evaluate the products or graduates of vocational-technical high school education through follow-up studies or explanatory studies on the basis of the conceptual model of kinds of relevance which this study developed. This task is very important in that the evaluations of vocational-technical education have required that the program outcomes be specified.
As Popham and Baker (1970) mentioned, evaluation and educational objectives should, in essence, be identical because evaluative criteria should be drawn from the class of behavior specified in the objectives (p. 16). The specified behavior refers to a certain ability or competency which is a statement of an intended student outcome. The evaluative criteria presented here reflect the intended student outcomes.

The evaluative criteria presented here are representative examples of selected kinds of relevance for vocational-technical high school education. However, although the list is not exhaustive, the criteria can make us evaluate more comprehensively the relevance of vocational-technical high school education. The actual evaluation of the criteria is a difficult but a necessary job to identify the weaknesses of education.

Individual Student-Controlled Relevance and Non-Individual Student-Controlled Relevance
(Note: These two kinds of relevance can be combined because the evaluative outcomes should be the same. So, they are combined here.)

Graduates identify the most important thing within the context of complex problem situations.
Graduates establish alternative strategies to meet their needs.

Graduates are enthusiastic with their interest.

Graduates identify their concerns and present their ideas about them.

Graduates solve their personal problems with their own unique techniques (Egan and Cowan, 1979, pp. 48-52).

Individual Student-Cognitive Relevance
(Note: From highest abilities to lowest.)

- Graduates produce a new, unique, or creative solution to a problem.
- Graduates recognize a problem and solve it.
- Graduates apply principles to solve a given problem.
- Graduates predict correct application of a principle.
- Graduates recognize correct and incorrect application of a principle.
- Graduates give examples of a concept.
- Graduates distinguish between examples and nonexamples of a concept.
- Graduates recognize an example of a concept.
Graduates define or state a concept or principle (Davis, et al., p. 65).

Individual Student-Affective Relevance
(Note: From lowest level to highest.)

. Graduates are sensitive to the existence of certain phenomena and stimuli, that is, with their willingness to receive or to attend to them.
. Graduates show active attention to phenomena, reflecting interest but not commitment.
. Graduates display behavior with sufficient consistency in appropriate situations that they actually are perceived as holding a particular value.
. Graduates organize their values into a system such that certain values exercise greater control.
. Graduates show or internalize a philosophy of life (Popham and Baker, pp. 34-35).

Individual Student-Performance Relevance
(Note: From lowest level to highest.)

. Graduates become aware of objects, qualities, or relations by way of the sense organs.
Graduates possess basic rudiments of the skill acquired.

Graduates show overt behavioral act under the guidance of a more experienced person.

Graduates have a certain confidence and degree of skill in the performance of an act.

Graduates perform a motor act, with minimum expenditure of energy and time, that is considered complex (Popham and Baker, pp. 35-36).

**Individual Student-Interpersonal Relevance**

Graduates exert appropriate self-disclosure and the expression of feelings and emotions in concrete terms.

Graduates possess responding skills such as attending, listening, basic accurate empathy, and the behavioral communication of respect and genuineness.

Graduates possess the skills of challenging others.

Graduates identify their employer-employee values, analyze the genesis of these values.

Graduates possess skills of small-group involvement (Egan and Cowan, pp. 54-58).
Individual Student-Surrounding Relevance

Graduates identify problems or topics that are important in their ___ (see list below) and relate it to their personal experiences.

- community,
- neighborhood,
- family,
- workplace,
- school
- and personal life.

Individual student-Future Role Relevance

. As a citizen, graduates:
  Interpret resource guides
  Locate government services
  Recognize violations of rights
  Employ voting procedures
  Complete government forms
  Interpret legal materials...

. As a consumer, graduates:
  Conduct a budget
  Keep financial records
  Maintain bank accounts
  Complete insurance forms
  Determine financial requirements
Compare products and services
Interpret product guarantees...

As a career, graduates:
Identify possible occupations
Determine occupational requirements
Determine occupational characteristics
Participate in job interviews
Determine employer procedures

As a worker, graduates:
Choose a personally meaningful set of work values
Possess personal vocational skills at a level
Possess generally useful skills in the world of work
Show positive work values
Practice effective work habits (assume responsibility for their own behavior, plan work, maintain good health...) (Schenck, 1979, pp.33-36).

Present Socio-Economic Situation Relevance

Graduates obtain jobs in the field of preparation.
Graduates meet the needs and interests of community.

Graduates' entry level income is higher than non-participants of the program.

Graduates are relatively soon employed after graduation compared to nonparticipants of the program.

Graduates received education that the program content is current with occupational practice.

Employers are satisfied with graduates' skills.

Future Socio-Economic Concerns Relevance

Graduates possess transferable skills which enable them to be selected regardless of situational change.

Graduates received a wide general education to serve as a foundation for job-related training.

Graduates are oriented for the implementation of new technologies that are used in advanced countries.

Graduates have flexibility in occupational adjustment according to the changes of occupational structure.
Socio-Economic Institution Output Goal Relevance

. Compared to other groups of students, graduates:
  Possess deep knowledge of occupations
  Possess higher job readiness
  Have higher job satisfaction
. Graduates show an increase in average output per hour compared to nonparticipants of the program.
. Graduates are properly prepared for producing certain industrial products.

Socio-Economic Institution System Goal Relevance

. Graduates are oriented to a high rate of profit for the institution.
. Graduates strive for the stability of the institution.
. Graduates adapt to a particular kind of structure or process (e.g. centralized, bureaucratic, tight-ship operations).
. Graduates are sensitive to the institutions' change and innovations.
. Graduates present what the institution is like and how it works.
Socio-Economic Institution Product Goal Relevance

- Graduates produce industrial products to be sold in the market place in terms of:
  - The effect of quality of industrial products,
  - The importance of quantity of industrial products,
  - A wide variety of types of industrial products,
  - A way of reducing cost in producing industrial products,
  - A way to change the style of industrial products,
  - The uniqueness of industrial products.

Socio-Economic Institution Derived Goal Relevance

- Graduates identify social responsibilities of business.
- Graduates recognize the necessity of police protection and public prosecution of the institution.
- Graduates present alternative ways to ask the courts to respond to requests and to make legal rulings.
Graduates know the characteristics of desirable content of advertising and the artwork in its products and packages.

Socio-Economic Institution Cultural Values Relevance

- Graduates accept and adapt to values, beliefs, and customs that are generally held by the entire adult population.
- Graduates recognize how the values of their generation differ from those of their parents' generation.
- Graduates are familiar with and/or have ways of thinking, valuing, and behaving according to their own vocational speciality.
- Graduates have certain beliefs and practices that violate culturally accepted norms in their attempt to fill a need, solve a problem, or simply to allow a more congruent perception of reality.

Socio-Economic Institution Maintenance Relevance

- Graduates are ready to solve the weak points of the institution in the past.
- Graduates have abilities to cope with major changes that can be produced in the socio-economic institution.
Graduates possess knowledge, skills, and attitudes necessary for the continuation of the socio-economic institution.

Evaluation of the Developed Model by Jurists

This study is concerned with the validity, feasibility, or acceptability of the developed conceptual model of kinds of relevance for Korean vocational-technical high school education. Therefore, this section describes the purposes, methods, and results of the evaluation of the model by selected jury members.

Purposes of the Evaluation

At this point, the term "evaluation" is used as a means of assessing feelings and attitudes of a group toward a series of questions or statements in relation to the developed conceptual model of kinds of relevance from this study.

The basic purpose of the evaluation was to assess the jurists' feelings and attitudes toward the overall configuration of the model or the study. In other words, it was to determine whether the model is valid and acceptable for educational purposes.

In evaluating the validity of the model, the emphasis was put on its generalizability. To put it concretely,
the worth, merit, and value, appropriateness, theoretical soundness and the degree of significance of the model will be assessed.

On the other hand, in determining the acceptability of the model, the major concerns were put on its contribution to enhancing the relevance of vocational-technical high school education, and its applicability, feasibility, or usefulness in practical terms.

Fourteen evaluation items were developed in order to determine the validity and acceptability of the model. Among them eight items (A, B, C, D, E, F, K, N) were assigned to the evaluation of the validity, and the remaining six items (G, H, I, J, L, M) were assigned to the evaluation of acceptability.

In brief, analyzing the selected evaluation items on the basis of their specific criteria, they can be summarized in a schematic form as shown in Table 11.

