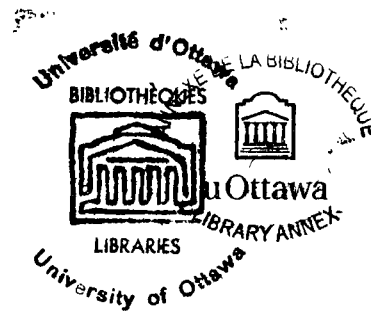


CLARIFYING THE CONCEPT OF VOCATIONAL MATURITY  
THROUGH THE USE OF A CAREER DEVELOPMENT PROGRAM WITH  
HIGH SCHOOL FRESHMEN AND SENIORS

by Roger W. Sorochty

Thesis presented to the School  
of Graduate Studies of the  
University of Ottawa as partial  
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Philosophy



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## CURRICULUM STUDIORUM

Roger W. Sorochty was born on December 9, 1948 in Rochester, New York. He received the Bachelor of Arts degree in Sociology-Psychology from Hobart College, Geneva, New York, in 1970. He received the Master of Science degree in Higher Education-Student Personnel Administration from Syracuse University, Syracuse, New York, in 1972.

## TABLE OF CONTENTS

Chapter	page
INTRODUCTION . . . . .	vii
I.- REVIEW OF THE LITERATURE . . . . .	1
1. Vocational Choice as a Developmental Process	2
2. Vocational Maturity and Its Measurement	17
3. Career Development Programs	36
4. Related Research and Theoretical Rationale	54
5. Research Question and Hypotheses	69
II.- EXPERIMENTAL DESIGN . . . . .	72
1. Treatment and Instrument	73
2. The Sample	79
3. Experimental Procedure	86
III.- PRESENTATION OF RESULTS . . . . .	98
1. The Data Producing Sample	98
2. Examining the Specific Hypotheses	101
3. Supplementary Findings	111
IV.- DISCUSSION OF RESULTS . . . . .	113
1. The Developmental Nature of Vocational Choice	114
2. Vocational Maturity and Career Development Programs	115
3. The Findings and the Theoretical Rationale	120
4. Implications for Other Theories of Vocational Development	129
5. Implications for Other Aspects of Development	133
6. Implications for Super's Validation Data	138
7. Implications Beyond Adolescence	141
V.- SUMMARY, CONCLUSIONS AND IMPLICATIONS . . . . .	145
1. Summary of the Thesis	145
2. Conclusions of the Present Study	148
3. Implications for Practice and Theory	150
BIBLIOGRAPHY . . . . .	153

TABLE OF CONTENTS

	page
Appendix	
1. DESCRIPTION OF MATERIALS USED IN THE L C G . . .	162
2. INSTRUCTIONS AND SAMPLE ITEMS FROM THE C D I . .	165
3. MEANS AND STANDARD DEVIATIONS ON THE CAREER DEVELOPMENT INVENTORY FROM SUPER'S VALIDATION STUDY . . . . .	173
4. RAW SCORES OBTAINED ON SCALES A, B, AND C BY STUDENTS COMPLETING THE CAREER DEVELOPMENT INVENTORY . . . . .	175
5. ABSTRACT OF <u>Clarifying the Concept of Vocational Maturity Through the Use of a Career Develop- ment Program with High School Freshmen and Seniors</u> . . . . .	178

## LIST OF TABLES

Tables	page
I.- Stages of Vocational Development as Defined by Various Authors . . . . .	9
II.- Super's Developmental Model . . . . .	27
III.- The Sample for the Present Study . . . . .	84
IV.- The Data-Producing Sample . . . . .	99
V.- Means and Standard Deviations of Scores from Scales A, B and C of the C D I for Freshmen and Seniors . . . . .	102
VI.- Intercorrelations of C D I Scales for Freshmen and Seniors . . . . .	103
VII.- F-Ratios for Multivariate Tests of Equality of Freshman and Senior C D I Mean Vectors . . . . .	105
VIII.- F-Ratios for Univariate Test of Equality of C D I Mean Scores for Experimental and Control Groups of Freshmen . . . . .	106
IX.- F-Ratios for Univariate Test of Equality of C D I Mean Scores for Experimental and Control Groups of Seniors . . . . .	109
X.- Summary of Statistical Decisions, Actual and Expected, for Null Hypotheses One Through Six	121
XI.- Means and Standard Deviations on the Career Development Inventory from Super's Validation Study . . . . .	173
XII.- Raw Scores Obtained on Scales A, B, and C by Students Completing the Career Development Inventory . . . . .	175

## INTRODUCTION

Many four-year liberal arts colleges in the United States are experiencing a leveling off or in some cases a decline in enrollment. Projections for the next ten years indicate that this trend will continue. For the most part, the opposite has been true of two-year institutions whose primary mission is education for employment. This trend might be interpreted as an indication that students are being increasingly concerned about the relationship of their education to their vocational plans.

Both types of institutions enable students to enroll in programs which will prepare them for specific careers. In both cases, but especially in the two-year institutions, it is to the student's advantage to have had some involvement in career planning prior to entering the post-secondary institution.

Factors related to this have been referred to as vocational developmental tasks. Research has shown that vocational developmental tasks tend, for the most part, to occur at certain ages or life stages. Consequently, coping successfully with the vocational developmental tasks of one life stage should prepare the individual to cope successfully with the tasks of the succeeding stage. Inability to cope successfully at one stage could result in impaired vocational development.

Over the past twenty-five years a great deal of work has been done in an effort to assess one's level of vocational development. The result has been the refinement of the concept of vocational maturity. This has been defined as one's ability to cope with the vocational developmental tasks usually occurring in one's life stage (age). Until very recently, the vast amount of research concerning the concept has concentrated on the elements which comprise it and designing instruments to measure it. Because of the progress made in these areas, the present study examined the application of the concept.

This was done by focusing on the vocational developmental tasks of high school freshmen and seniors who participated in a career development program known as the Life Career Game. Because of their different ages, and hence their involvement in different vocational developmental tasks, the present study investigated whether or not the program would have a differential effect on their level of vocational maturity. The effect was assessed by using a measure of vocational maturity known as The Career Development Inventory. It was hoped that the results of the present study would: 1) clarify the notion of different vocational developmental tasks occurring in different life stages; 2) reinforce the need to design career development programs aimed at specific vocational developmental tasks

and hence age groups; 3) demonstrate the need for a broad interpretation of the concept of vocational maturity encompassing many factors other than merely occupational ones; and 4) aid counselors in determining how best to direct their efforts in meeting the individual needs of students with vocational problems through the use of vocational maturity measures.

In investigating the problem, the present study began with a review of the literature concerning vocational development, vocational maturity, research surrounding the concept's development and practical application and the nature of career development programs. The first chapter endorses a particular measure of vocational maturity as being capable of measuring the effectiveness of a particular career development program. A research question, general hypothesis and specific hypotheses are formulated in order to establish the proposed relationship between the variables in the present study.

Chapter II of the present study describes the experimental design used. Such things as the validity and reliability of the instruments used, method of sample selection, procedure followed during the collection of data and statistics used in the analysis of the data are discussed.

The results of the data obtained are presented in Chapter III. This discussion analyzes the specific

hypotheses and considers some of the supplementary findings related to the method of gathering data.

Chapter IV presents a discussion of the findings. In the first part of this chapter the discussion focuses on the relationship of the findings to the theoretical rationale presented in the first chapter. The chapter concludes with a discussion of the implications of the present study's findings. This section relates the findings and theoretical rationale of the present study to: other theories of vocational development; other aspects of development; Super's validation data and; the implications for the period of life beyond adolescence.

Chapter V presents a summary of the thesis. A summary of the content of each chapter is presented. This is followed by a summary of the conclusions reached as a result of the data obtained. The chapter concludes with a discussion of the implications of the present study for practice and theory.

## CHAPTER I

### REVIEW OF THE LITERATURE

This chapter will focus on the concept of vocational maturity and the differential effect a career development program might have on it for individuals in different age groups. The chapter examines the contributions of developmental psychology to the study of vocational development. It then shows how various authors have divided the process of vocational development into stages. This leads to the notion of vocational maturity which is analyzed by means of various definitions, theories of the concept's components, and ways it has been measured. This is followed by support for one particular measure of vocational maturity.

The chapter continues with a discussion of the purposes and content of career development programs and describes one which would meet the needs of the present study regarding its effect on vocational maturity. Related research is discussed concluding that the variables in the present study have not previously been related in the same manner. A theoretical rationale is then developed from which a research question and research hypotheses are generated.

### 1. Vocational Choice as a Developmental Process.

Between 1940 and 1950 a major change occurred in the method of describing the process of making vocational choices. From the pioneer work of Parsons<sup>1</sup> through the late 1940's, the predominant view of vocational choice

. . . emphasized the a-historical, instantaneous, nondynamic elements in vocational decision-making. Resolution of the problem of choosing an occupation . . . was seen as a point-in-time event.<sup>2</sup>

Beginning with Carter's<sup>3</sup> article on vocational attitudes, emphasis was placed on describing occupational choice as an on-going, developmental process rather than a point-in-time event. Carter stated:

The development of vocational interests involves interactions between growth processes, some of which are educationally controlled. . . . Growth in this field is a part of general maturation of developing individuality.<sup>4</sup>

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1 Frank Parsons, Choosing a Vocation, Boston, Houghton Mifflin, 1909, viii-165 p.

2 John O. Crites, "Measurement of Vocational Maturity in Adolescence: I. Attitude Test of the Vocational Development Inventory", in Psychological Monographs, Vol. 79, No. 2, Whole No. 595, 1965, p. 1.

3 Harold D. Carter, "The Development of Vocational Attitudes", in Journal of Consulting Psychology, Vol. 4, No. 5, 1940, p. 185-191.

4 Ibid., p. 187.

He saw vocational interests developing as part of an individual's overall growth process (which is both educationally and biologically controlled) and not ending after an occupational choice has been made. He was not the first to espouse this view. It was alluded to by Kitson<sup>5</sup> in 1925 and stated by the National Vocational Guidance Association<sup>6</sup> as early as 1927.

During the late 1940's and through the 1950's the developmental approach became the dominant view in the field of occupational choice theory. Since this approach is crucial to the concept of vocational maturity which will be discussed later, the driving forces behind this change need to be examined.

The field of developmental psychology was most directly responsible for the change from occupational choice to vocational development. According to this discipline, there are a few fundamental principles associated with the developmental process. They are:

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<sup>5</sup> Harry Dexter Kitson, Psychology of Vocational Adjustment, Philadelphia, Lippincott, 1925, viii-273 p.

<sup>6</sup> Principles and Practices of Vocational Guidance, Cambridge, Massachusetts, National Vocational Guidance Association, 1927.

Development is characterized by continuity.  
. . .; Development is marked by orderly sequences.  
. . .; Skills develop from the general to the  
specific.<sup>7</sup>

Havighurst<sup>8</sup> has viewed this process as being comprised of various developmental tasks.

A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks.<sup>9</sup>

According to Havighurst, developmental tasks arise from three sources; "physical maturation . . ., cultural pressure of society . . . [and] personal values and aspirations of the individual"<sup>10</sup>.

Within the parameters of these principles Havighurst and other developmental psychologists have studied various types of development. These have included physical, social, emotional, moral, intellectual, and vocational. The view of vocational development, however, has been somewhat narrow.

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7 Louis P. Thorpe and Wendell W. Cruze, Developmental Psychology, New York, Ronald Press, 1956, p. 7.

8 Robert J. Havighurst, Human Development and Education, New York, London, Toronto, Longmans, Green and Company, 1953, v-388 p.

9 Ibid., p. 2.

10 Ibid., p. 4.

The treatment generally conveys the implication that vocational choice and adjustment are merely elements of the transition from adolescence to adulthood. They were considered tasks of one life stage rather than those of a longer-term developmental process.<sup>11</sup>

Super<sup>12</sup> has indicated that it was primarily the work of Buhler<sup>13</sup> and her theory of life stages which changed this belief and caused vocational development to be viewed as continuing throughout one's life. Much of the credit, then, for causing the concept of occupational choice to be overshadowed by the concept of vocational development can be traced to Buhler's work. Within this frame of reference, vocational development is seen as a sub-set of an individual's overall development.

Other authors such as Blocher<sup>14</sup> have also used the life-stages approach to analyze development.

The usefulness of a life-stages approach lies chiefly in the general concept that cultural forces and maturational changes acting at particular times in the lives of human beings will result in particular kinds of problems, crises, and behavior patterns.<sup>15</sup>

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11 Donald E. Super, et al., Vocational Development: A Framework for Research, New York, Bureau of Publications, Teachers College, Columbia University, 1957, p. 7.

12 Ibid., p. 37.

13 Charlotte Buhler, Der Menschliche Lebenslauf als Psychologisches Problem, Leipzig, Hirzel, 1933.

14 Donald A. Blocher, Developmental Counseling, New York, Ronald Press, 1960, viii-250 p.

15 Ibid., p. 47.

In defining the concept of life stages, the emphasis here will be placed on Buhler's formulation because of her impact on the field of vocational development. She states:

Initially there is the growth and decline of the organism, a process to which every individual is subjected and over which he has little influence. Then there is the maturational order in which the functions of the psychophysical system develop, a sequence whose speed and quality can be influenced by learning and also by the impact of emotional experiences.<sup>16</sup>

While this is a very general description of the human life cycle, Super has explained her five life stages, "each of which is named in such a way as to indicate the problems and activities most characteristic, though not necessarily peculiar to, that stage"<sup>17</sup>.

These stages are referred to as growth, exploration, establishment, maintenance, and decline. The growth stage is a "period of very rapid physical, emotional, and mental development"<sup>18</sup>. The exploration stage is a "period in which an individual attempts to understand himself and to find his place in the world of adults and work"<sup>19</sup>. During the

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<sup>16</sup> Charlotte Buhler, "The General Structure of the Human Life Cycle", in Charlotte Buhler and Fred Massarik, (eds.), The Course of Human Life, New York, Springer Publishing Co., 1968, p. 12.

<sup>17</sup> Super, et al., 1957, p. 37.

<sup>18</sup> Ibid., p. 37.

<sup>19</sup> Ibid., p. 37.

establishment stage, an individual "typically establishes a career, a way of life, a home and a family"<sup>20</sup>. The maintenance stage is a time when "past gains are consolidated and enjoyed, rather than one in which new ventures are undertaken"<sup>21</sup>. As the name implies, the decline stage is the time when a "gradual decline of physical and mental powers begins to be evident"<sup>22</sup>.

Thus, the static concept of occupational choice came to be replaced by the more dynamic concept of vocational development due to the influence of developmental psychology and particularly the work of Buhler. Dysinger was an early advocate of this approach. He said that "an adequate philosophy of vocational guidance must be grounded in the developmental history of the individual"<sup>23</sup>. Thus, a person's vocational development was seen as passing through a series of stages as did other aspects of development. However, this change did not eliminate the concept of choice entirely.

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20 Ibid., p. 37.

21 Ibid., p. 37.

22 Ibid., p. 37.

23 Wendell S. Dysinger, "Maturation and Vocational Guidance", in Occupations, Vol. 29, December, 1950, p. 198.

Most writers agreed that vocational choice is a "specific sub-goal in a continuous process, and all agree that this particular choice is not synonymous with the end of the process"<sup>24</sup>.

Perhaps the impact developmental psychology had on occupational choice is best summed up by Dysinger. He said:

The vocational decision-series is the social-ization of the individual in a vocational direction, holding intimate interrelationships with his growth as a citizen, homemaker, creative being. Vocational adjustment is a chapter in developmental psychology and the task of the vocational counselor is defined in this setting.<sup>25</sup>

Buhler expressed the same feeling when she said that "all the factors relevant to learning, maturation and development in general have a bearing upon the development of vocational attitudes"<sup>26</sup>.

It would be helpful now to examine how various authors have divided the process of vocational development into stages. The table on page nine summarizes their approaches. These authors have been selected because of the prominent position they have held in contributing to the concept of developmental stages in the field of

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<sup>24</sup> Edward S. Bordin et al., "An Articulated Framework of Vocational Development", in Journal of Counseling Psychology, Vol. 10, No. 2, 1963, p. 107.

<sup>25</sup> Dysinger, p. 201.

<sup>26</sup> Buhler, 1968, p. 187.

Table I.-

Stages of Vocational Development as Defined by Various Authors.

DYSINGER	GINZBERG	TIEDEMAN	SUPER
1. Fantasy	1. Fantasy Choice (Age 6-11)	1. Period of Anticipation A. Exploration B. Crystallization C. Choice D. Specification	1. Growth (birth-14) A. Fantasy (4-10) B. Interest (11-12) C. Capacity (13-14)
2. Exploratory	2. Tentative Choice (11-17) A. Interest (11-12) B. Capacity (13-14) C. Value (15-16) D. Transition (17)	2. Period of Implementation & Adjustment A. Introduction B. Transition C. Maintenance	2. Exploration (15-24) A. Tentative (15-17) B. Transition (18-21) C. Trial (22-24)
3. More Maturity	3. Realistic Choice (early adulthood) A. Exploration B. Crystallization C. Specification		3. Establishment (25-44) A. Trial (25-30) B. Stabilization (31-44)
4. Preparation & Placement			4. Maintenance (45-64) 5. Decline (65 on)

vocational development. This has been substantiated particularly by the work of Osipow<sup>27</sup> and by a publication of the American College Testing Program<sup>28</sup>. Other authors such as Holland and Roe have made significant contributions to the field but from a different perspective, that is, a theory of personality, and are therefore not considered here. A clear understanding of the stages of vocational development is important. Based on these, and the notion that individuals engage in different vocationally-related tasks in different stages, it will be suggested later that experiences designed to enhance vocational development might not have a uniform impact on individuals of different ages.

Dysinger's Formulation. Dysinger<sup>29</sup> pointed out, as did other authors, that stages of vocational development are not discrete and tendencies in one stage could overlap into another. This aspect of continuity was mentioned earlier as one of the fundamental principles associated with the developmental process. Even though he has made this observation, his formulation remains lacking.

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27 Samuel H. Osipow, Theories of Career Development, New York, Appleton-Century-Crofts, 1973, xiii-328 p.

28 American College Testing Program, Career Planning Program for Grades 12 and 13: Counselor's Manual, Iowa City, Iowa, The American College Testing Program, 1974, p. 9-15.

29 Dysinger, p. 198-201.

One of the major problems with his approach is that the stages seem too general and ill-defined. It is difficult to determine the approximate ages which coincide with the stages. In addition, the final stage concerns preparation and placement. This seems to leave a great deal of vocational development left unexplained when, at best, this only encompasses the establishment stage in Buhler's conceptualization of the developmental process.

Ginzberg and Associates. The approach of Ginzberg<sup>30</sup> and his associates is somewhat more complete. They have delineated a series of sub-stages within their three general stages and have given some approximate age parameters to these. The major drawback here is that they, too, only carry the process of vocational development through a period of specification which for them is the period of early adulthood.

Tiedeman's Description. Tiedeman's<sup>31</sup> description is quite similar to the previous two. He has delineated two major periods with stages in each. His approach is an improvement over the previous two since he sees vocational

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30 Eli Ginzberg et al., Occupational Choice: An Approach to a General Theory, New York and London, Columbia University Press, 1951, xiv-271 p.

31 David V. Tiedeman, "Decision and Vocational Development: A Paradigm and Its Implications", in Personnel and Guidance Journal, Vol. 40, No. 1, 1961, p. 15-21.

development going beyond a point of specification. The stages are still somewhat nebulous in reference to age ranges and still do not cover the entire life span.

Super's Approach. The description of vocational developmental stages by Super<sup>32</sup> and his associates is the most complete. Unlike Dysinger, he has given age parameters to each stage and sub-stage. More importantly, he has overcome the major drawback of the other authors by continuing his delineation of stages beyond entry into a specific occupation. He has outlined the stages of vocational development over a person's entire life cycle by relying directly on Buhler's formulation of life stages.