Method of Evaluation

As already suggested in the foregoing page, the method of the evaluation was the technique of nonprojective test which asks the evaluators to respond to a series of questions or statements regarding the developed model. This study named the evaluators "jury members".
Table 11. An Evaluation Scheme for the Developed Model

<table>
<thead>
<tr>
<th>Validity Criteria</th>
<th>Items</th>
<th>Acceptability Criteria</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance of the model</td>
<td>A</td>
<td>Applicability to vocational-technical high school</td>
<td>G</td>
</tr>
<tr>
<td>Clarity of the model</td>
<td>B</td>
<td>Applicability to all vocational education</td>
<td>H</td>
</tr>
<tr>
<td>Completeness of the model</td>
<td>C</td>
<td>Adequacy for instructional strategies</td>
<td>I</td>
</tr>
<tr>
<td>Precision or simplicity of the model</td>
<td>E</td>
<td>Utility for curriculum development and educational planning</td>
<td>J</td>
</tr>
<tr>
<td>Theoretical soundness of the model</td>
<td>D,K,N</td>
<td>Usefulness in stimulating research</td>
<td>L</td>
</tr>
<tr>
<td>Newness of the model</td>
<td>F</td>
<td>Possible contribution to clarifying educational relevance</td>
<td>M</td>
</tr>
</tbody>
</table>
Evaluators: Considering the purposes of the evaluation, the jury members had to be the experts with acknowledged expertise within an area of specialization, including curriculum specialists, educational philosophers, educational administrators or policy makers, manpower planners, vocational or technical educators, and evaluation specialists. Also, all the selected groups of jury members had to have similar characteristics in terms of their concerns for vocational-technical high school education.

Bearing these points in mind, this study decided to select a jury of experts from the Korean educational arena and among Americans who know the Korean situation.

After identifying the population, determining the required sample size, and selecting the tentative jury members, they were sent an initial contact letter. The composition of the initially-contacted jury is shown in Table 12. Also the table reports the evolution of the numbers involved from the initial steps to the final service of jury members.

As Table 12 reports, in the process of the initial contact, all Americans agreed to serve but many Koreans declined to serve as jury members. The researcher assumes that the decline by the Koreans was in part due because the researcher could not identify the names of certain appointed individuals because they are often transferred,
Table 12. Composition of Jury Members

<table>
<thead>
<tr>
<th>Area of Educational Speciality</th>
<th>Proposed</th>
<th>Identified</th>
<th>Contacted</th>
<th>Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy</td>
<td>2 (2)</td>
<td>4 (4)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Administration</td>
<td>6 (3)</td>
<td>6 (4)</td>
<td>6 (4)</td>
<td>4 (3)</td>
</tr>
<tr>
<td>Development/Change</td>
<td>3 (2)</td>
<td>4 (3)</td>
<td>2 (1)</td>
<td>3 (1)</td>
</tr>
<tr>
<td>Technology Education</td>
<td>6 (3)</td>
<td>6 (4)</td>
<td>4 (2)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Vocational-Technical</td>
<td>6 (3)</td>
<td>6 (4)</td>
<td>6 (4)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>Curriculum</td>
<td>3 (2)</td>
<td>4 (3)</td>
<td>3 (2)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Evaluation</td>
<td>2 (2)</td>
<td>4 (4)</td>
<td>2 (2)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Manpower</td>
<td>5 (3)</td>
<td>6 (5)</td>
<td>4 (3)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Total</td>
<td>33 (20)</td>
<td>40 (31)</td>
<td>27 (18)</td>
<td>18 (12)</td>
</tr>
</tbody>
</table>

Note: The figures in the parentheses refer to Koreans.

and because the researcher sent an English-written letter or model. The roster of the jury members who served finally is shown in Appendix E.

Evaluation Instrument: As already suggested, the instrument of the evaluation was Likert scales rather than Semantic differential scales, Thurstone scales, and Guttman scales. Accordingly, this study developed an evaluation
checklist for the jury members to respond to a series of statements by ranking the degree of their own agreements. At the same time, this study sent an outline of the study (or model) in addition to a letter of introduction and instructions. Twelve statements except items D and K were positive ones. As a result, for positive ones rank 1 (one) designated the lowest positive point values and rank 5 (five) designated the highest positive point values. And for items D and K, the rank value designated the reverse.

In brief, the jury members were provided with a component packet of materials to aid them in the evaluation of the study (or model). These components were 1) a letter of introduction and instruction, 2) the evaluation checklist, 3) the outline of the study (or model) which contained the problem statement, objectives of the study, proposed conceptual model of kinds of relevance for vocational-technical high school education, and some representative evaluative criteria to assess the degree of the relevance of education.

In addition to responding to the instrument, the jury members were asked to make comments, suggestions, and any recommendations for the revision of the model. The evaluation checklist and a letter of introduction are presented in Appendixes B and C. Also, an outline of the study (or model) is presented in Appendix D.
Data Analysis: After receiving the jury's responses and comments, the data were analyzed by Mean (M) and Standard Deviation (SD) by each item and interpreted.

Results of the Evaluation

Among twenty-seven persons who were initially contacted, twenty-four agreed to serve as jury members. However, among the twenty-four persons, in the actual process of evaluating the model (or study), some did not return their evaluation checklists in time for them to be included in the study. Table 12 reports the number of individual returns used. The roster of evaluators is shown in Appendix E.

The actual value assigned by each juror was summarized and described in Table 13. Since the items were on a five-point scale, the rank of one (1) designated the lowest value and rank of five (5) designated the highest value in the opinions or attitudes of the respondents. However, as already mentioned, items D and K were computed to the opposite value.

As Table 13 shows, computed overall mean (M) and standard deviation (SD) scores were 4.19 and 0.90 respectively. To put it more concretely, while the mean and standard deviation scores for the validity of the model were 4.15 and 0.80, for the acceptability 4.25 and 0.95.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Items</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance of the model</td>
<td>A</td>
<td>18</td>
<td>4.65</td>
<td>0.49</td>
</tr>
<tr>
<td>Clarity of the model</td>
<td>B</td>
<td>18</td>
<td>4.06</td>
<td>0.89</td>
</tr>
<tr>
<td>Completeness of the model</td>
<td>C</td>
<td>18</td>
<td>4.00</td>
<td>0.71</td>
</tr>
<tr>
<td>Accuracy or Simplicity</td>
<td>E</td>
<td>18</td>
<td>4.00</td>
<td>0.94</td>
</tr>
<tr>
<td>Theoretical soundness</td>
<td>D,K,N</td>
<td>18</td>
<td>4.08</td>
<td>0.84</td>
</tr>
<tr>
<td>Newness of the model</td>
<td>F</td>
<td>18</td>
<td>4.29</td>
<td>0.85</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>8</td>
<td>4.15</td>
<td>0.80</td>
</tr>
<tr>
<td>Applicability to vocational-technical high school</td>
<td>G</td>
<td>18</td>
<td>4.29</td>
<td>0.98</td>
</tr>
<tr>
<td>Applicability to all vocational education</td>
<td>H</td>
<td>18</td>
<td>4.12</td>
<td>0.87</td>
</tr>
<tr>
<td>Adequacy for instructional strategies</td>
<td>I</td>
<td>18</td>
<td>4.06</td>
<td>1.04</td>
</tr>
<tr>
<td>Utility for curriculum development and educational planning</td>
<td>J</td>
<td>18</td>
<td>4.41</td>
<td>1.07</td>
</tr>
<tr>
<td>Usefulness in stimulating research</td>
<td>L</td>
<td>18</td>
<td>4.18</td>
<td>1.09</td>
</tr>
<tr>
<td>Possible contribution to clarifying educational relevance</td>
<td>M</td>
<td>18</td>
<td>4.47</td>
<td>0.62</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>6</td>
<td>4.25</td>
<td>0.95</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>14</td>
<td>4.19</td>
<td>0.90</td>
</tr>
</tbody>
</table>
According to the results of the analysis of the rank values assigned to the evaluation checklists and comments by the jurists, several conclusions have been drawn.

1. The jury was in general agreement that enhancing the relevance of vocational-technical high school education is an important theoretical and practical problem. And, the jury seemed to be in general agreement that the proposed model in this study had high significance with \( (M = 4.65, \ SD = 0.49) \) regard to this problem.

2. The jury seemed to agree that the model is a clearly useful device or a good instrument for developing vocational-technical high school education \( (M = 4.06, \ SD = 0.89) \).

3. The jury seemed to accept that the model treats relevance comprehensively and systematically. However, some jury members suggested that the model needs further refinement so that other researchers can apply it in various situations \( (M = 4.00, \ SD = 0.71) \).

4. The jury seemed to show an affirmative attitude toward the precision or simplicity of the model. That is, they seemed to be in general agreement that the model relatively economically summarizes and explains the theoretical domain of vocational-technical high school education \( (M = 4.00, \ SD = 0.94) \).
5. The jury seemed to be in general agreement that the model is theoretically sound. Accordingly, it was supported that the model neither invites overgeneralization nor entices us into committing logical fallacy. Only one American jury member showed a negative attitude or opinion as to its theoretical soundness ($M = 4.08$, $SD = 0.84$).

6. Synthesizing some Korean jury members' comments, in Korea vocational-technical high school education policy formation and development strategies have been a core problem due to a recent emphasis on the economic contributions of education. The problem, however, has been dealt with mostly on the basis of naked empiricism and a common sense approach, lacking any theoretical background. The study presented herein will give an impetus to a new approach to the very important theoretical and practical educational questions being faced in Korea.

In accordance with these comments, the jury seemed to be in general agreement that the model generally demonstrates new ways of looking at vocational-technical high school education ($M = 4.29$, $SD = 0.85$).

7. The jury also seemed to show positive attitudes or opinions toward the model's applicability to vocational-technical high school education. However, an important suggestion was offered by a Korean jury member: Information input fundamental to vocational-technical education
must be accurate. Further, a pilot test should be conducted to determine whether it has value or not as the most appropriate model for actual Korean circumstances. Moreover, it needs to be confirmed whether its composition is suitable at the developmental level in selecting appropriate educational content (M = 4.29, SD = 0.98).

8. According to the jurists' evaluation, it was indicated that the model also might be generally applicable to all vocational education (M = 4.18, SD = 0.87).

9. The jury seemed to be in general agreement that the model is operationally adequate for guiding the redirection of instructional purposes or strategies. But an important reservation was provided by an American jury member: Further detail would need to be provided in order to make it "operationally adequate" for guiding instruction in a particular concept or skill (M = 4.06, SD = 1.04).

10. The jury seemed to agree that the model can be used as a guideline for curriculum development and educational planning or policy making (M = 4.44, SD = 1.07).

11. Also, according to the jurists' evaluation, it was supported that the model can be used to stimulate research and the formation of new theoretical constructs. But as already suggested, some jury members argued that the model needs further detail or refinement so that other
researchers can use it (M = 4.18, SD = 1.09).

12. And finally, it was supported that the model seemed to contribute to enhancing the relevance of vocational-technical high school education. But, according to an American jury member, the model would need to be tested in practice in order to be more certain of whether the model can in fact enhance vocational-technical high school relevance (M = 4.47, SD = 0.62).

In summary, a consensus made by the jurists indicated that the model is valid and acceptable for Korean vocational-technical high school educational purposes in terms of its significance, clarity, completeness, precision or simplicity, theoretical soundness, newness, applicability, adequacy for instructional strategies, utility for curriculum development, and usefulness in stimulating research. Consequently, although it is recommended that the model be refined further, the researcher decided to retain the model in its original form.

Summary

In order to identify more specific and systematized subsequent variables determining educational relevance, this chapter analyzed the dimensions of abilities, competencies, or transferable skills that vocational-technical
high school graduates must acquire. As a result, it was identified that the graduates' abilities or competencies are focused on cognitive, interpersonal, attitudinal, mechanical, expressive, affective, psychomotor and other dimensions.

After identifying more specific and systematized subsequent variables, this chapter attempted to explain and describe concretely antecedent and subsequent variables determining educational relevance of vocational-technical high schools. As a result, antecedent variables were categorized into four kinds of configuration: content, teaching method, learning method, and support system. Also, subsequent variables were classified into two broad categories. The one was related to the individual student and the other was related to the socio-economic condition. Again the former was divided into six kinds of configuration: cognitive, affective, performance, inter-personal, surrounding, and future roles dimension. And the latter divided into eight kinds of configuration: present situation, future concern, institution output goal, system goal, product goal, derived goal, maintenance, and cultural values.

From the identified kinds of subsequent variables, this chapter established the kinds of relevance for vocational-technical high school education. The one major
criterion of the conceptualization was locus of control to choose the variables that are related through relevance. The other major criterion was the focus of subsequent references. Another criterion was the dimension of time. As the result, thirty three kinds of relevance were established (see Table 10). A conceptual model of kinds of relevance is the end-product which this study had intended to develop.

Since "A Conceptual Model for Enhancing the Relevance of Vocational-Technical High School Education in Meeting the Socio-Economic Needs of Korea" has been developed, this chapter also attempted to describe six points of consideration for the potential users of the model. Furthermore, this chapter presented some criteria for evaluating the relevance of vocational-technical high school education under the model.

And finally, this chapter included the results of the evaluation of the model by selected jury members. According to eighteen jurists' evaluation of the model, it was identified that the model maintains a high degree of validity and acceptability.
CHAPTER VII

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Introduction

This chapter provides a brief summary of this study by reviewing the purpose, objectives, literature review, procedures or techniques employed, and findings of this research effort. The intent is to present the findings of the research in an orderly fashion and to make conclusions and recommendations for further research on the topic of the relevance of vocational-technical high school education.

Summary

Purpose of the Study

The basic purpose of this study has been to develop a conceptual model for evaluating the extent to which vocational-technical high school education meets or tends to respond to the socio-economic needs of Koreans and Korea.
Objectives of the Study

In order to achieve the purpose of this study and lend it some direction, five basic objectives were organized. These were:

1. To solve the problem of conceptual confusion about the relevance of education.
2. To identify and concretely describe some variables determining the relevance of vocational-technical high school education to the socio-economic needs of society.
3. To conceptualize the kinds of relevance of vocational technical high school education into a cognitive model.
4. To clarify application of the developed model to evaluating the relevance of Korean vocational-technical high school education.
5. To test the acceptability of the developed model by sending a questionnaire to selected jury members.

Review of Related Literature

A review of related research was conducted in order to discover the state-of-the-art. Research proved limited, and it was concluded that the profession had neglected this vital subject.
Despite the fact that we need to develop an acceptable conceptual model for the evaluation of the relevance of vocational technical high school education, most empirical studies have attempted to identify and evaluate the relevance of education without having it. As a result, such studies have touched certain dimensions of educational relevance without dealing with the total problem of vocational technical high school education. Similarly, despite the fact man's search for educational relevance has been strident and ubiquitous in the efforts of theoretical studies, it was concluded that most theoretical studies have focused upon the content and process dimension of education itself without making great and systematic efforts to connect them in answering the question, relevant to what or whom?

The review of the related literature indicated a need to develop a conceptual model for looking into the relevance of vocational technical high school education. In addition, the literature review helped guide the direction of this study. Especially, the literature review related to conceptual analysis played a critical role in deriving a methodology (procedures or techniques) for this study.
Procedures or Techniques

In order to achieve the objectives, this study followed and/or employed the following procedures or techniques:

First, in order to solve the problem of conceptual confusion about the relevance of education, this study defined the term "educational relevance", described the characteristics of "relevance", and reviewed educators' discussions on educational relevance. This study also analyzed the term "relevance" itself through the technique of conceptual analysis. With the above two efforts, this study could identify what the antecedent and subsequent variables determining educational relevance are.

Secondly, in order to approach the second objective, this study included a detailed description of selected socio-economic needs with the help of the futurists' viewpoints of educational enterprise and the potential impacts or benefits of vocational-technical high school education. Also, this study analyzed the roles or functions, goals or objectives, and the main curriculum content of each of high school education, vocational education, technical education, and industrial arts education.

Thirdly, in order to identify more specific antecedent and subsequent variables determining the relevance of vocational-technical high school education, this study
analyzed abilities, competencies, or transferable skills that vocational technical high school graduates must acquire. Thereafter, in order to achieve the third objective, this study attempted to synthesize all the preceding analyses. The synthesis led to the categorization of the antecedent and subsequent variables determining educational relevance, so that they can be clearly shown at a glance. The categorization of the variables led to the conceptualization of the kinds of relevance for vocational-technical high school education.

In order to achieve the fourth objective, this study presented some considerations to be made in using the conceptual model. Also, this study attempted to relate some specific criteria for evaluating vocational-technical high school education under the conceptual model.

Finally, this study attempted to test the acceptability of the developed model by a jury of experts representing the educational arenas of Korea and the U.S.A.

Results of the Study

In the first chapter, the researcher advanced several questions which were to be answered by the study. The following findings were reported in terms of the questions posed by the study.
1. Educational relevance was defined as a process by which a teacher solves meaningfully a student's personal needs and problems as well as his social needs, situation, and problems which face him now or in the future through certain educational activities.

2. It was found that relevance is based on subjective or individualistic judgments because the ultimate relevance comes back to individual problems. Also, relevance is contextual or relative because each individual differs.