The importance of this distinction is that he recognizes vocational development continuing beyond middle age. While an individual will be fairly well established in a particular occupation or career by this time, he recognizes that the person will continue to interact with the environment and as a consequence may need to develop new behavior patterns or alter existing ones. Hence, Super traces vocational development throughout one's entire life span. The link with Buhler's theory of life stages is obvious and necessary.

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32 Super, et al., 1957, p. 34-53.

It should be pointed out that while there are some short comings to the first three approaches, all of them including Super's have some very valid concepts in common. First, even though the authors view the stages as ending at somewhat different times, all view each stage as part of a continuous process. Second, these stages are not viewed as discrete but are seen as overlapping. Third, the process in which the individual is engaged is seen as a series of decisions based on compromises between the individual and the environment. Finally, in making these decisions, all agree that there is a constant narrowing and refining of the individual's vocational goals.

Looking at the commonalities in these approaches, it is not difficult to see their similarity to the fundamental principles of an individual's developmental process mentioned earlier. It will be recalled that this is characterized by continuity, orderly sequences and skills which develop from the general to the specific.

Super's conceptualization of the vocational developmental process is the most complete of those cited both in terms of the length of time during a person's life which is covered and in regard to his delineation of the components of the various stages. Much of his attention has focused on the exploration stage; that stage which, for the most part, occurs during the period of adolescence. Since the

present study will rely on Super's work as its major theoretical support and focus on adolescent males and females, a clear understanding of the exploration stage is necessary.

First, the question must be asked; "What is meant by exploration?" Jordaan<sup>33</sup>, one of Super's colleagues, has attempted to make the concept of vocational exploratory behavior explicit enough to study empirically. He has defined exploratory behavior in general as

. . . activities, mental or physical, undertaken with the avowed or unconscious purpose or hope of eliciting information about oneself or one's environment, or of verifying or arriving at a basis for a decision, conclusion, solution or hypothesis, or of being entertained, challenged or stimulated.<sup>34</sup>

He describes vocational exploratory behavior as the same type of activity which "will aid one in choosing, preparing for, entering, adjusting to, or progressing in, an occupation"<sup>35</sup>.

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33 Jean Pierre Jordaan, "Exploratory Behavior: The Formation of Self and Occupational Concepts", in Donald E. Super, (ed.), Career Development: Self-Concept Theory, New York, College Entrance Examination Board, 1963, p. 42-78.

34 Ibid., p. 57-58.

35 Ibid., p. 57-58.

Within Super's<sup>36</sup> theory of vocational development, he has suggested that each stage consist of certain tasks, attitudes, and behaviors which are not present, for the most part, in other stages. Thus, while Jordaan has indicated the general nature of vocational exploratory behavior, he has relied on Super to specify what is occurring during this process of exploration.

Without going into detail here, it will be recalled from the table on page nine that the exploration stage consists of three sub-stages. Each sub-stage, according to Super, has its own characteristic vocational developmental tasks, attitudes and behaviors. Recalling Havighurst's definition of a developmental task, one could hypothesize that successful completion of the tasks — in the early part of the exploratory stage would allow for the successful completion of later tasks.

Jordaan<sup>37</sup> has indicated various factors which facilitate and impede the process of exploration. These include such things as the ability to tolerate tension, uncertainty, frustration and to make judgements. Also

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36 Donald E. Super, The Psychology of Careers, New York, Harper and Brothers, 1957, x-362 p.

37 Jordaan, p. 73-76.

necessary are objectivity, confidence, a recognition of conflicting societal demands and psychological support.

All of these things lead to a very central theme in Super's theorizing; that vocational development is also the development of the self-concept through a continuing process of compromise. As early as 1953 Super indicated that

. . . satisfaction in one's work and on one's job depends on the extent to which the work, the job, and the way of life that goes with them, enable one to play the kind of role that one wants to play. It is, again, the theory that vocational development is the development of a self concept, that the process of vocational adjustment is the process of implementing a self concept, and that the degree of satisfaction attained is proportionate to the degree to which the self concept has been implemented.<sup>38</sup>

This has been strengthened again and again in succeeding work, most notable in 1963<sup>39</sup>. Jordaan<sup>40</sup> has emphasized a very important aspect of this process of self concept development. This is the notion of compromise. He indicates that exploration can often lead to experiences whose outcomes may contradict the beliefs one has of one's self. It is here that the notion of compromise comes into play. Rather than becoming defensive and trying to preserve the values

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<sup>38</sup> Donald E. Super, "A Theory of Vocational Development", in The American Psychologist, Vol. 8, No. 5, 1953, p. 189.

<sup>39</sup> Super, (ed.), 1963, p. v-95.

<sup>40</sup> Jordaan, 1963.

and images one holds of oneself, the individual should attempt to reduce the conflict by taking a realistic view of the demands of the situation.

In summary, Super has done a great deal of work describing the stages of vocational development and of outlining the vocational developmental tasks, attitudes and behaviors which occur in the exploratory stage. These elements make up the process of exploration which occurs during the period of adolescence. Since the tasks and behaviors are, for the most part, sequential, there would seem to be implications for successful vocational development and, hence, self concept formation if the process of vocational development is impeded.

## 2. Vocational Maturity and Its Measurement.

The field of developmental psychology, particularly the concept of life stages, has been discussed in reference to its influence on the study of vocational development and its stages. Much of the work concerning stages of vocational development was traced to the work of Charlotte Buhler. The ways in which various authors described these stages was described. Emphasis was placed on Super's work because of its completeness. By indicating that vocational development was a sequential process with later tasks and behaviors being dependent on the successful completion of earlier ones, a

notion of vocational maturity could be inferred. Before such a concept can be examined, it again becomes necessary to turn to the field of developmental psychology since it is from the broad concept of maturity that vocational maturity evolved. According to Thorpe and Cruze:

The mature person is one who has attained physical maturity and who, at the same time, has developed certain attitudes, interests, and ambitions which differ considerably from those characteristic of childhood and adolescence.<sup>41</sup>

Other developmental psychologists viewed the concept of maturity in a similar manner. Baldwin<sup>42</sup> looked at it as the differences between a child and an adult while Rogers<sup>43</sup> saw it as a point toward which the adolescent moved. The difficulty with this conceptualization is similar to the problem with the early view of vocational development mentioned previously. It will be recalled that vocational development was often seen as one aspect of the transition from adolescence to adulthood. Here, too, maturity is seen as part of the same transition.

Vocational maturity on the other hand came to be viewed as continuing throughout one's life coinciding with

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<sup>41</sup> Thorpe and Cruze, p. 594.

<sup>42</sup> Alfred L. Baldwin, Behavior and Development in Childhood, New York, Holt, Rinehart and Winston, 1965, v-619 p.

<sup>43</sup> Dorothy Rogers, The Psychology of Adolescence, New York, Appleton-Century-Crofts, 1962, v-600 p.

vocational development. Dysinger was one of the first authors to relate maturity to vocational development.

He said:

The guidance movement needs a word, parallel to the word 'socialization' in social development, to express the vocational implications of maturation. The terms 'vocational decision' and 'vocational choice' suggest a single decision, but the emphasis should be placed on the developmental process.<sup>44</sup>

It was Super, though, who first defined vocational maturity in 1955 as:

. . . the degree of development, the place reached on the continuum of vocational development from exploration to decline. . . . The vocational maturity quotient may thus be conceived of as the ratio of vocational maturity to chronological age. It indicates whether or not the vocational development of the individual is appropriate for his age and how far below or beyond his chronological age his vocational development is.<sup>45</sup>

This definition of vocational maturity was called absolute vocational maturity and was referred to as Vocational Maturity I. Vocational Maturity II, or relative vocational maturity, focuses on the methods of how individuals deal with developmental tasks in comparison with methods others of the same age use to handle the same tasks.

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<sup>44</sup> Dysinger, p. 198.

<sup>45</sup> Donald E. Super, "Dimensions and Measurement of Vocational Maturity", in Teachers College Record, Vol. 51, No. 3, 1955, p. 153.

More recently Super has defined maturity as "the repertoire of coping behavior leading to outcomes, as compared with the behavioral repertoire of the peer group"<sup>46</sup>. If coping behavior is viewed as a method of dealing with developmental tasks, it can be seen that Super's definition of maturity has changed slightly from his original and has fallen more into his category of Vocational Maturity II. Thus, "vocational maturity is conceptualized as readiness for vocational decision-making, planning, and implementation; it is the ability to cope with vocational developmental tasks"<sup>47</sup>.

Thus, it is from Super that definitions of vocational maturity have developed. It now becomes necessary to examine how these definitions have been operationalized to assess vocational maturity.

Super's Early Work. The first model of vocational maturity was developed in the Career Pattern Study conducted

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<sup>46</sup> Donald E. Super, "Vocational Maturity Theory: Toward Implementing a Psychology of Careers in Career Education and Guidance", Donald E. Super, (ed.), Measuring Vocational Maturity for Counseling and Evaluation, Washington, National Vocational Guidance Association, 1974, p. 11.

<sup>47</sup> Bert W. Westbrook and Joseph R. Clary, The Construction and Validation of a Measure of Vocational Maturity, Raleigh, North Carolina, Center for Occupational Education, North Carolina State University, November 1967, p. 2, EDO 18837.

by Super and Overstreet. It aimed to "explore the validity of certain constructs concerning vocational maturity and to present information about the maturity of vocational behavior in the group of ninth grade boys studied"<sup>48</sup>.

The model was based on three concepts of developmental psychology and three characteristics of mature behavior as defined by Baldwin<sup>49</sup>. Respectively, these were:

1. Development proceeds from random, undifferentiated activity to goal directed, specific activity.

2. Development is in the direction of increasing awareness and orientation to reality.

3. Development is from dependence to increasing independence.

4. The mature individual cognizes the situation.

5. The mature individual selects a goal.

6. The mature individual's behavior is goal-directed.<sup>50</sup>

The model included twenty possible indices of vocational maturity under six dimensions. These six main dimensions were: Orientation to Vocational Choice,

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<sup>48</sup> Donald E. Super and Phoebe L. Overstreet, The Vocational Maturity of Ninth Grade Boys, New York, Bureau of Publications, Teachers College, Columbia University, 1960, p. viii.

<sup>49</sup> Alfred L. Baldwin, p. 112-130.

<sup>50</sup> Super, "Vocational Maturity Theory", p. 12.

Information and Planning, Consistency of Vocational Preferences, Crystallization of Traits, Vocational Independence, and Wisdom of Vocational Preferences. After being tested by analysis of the ninth grade data from the Career Pattern Study (CPS), the model was revised and included the following main categories; Planning Orientation, The Long View Ahead, The Short View Ahead, and The Intermediate View.

Information for the CPS was gathered by means of semi-structured interviews and objective data. A similar method was used by Gribbons and Lohnes<sup>51</sup> in their Career Development Study. They used Gribbons' Readiness for Vocational Planning (RVP) scales to measure vocational maturity.

Five of the eight RVP scales; I. Factors in Curriculum Choice, II. Factors in Occupational Choice, VI. Interests, VII. Values, and VIII. Independence of Choice, were conceptually similar to Super and Overstreet's dimensions [in the CPS]. Three scales; III. Verbalized Strengths and Weaknesses, IV. Accuracy of Self-Appraisal and V. Evidence for Self-Rating, placed more emphasis on aspects of self-knowledge than did indices of the CPS.<sup>52</sup>

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51 Warren D. Gribbons and Paul R. Lohnes, Emerging Careers, New York, Teachers College Press, 1968, v-202 p.

52 Willis E. Bartlett, "Vocational Maturity: Its Past, Present and Future Development", in Journal of Vocational Behavior, Vol. 1, No. 3, 1971, p. 219.

The Crites Model. Crites' work, which resulted in the development of the Career Maturity Inventory (CMI) "has been developed against the background of pioneer theory and research emanating from the Career Pattern Study"<sup>53</sup>. Crites' model contains four group factors: Consistency of Career Choices, Realism of Career Choices, Career Choice Competencies, and Career Choice Attitudes which incorporate eighteen variables. The CMI, however, only measures the last two factors since Crites felt that the other two could be dealt with adequately by measures which already existed as part of Super's CPS. While cognitive aspects of vocational maturity are considered, the emphasis in the CMI is on the affective elements which comprise vocational maturity.

Westbrook's Model. While Crites' model is primarily concerned with measuring vocational maturity in the affective domain, Westbrook emphasizes the cognitive. His Cognitive Vocational Maturity Test (CVMT), as the name implies, seeks to assess the range and quality of information (the cognitive aspects of vocational maturity) which a person has. The four-factor model of Crites served as the basis for initially identifying fifteen areas pertaining to vocational maturity. From these, six were selected for inclusion in Westbrook's

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<sup>53</sup> John O. Crites, "The Career Maturity Inventory", in Super, (ed.), 1974, p. 25.

CVMT. These were; Fields of Work, Job Selection, Work Conditions, Education Required, Attributes Required and Duties.

The Developmental Model. The models discussed so far have been asking; "what factors constitute vocational maturity?" This is basically a question of theoretical structure. "Research and reflection since the construction of the early models suggest several important changes. First, a model must be both structural . . . and developmental"<sup>54</sup>. Super's more recent definition of maturity which was derived from his Vocational Maturity II, is actually a developmental one. Therefore attention must again focus on Super for the most recent conception of vocational maturity — the Developmental Model.

The Developmental Model attempts to supplement the structural models by combining aspects and making changes which occur because of age, clearer. The vocational maturity factors in the model are factors "such as would be ascertained in factor analysis of the varied measures used in assessing vocational maturity"<sup>55</sup>. The more fundamental factors or dimensions of the model are comparable to the "Dimensions" of Super's original CPS and the "Group Factors"

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54 Super, "Vocational Maturity Theory", p. 15.

55 Ibid., p. 20.

in Crites' model. These fundamental factors are: Planfulness or Time Perspective, Exploration, Information, Decision-Making, Reality Orientation, and Non-Vocational Maturity Traits<sup>56</sup>.

Thus, the most recent approach to defining vocational maturity has made a substantial improvement over its forerunners. It has been viewed from a developmental as well as a structural perspective. Viewed as a developing set of traits, "its structure may be expected to differ somewhat from one life stage or sub stage to another"<sup>57</sup>. "Made clear also are the differential rates of development of the various factors, and the significance in 12th grade of factors which have not matured enough in 9th grade to have validity there"<sup>58</sup>. This may have particular importance for someone designing a career development program. It would seem that the components of the program, if it were to be effective, would have to address the developmental tasks in which the individuals participating in the program are engaged. This relationship to developmental tasks and hence to developmental psychology enhances the utility of this approach to the concept of vocational maturity.

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56 Ibid., p. 18.

57 Ibid., p. 15.

58 Ibid., p. 20.

For the purpose of clarification, Super's model is presented in Table II.

Synthesis. It now becomes necessary to see in which direction the information presented leads and why. While the initial work of Super and even Gribbons and Lohnes was essential to the refinement of the concept of vocational maturity, their methods are not very practical today. Both relied on longitudinal studies. This was perhaps necessary in the beginning to be certain that various characteristics of vocational maturity could be included based on their change over time. Contributing to the impracticality of their methods, assessment included semi-structured interviews which required trained interviewers and highly trained personnel to interpret the results. Finally, the distinction Super initially made between two types of maturity was potentially confusing when interpreting results. Even considering these shortcomings, the contributions made during this early period, especially by Super, were critical to the further development of the concept of vocational maturity.

As efforts to assess vocational maturity continued, improvements were made. Even though Crites attempted to improve on the work of Super, there remained some drawbacks to his method. First, his instrument measures only two of

Table II.-  
Super's Developmental Model.

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<u>Dimension</u>	<u>Factors</u>
I. Planfulness or Time Perspective (Awareness of Life Stages and Tasks)	I A. Distant Future I B. Intermediate Future I C. Present
II. Exploration	II A. Querying II B. Resources II C. Participation
III. Information (Educational and Occupational)	III A. Education and Training III B. Entry Requirements III C. Duties III D. Supply and Demand III E. Conditions III F. Advancement
IV. Decision-Making	IV A. Principles IV B. Practice
V. Reality Orientation	V A. Self-Knowledge V B. Realism V C. Consistency V D. Crystallization V E. Work Experience
Non Vocational Maturity Traits	Intelligence Grades Socioeconomic Status

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Source: Donald E. Super, "Vocational Maturity Theory: Toward Implementing A Psychology of Careers in Career Education and Guidance", Donald E. Super, (ed.), Measuring Vocational Maturity For Counseling and Evaluation, Washington, National Vocational Guidance Association, 1974, p. 18.

the four group factors in his model. Second, "he devised items to tap all five attitude factors but treated them as one for scoring and validation purposes"<sup>59</sup> possibly blurring any distinction there might be between these. Third, since it is used with children from grades five to twelve, scores are compared with those of twelfth graders. The assumption is that "the more a student's responses resemble those of twelfth graders, the more mature he is assumed to be"<sup>60</sup>. However, these scores could be misleading if, as Super points out, "attitudes of twelfth graders happened to reflect a regression towards immaturity in the face of approaching leaving the shelter of school for the strange world of work or of college"<sup>61</sup>. Finally, the emphasis in Crites' CMI is more on the attitudinal aspects of vocational maturity rather than the cognitive.

Westbrook also attempted to refine the technique of assessing vocational maturity. His efforts too, while significant, have certain limitations. The main point of concern with Westbrook's technique is that it produces only one score. This score deals only with occupational information and, hence, strictly with the cognitive domain of

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59 Ibid., p. 163.

60 Ibid., p. 163.

61 Ibid., p. 163.

vocational maturity. While this is an important aspect which is not tapped in any greater depth by any other instrument, it does exclude some important aspects of vocational maturity such as decision-making.

One final perspective from which to view vocational maturity is represented by Super's Developmental Model. The merits of this approach will be briefly discussed here since it is from this framework of looking at vocational maturity that the rationale for the present study will be derived.

It will be recalled that earlier vocational development was viewed as being one aspect of one's overall development and that the outcome of this process was the development of one's self-concept. Relying on the work of Buhler and Havighurst it was shown how the process of vocational development could be divided into stages and that, for the most part, these stages had specific vocational developmental tasks. "Assuming that vocational choice-making does proceed in a developmental fashion, then there should be significant differences between youngsters of varying age groups"<sup>62</sup>.

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<sup>62</sup> Nicholas Montesano and Harold Geist, "Differences in Occupational Choice Between Ninth and Twelfth Grade Boys", in the Personnel and Guidance Journal, October 1964, p. 150.

Consequently it would seem possible that adolescents in the early and late phases of the exploration stage of vocational development could be engaged in quite different vocational developmental tasks. Throughout this process of exploration it was indicated that self-concept formation was the result of a compromise between the way one viewed one's self and the social realities one faced.

This aspect of the developmental nature of vocational maturity is most important. The fact is that the social realities one must face involve many areas of one's life beyond one's vocation or job. These realities include the much more global construct of one's life-style; how one chooses to live. This includes many things such as: the type of family one would like to have; how and where one would like to live; the type of people with which one would like to associate both on and off the job; how one would like to spend one's leisure time; and others.

As Gysbers and Moore point out:

Although current career development theories are more appropriate than traditional ones, most still separate individuals' work roles, settings and events in their lives. Because of the increasing complexity and interrelatedness of all aspects of society, it no longer seems possible to clearly separate one role from another, one setting from another, one event from another. We are thus proposing that the meaning of career be expanded to encompass individuals' total lives.<sup>63</sup>

This perspective relates to the broad developmental nature of vocational development as described by Super. Consequently his notion of vocational maturity and his developmental model which sets out its components seem most appropriate as a basis from which to proceed since the view of vocational development and maturity in the present study coincides with that of Super and Gysbers and Moore.