3. It was identified that the antecedent variables determining educational relevance were educational content, teaching method, learning method, and support systems which are considered in terms of their effects on individual students. Also, it was identified that the subsequent variables determining educational relevance are the objects which can be achieved through the antecedent variables.

4. Categorizing the variables, antecedent variables contain all things that are related to the world of content, and subsequent variables contain all things that are related to individual student's and the world of work's needs and problems.

5. The analysis of the roles or functions, goals or objectives, and the main curriculum content of high
school education, vocational education, technical education, and industrial arts education led to the identification of numerous specific antecedent and subsequent variables determining the relevance of vocational-technical high school education (see Table 6).

6. The analysis of socio-economic considerations which may be used in planning vocational-technical high school education also led to the identification of some specific references to which vocational-technical high school education must respond (see Table 8).

7. It was identified that technical education is characterized as vocational education for gainful employment but industrial technology education is a part of general education.

8. It was revealed that vocational-technical high school education and socio-economic needs closely related to each other. That is, vocational-technical high school education benefits society as well as individuals, employers, and the government, but it must and/or should respond to their needs.

9. As suggested in Chapter Four, the antecedent variables determining the relevance of vocational-technical high school education were grouped into four kinds of configuration: content, teaching method, learning method, and
support systems. In relation to enhancing educational relevance, alternative strategies for each of three categories were described.

10. The subsequent variables determining the relevance of vocational-technical high school education were categorized into two broad patterns: the individual student and the socio-economic condition. Again, the variables focused on the individual student were divided into six kinds of configurations, and the variables focused on the socio-economic condition were classified into eight kinds of configurations (see Figure 22).

11. On the basis of the descriptive framework showing kinds of subsequent variables as well as considering the locus of control, thirty-three kinds of relevance were conceptualized for vocational-technical high school education (see Table 10).

12. To clarify further applications of the developed conceptual model of kinds of relevance for vocational-technical high school education, six points of consideration in using the model were described.

13. Also, some specific criteria for evaluating the degree of the relevance which vocational-technical high school education has achieved were presented on the basis of the model.
14. The evaluation of the developed model by selected jurists indicated that the model is valid and acceptable for Korean vocational-technical high school educational purposes in terms of its significance, clarity, completeness, simplicity, theoretical soundness, newness, applicability adequacy for instructional strategies, utility for curriculum development or stimulating research.

Conclusions

On the basis of the questions posed in the problem statement and the findings of this study, a number of major conclusions were formulated. These include:

1. The conceptual confusion of the term "educational relevance" was solved. That is, the term is not too vague to guide action. It can be structured to guide curriculum development and instructional strategies as well as educational policy-making and educational planning.

2. Educational relevance can not be judged on the basis of objective or absolute standards because it is essentially based on subjective or individualistic and contextual or relative dimensions. In this sense, it can be said that educational relevance has a close relationship with individualized instruction.
3. Antecedent variables and subsequent variables which determine educational relevance maintain the relation of cause and effect. In other words, unless the antecedent variables are well planned, organized, and implemented, the effect or reward that the subsequent variables get is inevitably unsatisfactory.

However, it can be partially said that the two variables are formed into a relation between master and servant because antecedent variables are affected by subsequent variables. That is, antecedent variables must respond to the various dimensions of subsequent variables. In this sense, antecedent variables are servants and subsequent variables are masters.

4. The antecedent variables determining educational relevance can be planned but the subsequent variables cannot be planned. Therefore, the antecedent variables must be continuously reorganized according to the changes and characteristics of subsequent variables. In this sense vocational-technical high school education must be sensitive to the changes of socio-economic needs so that the education can bring greater benefits to the individuals, society, employers, and government.

5. The identified antecedent and subsequent variables from the analysis of the roles or functions, goals or objectives, and the main curriculum content of vocational-
technical high school education, and from the analysis of socio-economic conditions may be not totally inclusive and mutually exclusive. However, they were the representative ones that vocational-technical high school education must seriously consider.

6. Upon the analysis of the roles or functions, goals or objectives, and the main curriculum content of high school education, vocational education, technical education, and industrial arts education, vocational-technical high school education must emphasize both general education and vocational education in that the relevance of the education must be judged on the basis of the two dimensions of education.

7. Also, upon the analysis of the major socio-economic forces that may affect in planning vocational-technical high school education, the standards for assessing the performance of vocational-technical high school education can include an emphasis on the evidence of openness to new programs and new approaches.

8. The developed conceptual model of kinds of relevance for vocational-technical high school education is not to reduce the range of choices regarding relevance, but to help facilitate decision making based on considerations of all possibilities. In other words, this model does not indicate what kinds of relevance to emphasize.
9. In order to achieve each kind of relevance, meaningful content must be selected and organized and adequate teaching & learning methods must be established.

10. The developed model can be used as an alternative framework for evaluating vocational-technical high school education comprehensively because the model is comprehensive.

11. The evaluation criteria of vocational-technical high school education which were presented under the model were found useful in evaluating the education of Korea.

12. Usually the relevance of vocational-technical high school education has been talked of as the concept of articulation between work and education or narrowing the gap between the two. Now, it is concluded that such a way of thinking is not perfect because the term educational relevance exceeds such a concept.

Therefore, vocational-technical high school education cannot be restricted to only the function of the mastery of skills for a particular job.

13. And finally, it is concluded that the question that rises concerning relevant education is not one of relevance or irrelevance but rather the determination of the supportive social structures as to what constitutes the matter in hand. Who shall control? How can maximum
standards be assured and insured? How can accountability be maximized?

Recommendations

From the experience gained in the process of carrying out this study, the researcher offers the following recommendations to individuals considering further study in the area of vocational-technical high school education:

General Recommendations

1. The proposed conceptual model of kinds of relevance for vocational-technical high school education should be strictly tested and refined on the basis of various viewpoints.

2. After refining, the model should be applied to formulating educational policy, planning developmental education, establishing goals or objectives, and developing curricula for vocational-technical high school education.

3. The presented criteria for evaluating vocational-technical high school education should be more specifically adjusted before implementation.
Recommendations to the Educator

1. Teacher conferences or faculty meetings should focus on educational relevance at regular meetings to explore the alternatives and actions to take in order to enhance educational relevance.

2. In order to enhance educational relevance, individualized instruction should be reinforced because the relevance judgment is individualistic.

3. Teachers must be sensitive to identifying individual student's needs, interests, and problems as well as socio-economic changes.

4. Teachers should possess the techniques to establish instructional objectives and learning activities to achieve each kind of relevance.

Recommendations to the Researcher

1. Vocational-technical high school education offers many courses. Each course becomes one of the components determining educational relevance. Accordingly, each course needs to be analyzed in terms of the proposed model in order to identify specific criteria for evaluating each kind of relevance.

2. Systematic and effective teaching and learning methods should be studied in the future in order to achieve
each kind of relevance.

3. Educational curricula need to be reviewed in terms of the proposed conceptual model of kinds of relevance. Similarly, curriculum development efforts should be made in order to achieve each kind of relevance.

4. It is necessary to evaluate the relevance of vocational-technical high school education on the basis of the proposed model and the presented evaluative criteria.

5. School-industry cooperation plans to make education relevant need to be established.

6. Management approaches to making education relevant must be studied.

Recommendations to Educational Planner or Policy-Maker

1. The traditional view of vocational-technical high school education should be eliminated to cope with the forthcoming industrial-technological society. That is, secondary education should not emphasize excessively vocational aspects. Such a function should be committed to vocational institutes. Instead, secondary education should offer generally acceptable transferable skills necessary to all high school graduates. In the case of the U.S.A., area vocational schools are responsible for the former functions, and most public high schools concentrate on the latter.
In this sense, it is recommended that secondary education be reorganized.

2. In order to enhance educational relevance, education should not be passive. In other words, the notion that responding to current socio-economic needs is the best of all school responses should be eliminated. Education must be able to plan for the future.

3. The problem of educational relevance has been an important matter of concern throughout history. Nevertheless, it has been dealt with as a slogan without intensive and extensive efforts to solve it. Accordingly, the government could not avoid public charges of educational failure. In this regard, the government should formulate an Educational Policy Committee for Relevance (EPCR) in order to develop professional discussion of and policy for educational relevance. On the other hand, the government needs to support intensive research activities so that the problem of educational relevance can be thoroughly studied on the national level.
APPENDIX A: Initial Contact Letter for Selecting Jury Members to Evaluate the Developed Model from the Dissertation

Dear Sir:

I am pursuing a doctoral degree at The Ohio State University, Columbus, Ohio, U.S.A. I am in the process of writing a dissertation under the title of "A Conceptual Model for Enhancing the Relevance of Vocational-technical High School Education in Meeting Socio-economic Needs of Korea."

It is expected that the developmental aspects of the research will conclude at the beginning of January, 1982, with the writing of the dissertation draft. At that time it is desired to have an evaluation of the proposed evaluative model which will be developed by a study. Through consultation with my major adviser and committee members, a decision has been made to select a jury of twenty prominent individuals from the Korean educational arena and thirteen non-Koreans to request a judgement from them about the adequacy of the model.

This letter is written to inform you about and to ask you to participate in the evaluation task. The major task of the evaluation would be that of determining the applicability or acceptability of the model to Korean Vocational-technical high schools. As a member of the jury you would receive such materials as (1) a brief summary and explanation of the study and (2) a three to five page response form, near the middle of January 1982.

I would be honored to have you serve as a member of the jury to evaluate the proposed model. Please agree to serve as a jury member. Let me know as soon as possible if I can count on your help. Thank you in advance for your time and consideration.

Sincerely yours,

Chin-Whan Joung
Ph.D. Candidate

Sincerely yours,

Donald G. Lux
Professor & Chairman
Initial Contact Response Form

Please, let me know as soon as possible if I can count on your help.

_____ I agree to serve as a jury member.

_____ Unfortunately, I can not agree to serve as a jury member.

Name: ..................................

Address: .............................

.................................
APPENDIX B: A Letter of Introduction and Instructions for Evaluating the Model

Dear Sir:

Please accept my sincere thanks for agreeing to serve as a jury member in evaluating the conceptual model which was developed in my dissertation. Also, I would like to say that your help is of great importance to me. Also, please accept my apology for not having the developed model at the beginning of February 1982, as I hoped I would.

I now have developed "A Conceptual Model for Enhancing the Relevance of Vocational-technical High School Education in Meeting the Socio-economic Needs of Korea." Also, I have listed some considerations to be made in using the model and some criteria for evaluating vocational-technical high school education on the basis of the model.

Two packs of information are enclosed. The one is a brief outline of the Model (or study) and the other is a simple questionnaire that may be used in evaluating the acceptability and validity of the model in the Korean situation. Obviously, I am interested in your reaction to the model (or study) on the whole as well as in your written opinions.

If possible it would be quite helpful to me if you could send your response in the mail by March 31, 1982. I would like to have the "Evaluation Checklist" returned, along with any comments. You may keep the outline of the study.

Please accept my thanks, once again, for your thoughtful consideration and help. If you have any further questions regarding the model (or study), I would be happy to serve you.

Sincerely,

Chin-Whan Joung
Ph.D. Candidate

Sincerely,

Donald G. Lux
Professor & Chairman
APPENDIX C: Evaluation Checklist for the Developed Model

Please rank the following statements as to the validity and acceptability of "A Conceptual Model for Enhancing the Relevance of Vocational-Technical High School Education in Meeting the Socio-Economic Needs of Korea." The rank 1 (one) designates the lowest and the rank 5 (five) designates the highest values in your opinion.

(A) 1 2 3 4 5 Enhancing the relevance of vocational-technical high school education is an important theoretical and practical problem.

(B) 1 2 3 4 5 The developed conceptual model of kinds of relevance is a clearly useful device.

(C) 1 2 3 4 5 The model treats relevance comprehensively and systematically.

(D) 1 2 3 4 5 The model invites overgeneralization.

(E) 1 2 3 4 5 The model economically summarizes and explains the theoretical domain of vocational-technical high school education.

(F) 1 2 3 4 5 The model generally demonstrates new ways of looking at vocational-technical high school education.

(G) 1 2 3 4 5 The model is applicable to vocational-technical high school education.

(H) 1 2 3 4 5 The model is generally applicable to all vocational education.

(I) 1 2 3 4 5 The model is operationally adequate for guiding the redirection of instructional purposes or strategies.

(J) 1 2 3 4 5 The model can be used as a guideline for curriculum development and educational planning or policy making.
(K) 1 2 3 4 5 The model entices us into committing a logical fallacy.

(L) 1 2 3 4 5 The model can be used to stimulate research and the formation of new theoretical constructs.

(M) 1 2 3 4 5 The model can contribute to enhancing the relevance of vocational-technical high school education.

(N) 1 2 3 4 5 The model is theoretically sound.

Comments and Recommendations
APPENDIX D: A Summary of the Study (or Model)

A CONCEPTUAL MODEL FOR ENHANCING THE RELEVANCE OF VOCATIONAL-TECHNICAL HIGH SCHOOL EDUCATION IN THE REPUBLIC OF KOREA
- AN EXCERPTED SUMMARY -

PREPARED BY: CHIN-WHAN JOUNG

ADVISER: DR. DONALD G. LUX

COLLEGE OF EDUCATION
THE OHIO STATE UNIVERSITY
MARCH 10, 1982
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INTRODUCTION

Background of the Problem

This study was begun in recognition of the following:

1. It has been said that Korean vocational-technical high school education has not offered adequate education for both general and specialized needs of students in an appropriate combination.

2. Today's education has most often been criticized by parents and students as being remote from the daily life students must face, a life in which people work for a living. That is, social demand for educational relevance has greatly increased.

3. Similarly, the question of the relevance of vocational-technical high school education to socio-economic needs has been seriously raised. Also, the question of the relevance of this education to national culture has been heard.

4. It seems to be generally accepted that the concept "educational relevance" is too vague to guide action.
Purpose of the Study

The basic purpose of this study has been to provide an operational definition of "educational relevance" and to develop a conceptual model for evaluating the extent to which Korean vocational-technical high school education is relevant.

Objectives of the Study

In order to achieve the purpose of this study and lend it some direction, five basic objectives were organized. These were:

1. To solve the problem of conceptual confusion about the relevance of education.

2. To identify and concretely describe some variables determining the relevance of vocational-technical high school education to the socio-economic needs of society.

3. To conceptualize the kinds of relevance of vocational-technical high school education into a cognitive model.

4. To clarify application of the developed model to evaluating the relevance of Korean vocational-technical high school education.

5. To test the acceptability of the developed model by sending a questionnaire to selected jury members.
Implications of the Study

This study is necessary and significant in terms of the following four dimensions:

1. This study can be justified as forming a fundamental link in the chain of vocational-technical high school education practice and theory.

2. The justification for a conceptual analysis of the relevance of education is an overriding concern and/or need in order to make education accountable.

3. This study shows the methods of conceptual analysis by following one conceptual study, step by step. That is, this study is significant in that it offers an example of a methodological approach to problem solving.

4. In a practical sense, this study can contribute to offering basic guidelines for future planning and policy making for vocational-technical high school education in other countries besides Korea.

Methodology, Procedures, or Techniques

In order to achieve the objectives, this study followed and/or employed the following procedures or techniques:

1. In order to solve the problem of conceptual confusion about the relevance of education, this study
defined the term "educational relevance," described the characteristics of "relevance," and reviewed educators' discussions on educational relevance. Then the term "relevance" was analyzed through use of the technique of conceptual analysis. With the above two efforts, this study could identify antecedent and subsequent variables determining educational relevance.

2. In order to achieve the second objective, this study included a detailed description of selected socio-economic needs with the help of the futurists' viewpoints of educational enterprise and the potential impacts or benefits of vocational-technical high school education. Also, this study analyzed the roles or functions, goals or objectives, and the main curriculum content of high school education, vocational education, technical education, and industrial arts education, respectively.

3. In order to identify more specific antecedent and subsequent variables determining the relevance of vocational-technical high school education, this study analyzed abilities, competencies, or transferable skills that vocational-technical high school graduates must acquire. Thereafter, in order to achieve the third objective, this study attempted to synthesize all the preceding analyses. The synthesis led to the categorization of the antecedent and subsequent variables determining educational relevance,
so that they can be clearly shown at a glance. The categorization of the variables led to the conceptualization of the kinds of relevance for vocational-technical high school education.

4. In order to achieve the fourth objective, this study presented some considerations in using the conceptual model of kinds of relevance by examining the whole process of this research effort. Also, this study attempted to provide specific criteria for evaluating vocational-technical high school education under the conceptual model of kinds of relevance.

5. This study attempted to test the acceptability of the developed model by a jury of experts representing the educational arenas of Korea and the U.S.A.

PRELIMINARY ANALYSIS OF THE RELEVANCE OF VOCATIONAL-TECHNICAL HIGH SCHOOL EDUCATION

Clarification of the Term "Educational Relevance"

1. Educational relevance was defined as a process by which a teacher solves meaningfully a student's personal needs and problems as well as the student's social needs, situation, and problems which face the student now or in the future through certain educational activities.