So far, then, various ways of defining and measuring vocational maturity have been discussed. What has been said about the instruments such as the RVP scales, CMI, and the CVMT is not an attempt to discredit them. On the contrary, it is to show that various perspectives have been used from which to view vocational maturity.

One instrument remains to be discussed. This is the Career Development Inventory (CDI) developed by Super and

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<sup>63</sup> Norman C. Gysbers and Earl J. Moore, "Beyond Career Development—Life Career Development", in the Personnel and Guidance Journal, Vol. 53, No. 9, 1975, p. 648.

Forrest. It was left until now because it is derived from Super's previous work, particularly his most recent developmental model, and hence addresses the concerns of the developmental nature of vocational development, and consequently maturity, just discussed. Because of its completeness the CDI will be used to measure the dependent variable in the present study.

The Career Development Inventory.

The Career Development Inventory was devised to measure the first four of the five . . . factors in Super's Developmental Model of vocational maturity. . . . The result is an instrument which assesses planfulness (awareness, time perspective), exploratory information and usage, and occupational information and decision-making. The world of work is . . . sampled to only a very limited degree.<sup>64</sup>

This instrument has certain advantages over those already discussed. First, it is based on Super's most recent model of vocational maturity which is derived from all his previous work as well as the work of others. Second, the Planfulness and Exploration dimensions are attitudinal while the Information and Decision-Making dimensions are cognitive. Hence both dimensions are explored whereas Westbrook's instrument was strictly cognitive and Crites' was primarily attitudinal. Third, the CDI produces three

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<sup>64</sup> Donald E. Super, "Retrospect, Circumspect and Prospect", in Super, (ed.), 1974, p. 165.

scales; Planning Orientation; Resources for Exploration and; Information and Decision-Making with a score for each as well as a total score.

The real value of the CDI is the degree of completeness with which it assesses vocational maturity. It covers the full range of tasks and behaviors which occur during the exploration stage of vocational development. Specifically, "Scale A, Planning Orientation, measures a characteristic which career development and curriculum specialists generally agree should be fostered in the elementary and middle or junior high school"<sup>65</sup>.

Scale B, Resources for Exploration, assesses the used and potentially usable resources for exploration. "The career development studies have shown that this stage normally comes in the ninth and tenth grades"<sup>66</sup>.

Scale C, Information and Decision-Making, assesses the tasks and behaviors associated with the end of the exploration stage. As Super and Forrest indicate; "Those who are high on Scale C are probably about out of the exploratory stage and may be ready to specialize"<sup>67</sup>.

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<sup>65</sup> Donald E. Super and David J. Forrest, Career Development Inventory, Form I, Preliminary Manual, New York, Teachers College, Columbia University, 1972, p. 17-18.

<sup>66</sup> Ibid., p. 18.

<sup>67</sup> Ibid., p. 19.

Based on the above information, it would seem that the CDI is an instrument which can fairly accurately assess the elements of a broad notion of vocational maturity as defined by the work of Super. Since instruments such as the CDI are available it would seem essential for educators and counselors to begin to determine how best to apply them.

Osipow indicates, after a thorough review, that "the research evidence in general indicates that vocational maturity is a reasonable and valid concept, and is likely to be of increasing usefulness to our understanding of vocational development"<sup>68</sup>. Westbrook and Mastie<sup>69</sup> suggest some potential uses.

They suggest that measures of vocational maturity be used as screening devices to assess a person's readiness for making various educational-vocational decisions. They also see the measures used for diagnostic purposes whereby they would indicate the need for remediation before an individual could make normal progress in the area of vocational development. They also indicate that vocational maturity measures could be used to evaluate the outcomes of career development

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68 Osipow, p. 149.

69 Bert W. Westbrook and Marjorie M. Mastie, "On Pathfinding: Some Suggestions for Increasing Our Understanding of the Construct of Vocational Maturity", in the Journal of Industrial Teacher Education, Vol. 9, No. 3, 1972, p. 39-46.

programs thus viewing vocational maturity as an outcome variable as well as being descriptive of a developmental process.

The latter suggestion has particular relevance for the present study. A measure of vocational maturity like the CDI could be used following a career development program to determine whether, in fact, the program had a positive effect on the participants' vocational development as determined by their level of vocational maturity.

The Career Development Inventory seems particularly well suited for this. It can measure vocational maturity as an outcome variable "i.e., as a measure of the effectiveness of some experimental treatment"<sup>70</sup>. Jordaan is more explicit:

If, as research seems to show, . . . individuals differ in vocational readiness in much the same way as they differ with respect to any other human trait, the question is not, Are they ready or unready? but What are they ready for, and How ready are they? And if what they are ready for falls short of what they should be ready for, the question that should be asked is, How can they be helped to catch up?<sup>71</sup>

The three scales of the CDI, because they cover the full range of exploratory behaviors, appear to be able to provide answers to these "what" and "how" questions.

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<sup>70</sup> David J. Forrest and Albert S. Thompson, "The Career Development Inventory", in Super, (ed.), 1974, p. 53.

<sup>71</sup> Jean Pierre Jordaan, "The Use of Vocational Maturity Instruments in Counselling", in Super, (ed.), 1974, p. 115.

The question of how can they be helped to catch up relates to the type of career development program or remedial experience to which the individuals are exposed. Because the nature of such a program is crucial within the framework of the present study, this will be the next topic of discussion.

### 3. Career Development Programs.

Super has posed the question; How can they be helped to catch up? This referred to students who were behind in their vocational development. This implies, first, that various means are available and that successful intervention in the process of vocational development can occur.

It is a basic theory of guidance as we know it today that the development of the individual can be aided and guided by the provision of adequate opportunities for the utilization of aptitudes and for the development of interests and personality traits.<sup>72</sup>

With this in mind, the type of career development program which would be best suited to affect the level of vocational maturity of its participants needs to be carefully considered.

In relation to what has been said so far, it would seem that a career development program designed to assist

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<sup>72</sup> Donald E. Super, "A Theory of Vocational Development", p. 188.

the vocational development of adolescents should address certain concerns associated with individuals of that age group. In general, it could be said that such a program should allow the participants: to engage in various types of exploratory behaviors; to engage in decision-making and; to develop a planning stance toward the future which recognizes the need to adjust and compromise. This last aspect is most important and in some ways encompasses the first two.

There are actually three ways to plan for the future. The preventive approach takes the position that what one expects to happen in the future is undesirable. As a result the individual would take steps to prevent it from coming about.

The adaptive approach sees the future as pre-ordained and inevitable. In this view, the person is seen as incapable of affecting the future and therefore having to adapt to an imminent reality.

These two views of planning for the future see the individual as reacting to some pre-determined state of affairs. Only the inventive approach recognizes the potentiality within each individual to have some control over the future — to plan for it. This view of planning for the future is based on the idea that the future is not inevitable,

there are alternatives, it can be based on one's own choosing, and one can intervene. In essence,

. . . inventive planning is a style of action in the present guided by an intentional view of the future. . . . This perspective holds that  
 (a) the future consists of alternatives, and that  
 (b) none of these is inevitable or predetermined.<sup>73</sup>

In the past ten to fifteen years this approach to planning for the future has gained more and more acceptance. Most of what has been written, however, has been concerned with a societal role rather than a personal one. Some of the literature of this type includes such books as The Limits to Growth<sup>74</sup> and publications by such organizations as the Institute for the Future including: "On the Future State of the Union"<sup>75</sup> and "Some Potential Societal Developments -- 1970-2000"<sup>76</sup>.

While the vast amount of writing has been done on this level, some authors have given attention to the more

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<sup>73</sup> Warren L. Ziegler, Planning as Action: Techniques of Inventive Planning Workshops, working draft No. 7215, Syracuse, New York, Educational Policy Research Center, 1972, p. 23.

<sup>74</sup> Donella H. Meadows, et al., The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind, New York, Universe Books, 1972, 205 p.

<sup>75</sup> Olaf Helmer, On the Future State Of the Union, Menlo Park, California, Institute for the Future, 1972, iii-124 p.

<sup>76</sup> Raul de Brigard and Olaf Helmer, Some Potential Societal Developments -- 1970-2000, Middletown, Connecticut, Institute for the Future, 1970, iii-134 p.

personal level regarding the inventive role one can play in determining one's own future. Freire expressed it this way:

Man's ontological vocation . . . is to be a Subject who acts upon and transforms his world and in so doing moves toward ever new possibilities of fuller and richer life individually and collectively. This 'world' to which he relates is not a static and closed order, a 'given' reality which man must accept and to which he must adjust; rather it is a problem to be worked on and solved.<sup>77</sup>

Baier expressed the same belief:

An active forward-looking, agent's or adviser's point of view, requires us to regard the changes in a person's life as subject to his own control; as the outcome of his choice. If as we may assume, most people often want favorable changes to occur in their lives, they will also want to know how to make such changes come about. . . . With such knowledge at his disposal, a person can use his resources to intervene in the course of events so as to bring that course closer than it would otherwise be to his ideal of the good life.<sup>78</sup>

Toffler has also endorsed this stance towards one's personal future. He states:

The possible future is not singular, but plural, subject to the choices we make among innumerable arrayed options. . . . Yet some lines of development are more likely than others, and it is only by making explicit our assumptions about where we seem to be going that we can formulate sensible goals.<sup>79</sup>

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77 Paulo Freire, Pedagogy of The Oppressed, New York, Herder and Herder, 1970, p. 12-13.

78 Kurt Baier and Nicholas Rescher, (eds.), Values and the Future, New York, The Free Press, London, Collier-Macmillan, Ltd., 1969, p. 44.

79 Alvin Toffler, (ed.), Learning for Tomorrow: The Role of the Future in Education, New York, Random House, 1974, p. 5.

He further states:

This invisible architecture of assumptions shapes my personality and lends consistency to my behavior. . . . For it is precisely this ability to visualize futures . . . that makes man the most adaptive of animals. It is a prime task of education to enhance this ability, to help make the individual more sensitively responsive to change.<sup>80</sup>

This approach to dealing with the future would seem to be pertinent to the field of vocational development. The basic premise behind all vocational planning is that the person plays the major role in deciding where one's interests lie and what should be done to satisfy them — what the vocational future will be. Assisting the individual in visualizing this future through an activity which takes an inventive planning stance toward the future might enable the individual to more completely deal with one's personal future and specifically how it relates to vocational development and the development of the self-concept. Gabor described this in relation to technological and social inventions but it is applicable to the "vocational inventor" too.

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<sup>80</sup> Ibid., p. 12.

As he put it:

The future cannot be predicted, but futures can be invented. . . . The first step of the technological or social inventor is to visualize by an act of imagination a thing or state of things which does not yet exist and which to him appears in some way desirable. He can then start rationally arguing backwards from the invention and forward from the means at his disposal until a way is found from one to the other.<sup>81</sup>

It has already been mentioned that it is the individual who, to a great extent, decides what the vocational future will be. This is so regardless of whether parents, peers, teachers, or occupational stereotypes have an impact on a person's vocational interests and attitudes. As the individual continues to be exposed to these significant others, that is, as the individual continues to develop, interests and attitudes may change. The role of inventive planning in dealing with this is crucial.

If the individual can be viewed as having some degree of control over the future, the individual may be better equipped to anticipate and plan for change. If one is unable to do this and is having some difficulty in the area of vocational development, which could be determined if one knew the individual's level of vocational maturity, exposure to the process of inventive planning as part of a

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<sup>81</sup> Dennis Gabor, Inventing the Future, New York, Alfred A. Knopf, 1963, p. 207-208.

career development program could have the potential of correcting some of the deficiencies.

The benefits of inventive planning also relate to the issue of compromise in one's vocational development mentioned earlier. The preventive and adaptive approaches to planning for the future are actually types of compromises an individual might have to make with the environment. The inventive approach may also result in compromise but in a more rational manner. By attempting to visualize the future and by understanding that one has some degree of control over it, the compromises one might have to make through inventive planning become anticipated and are not as apt to become barriers to an individual's continuing development. It is for these reasons that the process of inventive planning would seem to be an essential component in a career development program concerned with affecting one's level of vocational maturity — particularly during the exploratory stage of vocational development.

#### Assisting Career Development Through Simulation.

There could be a variety of ways in which the process of inventive planning could be incorporated into a career development program. One of the more direct might be through the use of a technique known as the simulation game. One of the more important reasons for suggesting this lies in the

defining property of the game — it is a simulation. "A simulation creates a living case study, or real-life situation in which participants apply their new knowledge and skills, and obtain immediate feedback on the appropriateness of their behavior"<sup>82</sup>. In other words, it would give participants an opportunity to experience a situation which they either have not experienced before or could not because the situation might be somewhere off in their future. The usefulness of this technique seems to be that "a simulation game appears to allow a way to translate a set of ideas into a system of action rather than a system of abstract concepts"<sup>83</sup>. A parallel between this and Gabor's statement seems reasonable and thus the assertion that a simulation game could operationalize the process of inventive planning appears to be justified.

Before the relationship between simulation games and career development programs is explained, a deeper look at the nature and effects of simulation games as a teaching technique is necessary. To avoid an unnecessarily long

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<sup>82</sup> Scott B. Parry, "The Name of the Game Simulation", in the Training and Development Journal, Vol. 25, No. 2, 1971, p. 29.

<sup>83</sup> Sarane S. Boocock and E. O. Schild, (eds.), Simulation Games in Learning, Beverly Hills, California, Sage Publications, 1968, p. 50.

discussion on this topic, the conclusions of Chartier's<sup>84</sup> study will be cited.

Regarding the general impact of games, Chartier found the following:

1. Games generate more interest and motivation than other educational methods.<sup>85</sup>
2. Students seem to learn as many facts and principles by participating in a simulation game as they do in more conventional classroom activities.<sup>86</sup>
3. Problem-solving and decision-making skills are learned as well or better through simulation.<sup>87</sup> [compared to other methods of instruction].

Following his review of the research, on games, Chartier listed some suggestions which should be taken into account when considering their utilization. The following extend those just cited.

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84 Myron R. Chartier, Simulation Games as Learning Devices: A Summary of Empirical Findings and Their Implications for the Utilization of Games in Instruction, American Baptist Seminary of the West and Holy Names College, Fall 1973, 26 p., ED 101 384.

85 Ibid., p. 2.

86 Ibid., p. 3.

87 Ibid., p. 6.

1. Simulation games have a way of reaching some students that other methods fail to accomplish.<sup>88</sup>

2. Academic ability seems to be unrelated to how well students perform in games.<sup>89</sup>

3. Competition in games seems to motivate involvement.<sup>90</sup>

Based on this information concerning simulation games, it would seem that such a technique could be useful in engaging game participants in the process of inventive planning discussed earlier. However, a career development program which emphasizes inventive planning is only one of many types of career development programs. Therefore, a word needs to be said about the nature and goals of career development programs in general. This will be followed by again referring to the use of simulation games in a career development program by relating their use to the components of Super's theory discussed earlier. This will be followed by the description of one particular type of simulation game which will serve as the independent variable in the present study.

The fact that development can be guided has already been mentioned as one of the basic tenets of guidance theory.

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88 Ibid., p. 14.

89 Ibid., p. 14.

90 Ibid., p. 16.

"Assisting the student to gather information with the purpose of choosing wisely among alternatives has long been one of the central concepts in the guidance movement"<sup>91</sup>.

In addition:

Developmental Career Guidance programs seek to assist the individual in the continuous process of discovering his own uniqueness and relating his 'self' to future educational and vocational roles. Career information, information about personal characteristics, and direct or simulated career-related experiences represent key components in this process.<sup>92</sup> [Emphasis added].

These comments and what has been said earlier provide some explanation as to the purposes of career development programs in general and the benefits of a simulation game or experience in particular. A discussion of various career development programs here would prove to be unrealistic and quite incomplete no matter how lengthy. The reason is that there are literally hundreds of different career development programs. Some are distributed nationally while others are used in a single school district or school. They are geared for virtually every age level from kindergarten through adulthood. Some use computer technology and others use materials a teacher has readily available in the classroom.

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<sup>91</sup> American College Testing Program, Handbook for the A C T Career Planning Program, Iowa City, Iowa, The American College Testing Program, 1972, p. 3.

<sup>92</sup> Ibid., p. 3.

For these reasons, the discussion will now focus on the appropriateness of incorporating the process of inventive planning into a career development program for adolescents through the use of a particular simulation game. First, the question of how such a process relates to Super's theory must be addressed.

It will be recalled that Super's emphasis has been on the period of adolescence when individuals are, for the most part, in the exploratory stage of vocational development. It was explained that this was a period in which individuals engaged in various tasks and behaviors relating to future careers. These included decision-making, various types of vocational exploratory behaviors, compromise, and self-concept formation. It was also indicated that this period of exploration touched virtually every aspect of an individual's life and was not narrowly focused on work roles.

The reason for suggesting that a simulation game be used in an attempt to facilitate the vocational development of individuals in this stage of vocational development is given succinctly by Varenhorst. She states:

It would seem that if elements of future life could be simulated into some system or technique whereby students interact with the components of that future environment they would not only be exposed to some realities of the future, but also learn how to deal with them, i.e., get some practice in decision-making.<sup>93</sup>

This practice in decision-making is very important. Such a simulation game could allow students to engage in virtually every type of task and behavior which they must face during the exploration stage of vocational development. Because of the nature of the simulation — it is not real — students would not have the fear of making major, irreversible decisions and they could begin to address what may seem to many of them to be the incomprehensibility of the future. Most importantly, they could be "practicing decision-making, but in an atmosphere and setting where the penalties [of making a poor decision] are not going to be directed to them as a person"<sup>94</sup>.

Thus, one could suggest that such a simulation game, which engaged the participants in the various tasks and behaviors of the exploration stage of vocational development as defined by Super, could positively affect the vocational

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<sup>93</sup> Barbara Varenhorst, Information Regarding the Use of the Life Career Game in the Palo Alto Unified School District Guidance Program, Palo Alto, California, n.d., p. 4, EDO 12939.

<sup>94</sup> Ibid., p. 10.

development of the participants. The key to this is the practice and "experience" gained as a result of participating in the game. Likewise support for such an assumption can be given by the definition of a simulation given earlier. This was that a simulation creates a real-life situation in which participants apply their new knowledge and skills and obtain immediate feedback on the appropriateness of their behavior.

It is this notion of feedback which is most important here. It might be suggested that such feedback would provide useful information so that when individuals who participated in a simulation had to make the same types of decisions for themselves, for "real", they would be better equipped to deal with the situation than individuals who were faced with the decisions for the first time.

Thus, it seems reasonable to suggest that a simulation game could be an effective technique to use as a means of facilitating the vocational development of adolescents. To do this, however, it would appear necessary for such a game to incorporate the process of inventive planning and to address the tasks and behaviors encountered during the exploratory stage of vocational development as defined by Super.

A simulation game which meets these criteria will now be described. The game will serve as the independent variable in the present study. Following the description,

the chapter will conclude with an analysis of some recent research relating career development programs to vocational maturity and with a theoretical rationale connecting the variables in the present study.

The Life Career Game. The Life Career Game (LCG) was developed at Johns Hopkins University in the early 1960's by Boocock. The main purpose of the game is to create a simulated environment; "i.e., the creation of certain representative elements of a real-life social situation or process so that the participant must make decisions and act as if he were actually operating in this larger environment"<sup>95</sup>. More specifically:

Its purpose is to give students familiarity with the kinds of decisions that must be made about jobs, further education or training, family life and use of leisure, and with the probable consequences of particular decisions given the personal characteristics of the person making them.<sup>96</sup>

Boocock<sup>97</sup> has further explained how the LCG operates. It can be played by any number of teams consisting of two to four players. Each team works with a profile or case history of a fictitious person about the same age as the players. Play proceeds in rounds or decision periods each

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95 Sarane S. Boocock, "The Life Career Game", in Personnel and Guidance Journal, Vol. 46, No. 4, 1967, p. 328.

96 Boocock and Schild, (eds.), p. 107.

97 Boocock, 1967, p. 329.

of which represents a year in the life of this person. During each round the person's activities in the four areas mentioned above are planned. "The players' problem is to choose the combination of activities that they think will maximize their person's present satisfaction and his chances for a good life in the future"<sup>98</sup> [emphasis added]. When players have made their decisions for a given year, scores are computed in the four areas, the team moves on to the next round and the team with the highest total score at the end is the "winner".

This is a general description of how the Life Career Game works. What needs to be done now is to take a look at it in light of Super's theory and the vocational development of adolescents. As with other pedagogical devices of this nature which serve as alternatives to counseling or a course on career decision-making, information is not available which discusses the reliability and validity of the game. Nonetheless, information pertaining to its effectiveness is available and will be discussed here.

The game "seems to produce appreciation of the complexities of career decision-making"<sup>99</sup>. One skill in particular which perhaps can be acquired from the game is a

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98 Ibid., p. 329.

99 Boocock and Schild, (eds.), p. 112.

kind of "general assimilation of factual information relating to career decision-making"<sup>100</sup>. In addition, two types of vicarious experience effects might result from playing the game. "First, players may gain a deeper understanding of empathy for the roles which they played . . . and an appreciation for the importance and the complexities of the decisions that lie ahead of them"<sup>101</sup>. These outcomes seem to relate to Chartier's findings discussed earlier.

Furthermore, because of its simulated nature, the game allows the participants to deal with the incomprehensibility of the future, the fear of making major, irreversible decisions and gives them practice in decision-making. Beyond that, by dealing with education, work, family life and use of leisure time, the game incorporates all aspects of one's vocational development which affect exploratory behavior, compromise and hence self-concept development. All of these are important concepts in Super's theory of the vocational development and vocational maturity of adolescents discussed earlier.

Likewise they imply a broad view of vocational maturity as does Super's developmental model by going far

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100 Ibid., p. 121-122.

101 Boocock, 1967, p. 332.

beyond a narrow view of the concept which might only consider work roles and occupational factors to the exclusion of others.

Perhaps most importantly, it spans the period of adolescence which, for the most part, encompasses the exploratory stage of vocational development. Consequently it allows the participants to engage in virtually every type of task and behavior as described in Super's theory encountered during that period. However, it does so by compressing experiences which would normally occur over a period of years into hours.

Thus, the participants can receive immediate feedback on their decisions. The importance of this rests in the application of that feedback information to their own real-life situations.

Based on the factors addressed by the game and the procedure for playing it, it would seem that the Life Career Game engages its participants in the process of inventive planning and in the types of tasks and behaviors encountered by adolescents during what Super has defined as the exploratory stage of vocational development. By having this experience, the participants could expect to receive feedback on their decisions. Looking at this feedback as information which can be utilized when the individual must face situations in real life similar to those faced in the

game, one might suggest that the experience could have a positive impact on the participant's vocational development. This positive impact might be determined by assessing the individual's level of vocational maturity.

#### 4. Related Research and Theoretical Rationale.

Related Research. Because the use of vocational maturity as an outcome variable — as a measure of the effectiveness of some experimental treatment — is fairly new, there has been a limited amount of research on the topic. Some research has been done but before that is examined a more general piece of research should be discussed. This is the Nationwide Study of Student Career Development as reported in the Personnel and Guidance Journal<sup>102</sup>. It was based on a nationally representative sample of approximately 32,000 8th, 9th, and 11th graders in 200 schools. Its major findings are revealing to the point of being frightening.

The study found that seventy-eight per cent of high school juniors would like help with career planning. It was found that forty-nine per cent stated that they receive little or no help even though forty-eight per cent said that

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102 Dale J. Prediger, et al., "Career Development of Youth: A Nationwide Study", in Personnel and Guidance Journal, Vol. 53, No. 2, 1974, p. 97-104.

they "usually" or "almost always" could see a guidance counselor when they wanted or needed to see one. "The implication, then, is that many counselors are simply not providing help with career planning"<sup>103</sup>.

Based on these and other items in the study, the researchers concluded that: "If we were speaking of physical development rather than career development, we would describe American youth as hungry, under-nourished, and physically retarded"<sup>104</sup>. In the frame of reference of the present study, they might be described as vocationally immature. The researchers concluded that "current attempts to implement new approaches to career guidance and career education are amply justified"<sup>105</sup>.

One of the areas in which new approaches are currently being planned is in the use of vocational maturity measures. One study was that by Vriend<sup>106</sup>. The rationale for his study was that vocational maturity is composed of variables over which the individual has no control and those which are modifiable. He attempted to determine which of

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103 Ibid., p. 100.

104 Ibid., p. 103.

105 Ibid., p. 103.

106 John Vriend, "Vocational Maturity Ratings of Inner-City High School Seniors", in Journal of Counseling Psychology, Vol. 16, No. 5, 1968, p. 377-384.

the latter would be affected by an educational and guidance program which focused on these.

The particular guidance program involved was a two-year program for juniors and seniors. It appears that what he attempted to determine was the degree to which a person possessed certain traits which he presumed would be reflected in the performance on the instrument he designed to measure vocational maturity. This is actually no more than determining the construct validity of the instrument. In addition, his sample did not include different age groups which might have shown a differential effect of the program — only seniors were tested after being involved in the program for two years.

Another study by Jackson<sup>107</sup> dealt with the effect of a career development program on vocational maturity. While it sought to determine the effect of a short-term program, it did not examine some of the factors under consideration in the present study. It dealt with only one group of students — college freshmen. It used Crites' Vocational Development Inventory and concentrated on the group process occurring in the groups of ten subjects each. In short this

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107 Leonard Dorsey Jackson, "The Effect of a Formal Program of Career Exploration on the Vocational Maturity of College Freshmen", in Dissertation Abstracts International, Vol. 32, No. A-3, 1972, p. 3690-3691.

study, like Vriend's, did not emphasize the role of the individual as a planner of one's own future or consider the possibility that the effect of a career development program might be different for students of different ages engaged in different developmental tasks.

Other studies have looked at vocational maturity as an outcome variable; that is, as a measure of the effectiveness of particular career development programs. Myers and others<sup>108</sup> had a group of tenth graders spend from one to seventeen hours on a computer-based educational and occupational exploration system. Gains on the Career Development Inventory administered at the beginning and end of the school year were compared with a control group with the experimental group showing larger gains.

Flake and others<sup>109</sup> assessed the effectiveness of short term counseling on the career maturity of tenth graders as measured by Crites' Career Maturity Inventory. They found that career maturity as a developmental process can be measured and facilitated through counseling.

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108 Roger A. Myers et al., "Effects of Educational and Career Exploration System on Vocational Maturity", in Journal of Vocational Behavior, Vol. 6, No. 2, 1975, p. 245-253.

109 Muriel H. Flake et al., "Effects of Short-term Counseling on the Career Maturity of Tenth-Grade Students", in Journal of Vocational Behavior, Vol. 6, No. 1, 1975, p. 73-80.

Graff and Beggs<sup>110</sup> tested the effectiveness of a sixteen-week high school psychology course in promoting positive vocational and personal development in eleventh graders. They found that, compared to the control group, the subjects in the psychology course showed more positive mental health and more vocational maturity. Criterion measures consisted of Shostrom's Personal Orientation Inventory and the Attitude Test of Crites' Vocational Maturity Inventory.

More closely related to the variables involved in the present study, Groome<sup>111</sup> investigated the aptitude-treatment interaction effects of sex and ability of eleventh graders, who played the Life Career Game for one day, upon career maturity as measured by Crites' Career Maturity Inventory. Using post-testing only, Groome found no differences in the dependent variable of career maturity due to treatment or aptitude-treatment interaction.

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110 Robert W. Graff and Donald L. Beggs, "Personal and Vocational Development in High School Students", in the Journal of School Psychology, Vol. 12, No. 1, 1974, p. 17-23.

111 Agnes Groome, Interaction Effects of Sex and Ability of Grade Eleven Participants in the Simulation, Life Career, Upon Role-Taking and Career Maturity, Chicago, Paper presented at the Annual Meeting of the American Educational Research Association, 1974, 37 p., EDO 90932.

More directly related to the present study, Mulherin<sup>112</sup> investigated the influence of simulated career planning on the vocational maturity of ninth grade students. He used the Life Career Game with three intact classrooms of students with three others serving as control groups. The Readiness for Vocational Planning Interview Schedule was used to assess the Game's effectiveness. Mulherin found that the Game increased awareness of factors to consider in curriculum choice in the relation of curriculum choice to occupational choice for above average ability students. Ninth grade females changed their values as a result of exposure to the Game. Above average ability students demonstrated greater overall vocational maturity.

In short, the research to date has found that career guidance is greatly lacking and new approaches are amply justified. The research which has begun to look at vocational maturity as an outcome variable has not focused on the role of the individual as a planner of one's vocational future. Nor has it asked the question of whether the effectiveness of a career development program might differ based on the ages of the participants and hence their stages

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112 Brian C. Mulherin, "The Effects of Simulated Career Planning on the Vocational Maturity of Ninth Grade Youth", in Dissertation Abstracts International, Vol. 32-A, 1971, p. 6135.

of vocational development and the vocational developmental tasks in which they are engaged. Finally, the research has not stressed the importance of simulated exploratory behavior. These are major concerns which would be examined in the present study. The remainder of this section will discuss the theoretical rationale linking these factors in such a way so as to explain how the Life Career Game might have a differential effect on the vocational maturity of high school students as measured by Super's Career Development Inventory.

Theoretical Rationale. Thus far it has been shown that developmental psychology has played an integral role in explaining the process of vocational development. First, the point-in-time approach to occupational choice was altered as a result of Buhler's theory of life stages. Second, the notion of vocational developmental stages and developmental tasks arose from this. Third, vocational development was seen as a sub-set of overall development. Fourth, attempts to determine where a person was in the developmental process, referred to as the level of maturity, led to the notion of vocational maturity.

Consequently, the theoretical rationale for the present study is based on concepts taken from developmental psychology. More specifically, the rationale is derived from Super's theory of vocational development which is based on

the concept of life stages borrowed from Buhler and the concept of developmental task taken from Havighurst. Within this framework, the rationale is built around the concepts of exploration, compromise, inventive planning and a broad view of vocational maturity.

It has been shown through the work of Buhler and others that development proceeds in stages. The process of development tends to be continuous, moving from the general to the specific in stages that tend to overlap. Taking this general view of development, various researchers applied the concepts to one's vocational development. The work of Dysinger, Ginzberg, Tiedeman and Super has been cited.

The work of Super has been offered as perhaps the most complete because of his direct adoption of Buhler's concepts to the study of vocational development. Much of his work has focused on the exploratory stage of vocational development, its sub-stages and their tasks and behaviors. This is important for the rationale of the present study. It has already been stated that one of the basic tenets of guidance theory is that development can be guided.

With this general principle in mind:

The vocational developmental tasks enumerated by Super point the way to programmatic and individual approaches to correct and facilitate career development. According to Super, specific programs for adolescents should expose them to the necessary information for making the decisions required of them at that stage of development in order to avoid future errors or to correct past decisions.<sup>113</sup>

Therefore it would seem that for a career development program to be effective, that is, to have a positive impact on the vocational development of the participants, it should address the vocational developmental tasks in which the participants, for the most part, are engaged. Before exploring this further, the concept of a developmental task must be made clear. Havighurst defines it as follows:

. . . a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks.<sup>114</sup>

It will be recalled that the exploratory stage of vocational development dealt with such notions as, inventive planning and self-concept formation through exploratory activities resulting in compromise. However, within this

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113 Osipow, p. 282.

114 Havighurst, p. 2.

stage, Super<sup>115</sup> has defined three sub-stages each possessing its own vocational developmental tasks and behaviors.

The first is the tentative sub-stage which typically occurs during the fourteen to seventeen year-old period. The primary vocational developmental task here is that of crystallization. This task

. . . requires the individual to formulate ideas about work appropriate to himself. It also requires him to develop occupational and self-concepts that will help him to mediate his tentative vocational choices by means of relevant educational decisions.<sup>116</sup>

At this time students are concerned with the importance of work and the general nature of the world of work. Consequently, they are concerned with fields and levels of work, that is, broad occupational parameters, as well as their needs, interests, capacities, values and opportunities. They are not ready, at this point, to make specific decisions or refine their goals to the degree that later adolescents must.

On the other hand, adolescents in the eighteen to twenty-one-year-old period tend to be in the transition sub-stage. The primary task at this time is that of specification.

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115 Donald E. Super, "Vocational Development in Adolescence and Early Adulthood: Tasks and Behaviors", in Donald E. Super, et al., Career Development: Self-Concept Theory, New York, College Entrance Examination Board, Monograph No. 4, 1963, p. 79-95.

116 Osipow, p. 137.

Here the individual is required to narrow a general career direction into a specific one and take the necessary steps to implement the decision.<sup>117</sup>

At this time students give more weight to reality considerations. They are usually ready to specialize in the sense of seeking training, education and experience which will test the appropriateness of their occupational plans.

Thus, it can be seen that while adolescents are generally involved in the process of exploration, the tasks in which they engage and hence for which they are ready can vary. As Super has stated:

Ninth grade boys . . . were at a stage of vocational development which is characterized by readiness to consider problems of prevocational and vocational choice but also by a general lack of readiness to make vocational choices [as older boys would be].<sup>118</sup>

Montesano and Geist<sup>119</sup> have made the same contention in a study comparing ninth and twelfth grade boys.

At this point mention must again be made of the studies which have examined vocational maturity as an outcome variable; as the result of the effect of a career

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<sup>117</sup> Ibid., p. 139.

<sup>118</sup> Donald E. Super, "The Critical Ninth Grade: Vocational Choice or Vocational Exploration", in the Personnel and Guidance Journal, Vol. 39, No. 2, October 1960, p. 108.

<sup>119</sup> Nicholas Montesano and Harold Geist, 1964, p. 150-154.

development program. These studies have virtually all focused on one group of students, for example, tenth graders or twelfth graders. In doing this, these studies have ignored the possibility that the same career development program could have a differential impact on the vocational maturity of its participants based on Super's theory of vocational development regarding stages and vocational developmental tasks. Those which have looked at different groups of students simultaneously have not done so by means of a simulation game like Life Career. The advantages of such an approach were cited earlier but again it is worth noting that "exploration is most useful if defensiveness is minimal, since new information may be threatening to old self-images and values"<sup>120</sup>. A simulation like Life Career aids in minimizing this defensiveness.

Based on the description of the Life Career Game given earlier, it would seem to be a suitable instrument to use as a career development program designed to have a positive effect on the vocational development of adolescents. Briefly, the reasons for this rest in its simulated nature and its ability to allow the participants to engage in inventive planning, and practice compromise, and self-concept formation for the profile person — all of which

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120 Osipow, p. 141.

are important components of the exploratory stage of vocational development within Super's theory.

However, again because of Super's theory concerning vocational developmental tasks, one might expect the Life Career Game to have a differential impact on the vocational maturity of high school freshmen and seniors. This is to say that for freshmen, some of the tasks engaged in during the game might be too far out in the future or too specific for them to deal with effectively. Likewise, for seniors, some of the tasks might be ones they have already accomplished. Consequently these would have no further effect on their level of vocational maturity.

As a result of the above, it would seem that a career development program like Life Career could have a differential effect on the level of vocational maturity of adolescents exposed to it. Furthermore, this notion does not seem to have been explored in any previous research. In addition, it has been stated that measures of vocational maturity could be used to measure the effectiveness of career development programs. Therefore, the ability of the Career Development Inventory to do this in regard to the Life Career Game must be delineated.

First and foremost, the Career Development Inventory is based directly on Super's theory of vocational development. It was devised to measure the first four of the five

group factors in his developmental model of vocational maturity. It encompasses all the tasks in which adolescents in the exploratory stage of vocational development engage. Specifically:

Scale A, 'Planning Orientation', measures a characteristic which career development and curriculum specialists generally agree should be fostered in the elementary and middle or junior high school.<sup>121</sup>

Scale B deals with "Resources for Exploration". "The career development studies have shown that this stage normally comes in the ninth and tenth grades"<sup>122</sup>.

Scale C concerns "Information and Decision-Making". High scores here would indicate that students

. . . may be ready to specialize, seeking experiences and training which will test the wisdom of their occupational preferences and plans.<sup>123</sup>

Hence, these are the types of vocational developmental tasks in which high school seniors would tend to be involved.

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<sup>121</sup> Donald E. Super and David J. Forrest, 1972, p. 17-18.

<sup>122</sup> Ibid., p. 18.

<sup>123</sup> Ibid., p. 19.

Finally:

The CDI appears to be useful when these objectives [of a career development program] include the development of skills in vocational exploration and in decision-making, developing awareness of the options available and of the need to plan for their choices and use, and perhaps also when they include disseminating relevant occupation information.<sup>124</sup>

It will be recalled that this is precisely what the Life Career Game allows the participants to do.

In summary, it was pointed out earlier that the process of vocational development can be viewed as continuous, with stages that overlap, and that the process is a series of decisions based on compromises between the individual and the environment and that these decisions result in the narrowing and refining of one's vocational goals. It was suggested that one way of making rational compromises could be through the use of inventive planning and that the use of a simulation game could be a practical way of implementing this process in a career development program. It has also been suggested that the content of a career development program and hence the potential for its effectiveness on individuals' levels of vocational maturity should be based on the vocational developmental tasks in which the participants in the program are engaged. Therefore, based on the above

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<sup>124</sup> Super, "Retrospect, Circumspect and Prospect", p. 166.

relationship between the Life Career Game, the Career Development Inventory, Super's theory and his developmental model of vocational maturity, the CDI appears to be a proper instrument to use in assessing the differential effectiveness the Life Career Game might have on increasing the level of vocational maturity of adolescents as proposed in the present study.

The need for investigating this relationship has been succinctly stated by Osipow. He states:

It would seem that curriculum development in the area of career education should lean heavily on the vocational developmental tasks described by Super and also that vocational maturity as measured variously by Super's Career Questionnaire [the initial version of the CDI], Crites' Vocational Development Inventory and Westbrook's Cognitive Vocational Maturity Test, has the potential to serve as one aspect of the criterion for the evaluation of career education programs.<sup>125</sup>

##### 5. Research Question and Hypotheses.

Thus, the theoretical rationale for the present study is firmly based in the field of developmental psychology. The relationship between a career development program and its effect on an individual's level of vocational maturity would be examined. It is suggested that the relationship is based on the theory that vocational

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125 Osipow, p. 167.

development occurs in stages which are age related and that, for the most part, different vocational developmental tasks occur during different stages. Therefore, a career development program designed for adolescents could be expected to have a differential effect on the vocational maturity of individuals engaged in the program due to the different vocational developmental tasks in which they would be engaged.

The following pages delineate the research question and hypotheses derived from this proposition.

The research question is:

What effect will the experience of The Life Career Game, a career development program, have on the level of vocational maturity of individuals in different stages of vocational development?

The general research hypothesis is:

The overall vocational maturity of high school freshmen who participate in the Life Career Game will be greater than the vocational maturity of freshmen not exposed to the Game.

The same Game will have no effect on the overall vocational maturity of high school seniors.

Specifically:

1. The mean score on the Planning Orientation scale of the Career Development Inventory (CDI) will be significantly greater for high school freshmen who participated in the Life Career Game (LCG) than the mean score for freshmen who did not participate.

2. The mean score on the Resources for Exploration scale of the CDI will be significantly greater for high school freshmen who participated in the LCG than the mean score for freshmen who did not participate.

3. The mean score on the Information and Decision-Making scale of the CDI will not be significantly greater for high school freshmen who participated in the LCG than the mean score for freshmen who did not participate.

4. The mean score on the Planning Orientation scale of the CDI will not be significantly greater for high school seniors who participated in the LCG than the mean score for seniors who did not participate.