2. It was found that relevance is based on subjective or individualistic judgments because
ultimate relevance comes back to individual problems. Also, relevance is contextual or relative because each individual differs.

3. The antecedent variables determining educational relevance were identified as having "content" and "process" dimensions: educational content, teaching method, learning method, and other dimensions which are considered in terms of their effects on individual students. Also, it was identified that the subsequent variables determining educational relevance are the objects which can be achieved through the antecedent variables.

4. Categorizing the variables, antecedent variables could contain all things that are related to the world of content, and subsequent variables could contain all things that are related to individual student's and the world of work's needs and problems.

Analysis of Roles or Functions, Goals or Objectives, and the Main Curriculum Content of Vocational-Technical High School Education

The analysis of the roles or functions, goals or objectives, and the main curriculum content of high school education, vocational education, technical education, and industrial arts education led to the identification of numerous specific antecedent and subsequent variables
determining the relevance of vocational-technical high school education (see Table 1).

Table 1. Lists of the Variables Determining the Relevance of Vocational-Technical High School Education

<table>
<thead>
<tr>
<th>Antecedent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of curriculum, program of studies, direct instructional program, extra-instructional learning opportunities, guidance, special studies, inquiry, &quot;curriculum planned&quot;, &quot;curriculum had&quot;, electives, participation in class, courses, subjects, technical programs, shopwork.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subsequent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manpower development needs, complete living, preparation for work, preparation for life, marketable skills, social obligations, life of coming generations, liberation of minds, creative spirit, wholesome attitudes toward order, development of individual potentialities, personal capabilities and talents, individual ideals, individual habits, intellectual growth, self-realization, interpersonal relations, transmission of cultural heritage, socially acceptable system of values, decision making, continual personnel development, enhancement of life, preparation for adulthood, capabilities of youth, talents of youth, self-preservation, maintenance of proper social relations, gratification of</td>
</tr>
</tbody>
</table>
Table 1 (continued)

tastes and feeling, health, command of fundamental processes, worthy home membership, vocation, citizenship, new occupations, preparation for a social role, labor market, consumer knowledge, worthy use of leisure, ethical character, work role, working skills, work abilities, work understandings, work attitudes, work habits, appreciations, labor market balance between jobs and employment, opportunities and trained manpower, societal needs, specific job, craftsperson, manipulative skills, job-related knowledge, mathematics and science depending on technology area, marketable skills, technical skill, area of technology.

Analysis of Socio-Economic Forces Affecting Vocational-Technical High School Education

The analysis of socio-economic considerations which may be used in planning vocational-technical high school education also led to the identification of some specific references to which vocational-technical high school education must respond (see Table 2).
Table 2. Examples of References to which Vocational-Technical High School Education Must Respond

<table>
<thead>
<tr>
<th>Social mobility</th>
<th>Occupational demands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment opportunities</td>
<td>Status of occupation</td>
</tr>
<tr>
<td>National goals</td>
<td>Need for national development</td>
</tr>
<tr>
<td>Technological changes,</td>
<td>Age of higher technology</td>
</tr>
<tr>
<td>developments</td>
<td>Changing balance of economic</td>
</tr>
<tr>
<td>Structural development in</td>
<td>forces</td>
</tr>
<tr>
<td>society</td>
<td>Changing social and economic</td>
</tr>
<tr>
<td>World's economy</td>
<td>life</td>
</tr>
<tr>
<td>Accumulating knowledge</td>
<td>Demographic change</td>
</tr>
<tr>
<td>Labor force structure</td>
<td>Social expectations</td>
</tr>
<tr>
<td>Shifts in economic sector</td>
<td>Shifts in occupational</td>
</tr>
<tr>
<td>Manpower demand and supply</td>
<td>patterns</td>
</tr>
<tr>
<td>Good work habits</td>
<td>Entry skills for job</td>
</tr>
<tr>
<td>Work performance abilities</td>
<td>High school graduate</td>
</tr>
<tr>
<td></td>
<td>competencies</td>
</tr>
<tr>
<td></td>
<td>Employer satisfaction</td>
</tr>
</tbody>
</table>

Analysis of the Impacts of Vocational-Technical High School Education

This analysis also led to the following conclusions: Vocational-technical high school education must contribute (or be relevant) to bringing benefits to society, students, and employers as shown in Figure 1.
Identification of Vocational-Technical High School Graduates' Abilities, Competencies, or Transferable Skills

Wiant (1977) identified transferable skills on the basis of employers' viewpoint (p. 10). The list was somewhat specific. Miguel (1977) identified the five areas of skill to increase an individual's chances for making successful occupational transfers: 1) Task performance skills common to occupations, 2) Skills for applying broadly usable knowledge, 3) Personal and interpersonal effectiveness skills, 4) Self-analysis skills, and 5) Career management and productivity skills (p. 5). Schenk (1979) attempted to identify high school graduation competencies (p. 13). The areas were: 1) Communication, 2) Computation, 3) Technology, 4) Health, 5) Citizenship, 6) Consumer, 7) Career.
On the other hand, industries have continuously attempted to measure employees' intellectual, psychomotor, and mechanical abilities that affect work performance.

Hall and Jones (1976) offered a more systematic and well organized texanomy of competencies, which is a bit different from those proposed by Bloom, Krathwohl, and others, for the specification of competencies. It included: 1) Cognitive, 2) Affective, 3) Performance, 4) Consequence, and 5) Expressive Competencies.

CONCEPTUALIZATION OF KINDS OF RELEVANCE FOR VOCATIONAL-TECHNICAL HIGH SCHOOL EDUCATION

Categorization of the Variables Determining the Relevance of Vocational-Technical High School Education

The preceding analyses identified numerous antecedent and subsequent variables which affect the relevance of vocational-technical high school education. Consequently, this study attempted to categorize them into a more generalized framework.

Summarizing the preceding analyses in a schematic form, a tentative conceptual framework of the kinds of relevance for vocational-technical high school education was produced (see Figure 2).
Antecedent variables

Educational Curriculum
Instructional Method
Instructional Material, and Others
in Vocational-Technical
High School Education

Subsequent variables

Must and/or Should be Relevant to Solving or Giving

"Whom" Dimension

Student's

Employers'*

Society's*

"What" Situation (or time) and Benefit (or needs) Dimension

Present and Future Socio-Economic Needs or Conditions

Direct Economic Benefits
Indirect Economic Benefits
Non-Economic Benefits

By Realizing

"What" Ability, Skill, or Competency Dimension

Roles or Functions/Goals or Objectives of Vocational-Technical High School

Note: *The two dimensions can be combined with socio-economic conditions.

Figure 2. Dimensions of Relevance for Vocational-Technical High School Education
Antecedent Variables: As already mentioned, this study found that antecedent variables determining educational relevance are composed of a "content" dimension and a "process" dimension. Also, this study found that the dimensions are to be considered in terms of their effects on individual students. Again, this study found that the dimensions can be categorized into four kinds of configuration: 1) content, 2) teaching method, 3) learning method, and 4) support systems.

The first category under "content" refers largely to instructional material. This category covers several dimensions and can be narrowed even more. However, this study was satisfied with only the general category of content.

The second category, "teaching method," refers to the method of instruction.

The third category includes all educational activities that refer to the "learning method." The creation of this category assumed that teaching and learning are not identical. However, some of the variables might refer to either teaching or learning methods, or both.

The fourth and last category included all educational activities that are not placed in one of the three categories—content, teaching method, or learning method. This
category refers largely to the dimension of educational administration as a series of service activities for the accomplishment of educational goals. But this category is very vague in communicating what should be made relevant. Presumably, this category can be connected with either content, teaching method, or learning method. Thus, this study does not consider it separately.

Subsequent Variables: The antecedent variables such as educational content, teaching method, learning method, or support systems are to be considered in terms of their effects on individual students. But the subsequent variables determining educational relevance reflect the dimension of the individual and social problems to be solved by the input of the antecedent variables. That is, the subsequent variables answer the question, "Are the antecedent variables relevant to what or whom?" Therefore, a use of relevance with an antecedent and subsequent reference stipulates that one of the four variables - content, teaching method, or learning method, and support systems is directly related to the subsequent variable.

This study attempted to identify numerous subsequent variables as shown in preceding section.

Looking into the subsequent variables carefully which are shown and suggested in Table 1, Table 2, Figure 1, Figure 2, they can be essentially grouped into three broad
categories: individual student, employer (industry), and society. There is some room for misplacement or double usage among the variables.