5. The mean score on the Resources for Exploration scale of the CDI will not be significantly greater for high school seniors who participated in the LCG than the mean score for seniors who did not participate.

6. The mean score on the Information and Decision-Making scale of the CDI will be significantly greater for high school seniors who participated in the LCG than the mean score for seniors who did not participate.

## CHAPTER II

### EXPERIMENTAL DESIGN

This chapter presents the procedures used in conducting an experiment to test the hypotheses proposed at the conclusion of the preceding chapter.

The chapter begins with a description of the Life Career Game and the Career Development Inventory. The Life Career Game was the independent variable in the present study and the Career Development Inventory was used to measure the dependent variable, vocational maturity.

The sample is then described by explaining such factors as the larger population from which it was drawn, the selection process, the composition of the experimental and control groups and the process by which these groups were formed.

Next, the procedure for conducting the experiment is described including some anecdotal remarks about the nature of the process and the participants' reactions.

Following this, the hypotheses listed at the conclusion of the preceding chapter are restated in the null form. The chapter then concludes with a description of the statistical procedures used to test these hypotheses.

## 1. Treatment and Instrument.

The Life Career Game. The Life Career Game (LCG) was described in some detail in the preceding chapter. The purpose here, therefore, is to summarize what was said earlier.

It will be recalled that Boocock and Schild described the general purpose of the game. They stated:

Its purpose is to give students familiarity with the kinds of decisions that must be made about jobs, further education or training, family life and use of leisure, and with the probable consequences of particular decisions given the personal characteristics of the person making them.<sup>126</sup>

Boocock<sup>127</sup> and Varenhorst<sup>128</sup> have specifically explained how the LCG is played. In essence, teams of two to four players plan the life of a fictitious person, about the same age as themselves, in the areas just described. The teams plan eight years in the person's life, one year at a time. The object is to maximize their person's present satisfaction and the person's chances for a "good life" in the future based on the characteristics of the person. At the conclusion of each year, scores are computed in each of

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<sup>126</sup> Boocock and Schild, (eds.), p. 107.

<sup>127</sup> Boocock, 1967, p. 329.

<sup>128</sup> Varenhorst, n.d., EDO 12939.

the four areas and the team with the highest total score is declared the "winner".

It was stated in the previous chapter that reliability and validity measures do not exist for the LCG. This is due to the nature of the game. It is not a measuring instrument. It is a pedagogical device being used in a manner similar to an experiment that might be trying to assess the effectiveness of different counseling styles or comparing the effectiveness of a vocational counselor with a computer based vocational guidance program and a course on vocational planning.

Nonetheless, information regarding its effectiveness has been published and should be reiterated here. Boocock and Schild<sup>129</sup> reported that it seemed to produce an appreciation for the complex nature of career decision-making and that factual information concerning career decision-making seemed to be obtained.

This, then, is a description of how the LCG is played and an indication of some of its anticipated outcomes. It now becomes necessary to examine the Career Development Inventory beyond the description given in the preceding chapter.

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129 Boocock and Schild, (eds.), p. 112; 121-122.

The Career Development Inventory. According to Forrest and others<sup>130</sup>, the Career Development Inventory (CDI) began as an instrument designed to measure the effects of a computer-based vocational guidance system on the vocational development of high school students. Through a series of revisions and factor analytic studies the instrument exists in its present form. "The instrument can be administered easily to junior and senior high school students in one class period"<sup>131</sup>. As stated in the preceding chapter:

The Career Development Inventory was devised to measure the first four of the five . . . factors in Super's Developmental Model of vocational maturity. . . .

The result is an instrument which assesses planfulness (awareness, time perspective), exploratory information and usage, and occupational information and decision-making. The world of work is . . . sampled to only a very limited degree.<sup>132</sup>

The CDI is composed of three scales; each of which produces a separate score and combine to produce a total score. The scales are attitudinal (self-rated and subjective) and cognitive (factual and objective) thus tapping both dimensions of vocational maturity.

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130 David J. Forrest et al., An Objective Multi-dimensional Measure of Vocational Maturity: Development and Validation, New York, Columbia University, Teachers College, 35 p. EDO 64486.

131 Ibid., p. 9.

132 Super, "Retrospect, Circumspect and Prospect", p. 165.

Scale A, Planning Orientation, . . . involves relating information about one's self and potential vocations. . . . It includes measures of concern with choice, specificity of planning, and self-estimated amount of occupational information. . . .

Scale B, Resources for Exploration, represents a self-rated assessment of the used and available resources for use with these planning activities.  
. . .

Scale C, Information and Decision-Making, . . . assesses the student's possession of actual occupational information and his knowledge of how to integrate personal and occupational information into educational and vocational decisions.<sup>133</sup>

While reliability and validity measures were not required with the LCG, they are essential information in relation to the CDI and will be discussed now.

Reliability of the CDI. The statistical data concerning the reliability and validity of the CDI were obtained from "using two parallel samples of 200 male and female tenth graders in Genessee County, Michigan, representative of the nearly 10,000 tenth graders in the twenty-five public high schools in the County"<sup>134</sup>. Forrest found that "the test-retest reliabilities obtained for the three scales and the total score were .85, .82, .71 and .87 respectively"<sup>135</sup>. This appeared to be sufficient for an

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133 David J. Forrest et al., p. 8.

134 Forrest and Thompson, "The Career Development Inventory", p. 57.

135 Ibid., p. 57.

instrument used in group assessment or program evaluation according to Forrest.

In addition, the CDI was administered again six months later. While somewhat lower than the test-retest reliabilities, as might be expected, "the coefficients of stability of the scales' scores for these students ranged from .63 to .71"<sup>136</sup>. Thus, vocational maturity as measured by the CDI seemed to be a relatively stable characteristic. Finally it was found that the CDI does not discriminate between sexes. This finding was supported in the present study and will be discussed briefly in the next chapter.

Validity of the CDI. Forrest examined the content, criterion and construct validity of the CDI. The following is what he found.

The content validity of the CDI scales [was] established by expert judgement in repeated examination of their content and psychometric characteristics that the scales' items assess the attitudes and behaviors indicated in the scale names.<sup>137</sup>

Concerning the CDI's criterion-related validity, scores on it should increase across age groups since the CDI attempts to measure an age-related development variable.

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136 Ibid., p. 57.

137 Ibid., p. 58.

"A one-way analysis of variance of means performed on the three sets of scores [for eighth, tenth and twelfth graders] revealed fairly uniform, significant and substantial increase in scores across increasing grade levels for the three scales"<sup>138</sup>. Construct validity is defined as evidence that the instrument measures the characteristics it claims to measure:

The evidence for construct validity consists of: 1) low expected relationships with social status and moderate relationships with school achievement; 2) high correlations of the two attitudinal scales and of the cognitive scale to the designedly global [Readiness for Career Planning scale of Gribbons and Lohnes], 3) strong relationship between the cognitive scale and the designedly cognitive CVMT [of Westbrook]. The attitudinal scales have little relationship with the CMI scale, intended as an attitudinal measure.<sup>139</sup>

Thus, the CDI appears to represent an instrument which fairly accurately measures the elements of vocational maturity as defined by Super's theory. The instrument, because of its newness, may undoubtedly need refinement and improvement. However, as Super<sup>140</sup> has mentioned, this can best be achieved by obtaining data through its use.

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138 Ibid., p. 58.

139 Ibid., p. 61.

140 Super, in Super, (ed.), 1974, p. 164.

## 2. The Sample.

The Larger Population. The sample for the present study was drawn from the entire freshman and senior class at Potsdam Central High School in Potsdam, New York. Potsdam is located in Northern New York in a rural setting. However, the town contains a four-year college of the State University system and a four-year private college, Clarkson College of Technology. As a result of this situation, the high school population is heterogeneous. Students attending the high school come from families whose socio-economic status might be classified as at or below the poverty line to families who could be classified as upper-middle or lower-upper in terms of socio-economic status. Consequently, while not including urban poor, the population from which the sample was drawn would seem to be rather diverse. One might easily find similarities between it and other central schools located in towns having colleges in them in different parts of the country.

Freshmen and seniors were used because of the rationale dictated by Super's theory delineated in the previous chapter. Based on his theory and its age parameters, it would seem that high school freshmen would tend, for the most part to be in the early exploratory stage of vocational development, the tentative sub-stage. Seniors, on the other hand would tend, for the most part, to be in

the middle of the exploratory stage; the transition sub-stage. Consequently these two groups were selected to test the hypotheses listed at the conclusion of the previous chapter which were formulated based on the theoretical rationale.

At one point, high school freshmen and college freshmen were considered as the groups to be used. This would have had the advantage of providing an additional year between the groups. However, it was decided that the college freshmen would introduce a number of intervening variables which could not be controlled because they would have come from a wide variety of social, cultural and academic backgrounds whereas the high school freshmen would comprise a more homogeneous group at least in terms of their educational background.

Sample Selection Procedures. The subjects who participated in the present study were chosen in the following manner. Since all students are required to enroll in four years of English classes in order to graduate from high school, the researcher visited every freshmen and senior English class over a period of one week. At these meetings the basic outline of the present study and what would be expected of the students who participated was described. The students were then asked to put their name on a list along with the periods during the school day in which they

had a study hall if they were interested in participating in the present study. The reasons for doing this will be described shortly. First it should be made clear that students signed up knowing that they could be selected to be in the experimental or control group. Students absent from class on the day of the visit were eliminated from consideration. Using this technique, fifty-one per cent of the senior class (101 out of 198) and forty-nine per cent of the freshmen class (102 out of 206) signed up to participate. Before seeing any of the lists it was determined that, for each class, the simulation game would be conducted during the same period twice a week. Consequently it was decided that all students in each class would be grouped according to the day(s) and the period(s) during which they had study halls. Thus, the two largest groups from each class which had the same study hall period on the same two days of the week were assigned to experimental groups. The others were assigned to control groups.

The sample was selected in this manner for a number of reasons. The main reason was to deal with the problem of attrition. Fox<sup>141</sup> has defined the sampling cycle as proceeding from the population to the invited sample to the

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<sup>141</sup> David J. Fox, The Research Process in Education, New York, Holt, Rinehart and Winston, 1969, p. 321.

accepting sample to the data-producing sample. In the present study the population (freshmen and seniors) became the invited sample and those who signed up were the accepting sample. Thus, only those interested accepted. This would not seem to introduce any type of bias since it was the pure chance of their study hall schedule and the number of people in various study halls who signed up which determined whether the subjects would be in an experimental or control group. Each person signed up knowing that the person had the potential of being assigned to either group.

Had subjects been selected purely at random and without any direct contact with the researcher, the accepting sample would have been much smaller (since the invited sample would have been smaller) and yet the result would have been the same; only those interested would have agreed to participate.

Group Assignment Procedures. Once the students were assigned to the experimental and control groups, the following procedure was followed. Those students selected as control subjects were grouped alphabetically by sex within each class for easy reference and sent a letter. The letter informed them that they were assigned to a control group and that they would therefore not be participating in the Life Career Game. They were thanked for their interest and informed that they would be contacted later in the semester

to let them know when and where the Career Development Inventory would be administered.

Those students who became experimental subjects were also grouped alphabetically by sex and by study hall period and numbered sequentially. This resulted in three freshmen groups and two senior groups. There were three freshmen groups because the Life Career Game is best played with a group of approximately twenty participants (five teams of four players each). Because one study hall period had about twice that number, it was decided that there would be two groups during that period. Table III shows how the sample for the present study could be represented.

Starting at a randomly chosen point in a table of random numbers, subjects were assigned to a team of four players within each group as follows. Each male was assigned to a team with the first male chosen being assigned to team one of a group. The second was assigned to team two of a group. This continued until one male was assigned to each team in the group. Then the process was begun again with team one of the group until all males in the group had been assigned to a team. The same procedure was followed for each group and for females as well as males in both the freshmen and senior class.

The purpose in doing this was to assure that teams be comprised of males and females. In fact, twenty-six

Table III.-  
The Sample for the Present Study.

	EXPERIMENTALS	CONTROLS
SENIORS	Group A (6 teams) 12 males 11 females	29 males 25 females
	Group B (6 teams) 14 males 10 females	
FRESHMEN	Group A (5 teams) 11 males 9 females	24 males 22 females
	Group B (4 teams) 8 males 8 females	
	Group B (5 teams) 9 males 11 females	

teams, all but one comprised males and females and all but five had two males and two females on a team. The rationale for this can be summed up by Chartier's findings. He found that "in general, boys seem to respond well to competitive games and learn through them [while] girls seem to respond to cooperative games"<sup>142</sup>. In addition he found that "teams for games should be heterogeneous for productive learning [and that] classroom and friendship cliques need to be assigned to different teams"<sup>143</sup>.

Once teams of players were selected, the fictitious student whose life they would be planning during the Life Career Game had to be assigned to the various teams. This was done in the following manner. Since there were four different profiles available with the LCG (two male and two female) and each experimental group had at least four teams, it was decided that each profile would be used in each group.

The names of the four fictitious students were written on four equal-sized cards and placed in a container. They were then drawn one at a time with the first name drawn being assigned to the first team in a group. This was repeated until all four names were drawn and assigned to the teams in sequential order. If a group had more than four

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<sup>142</sup> Chartier, p. 14.

<sup>143</sup> Ibid., p. 15-16.

teams, all the names were replaced in the container. They were then drawn one at a time and assigned to the next team until all teams were assigned a name. This process was repeated for each group in the freshmen and senior class.

This procedure was followed to allow the teams to work with different profiles of students who had different interests and abilities hopefully leading to inter-group discussions. In addition, it enabled teams to work with profiles of males and females. Of the twenty-six teams participating fourteen worked with male profiles and twelve worked with profiles of female students.

### 3. Experimental Procedure.

This section will describe what transpired once the students were assigned to one of the experimental or control groups. Of course, the control subjects were not exposed to any type of treatment and simply went on with their day-to-day activities as usual.

Each of the experimental groups was facilitated by the researcher except one. Because there was one study hall period in which there were sufficient numbers of freshmen for two groups, one of those was facilitated by the Director of the high school's guidance department.

Even though one group was not supervised by the researcher, the researcher scored each round of the LCG for

all teams. The scores gave the subjects a chance to see how their team was doing compared to the others and provided an excellent springboard for discussion. The process of sharing and discussion is seen as a vital aspect of simulations<sup>144</sup> and was encouraged throughout the process.

Because of the crucial role of the group facilitator, the Director of the guidance program met with the researcher on a number of occasions to discuss the LCG's administration. During these meetings all the mechanical aspects of the present study such as room locations, ways of contacting students and seeking support of the faculty were discussed. The researcher then notified everyone who initially expressed interest in the present study.

Students were told that their name was chosen to be in either an experimental or control group. If they were selected to be in a control group they were told that they would be contacted in about six weeks to complete the CDI and that their interest was appreciated. If they were chosen to be in one of the experimental groups, they were notified of the date, time and location of their first group meeting.

Administering the Life Career Game. As was mentioned earlier, it was decided that the LCG would be conducted twice a week during the same study hall period. Again according to

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144 Chartier, p. 16.

Chartier's findings, "games need an appropriate introduction for students to be positively predisposed to them for learning"<sup>145</sup>. Consequently the first meeting of each group consisted of a thorough introduction to the Life Career Game.

Students were first given an explanation of how the teams were selected and were then told who would be team mates. In an effort to build a team spirit right from the beginning, teams were then asked to get together. Then the materials with which they would be working during the course of the game were handed out and discussed. This consisted of a team folder to hold all the materials, a profile card describing the student whose life the team would be planning, schedule sheets, record sheets, a school and job catalogue and a rule book. Other materials which were shared by all teams such as school and job applications, classified ads and the spinner and scoring booklet were also discussed. A more detailed description of these items can be found in Appendix 1.

While all of these items were discussed and questions were answered, the basic point emphasized was to follow the step-by-step process in the rule book to avoid confusion which could easily lead to disinterest in the game. The teams were also informed of some basic game strategy with

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145 Ibid., p. 15.

emphasis on the fact that they should try to plan the best life possible for the person whose profile they were using. The first session concluded with the teams reading the profile with which they would be working so they could get a clear understanding of the person whose life they would be planning.

The second session was a continuation of the introduction. At this time, the students got together by teams and began planning the first year in the life of their person. For all teams this was the junior year in the profile student's high school program. This round was considered a practice round, however, and no scores were computed for any of the teams. Since the goal here was to allow the teams to gain some self-confidence in working with the materials, play proceeded slowly. A number of questions were answered and none of the teams completed planning the person's year in the four areas involved; school, job, family and leisure.

At the conclusion of the second session, the teams returned all materials to the researcher. The teams were then shown a score board that would be used throughout the game so the teams could keep track of their scores for each round and cumulative score as well as being able to compare how various teams were doing. The students were then informed that the next session would actually be considered

the first round of play. It would be the decisions made beginning in that round that would begin to count toward the teams' scores.

Since the goal was to plan eight years in the profile student's life, eight more sessions were scheduled with the thought that one year could be planned in each forty minute study hall period. This was based on Boocock's<sup>146</sup> recommendation that six hours be allowed for completion of the game. In fact these eight sessions combined with the two introductory ones exceeded that.

At first the teams moved slowly; some not finishing a year in the profile student's life in a session. However, very quickly they became familiar with the materials and how to manipulate them and moved along very well. The pace at which the teams moved seemed to fluctuate. Most teams seemed to slow down at major decision points in their person's life, such as graduation from high school, seeking a full-time job or further education and planning a family. At these points especially, teams often got involved in almost heated discussions about what various members felt would be best for their person. Consequently, at some sessions teams might complete planning two years in their

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<sup>146</sup> Sarane S. Boocock, Life Career Instructor's Manual, New York, Western Publishing Company, 1969. p. 7.

person's life and at other sessions they would not quite get through one year.

At the conclusion of each round, teams turned in any completed record sheet and schedule form (one of each of these was completed for each year in the profile student's life). Computation of scores was made from information on the record sheet. This was done for all groups by the researcher and recorded on the groups score board. The score boards were brought to each session with the researcher usually first being greeted by the question; "How did we do last time?" Consequently each session usually began with some general discussion of the teams' scores. This was usually followed by the researcher discussing the scores — the results of the teams' decisions — with the individual teams as they began the next round of the game. All eight sessions for all groups were conducted in this way.

The question; "How did we do last time?" is only a small indication of the depth of the students' involvement in the game. Many individual remarks indicated the degree of commitment the students developed regarding what they were doing. Perhaps the most prominent indication of this was the on-going discussions (and sometimes arguments) team members had about what should be done to make the best life for their person. Many times teams worked past the end of the period in order to finish what they were doing rather

than waiting with anticipation for the bell to ring which is often the case. At other times students asked if they could come on other days when they had study halls to work on the game. Some teams even personalized the profile person by giving the person a surname.

It had been suggested to the students at the beginning of the game that they might get to know and care about their team's person similar to the way they knew and cared about some of their classmates. In many cases this in fact did happen as exhibited by many comments students made about the concern they had about their profile person — comments that were made with the feeling that they were talking about a real person with real goals and problems. All of these points support Chartier's finding that "as a device for motivating students, simulation games seem to be exceptionally effective"<sup>147</sup>.

Administration of the Career Development Inventory.

During the last week of the LCG students were told that there would be one more session after the conclusion of the last round of the LCG during which time the Career Development Inventory would be administered. The nature of the CDI was explained when interest in the experiment was initially solicited in the English classes. It was reiterated here

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<sup>147</sup> Chartier, p. 14.

and the subjects had an opportunity to ask questions. It was decided prior to the start of the LCG that no student who missed more than two rounds of the game would be considered an experimental subject. This happened to seven freshmen and four seniors.

At this time control subjects were contacted. They were informed of the date, time and location for the administration of the CDI. The schedule for the administration of the CDI was established in such a way so that it was administered to the senior class on one day and the freshmen class on another.

Only measuring the dependent variable after a treatment is referred to as the Post-Test Only, Control Group Design which Campbell and Stanley list as Experimental Design Six<sup>148</sup>. The main reason for using this procedure was to eliminate a pre-test sensitization to the content of the CDI by repetition of identical content. Once the groups had reported to the designated location, the researcher administered the CDI according to the "Career Development Inventory Form I Directions for Administering" which is included in Appendix 2.

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148 Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research, Chicago, Rand McNally, 1963, p. 25-27.

Briefly, the ninety-one items were answered on the Blue University of Ottawa answer sheet for machine scoring. The students used a number two pencil. The students were asked to fill in their name and initials in the appropriate places on the answer sheet. When they were returned, the researcher assigned each an I.D. number which indicated their group, team, number on the team, sex and whether they were classified as a regents or non-regents student. The researcher answered questions which arose during the course of the CDI without actually giving an answer.

The entire process of administering the CDI took approximately forty-five minutes. At the conclusion of the instrument the students were thanked for their cooperation and told that they would receive a letter from the researcher telling them when data would be available so that they could meet individually with him to discuss their own CDI profile. Finally, answer sheets were scored and the data were analyzed.

Restatement of the Hypotheses. Before describing the procedure used in analyzing the data, it might be best to restate the specific hypotheses of the present study in the null form since it was really the null hypotheses which were analyzed statistically. Therefore, the specific hypotheses stated at the conclusion of the previous chapter are restated here in their null form.

1. There is no significant difference between mean scores obtained by high school freshmen who participated in the Life Career Game (LCG) and freshmen who did not participate in the game on the Planning Orientation scale of the Career Development Inventory (CDI).

2. There is no significant difference between the mean scores obtained by high school freshmen who participated in the LCG and freshmen who did not participate in the game on the Resources for Exploration scale of the CDI.

3. There is no significant difference between the mean scores obtained by high school freshmen who participated in the LCG and freshmen who did not participate in the game on the Information and Decision-Making scale of the CDI.

4. There is no significant difference between the mean scores obtained by high school seniors who participated in the LCG and seniors who did not participate in the game on the Planning Orientation scale of the CDI.

5. There is no significant difference between the mean scores obtained by high school seniors who participated in the LCG and seniors who did not participate in the game on the Resources for Exploration scale of the CDI.

6. There is no significant difference between the mean scores obtained by high school seniors who participated in the LCG and seniors who did not participate in the game on the Information and Decision-Making scale of the CDI.

It will be recalled from the wording of the hypotheses in the previous chapter that it was suggested that hypotheses one, two and six would be rejected and hypotheses three, four and five would not be rejected.

Procedures for Analyzing the Data. This section describes the statistical operations used to analyze the data in relation to the null hypotheses just stated.

The decision to reject or not to reject the null hypotheses at the .05 level of significance was determined by a two-step statistical process. First, because the three scale scores of the CDI are interrelated, a one-way multivariate analysis of variance was conducted on the scores of the experimental and control groups in both the freshmen and senior class. When the F-ratio was found to be greater than the critical value of F at the .05 level, a univariate analysis of variance was conducted as a post hoc procedure to see what scale scores contributed to the statistically significant F-ratio found in the multivariate analysis. This was done for the experimental and control groups in both classes on all three scales.

While not directly related to the hypotheses proposed in the present study, a univariate analysis of variance was also conducted on each scale of the CDI for the freshmen and senior experimental subjects comparing the means of males and females. The purpose for this was to

determine whether or not significant differences existed between the scores obtained on the CDI as a result of sex. Likewise a univariate analysis of variance was conducted using the scores obtained by freshmen experimentals in groups facilitated by the researcher and those in a group facilitated by the Director of the high school's guidance department. The purpose for this was to determine whether or not the scores obtained by these groups were significantly different. If they were, it might suggest that the effect of the LCG was influenced by the person facilitating the game.

This concludes the discussion of the experimental design used in the present study. The next chapter will discuss the data obtained and present the statistical decisions reached as a result of the testing of the null hypotheses.

## CHAPTER III

### PRESENTATION OF THE RESULTS

This chapter will report the results of the present study. Since these results are derived from what Fox<sup>149</sup> refers to as the data-producing sample, the chapter will begin with a description of this sample. Following this, the null hypotheses stated at the end of the preceding chapter will be presented, one at a time, followed by a presentation of the data pertaining to each one and the statistical decision made as a result of that data. The presentation of the data will be supplemented with tables as the need for clarification of the presentation dictates.

#### 1. The Data-Producing Sample.

Table IV represents the data producing sample. While the invited sample consisted of 203 students (108 or fifty-four per cent males and ninety-five or forty-six per cent females) the data producing sample comprised 175. This was the result of a loss of fifteen experimental subjects (six males and nine females) who did not complete the CDI because they were either absent or missed more than the

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<sup>149</sup> Fox, p. 320-321.

Table IV.-  
The Data-Producing Sample.

	EXPERIMENTALS	CONTROLS	TOTALS
<u>SENIORS</u>			
Male (%)	23 (55%)	26 (56%)	49
Female (%)	19 (45%)	20 (44%)	39
Sub Total			88
<u>FRESHMEN</u>			
Male (%)	25 (54%)	22 (53%)	47
Female (%)	21 (46%)	19 (47%)	40
Sub Total			87
<u>TOTAL N's</u>			
Male	48	48	96
Female	40	39	79
Total	88	87	175

maximum number of LCG sessions allowed as described in the preceding chapter. There were also thirteen control subjects (five males and eight females) who did not complete the CDI.

It can be seen from the table that, in both classes, the numbers of experimental and control subjects are similar ranging from forty-one to forty-six. Likewise, the percentages of male experimental and control subjects in both classes are similar ranging from fifty-three per cent to fifty-six per cent. Similarly, the percentages of female experimental and control subjects in both classes are comparable ranging from forty-four per cent to forty-seven per cent.

It seems reasonable to conclude, based on this information and that presented in the preceding chapter concerning the sample selection procedure, that the experimental and control groups in both classes were very similar. Therefore, it seems probable that differences between their mean scores on the CDI scales could be attributed to the experimental groups' exposure to the Life Career Game. The remainder of this chapter will present the data relating to the specific hypotheses regarding those differences.

## 2. Examining the Specific Hypotheses.

To better understand the statistical decisions reached regarding each hypothesis, some of the data used to reach those decisions will be presented in the following tables.

Table V represents the means and standard deviations of the three scale scores for freshmen and seniors. It will be noticed that in all cases within each class, except for scale C means in the senior class, the mean of the experimental group is larger than the mean of the control group. Furthermore, the means for the freshmen experimental group are larger than the means for the senior control group on scales A and B. These findings are in line with the data obtained by Super and Forrest<sup>150</sup> in the validation study of the CDI.

It was indicated in the preceding chapter that the statistical procedures used in the present study were selected because the three scale scores were correlated with each other. Table VI represents the correlations found between the scale means for freshmen and seniors. Again, these findings are consistent with those of Super and Forrest<sup>151</sup> obtained during the validation study.

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<sup>150</sup> Super and Forrest, Career Development Inventory, Form 1, Preliminary Manual, p. 25.

<sup>151</sup> Ibid., p. 29.

Table V.-

Means and Standard Deviations of Scores from Scales A, B, and C of the CDI for Freshmen and Seniors.

	Planning Orientation		Resources <b>for</b> Exploration		Information & Decision- Making	
	<u>SCALE A</u>		<u>SCALE B</u>		<u>SCALE C</u>	
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
SENIOR EXPERI- MENTAL	117.67	21.83	279.36	46.25	16.36	5.94
SENIOR CONTROL	96.65	19.63	237.11	50.36	17.70	4.39
FRESHMEN EXPERIMENTAL	105.46	15.82	271.26	37.25	15.67	5.25
FRESHMEN CONTROL	95.34	16.79	228.44	52.83	14.41	4.77

Table VI.-  
Intercorrelations of CDI Scales for Freshmen and Seniors.

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	Scale A	Scale B
<u>SENIORS</u>		
Scale A	1.00	
Scale B	.45	1.00
Scale C	.27	.25
 <u>FRESHMEN</u>		
Scale A	1.00	
Scale B	.64	1.00
Scale C	.33	.37

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Having presented this information, it is now appropriate to present the findings regarding the specific hypotheses. When the data were analyzed using a one-way multivariate analysis of variance, F-ratios of 6.40 and 11.71 for freshmen and seniors respectively were obtained which were significant at the .05 level. The data obtained from the multivariate analysis of variance is contained in Table VII. Because the multivariate F-ratios were significant, post hoc procedures were conducted to see which scale scores contributed to the significance. This analysis, as mentioned in the preceding chapter, was conducted using a one-way univariate analysis of variance on the scale means for experimentals and controls in both classes. The following information pertains to the analysis of the data regarding the first three hypotheses, which concerned freshmen (see Table VIII).

Null Hypothesis One. This hypothesis stated: There is no significant difference between scores obtained by high school freshmen who participated in the Life Career Game and freshmen who did not participate in the game on the Planning Orientation scale (scale A) of the Career Development Inventory. As indicated in Table V, the means for these groups on scale A were 105.46 and 95.34. The analysis of variance produced an F-ratio of 8.36 which was significant at the .05 level. Therefore the hypothesis was rejected. It was therefore concluded with ninety-five per cent certainty

Table VII.-

F-Ratios for Multivariate Test of Equality of Freshman and Senior CDI Mean Vectors.

Group	df <sub>1</sub>	df <sub>2</sub>	F
Freshmen	3	83	6.40*
Seniors	3	84	11.71*

\*  $p < .05$

Table VIII.-

F-Ratios for Univariate Test of Equality of CDI Mean Scores  
for Experimental and Control Groups of Freshmen.

Scales	df <sub>1</sub>	df <sub>2</sub>	MS	F
A	1	85	2217	8.36*
B	1	85	39751	19.41*
C	1	85	34	1.36

\*  $p < .05$

that a significant difference did exist between the scale A means of the groups due to the treatment.

Null Hypothesis Two. This hypothesis stated: There is no significant difference between the scores obtained by high school freshmen who participated in the Life Career Game and freshmen who did not participate in the game on the Resources for Exploration scale (scale B) of the Career Development Inventory. As indicated in Table V, the means for these groups on scale B were 271.26 and 228.44. The analysis of variance produced an F-ratio of 19.41 which was significant at the .05 level. Therefore the hypothesis was rejected. It was therefore concluded with ninety-five per cent certainty that a significant difference did exist between the scale B means of the groups due to the treatment.

Null Hypothesis Three. This hypothesis stated: There is no significant difference between the scores obtained by high school freshmen who participated in the Life Career Game and freshmen who did not participate in the game on the Information and Decision-Making scale (scale C) of the Career Development Inventory. As indicated in Table V, the means for these groups on scale C were 15.67 and 14.41. The analysis of variance produced an F-ratio of 1.36 which was not significant at the .05 level. Therefore the hypothesis was not rejected and it was concluded with

ninety-five per cent certainty that a significant difference did not exist between the scale C means of the groups due to the treatment.

This then represents the data obtained regarding the hypotheses pertaining to freshmen.

The following information pertains to the one-way analysis of variance of the data regarding the last three hypotheses, which concerned seniors (see Table IX).

Null Hypothesis Four. This hypothesis stated: There is no significant difference between the scores obtained by high school seniors who participated in the Life Career Game and seniors who did not participate in the game on the Planning Orientation scale (scale A) of the Career Development Inventory. As indicated in Table V, the means for these groups on scale A were 117.67 and 96.65. The analysis of variance produced an F-ratio of 22.61 which was significant at the .05 level. Therefore the hypothesis was rejected and it was concluded with ninety-five per cent certainty that a significant difference did exist between the scale A means of the groups due to the treatment.

Null Hypothesis Five. This hypothesis stated: There is no significant difference between the scores obtained by high school seniors who participated in the Life Career Game and seniors who did not participate in the game on the Resources for Exploration scale (scale B) of the

Table IX.-

F- Ratios for Univariate Test of Equality of CDI Mean Scores for Experimental and Control Groups of Seniors.

Scales	df <sub>1</sub>	df <sub>2</sub>	MS	F
A	1	86	9695	22.61*
B	1	86	39186	16.70*
C	1	86	39	1.46

\*  $p < .05$

Career Development Inventory. As indicated in Table V, the means for these groups on scale B were 279.36 and 237.11. The analysis of variance produced an F-ratio of 16.70 which was significant at the .05 level. Therefore the hypothesis was rejected and it was concluded with ninety-five per cent certainty that a significant difference did exist between the scale B means of the groups due to the treatment.

Null Hypothesis Six. This hypothesis stated: There is no significant difference between the scores obtained by high school seniors who participated in the Life Career Game and seniors who did not participate in the game on the Information and Decision-Making scale (scale C) of the Career Development Inventory. As indicated in Table V, the means for these groups on scale C were 16.36 and 17.70. The analysis of variance produced an F-ratio of 1.46 which was not significant at the .05 level. Therefore the hypothesis was not rejected and it was concluded with ninety-five per cent certainty that a significant difference did not exist between the scale C means of the groups due to the treatment.

This then represents the data obtained regarding the hypotheses pertaining to seniors.

### 3. Supplementary Findings.

As indicated in the preceding chapter, a univariate analysis of variance was conducted for freshman and senior experimentals on each CDI scale comparing the means of males and females. This was done to see if sex was a significant factor in how well students did on the CDI. The F-ratios obtained were not significant at the .05 level and therefore it was concluded with ninety-five per cent certainty that the CDI does not discriminate between the sexes. This is consistent with findings obtained by Super and Forrest<sup>152</sup>.

Finally, a univariate analysis of variance was conducted comparing means of all freshman experimentals in groups facilitated by the researcher and those in the group facilitated by the Director of the high school guidance office. The means on the three scales for freshmen in the researcher's groups were 105.24, 268.86 and 15.72. For those in the Director's group the means were 105.82, 275.86 and 15.58. The F-ratios obtained were not significant at the .05 level and it was therefore concluded with ninety-five per cent certainty that the person facilitating the groups was not a factor in determining how students would do on the CDI.

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152 Ibid., p. 24.

This concludes the presentation of the data obtained during the present study. The next chapter will examine the results in light of the theory and rationale presented in the first chapter. It will conclude with a discussion of some of the broader ramifications of the present study's results.

## CHAPTER IV

### DISCUSSION OF RESULTS

Now that the results of the data obtained have been presented, the question which must be asked is; "what do they mean?" How can the results be explained in light of the theory discussed in the first chapter? This will be the purpose of the first part of the present chapter.

Since the purpose is to synthesize the discussion in Chapter I with the data obtained, the discussion here will proceed along the lines of Chapter I. Specifically, the results will first be discussed as they relate to the developmental nature of vocational choice. This will be followed by a discussion of the bearing the results have on the nature of career development programs and specifically the use of simulation games as a means of facilitating vocational development. Finally, the results will be discussed in relation to the theoretical rationale and the relationship they have to the theory as presented. The broader ramifications which the results might have will be presented in the last half of the chapter.

1. The Developmental Nature of Vocational Choice.

It may be recalled from Chapter I that development, including vocational development, is characterized by continuity, by orderly sequences and skills that develop from the general to the specific<sup>153</sup>. Consequently, measures of vocational maturity, which were designed to measure a developmental variable, were designed to produce scores which increased with the age of an individual. An increase in the scores on the CDI across age groups in the present study would tend to support this, which is in fact what happened.

Referring to Table V on page 102 it can be seen that on all three scales of the CDI the mean for the senior experimentals was higher than the mean for the freshman experimentals. Likewise, the means on all three scales were higher for senior controls than for freshman controls.

This relationship does not exist when experimental and control groups are compared between classes. However, this has implications for the effect of the treatment which will be discussed later. It must be said here, however, that the data obtained in the present study seem to support the notion of vocational development occurring in stages

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153 Thorpe and Cruze, p. 7.

based on the fact that the CDI scores increased across age groups. This also supports similar data obtained by Super and Forrest in the validation study of the CDI<sup>154</sup>.

Therefore, it would seem that the developmental nature of vocational choice, which is strongly supported in the literature, was supported as a result of the data obtained in the present study. The implications for the developmental notion beyond adolescence are not quite as clear and will be discussed later.

## 2. Vocational Maturity and Career Development Programs.

The main thrust of the present study involved the relationship between vocational maturity as an outcome variable and the nature of career development programs. Consequently, this section will discuss what the data obtained in the present study seem to indicate regarding career development programs for adolescents. Perhaps the most important information concerns the elements to be incorporated into a career development program for adolescents.

It will be recalled from the discussion in Chapter I that a basic premise of guidance theory is that development can be guided by providing adequate opportunities for

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<sup>154</sup> Super and Forrest, p. 25.

utilizing aptitudes and developing interests and personality traits<sup>155</sup>. Consequently, the appropriateness of these opportunities is crucial if the attempt to aid one's development is to be successful.

In assessing this, it is necessary to look first at Super's theory of vocational development. The important aspect of this is his notion of exploration which was discussed in Chapter I. Primary components of that process include decision-making, self-concept development and compromise. It would seem, therefore, that a career development program that hoped to have an impact on the vocational development of adolescents would have to take all these factors into consideration.

The data obtained in the present study would seem to indicate that the career development program used did achieve this. The reasons for saying this will be explained by looking at the type of career development program used.

First, it was felt that a program for adolescents must involve them as an active participant in the planning of their future. This was discussed in Chapter I in regard to the concept of inventive planning. Next, it was felt that the theory and research involving simulation games

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<sup>155</sup> Super, "A Theory of Vocational Development", p. 188.

would tie into this notion and have a bearing on career development programs for adolescents.

This was based on Boocock and Schild's contention that simulation games provide a way of translating ideas into action rather than simply abstract concepts<sup>156</sup>. Furthermore, research on simulation games also seemed to support this decision. This was discussed in Chapter I in regard to Chartier's<sup>157</sup> findings.

The rationale for applying simulation games to an attempt to facilitate the vocational development of adolescents within the framework of Super's theory is perhaps best summed up by Varenhorst. She states:

It would seem that if elements of future life could be simulated into some system or technique whereby students interact with the components of that future environment they would not only be exposed to some realities of the future, but also learn how to deal with them, i.e., get some practice in decision-making.<sup>158</sup>

Based on this rationale, which was discussed at greater length in Chapter I, the decision was made to use the Life Career Game as the career development program (independent variable) in the present study. It appears that the decision was a good one.

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156 Boocock and Schild, p. 50.

157 Chartier, p. 2, 3, 6, 14, 16.

158 Varenhorst, p. 4.

Based on the data obtained it seems that the Life Career Game had a significant impact on the vocational development of students who participated in it. Again referring to Table V on page 102, it can be seen that for both classes and on every scale of the CDI, except for seniors on scale C, the mean of the experimental group was larger than the mean of the control group. Furthermore, from Tables VIII and IX on pages 106 and 109 it can be seen that the differences on scales A and B for freshmen and seniors were statistically significant while differences on scale C were not.

It might be appropriate at this point to offer a possible explanation for this. Scales A and B of the CDI very much reflected the Life Career Game process. A planning orientation was developed, decisions had to be made and different types of used and potentially usable resources had to be examined. Scale C on the other hand presented the students with specific situations on which they had to make judgments. This process could perhaps best be facilitated through discussions of what was happening at various points during the Life Career Game and by seeking reactions from various teams about what other teams had done.

The aspect of discussion is also a very important premise underlying the success of simulation games in general<sup>159</sup>. Discussion did occur during the administration of the Life Career Game in the present study. However, looking back on the experience, the opportunities for discussion might not have been as often, as long or as formalized as they could have been in order to have an impact on the criteria assessed by scale C of the CDI.