In particular, there is great double usage between the last two variables. Accordingly, they were integrated in a combination form of socio-economic conditions because industry (or employer) is only a part of the economic institution which is in turn only one of the total social institutions. And so, the subsequent variables were grouped into two broad categories: 1) individual student and 2) socio-economic conditions. This division of variables is supported by Bruner (1973). That is, he wrote as follows:

The word relevance has two senses. The first is that what is taught should have some bearing on the grievous problems facing the world, the solution of which may affect our survival as a species. This is social relevance. There is personal relevance: What is taught should be self-rewarding, or "real", or "exciting", or "meaning". The two kinds of relevance are not necessarily the same, alas (p. 114).

Bruner's two senses of relevance--social relevance and personal relevance--are similar to the two groups which this study suggested.

Examining carefully the subsequent variables related to individual students, they were reorganized into six types of categories. Firstly, a number of subsequent variables focus on the individual student's intellectual
growth or cognitive domain. This category was classified "Individual Student Cognitive", since it emphasizes the cognitive domain of the student. These references include: liberation of minds, logical thinking, intellectual abilities, self-preservation, inductive reasoning, creative spirit, problem solving, free inquiry, adaptability to changing needs, and work understandings.

A second subcategory was taken out from the non-cognitive dimensions of students and conveyed by their attitudes, needs, interests, and appreciations. This subcategory was called "Individual Student Affective". These references include: wholesome attitudes toward social order and change, attitude toward the value of work, acceptance, self-actualization, pride, perseverance, willingness to learn, ambition, patience, and self-confidence.

A third category focuses on students' performance competencies which require the demonstration of behaviors. This third category can be called "Individual Student Performance". These references include: work skills, manipulative skills, mechanical abilities, reaction time, rate control, technical skills, manual dexterity, practice, control precision, and arm-hand steadiness.

A fourth category focuses on students' interpersonal abilities. This category was called "Individual Student Interpersonal". These references include: communication,
ideation, emphasizing, cooperating, self-analysis, self-expression, relating to others, and team building.

A fifth subcategory focuses on students' surroundings with which they are familiar. These references include such as industry, social life, society, consumer, and social policies. This category was called "Individual Student Surroundings".

A sixth and final subcategory focuses on student's future work and/or roles. This subcategory included the specific references to the individual student's future socio-economic requirements and many other dimensions of roles. This grouping was called "Individual Student Future Roles". These references include: preparation for work, career, vocation, work role, individual mobility, preparation for life, preparation for adulthood, citizenship, preparation for a social role, and employment opportunities.

Looking into the variables related to "Socio-Economic Conditions", these also can be broken into subcategories. In Table 2, the researcher recognized that he can make a time-oriented distinction. That is, the following variables seem to reflect the present conditions. These are employment opportunities, labor force structure, status of structure, national goals, manpower demand, and social expectations. However, the following variables obviously focus on the future: social
mobility, shifts in economic sector, demographic change, technological change, structural developments in society, and age of higher technology.

Therefore, one dimension of the former was called "Current Socio-Economic Situations", and the other was called "Future Socio-Economic Concerns". Although these subcategories are not explicit, they certainly establish the time dimension.

And then, as already suggested in the preceding sections, the present and future socio-economic aspects embrace and/or create needs to maintain their own organizations and/or institutions. According to English and Kaufman (1975), a need is the presence of a gap between a future-desired-condition and the status quo (p. 93). This means that it constantly changes. Bradshaw (1972) differentiates between normative need, felt need, comparative need, and expressed need (pp. 640-643). Therefore, their prescription is to make the antecedent variables relevant to certain socio-economic requirements (needs). If so, what are the socio-economic requirements? In answer, we can cite two dimensions of a society. They are both people and institutions.

Concerning the first dimension, we could say that serving the needs of the individual is the same as serving the socio-economic needs because socio-economic institutions
consist of individuals. However, socio-economic institutions have requirements beyond those of the individual. These requirements can be called maintenance. That is, one dimension of the socio-economic needs is the need to maintain the socio-economic institution which is one of the fundamental institutions of human society.

At the same time, socio-economic institutions establish some types or levels of goals in an attempt to meet the need to maintain their own institutions and/or organizations. Perrow (1970) distinguished five categories of organizational goals in focusing the question of whose point of view is being recognized - society's, the customer's, the investor's, the top executive's, or others:

(1) Societal goals. Referent: society in general. Examples: produce goods and services, maintain order, generate and maintain cultural values. This category deals with large classes of organizations that fulfill societal needs. We will not discuss this group since it has little to do with functioning organizations.

(2) Output goals. Referent: the public in contact with the organization. This category deals with types of output defined in terms of consumer functions. Examples: consumer goods, business services, health care, education. Our concern will be with shifts in output categories, as when a producer of consumer goods also undertakes to train Job Corps applicants or when penal establishments seek to control the sentencing of offenders.

(3) System goals. Referent: the state or manner of functioning of the organization,
independent of the goods or services it produces or its derived goals. Examples: the emphasis upon growth, stability, profits, or upon modes of functioning, such as being tightly or loosely controlled or structured. Organizations have options in these respects, and the way the system functions and what it generates irrespective of products can become goals for the members.

(4) Product goals (or, more exactly, product-characteristic goals). Referent: the characteristics of the goods or services produced. Examples: an emphasis upon quality or quantity, variety, styling, availability, uniqueness, or innovativeness of the products. Organizations vary widely and deliberately in this respect.

(5) Derived goals. Referent: the uses to which the organization puts the power it generates in pursuit of other goals. Examples: political aims, community services, employee development, investment and plant-location policies which affect the state of the economy and the future of specific communities. Organizations generate considerable power which they may use in consistent ways to influence their own members and the environment. This power is used independently of product goals or system goals (pp. 135-136).

The potential impacts of vocational-technical high school education can be viewed in relation to Perrow's classification of organizational and/or institutional goals. Also, this study can recognize that socio-economic institutions establish such goals from the analysis of socio-economic needs which may be used in planning vocational-technical high school education.
Looking carefully into Perrow's socio-economic institution "societal goals," they can be divided into two broad categories. As already discussed, one dimension of the goals is derived from the need to maintain socio-economic institutions. This dimension becomes a distinct subcategory in that vocational-technical high school education must respond to meet it. This subcategory was called "Socio-Economic Institution Maintenance."

It includes: manpower development needs, manpower demand, needs of the present, gratification of tastes and feeling, maintenance of proper social relations, labor market balance between jobs and employment, and production of goods and services.

The other dimension of the societal goals emphasizes the generation and creation of cultural values. According to Katz, values are behavioral systems of attitudes having affective loadings which cause them to be rather central to personality and thus difficult to change. Others prefer to think of values as components of attitudes. From the analytical view, values are internalized aspects of super-ego development. Some of those interested in social change see values as assumptions about human nature and particularly about the nature and control of motivation to which individuals are connected and which govern their
interactions with others. For others, values are most seen as internalized social norms which require social support and therefore are situationally modifiable (Hornstein, et al., 1971, p. 18).

In brief, values are the nature of social order. They include the ideas, norms, behaviors, and practices of a culture. One of the broad purposes of formal educational institutions is to transmit and generate the cultural heritage. Similarly, the cultural values dimension must become another distinct subcategory in that vocational-technical high school education must assume such a responsibility. This subcategory was called "Socio-Economic Institution Cultural Values." The references include: wholesome attitudes toward social order, social obligations, proper social order, social expectations, socially acceptable system of value, command of fundamental processes, ethical character, and social norms.

Furthermore, this study created four more subcategories focusing upon such goals. They are "Socio-Economic Institution Output Goal", "Socio-Economic Institution System Goal", "Socio-Economic Institution Product Goal", and "Socio-Economic Institution Societal Goal."

In summary, from the preceding discussion, this study now drew the following descriptive framework for the uses of relevance in the context of vocational-technical high school education (see Figure 3).
Figure 3. Descriptive Framework for the Uses of Relevance for Vocational-Technical High School Education
From the above descriptive framework (see Figure 3), this study conceptualized the kinds of relevance. Because the variables have been identified from the analysis of vocational-technical education, of socio-economic needs which may affect education, and of the potential impacts of education, the result can be referred to as a conceptualization of kinds of relevance for vocational-technical high school education. The results of the conceptual analysis were presented in outline form (see Table 3).

**Slogan relevance:** Slogan relevance is characterized by vagueness of meaning because of the lack of references. That is to say, when relevance is used without specifying at least one variable, then such a use can properly be named a slogan. However, if the term is used to communicate a specific educational meaning, then it can approach the status of a concept.