It might again be noted from Table V that the means for freshman experimentals on scales A and B of the CDI are greater than the means for senior controls on those two scales. This again seems to support the ability of the Life Career Game to facilitate the vocational development of adolescents as measured by the CDI. This may not be as dramatic as it appears, however.

In comparison to the means for eighth, tenth and twelfth graders obtained by Super and Forrest in their validation study<sup>160</sup>, the senior control group means obtained in the present study were more in line with the means of the tenth graders than the twelfth graders. One conclusion which can be drawn from this is that the seniors in the present study were less vocationally mature than the seniors in

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159 Chartier, p. 18.

160 Super and Forrest, p. 25.

Super's validation study. Consequently, it might be concluded that the Life Career Game probably did not accelerate the vocational maturity of the freshmen in the present study to the degree that the data obtained might initially indicate.

### 3. The Findings and the Theoretical Rationale.

To this point the present chapter has reviewed the findings in light of different elements comprising the theoretical rationale of the present study. The discussion will now turn directly to the theoretical rationale in an attempt to analyze how the findings might be interpreted within that broader context.

In order to clarify the discussion Table X is provided. Table X lists each null hypothesis in abbreviated form, the findings related to it, the statistical decision related to each one, and the decision that was expected for each hypothesis based on the theoretical rationale and expressed in the specific research hypotheses listed at the conclusion of Chapter I.

Table X will provide a useful reference point for relating the findings of the present study to the theoretical rationale. To accomplish this, a brief summary of the theoretical rationale for the present study might be helpful.

It will be recalled that the basis of the theoretical rationale lies in the field of developmental psychology

Table X.-

Summary of Statistical Decisions, Actual and Expected, for  
Null Hypotheses One Through Six.

NULL HYPOTHESIS	DIFFERENCE SIGNIFICANT AT .05 LEVEL	HYPOTHESIS REJECTED OR NOT REJECTED	WAS DECISION EXPECTED?
1. NO SIGNIFICANT DIFFERENCE ON SCALE A FOR FRESHMEN	YES	REJECTED	YES
2. NO SIGNIFICANT DIFFERENCE ON SCALE B FOR FRESHMEN	YES	REJECTED	YES
3. NO SIGNIFICANT DIFFERENCE ON SCALE C FOR FRESHMEN	NO	NOT REJECTED	YES
4. NO SIGNIFICANT DIFFERENCE ON SCALE A FOR SENIORS	YES	REJECTED	NO
5. NO SIGNIFICANT DIFFERENCE ON SCALE B FOR SENIORS	YES	REJECTED	NO
6. NO SIGNIFICANT DIFFERENCE ON SCALE C FOR SENIORS	NO	NOT REJECTED	NO

through the work of Buhler and Havighurst. Super derived his theories of vocational development from the life stages of Buhler and Havighurst's developmental tasks.

It was suggested that the vocational developmental stages and their corresponding tasks point the way to a systematic approach to correct and facilitate career development<sup>161</sup>. It was therefore suggested that a career development program would be most beneficial if it addressed the specific vocational developmental tasks of the persons exposed to it.

It was then proposed that the Life Career Game would be an appropriate career development program to use with adolescents because it incorporated the processes of inventive planning, decision-making, compromise and self-concept formation — all essential behaviors during the exploratory stage of vocational development. However, because the game covered the full range of exploratory tasks and behaviors, it was suggested that it might have a differential impact on high school freshmen and seniors. This was proposed because freshmen tended to be in the early part of the exploratory stage of vocational development while seniors tended to be in the later part.

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<sup>161</sup> Osipow, p. 282.

Finally, it was suggested that the Career Development Inventory be used to assess the effectiveness of the Life Career Game. This was proposed because the CDI was developed directly from Super's theories of vocational development. It seems to be particularly suited for use with adolescents because it covers the full range of tasks and behaviors encompassed within the exploratory stage of vocational development. Furthermore, its three scales measure those tasks and behaviors which occur at different points during the exploratory stage. Consequently, it seems that the scale scores could indicate the differential impact of a career development program on persons in different stages of vocational development.

This, then, is a summary of the theoretical rationale for the present study. It now becomes a bit easier to relate the results of the present study to the hypotheses which were derived from the rationale.

It can easily be seen from Table X that the statistical decisions reached regarding the freshman data were predicted. This is to say that, based on the theoretical rationale and according to specific research hypotheses one, two and three at the end of Chapter I, it was correctly predicted that the Life Career Game would have a significant impact on certain aspects of the vocational maturity of high school freshmen as measured by the Career Development Inventory. It seems

reasonable to conclude therefore that the connection made between the theories of Super, the Life Career Game and the Career Development Inventory, as they relate to high school freshmen, is a valid one.

The hypotheses concerning seniors, however, did not develop as predicted. It will be recalled that no significant difference was expected for seniors on scales A and B of the CDI but was expected on scale C. Again referring to Table X it can be seen that just the opposite occurred and, in fact, the Life Career Game had the same effect on the vocational maturity of the seniors as it did for freshmen. Since this was not predicted in the theoretical rationale, a discussion of some of the possible reasons for this is in order.

To do this, Super's theory must again be consulted. The crucial element for this discussion concerns the vocational developmental tasks. It will be recalled that, according to Havighurst:

A developmental task is a task which arises at or about a certain period in the life of an individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks [Emphasis added].<sup>162</sup>

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<sup>162</sup> Havighurst, p. 2.

Furthermore, Super has defined vocational maturity as the ability to cope with vocational developmental tasks. Finally, if someone is vocationally immature, Jordaan suggests that "the question is not; Are they ready or un-ready? but what are they ready for, and how ready are they?"<sup>163</sup> At this point another look at the data obtained in the present study in Table V on page 102 will be helpful.

It can be seen from the data that the means for the freshman and senior control groups do not differ to a very large degree. Furthermore, it was mentioned earlier that the means of the senior control group were somewhat similar to the means of the tenth graders in Super's and Forrest's validation study. One way to interpret this might be to conclude that the seniors in the present study were vocationally immature. In other words, their level of vocational maturity and hence their ability to cope with vocational developmental tasks and consequently what they are ready for and how ready they are appears to be similar to that of the freshmen in the present study.

If this is the case, it could be concluded that the data involving seniors in the present study **do** not, in fact, contradict the theoretical rationale of the present

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<sup>163</sup> Jordaan, in Super, (ed.), Measuring Vocational Maturity, p. 115.

study. If, as the data seem to indicate, the level of vocational maturity for freshmen and seniors in the present study was relatively the same before exposure to the Life Career Game (as evidenced by means of control groups), one might expect the LCG to have a similar impact on both groups. This is exactly what happened.

Consequently it would seem that, keeping these factors in mind, one could conclude that the theoretical rationale of the present study is sound even, and especially, in light of the data obtained. In fact, the results tend to strengthen the notion that the CDI is an effective assessment tool which can indicate deficiencies in the level of vocational maturity thus pointing the way to means of remediation.

Furthermore, the results seem to support the notion that while vocational development proceeds chronologically, it can be impaired and that it is essential to know one's level of vocational maturity in order to determine the types of vocational developmental tasks with which one is capable of coping. The results also seem to support the need to design career development programs aimed at specific vocational developmental tasks if the programs hope to be effective. In addition, the successful use of the Life Career Game seems to lend support to a broad interpretation of vocational maturity encompassing many elements in a person's life beyond purely occupational ones.

The discussion to this point has presented one interpretation of the data. There could very well be others. One crucial factor relating to this is the data obtained by Super and Forrest in their validation study. Suppose their data is not a true representation of a larger population of students. Suppose the vocational maturity of the seniors in the present study is similar to that of seniors elsewhere. What implications would this have for the theoretical rationale and for Super's theories — particularly the notion of exploration? What would the implications be for looking at vocational maturity beyond adolescence? Keeping this and the interpretation of the results in mind, what are the implications for the use of the concept of vocational maturity in the future? How might it relate to other aspects of development including other theories of vocational development?

These questions are raised here with the thought that a research project should not only attempt to shed some light on current thinking and possibly provide some tentative answers but should also raise additional questions which hopefully might point the way for further research and additional inquiry. Within this context, the rest of the chapter will discuss some of the questions raised and look at the broader ramifications of the results of the present study.

The purpose of the preceding discussion was to present the results of the present study in light of the components of the theoretical rationale which were presented in Chapter I. Because of this, the discussion did not deal with speculation.

The remainder of the chapter will carry that discussion one step further. It is hoped that such a discussion will provide an impetus for additional research thus extending the findings of the present study.

Because this is meant to be somewhat speculative, a detailed theoretical rationale will not be developed for everything suggested. Instead, it is hoped that the suggestions will seem plausible based on the theoretical rationale of the present study and some conjecture. With this in mind, the remainder of the chapter will focus on four major issues: 1) the relationship vocational maturity might have to other theories of vocational development; 2) the relationship it might have to other aspects of development; 3) the relationship of the scores obtained in the present study to those obtained in Super's validation study and; 4) the implications for the concept of vocational maturity beyond adolescence.

#### 4. Implications for Other Theories of Vocational Development.

An important aspect of research would seem to involve relating the findings not only to the theoretical rationale used but also to other theories which address the same topic. In this way, a better understanding of both theoretical positions might be achieved. With this in mind, the results and theoretical rationale of the present study will be discussed in relation to another theory of vocational development. The theory to be discussed is that of Holland.

The popular conception that Holland employs in his theory is an elaboration of the hypothesis that career choices represent an extension of personality and an attempt to implement broad personal behavioral styles in the context of one's life work.<sup>164</sup>

Within this framework, Holland has delineated six personality types; each with its own qualities and vocational preferences. Holland's contention is that vocational satisfaction, stability and achievement depend on the congruency between one's personality and the environment. He agrees with the general notions concerning personality development that "the personality at a given point in time is a result of genetic and environmental influences"<sup>165</sup>. Because most people strive for positive reinforcement, Holland's theory

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<sup>164</sup> Osipow, p. 41.

<sup>165</sup> Ibid., p. 43.

proposes that people will choose occupations consistent with their personalities.

One further point should be mentioned. Initially Holland's theory dealt with the narrow context of vocational choice. After considerable research, "the six personality types became not merely vocational orientations but styles of life in general, only one facet being vocational"<sup>166</sup>.

While his theory discusses how these personality orientations influence vocational behavior, "Holland does not explicitly discuss the manner in which these model orientations develop"<sup>167</sup>. In this way Super's theory of vocational development might be considered more complete. Nonetheless, both cover similar ground with certain elements in common.

Holland's notion of career choice, representing an attempt to implement broad personal behavior styles, is very similar to Super's notion of self-concept formation. Super stated that "in expressing a vocational preference, a person puts into occupational terminology his idea of the kind of person he is"<sup>168</sup>. Likewise, Holland asserted that his six

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166 Ibid., p. 61.

167 Ibid., p. 43.

168 Super, Career Development: Self-Concept Theory, p. 1.

personality types develop as a result of genetic and environmental influences. This, too, is similar to Super's contention that the self-concept is a result of a compromise between who the person wants to be and the social realities with which the person must deal. The fact that Holland believes people will choose occupations consistent with their personal orientations strengthens the link with Super's theory which sees a person entering an occupation in order to implement the person's self-concept.

Finally, it will be recalled that the notion of vocational maturity in the present study was interpreted broadly encompassing many factors other than merely occupational ones. This, too, coincides with Holland's view that his personality types are not only vocational orientations but styles of life in general.

Consequently, there seems to be some similarity between the theoretical positions of Super and Holland. The question thus becomes: "How can the two be related in practical terms?" or, "What are the implications of the results of the present study for Holland's theory?"

One link might be between Super's vocational developmental tasks and Holland's personality types. It might be proposed that certain personality types are better prepared to cope with the vocational developmental tasks during adolescence. Another common thread might run

between Super's notion of the self-concept and Holland's personality types. It might be worthwhile to explore the congruence between one's self-evaluation of the kind of person one is and one's personality type as assessed by such instruments as Holland's Self-Directed Search<sup>169</sup> or some other personality inventory such as the Myers-Briggs Type Indicator<sup>170</sup>.

These types of comparisons might indicate discrepancies which could become barriers to vocational development. Recognizing these discrepancies could point the way for appropriate methods and types of remediation. In short, combining the CDI with one of the above instruments might add a very worthwhile dimension to the vocational counseling process.

Institutional environments are also important to self-concept formation and personality development. Osipow<sup>171</sup> indicated that an institutional environment congruent with one's personal orientation would be a positive influence while incongruence might lead to frustration and impaired

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169 John L. Holland, The Self-Directed Search: A Guide to Educational and Vocational Planning, Palo Alto, California, Consulting Psychologists Press, 1970.

170 I. Myers, Myers-Briggs Type Indicator Manual, Princeton, Educational Testing Service, 1962.

171 Osipow, p. 74.

development. Since inventories exist which assess institutional environments, such as Stern's College Characteristics Index<sup>172</sup>, it might be valuable to determine the relationship between vocational maturity scores, personality type and institutional environment. Again, this type of data may provide additional insights into ways of facilitating vocational development. Osipow<sup>173</sup> supports the value of this approach.

What has been presented so far has been an attempt to relate the results and theoretical rationale of the present study to another theory of vocational development. It is hoped that such a discussion may provide a starting point for the extension of both theoretical positions. The next section will discuss the results as they might relate to other aspects of development.

#### 5. Implications for Other Aspects of Development.

Because of the nature of the theories, the preceding section touched on the relationship of vocational development to personality development. This section will deal more specifically with the implications the results of the present

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172 George Stern, Preliminary Manual: Activities Index-College Characteristics Index, Syracuse, New York, Syracuse University Psychological Research Center, 1958.

173 Osipow, p. 75.

study might have for one's overall development. This will be discussed in relation to an application of Maslow's theoretical framework of development and the Clark-Trow typology of student subcultures.

Development as a Process. Maslow "conceptualizes human development as the process through which . . . basic human tendencies are actualized and full human potentialities fulfilled"<sup>174</sup>. He "classifies human needs into a series of increasingly 'higher level' motivations, each of which emerges as soon as the next lower-level needs have been satisfied"<sup>175</sup>. From such a theoretical perspective it can readily be seen that development might be impaired if a particular need-level remains unsatisfied.

The question needs to be asked: "Can this process of development be assessed and if so what relation might vocational development have to it?" Very simply, the answer to the first part of the question is yes. Shostrom<sup>176</sup> has developed the Personal Orientation Inventory (POI) which is designed to assess one's level of self-actualization as

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174 Blocher, p. 73.

175 Ibid., p. 74.

176 Everett L. Shostrom, "An Inventory for the Measurement of Self-Actualization", in Educational and Psychological Measurement, Vol. 24, No. 2, 1964, p. 207-218.

defined in Maslow's theory. "Results of the self-actualization study indicate that the test discriminates between the self-actualized, normal and non-self actualized groups on 11 of the 12 dimensions measured"<sup>177</sup>.

The link between one's overall development (as may be defined by Maslow's theory of self-actualization and measured by Shostrom's POI) and one's vocational development (as may be defined by Super's theory of vocational developmental tasks measured by his CDI) must now be made.

One underlying hypothesis [in vocational counseling] has been that by relieving tensions, clarifying feelings, giving insight, helping attain success, and developing a feeling of competence in one important area of adjustment, the vocational, it is possible to release the individual's ability to cope more adequately with other aspects of living, thus bringing about improvement in his general adjustment.<sup>178</sup>

With this in mind, it seems reasonable to propose that scores on the CDI might correlate with scores on the POI. In looking at the results of the present study, one might suggest that experimental group subjects would be expected to score higher on the POI than control group subjects. The implications of this for further research would seem to indicate a broader application for instruments

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177 Ibid., p. 210.

178 Donald E. Super, "Personality Integration Through Vocational Counseling", in Journal of Counseling Psychology, Vol. 2, No. 3, 1955, p. 217.

like the CDI. Not only might instruments like the CDI provide a measure of one's level of vocational development, but they may be indicative of one's progress in other areas of development as well. If such a relationship could be established it would seem that the counselor would be that much better equipped to deal with a particular individual.

Development as an Outcome. The preceding section discussed the implications of the results of the present study in light of development in general when it is viewed as a process. However, since vocational maturity can be viewed as an outcome, it might be reasonable to suggest that development in general can also be viewed as an outcome; as the result of one's heredity and social experiences. Consequently, it may be worthwhile to examine the results of the present study in this light, too.

One way of doing this is to show how a particular environment might affect the development of individuals. A great deal of research is available which documents the impact a college environment has on its students. One of the major factors involved is the diverse value orientations of students and the more general value orientation of the college community. In such a situation, a student attempts to minimize the discrepancy

. . . by decreasing the importance of the dissonant goals ascribed by the college, and by seeking support from his family and college peers with similar values as reinforcements of an existing value orientation.<sup>179</sup>

As a result of this process, subcultures arise in the student body. Clark and Trow<sup>180</sup> have developed a means of classifying these subcultures and have labeled them the Academic, Vocational, Collegiate and Nonconformist.

It is not necessary to go into a lengthy discussion here of what type of student is defined by each classification. It seems reasonable to suggest, however, that if students are classified within these categories as a result of their response to the environmental aspects of their development, the process may have ramifications for their vocational development as well. In other words, one might expect to find a relationship between one or more of the Clark-Trow typologies and scores on the CDI. A first impression might be that a high correlation would exist between vocationals and high scores on the CDI. Research is needed to establish this, however.

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<sup>179</sup> David Gottlieb and Benjamin Hodgkins, "College Student Subcultures", in The College Student and His Culture: An Analysis, Kaoru Yamamoto, (ed.), Boston, Houghton Mifflin, 1968, p. 242.

<sup>180</sup> Burton R. Clark and Martin A. Trow, "The Organizational Context", in College Peer Groups: Problems and Prospects for Research, Theodore M. Newcomb and E. K. Wilson, (eds.), Chicago, Aldine Publishing Company, 1966, xiv-303 p.

In conclusion, it would seem that the results of the present study might be extended to other theories of vocational development and other aspects of development as well; both as a process and an outcome. The thoughts expressed here are merely speculative, however, and would require further research before any could be substantiated.

#### 6. Implications for Super's Validation Data.

The discussion so far has reached somewhat far afield from the theoretical rationale of the present study. This section will bring the discussion closer to it by looking at the relationship of the results to Super's validation data.

It will be recalled from the discussion in Chapter III that the senior control subjects in the present study had CDI scores which were more in line with the scores of tenth graders than twelfth graders in Super's validation study. This led to the conclusion that the senior control group in the present study was less vocationally mature than the seniors in Super's validation study.

While this may be so, it would not seem reasonable to generalize the conclusion any further. National norms have not yet been established for the CDI. Consequently, the extent to which one is judged to be vocationally mature must be made carefully.

The major implication these differences have rests with the notion of exploration. The theoretical rationale suggested that seniors should be in the later part of the exploration stage of vocational development about ready to engage in the vocational developmental task of specification. This implies that much of the exploratory behavior has become focused and specific choices are about to be made.

Apparently this did not happen in the present study since the seniors who did not participate in the LCG reached only a slightly higher level of vocational maturity than the freshmen who did not participate. The implications for vocational developmental tasks and the whole concept of exploration must be examined.

One possible explanation rests with external variables affecting vocational development. Perhaps when Super's theories were formulated, the general state of society and the pace of its development was of such a nature that exploration could occur and specification could be accomplished within the age ranges delineated in Super's theory. Possibly as the pace of change increased it became more difficult to specify in the vocational sense with the same degree of accuracy that was possible only a decade or two ago. If this is the case, it would seem reasonable to expect the exploration stage and specifically the tentative sub-stage to continue longer than in the past.

Obviously, different parts of society such as schools, communities, and governments may deal with this situation differently. Consequently, some students may be better prepared to deal with the situation than others. This may help explain differences in CDI scores for the same age group from different populations.