**Standard relevance:** This relevance is based on the requirement that relevance should be used to draw a relationship between two or more variables in response to its definite grammatical usage. This study suggested that this kind of relevance can be represented as Dictionary...
Table 3. Kinds of Relevance for Vocational-Technical High School Education

<table>
<thead>
<tr>
<th>Slogan Relevance</th>
<th>Standard Relevance (Dictionary Relevance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Student-Controlled Relevance</td>
<td>Non-Individual Student-Controlled Relevance</td>
</tr>
<tr>
<td>Individual Student-Centered</td>
<td>Individual Student-Centered</td>
</tr>
<tr>
<td>Cognitive Relevance</td>
<td>Cognitive Relevance</td>
</tr>
<tr>
<td>Affective Relevance</td>
<td>Affective Relevance</td>
</tr>
<tr>
<td>Performance Relevance</td>
<td>Performance Relevance</td>
</tr>
<tr>
<td>Interpersonal Relevance</td>
<td>Interpersonal Relevance</td>
</tr>
<tr>
<td>Surrounding Relevance</td>
<td>Surrounding Relevance</td>
</tr>
<tr>
<td>Future Roles Relevance</td>
<td>Future Roles Relevance</td>
</tr>
<tr>
<td>Socio-economic Condition-Oriented</td>
<td>Socio-economic Condition-Oriented</td>
</tr>
<tr>
<td>Present Situation Relevance</td>
<td>Present Situation Relevance</td>
</tr>
<tr>
<td>Future Concern Relevance</td>
<td>Future Concern Relevance</td>
</tr>
<tr>
<td>Institution Output Goal</td>
<td>Institution Output Goal</td>
</tr>
<tr>
<td>Relevance</td>
<td>Relevance</td>
</tr>
<tr>
<td>Institution System Goal</td>
<td>Institution System Goal</td>
</tr>
<tr>
<td>Relevance</td>
<td>Relevance</td>
</tr>
<tr>
<td>Institution Product Goal</td>
<td>Institution Product Goal</td>
</tr>
<tr>
<td>Relevance</td>
<td>Relevance</td>
</tr>
<tr>
<td>Institution Derived Goal</td>
<td>Institution Derived Goal</td>
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<tr>
<td>Relevance</td>
<td>Relevance</td>
</tr>
<tr>
<td>Institution Maintenance</td>
<td>Institution Maintenance</td>
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<tr>
<td>Relevance</td>
<td>Relevance</td>
</tr>
<tr>
<td>Institution Cultural Values Relevance</td>
<td>Institution Cultural Values Relevance</td>
</tr>
</tbody>
</table>

Self-Producing Uncertain Relevance
Relevance. Dictionary relevance is the appealed existence of a relationship between two variables, even though the variables do not meet any particular specifications.

**Individual student-controlled relevance:** In examining the descriptive framework showing the variables in uses of relevance, a prior question can be asked: Who specifies what is relevant or irrelevant to what? Two broad patterns of answers are possible - the individual student in vocational-technical high schools, and a person who can be identified as an educator (teacher).

In prescribing that an antecedent variable should be relevant to a subsequent variable, it is significant to consider who it is that will make the particular decision. If it is a non-individual student, then an individual student cannot choose the variables that are related through relevance. This study will call this kind of vocational-technical high school education relevance "Non-Individual Student-Controlled Relevance." As with Dictionary Relevance, the references for this kind of relevance do not have to conform to any prior specifications.

On the contrary, if the individual student can choose the variables that are related through relevance, then this kind of vocational-technical high school education relevance can be called "Individual Student-Controlled Relevance."
Individual student-centered relevance: This relevance is different from "Individual Student-Controlled Relevance" in that the latter depends on who is at the locus of control whereas the former depends upon the focus of the subsequent references, regardless of who specifies them. Under Individual Student-Centered Relevance, there can be six possible subcategories from the relationship presented by the specific variables:

- Individual Student-Cognitive Relevance
- Individual Student-Affective Relevance
- Individual Student-Performance Relevance
- Individual Student-Interpersonal Relevance
- Individual Student-Surrounding Relevance
- Individual Student-Future Roles Relevance

Socio-economic condition-oriented relevance: In the case of Individual Student-Centered Relevance, the focus of the antecedent variables was placed on the individual student - the student's cognitive, psychomotor, affective, inter-personal, and future roles. However, vocational-technical high school education uses of relevance have other focuses that can be grouped under the heading "socio-economic conditions." A phrase that uses this non-individual student focus to describe a second broad category is "Socio-Economic Condition Oriented Relevance." This relevance also can be divided into eight subcategories:
Present Socio-Economic Situation Relevance
Future Socio-Economic Concern Relevance
Socio-Economic Institution Output Goal Relevance
Socio-Economic Institution System Goal Relevance
Socio-Economic Institution Product Goal Relevance
Socio-Economic Institution Derived Goal Relevance
Socio-Economic Institution Maintenance Relevance
Socio-Economic Institution Cultural Values Relevance.

**Self-producing uncertain relevance:** So far, kinds of relevance for vocational-technical high school education have been conceptualized on the basis of: (1) locus of control, (2) the antecedent and subsequent variables and (3) time dimension. The next kind of relevance is determined on the basis of neither of these. The specific dimensions of "self-producing uncertain relevance" are shown in the instructional experience itself and stipulate no prior outcomes. Each student may have a different feelings.

**Some Considerations in Using the Model of Kinds of Relevance**

The following considerations should be kept in mind whenever one uses the conceptual model of kinds of relevance.

1. The kinds of relevance are not mutually exclusive. For example, Present Socio-Economic Situation Relevance can be pursued in emphasizing Individual Student
Cognitive Relevance. Accordingly, the main point of the model is not to reduce the range of choices regarding relevance, but to help facilitate decision making based on consideration of all possibilities.

2. Individual Student-Centered Relevance focuses directly upon the dimensions of the individual student. Therefore, when we make curricular decisions, the individual student must be involved.

3. In order to enhance future-oriented relevance, an approach must be pursued to solve the issue of time. Here it is important to draw a distinction between goals and objectives. Whereas goals resembling the relevance categories may be realized long after the learning experience itself, objectives for the learning experiences should be concerned with present performances (Mager, 1962, pp. 3-5). Therefore, the educator's task is to specify immediate objectives for the classroom that offer the best evidence that progress toward the larger goals is being made.

4. It is one thing to identify a content area in terms of its relation to a kind of relevance, and quite another to determine how to put that relationship into practice.

5. The questions on how to achieve kinds of relevance must be approached more systematically.
6. Each kind of relevance represents a possible decision, and each requires its own evaluative design.

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APPENDIX E: Roster of Served Individuals

U.S.A. Educational Arena

Dr. Donald G. Lux, Professor & Chairperson
Faculty of Industrial Technology Education
College of Education
The Ohio State University

Dr. Willis E. Ray, Professor
Faculty of Industrial Technology Education
College of Education
The Ohio State University

Dr. George Ecker, Associate Professor
Faculty of Educational Administration
College of Education
The Ohio State University

Dr. Virgil E. Blanke, Professor
Faculty of Educational Administration
College of Education
The Ohio State University

Dr. Donald P. Sanders, Professor
Faculty of Educational Foundations & Research
College of Education
The Ohio State University
Dr. James E. Sage, Professor
Faculty of Vocational Technical Education
College of Education
The Ohio State University

Korean Educational Arena

Lee Jae Won, Professor
College of Industrial Education
Chungnam National University
Daejeon 300-31, Korea

Dr. Jongchol Kim, Professor
College of Education
Seoul National University
151 Seoul, Korea

Dr. Shinil Kim, Professor
College of Education
Seoul National University
151 Seoul, Korea

Dr. Hyung Suk Kheel, Professor
Duck-Seong Woman College
Seoul, Korea
Dr. Woo Hyun Chyung, Professor  
Department of Education  
College of Education  
Korea University  
Seoul, Korea  

Dr. Yung Dug Lee, Professor  
College of Education  
Seoul National University  
Seoul 151, Korea  

Dr. Sung Soo Kim, Professor  
Ag. Ed., Col. of Ag.  
Seoul National University  
Suweon 170, Korea  

Dr. Joung-Kyu Whang, Professor  
College of Education  
Korea University  
Annam-dong, Sungbuk  
Seoul 132, Korea  

Ki-Suck Maeng, Dean  
College of Industrial Education  
Choongnam University  
Daejeon 300-31, Korea
Dr. Yoon-Tai Kim, Professor
Sogang University
P.O. Box 1142
Seoul, Korea

Jae-Wan Ko, Director
Division of Science and Technology
Bureau of Elementary & Secondary Education
Ministry of Education
Seoul, Korea

Dr. Se-Ho Shin, Vice President
Korean Educational Development Institute
20-1 Umyeon Dong, Gangnam Gu
Seoul, Korea
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