Another implication of the differences between the data obtained in the present study and Super's takes the notion of exploration one step further. Super's theory indicates that the period of exploration ends about age twenty-five. Perhaps, in fact, the period of exploration may be made up of cycles. Students may explore, come to some tentative conclusions, and then enter into exploration again when the need arises. If exploration were to be viewed in this way, it might seem reasonable for seniors to benefit from a career development program which concentrates on exploration as they did in the present study.

In his critique of Crites' Career Maturity Inventory (CMI), Super has hinted at this potential cyclical process of exploration. He criticizes the CMI because the total score assesses vocational maturity by comparison with scores of twelfth graders under the assumption that the more the person's score resembles that of twelfth graders, the more mature the person is assumed to be. In his criticism Super states:

If the vocational attitudes of twelfth graders happen to reflect a regression toward immaturity in the face of approaching leaving the shelter of school for the strange world of work or of college, scores on this measure would be misleading [Emphasis added].<sup>181</sup>

Super seems to imply that the notion of exploration might be cyclical if he believes that there might be a regression toward immaturity. This of course would have a bearing on how to interpret vocational maturity measures for seniors. More importantly, it raises the question: "What is the true nature of the process of vocational exploration?" "Is it cyclical?" If so: "Can it be assumed that it stops about age twenty-five or could it possibly continue on indefinitely?" This will be the topic of the next section.

#### 7. Implications Beyond Adolescence.

It was suggested earlier that as the pace of change quickens, it may be necessary to extend the period of exploration. Another way of looking at this notion would be to view the process of exploration as occurring in cycles interspersed with periods of relative stability. It is therefore suggested that one major implication of the results of the present study is that the relative immaturity of the seniors might only be temporary caused by a regression to a

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<sup>181</sup> Super, Measuring Vocational Maturity, p. 163.

lower level of vocational maturity due to the incomprehensibility of the immediate future facing them as Super implied. If this is true, this regression might also occur at later stages in one's life beyond adolescence. The information to be presented next would seem to indicate that this is quite possible.

The bulk of the data in this regard deals with mid-life career changes. Bolles states that "workers must be prepared to change careers several times during their lives"<sup>182</sup>. The purpose of his book is to provide job-hunters with a logical process of exploration.

The fact that this process continues throughout the life-span is substantiated by Hoenninger<sup>183</sup>. He feels that while the developmental theories of career choice (such as Super's) are helpful, they do not go far enough. In them, "vocational choice has been relegated to the earlier years and mid-life is all but forgotten once a choice is made"<sup>184</sup>.

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<sup>182</sup> Richard Nelson Bolles, What Color is Your Parachute?: A Practical Manual for Job-Hunters and Career-Changers, Berkeley, California, Ten Speed Press, 1975, p. 61.

<sup>183</sup> Ronald Hoenninger, New Careers for Mid-Life: May We Help You?, Washington, National Vocational Guidance Association, 1974, 31 p., EDO 99603.

<sup>184</sup> Ibid., p. 4.

His major contention is that "we need to realign our developmental model with new developmental strategies for the middle years"<sup>185</sup>. To support this he cites McClusky<sup>186</sup>. According to Hoenninger:

McClusky believes the later years are in fact a period of progressive growth, and that there is potential for the prolongation of adult development not acknowledged by the conventional view of change in the adult years.<sup>187</sup>

Along these same lines, Hoenninger also cites Hershenson<sup>188</sup> who has posited a sequential model of vocational development. One aspect of this model is that it allows for "the recurrence of vocational developmental tasks"<sup>189</sup>. [Emphasis added].

It would seem that a real need exists to determine whether or not and to what extent exploration can be cyclical and continue through the life span. Hoenninger sums it up this way:

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185 Ibid., p. 8.

186 H. McClusky, "An Approach to a Differential Psychology of the Adult Potential", in Adult Learning and Instruction, Stanley M. Grabowski, (ed.), New York, ERIC Clearinghouse on Adult Education, 1970.

187 Hoenninger, p. 6.

188 David B. Hershenson, "Life-Stage Vocational Development System", in Journal of Counseling Psychology, Vol. 15, No. 1, 1968, p. 23-30.

189 Hoenninger, p. 7.

The failure to develop an adequate and effective life planning process before middle-life arrives may seriously hamper the individual's capacity to deal with the forces of middle-life. The major task of the early adult years (25 to 34), then, may be not so much establishment as the development, implementation and refinement of a process which helps keep the whole of life in perspective. Such a way of planning can be taught and can be learned in middle-life but its lack is often not discovered until the pain of its absence is experienced [Emphasis added].<sup>190</sup>

The result of the above is that it would appear to be almost imperative to examine how some of the techniques used in the present study such as the concept of inventive planning, a broad interpretation of vocational maturity and simulation games like Life Career could be adapted for use with "middlescents" as well as adolescents. Such an endeavor may lead to the reformulation of vocational development theory with an emphasis on the continuing need to re-explore based on a constantly evolving self and society.

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<sup>190</sup> Ibid., p. 19-20.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND IMPLICATIONS

The preceding chapters of the present study have presented a great deal of information and discussed many issues. In the interest of clarity and obtaining a sense of wholeness, this final chapter will provide a summary. This will be done by first reviewing the content and theme of each of the preceding chapters. This will be followed by a summary of the conclusions drawn in Chapter IV. Finally, the chapter will conclude with some of the implications discussed in Chapter IV which the findings of the present study might have for practice and theory.

#### 1. Summary of the Thesis.

In its effort to clarify the concept of vocational maturity, the present study began by reviewing the literature concerning the broader topic of vocational development. In tracing the shift from vocational choice, a point-in-time concept, to vocational development, an on-going concept, the discussion concentrated on writings in the field of developmental psychology.

Chapter I then discussed the attempt to assess the progress of one's vocational development which led to the notion of vocational maturity. The chapter then pointed out

that vocational maturity might be used not only as a measure of the extent of one's vocational development (a process) but also as an assessment of the effectiveness of various techniques or experiences designed to facilitate the process (an outcome measure). Chapter I concluded with a review of the related research and the development of a theoretical rationale.

Based on the review of the literature, the rationale proposed several things. First, vocational developmental stages and their corresponding tasks seemed to provide a framework within which one could assess, facilitate and correct vocational development. Second, since adolescents may be in different stages of vocational development, techniques or experiences designed to facilitate it must address the specific vocational developmental tasks of those exposed to it. If not, the technique or experience might have a differential impact on adolescents in different stages of vocational development. Third, the Life Career Game would be an appropriate career development experience to use with adolescents because it covered the full range of tasks in which they were engaged and might thus have a differential impact on students in different stages of vocational development. Finally, the Career Development Inventory was suggested as an appropriate instrument to determine the extent of such a differential impact. This was based on its relationship to

the theories of vocational development discussed earlier in the first chapter and its ability to assess vocational development during the full range of the adolescent period.

From this rationale a research question, hypothesis and specific hypotheses were developed. This concluded Chapter I.

Chapter II described the instruments used in the present study in detail. In addition the chapter described the sample and the experimental procedure used to collect the data.

Chapter III merely presented the results of the data as they pertained to the hypotheses presented in Chapter I. No attempt was made in Chapter III to generalize any of the results beyond the hypotheses proposed in the present study.

Chapter IV began where Chapter III left off by relating the results of the present study to material discussed in Chapter I, particularly the theoretical rationale. It concluded with some of the possible ramifications of the results beyond the framework of the present study. This included the relationship of the results to other theories of vocational development and other aspects of development as well as the period of life beyond adolescence, which was the focal point of the present study.

## 2. Conclusions of the Present Study.

Based on the data obtained in the present study, several conclusions were made.

First, since the scores on the Career Development Inventory increased with age it was concluded that this added support to the developmental notion of vocational choice.

Second, since there was no significant difference between the scores obtained on the Career Development Inventory by males and females in the same class, it was concluded that the instrument did not discriminate between the sexes.

Third, since the Life Career Game had a significant impact on the vocational maturity of both the freshmen and seniors, it was suggested that the experience did not have a differential impact. On the contrary, it seemed to adequately address the process of exploration and seemed to indicate that this process was just as important to the seniors as to the freshmen.

Fourth, it was suggested that the degree to which the Life Career Game seemed to facilitate vocational maturity should be interpreted cautiously in light of the data obtained by Super in his validation study of the Career Development Inventory.

Fifth, it was also suggested that greater, more formalized discussion during the Life Career Game might have led to improved scores on scale C of the Career Development Inventory.

Sixth, in light of similar freshmen and senior control group scores on the Career Development Inventory, the similar impact of the Life Career Game would seem to support the rationale of the present study and the use of the Career Development Inventory as an assessment tool.

Seventh, consequently this would seem to support the need to develop career development programs aimed at specific vocational developmental tasks.

Finally, it seemed reasonable to conclude that the connection made in the rationale between Super's theories, the Life Career Game and the Career Development Inventory was a valid one.

While it is important to present the conclusions derived from the present study, it is equally important to discuss the implications the findings and conclusions might have for vocational development practice and theory. This will be the subject of the concluding section of the present chapter.

### 3. Implications for Practice and Theory.

Implications for Practice. The results of the present study may have implications for other theories of vocational development. This was discussed in the preceding chapter in relation to Holland's theory of vocational development. It was suggested that there might be a correlation between Holland's personality types and Super's notions of vocational developmental tasks and self-concept implementation. Correlations between Holland's personality types, as determined by his Self-Directed Search, and scores on Super's Career Development Inventory might increase a counselor's ability to accurately assess and hence facilitate one's vocational development.

It was also suggested that, since the environment is a major factor in self-concept formation, knowing the type of environment in which one lives might also be helpful in enabling a counselor to facilitate one's vocational development. This was discussed in terms of Stern's College Characteristics Index and the Clark-Trow typology of student subcultures.

The results of the present study might also have implications for other aspects of development beyond the vocational. This is based on the belief that assistance in one area of development, such as the vocational, might have implications for other areas of development as well.

Consequently, it was suggested that a positive correlation between one's profile, as determined by scores obtained on the career development inventory, and one's profile on the Personal Orientation Inventory, which measures one's level of self-actualization, might exist.

Implications for Theory. The major implication of the results of the present study for theory concern the concept of exploration. The data of the present study seem to support the link between the nature of career development programs and Super's theory of vocational developmental tasks. However, because of the similar impact which the Life Career Game had on the vocational maturity of both freshmen and seniors, it would seem that the concept of exploration might need reevaluating.

In essence, one interpretation of the results could lead to the conclusion that the period of exploration does not end about the time Super's theory indicates. If this is so, the results of the present study could point the way to facilitating vocational development beyond the period of adolescence encompassed by Super's theory into the period of "middlescence". This period of middle-age may be a time when changing careers might create as much a need for exploration or "re-exploration" as the period of adolescence does.

The foregoing statements have attempted to relate the concept of vocational maturity as presented in the present study to other factors pertinent to the growth and development of individuals. The hope is that further research and investigation along the lines of some of the suggestions made might enhance one's ability to deal with problems of human development and increase one's knowledge and understanding of concepts like vocational maturity.

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This book should be required reading for anyone conducting any type of research in the social sciences. It literally covers every step of the process in a very clear, concise manner.

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This article discussed some practical applications for measures of vocational maturity. It lent support to the use of the Career Development Inventory in the present study.

Ziegler, Warren L., Planning as Action: Techniques of Inventive Planning Workshops, working draft No. 7215, Syracuse, New York, Educational Policy Research Center, 1972, iv-61 p.

Other books cited have espoused the role the individual can play in creating the future. This paper describes a technique for individuals to achieve this. This supported the type of approach needed to plan one's vocational future and is seen as a major component of a simulation like Life Career.

APPENDIX 1

DESCRIPTION OF MATERIALS USED IN THE LCG

## DESCRIPTION OF MATERIALS USED IN THE LCG

Instructor's Manual: This explains the procedures to be followed during the administration of the game. It also includes suggestions for expanding on the game.

Player's Rule Book: This explains the step-by-step process the players must follow in order to plan one year in the life of their player in the four categories involved.

Profile Cards: These cards describe one of four fictitious students whose life is planned by the players. Everything from scholastic abilities, interests and family background to grades obtained during the previous two years of high school is presented on the cards.

Schedule Forms: One of these is completed for each year in the profile student's life. It allows the team members to see how the student's time is spent during a typical week during that year.

Record Sheets: One of these is also completed for each year in the profile student's life. It enables the team to record what the person is doing during that year in each of the four categories involved in the game.

School-Job Catalog: The first half is used to see what type of school the profile student will enroll in. It also lists the curriculum available at each school. The second half lists the type of jobs for which the student is eligible based on the person's level of education.

School Applications: One of these is used when the student wants to apply to a post-secondary school.

Job Applications: These are used when a person wants to apply for a full-time job.

Classified Ads: These are used to determine what type of jobs are available for the person at the time the person is looking.

Unplanned Event Cards: These are drawn at the end of each round of play. If it applies, the event must be taken into account during the next round of play.

Spinner and Scoring Booklet: This is used to compute scores at the end of each round and to determine if the person: gets a job; goes to school; gets married and; has children.

APPENDIX 2

INSTRUCTIONS AND SAMPLE ITEMS FROM THE CDI

## INSTRUCTIONS AND SAMPLE ITEMS FROM THE CDI

Introduction

The questions you are about to read ask you about school, work, your future career, and some of the plans you may have made. The only right answers are the ones which are right for you. Later, some questions ask about career facts; others ask you to judge students' plans. Give the best answers you can.

Answers to questions like these can help teachers and counselors offer the kind of help which high school students want and need in planning and preparing for a job after graduation, for vocational and technical school training, or for going to college.

The First Step

You MUST use the pencil given to you with this booklet for all the work which follows. First check this booklet to be sure that it has 13 pages all in the right order. Next take the printed answer sheet and turn it so the words and symbol of the University of Ottawa are on the left hand side of the page.

On what is now the top of the page you will see spaces for an identification number, your last name and your first and middle initials. PRINT your last name and first and middle initials, ONE LETTER PER SPACE, in each of the white spaces provided. Then, blacken in one letter in each column below your name and initials which corresponds to the letter in your name which you wrote in the space above.

The identifying information on your answer sheet is now properly completed. Turn the answer sheet so the words and symbol of the University of Ottawa appear at the top of the page and then go on to the next page in this booklet.

Your Future Occupation

In your present thoughts and plans, what kind of work would you like to do when you finish all of your education and training: What kind of occupation do you plan to enter? For example; a bookkeeper, machinist, lawyer, registered nurse, small store owner, waitress, engineer, shop foreman, elementary teacher, truck driver, etc. Some of the experiences in the Life Career Game may have given you some ideas. Write the name(s) of the occupation(s) you have thought about on the lines below:

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If you have given more than one occupation, put an " X " in front of your first choice; the one you prefer more than the others.

How to Answer

ALL your answers go on the answer sheet. Do not write anything in this booklet. Be sure to use ONLY the pencil given to you so the computer can "read" your answers. Notice that the spaces for your answers are numbered in COLUMNS GOING DOWN THE ANSWER SHEET.

After you choose an answer to a question, find the NUMBER of that question on the answer sheet and blacken ONLY the LETTER of the answer you choose. You only need to be sure that the LETTER of the answer chosen is COMPLETELY covered. DO NOT go beyond the lines around the letter of your answer. COMPLETELY erase mistakes or changes so they will not be picked up by the computer. Do not make any stray marks on the answer sheet.

There are 91 questions to be answered. So BE SURE YOU END WITH NUMBER 91 ON THE ANSWER SHEET. Because of the way this questionnaire is scored by the computer, YOU MUST ANSWER EVERY QUESTION. If you are not sure about an answer, guess. There is no time limit but work as rapidly as you can. The first answer that comes to you is often the best one.

Unless there are any questions, turn to the next page where you will find the questions and begin.

## Scale A: Planning Orientation

- I. How much thinking and planning have you done in the following areas? What kind of plans do you have? For each question below choose one of the following answers to show what you have done.
- a) I have not given any thought to this.
  - b) I have given some thought to this, but haven't any plans yet.
  - c) I have some plans, but am still not sure of them.
  - d) I have made definite plans, but don't know how to carry them out.
  - e) I have made definite plans, and know what to do to carry them out.
1. Finding out about educational and occupational possibilities by going to the library, sending away for information, or talking to somebody who knows about the possibilities.
  2. Talking about career decisions with an adult who knows something about me.
  3. Taking high school courses which will help me decide what line of work to go into when I leave school or college.
  4. Taking high school courses which will help me in college, in job training, or on the job.
  5. Taking part in school or out of school activities which will help me in college, in training, or on the job.
  6. Taking part in school or after school activities (for example, science club, school newspaper, Sunday School teaching, volunteer nurse's aide) which will help me decide what kind of work to go into when I leave school.
  7. Getting a part-time or summer job which will help me decide what kind of work I might go into.
  8. Getting a part-time or summer job which will help me get the kind of job or training I want.

9. Getting money for college or training.
10. Dealing with things which might make it hard for me to get the kind of training or the kind of work I would like.
11. Getting the kind of training, education, or experience which I will need to get into the kind of work I want.
12. Getting a job once I've finished my education and training.

Scale B: Resources for Exploration

IV. Here are five answers which can be used for questions 34 through 47. Use these answers to show whether or not you would go to the sources of information listed below for help in making your job or college plans.

I would....

- a) definitely not
- b) probably not
- c) not be sure whether to
- d) probably
- e) definitely

....go to:

34. Father or male guardian.
35. Mother or female guardian.
36. Brothers, sisters, or other relatives.
37. Friends.
38. Coaches of teams I have played on.
39. Minister, priest, or rabbi.
40. Teachers.

41. School counselors.
42. Private counselors, outside of school.
43. Books with the information I needed.
44. Audio or visual aids like tape recordings, movies, or computers.
45. College catalogues.
46. Persons in the occupation or at the college I am considering.
47. TV shows, movies, or magazines.

Scale C: Information and Decision-Making

VI. Here, each question has its own set of possible answers.

62. Which one of the following is the best source of information about job duties and opportunities?
  - a) The Encyclopedia Britannica
  - b) World Almanac
  - c) Scholastic Magazine
  - d) The Occupational Index
  - e) The Occupational Outlook Handbook
63. Which one of the following would be most useful for detailed information about getting into college?
  - a) The World Book Encyclopedia
  - b) Webster's Collegiate Dictionary
  - c) Lovejoy's College Guide
  - d) Reader's Digest
  - e) The Education Index

64. Which one of the following pairs of occupations involves the same level of training and responsibility?
- a) Tailor, Sales Clerk
  - b) Engineer, Banker
  - c) Tailor, Engineer
  - d) Banker, Sales Clerk
65. The occupational fields expected to grow most rapidly during the next ten years are:
- a) Professional and service.
  - b) Sales and crafts.
  - c) Crafts and clerical.
  - d) Labor and sales.

APPENDIX 3

TABLE XI

MEANS AND STANDARD DEVIATIONS ON THE CAREER DEVELOPMENT  
INVENTORY FROM SUPER'S VALIDATION STUDY

Table XI.-

Means and Standard Deviations on the Career Development Inventory From Super's Validation Study.

		EIGHTH GRADE		TENTH GRADE		TWELFTH GRADE				
<u>SCALE</u>	<u>N</u>	<u>MEAN</u>	<u>S.D.</u>	<u>N</u>	<u>MEAN</u>	<u>S.D.</u>	<u>N</u>	<u>MEAN</u>	<u>S.D.</u>	<u>F</u>
A	79	92.03		74	104.28	19.25	74	116.60		29.51*
B	78	208.47		66	226.00	45.49	78	257.32		28.10*
C	82	12.36		69	16.97	4.57	74	19.87		56.81*

\*  $P < .01$

Source: Donald E. Super and David J. Forrest, Career Development Inventory, Form I, Preliminary Manual, New York, Teachers College, Columbia University, 1972, p. 25.

APPENDIX 4

TABLE XII

RAW SCORES OBTAINED ON SCALES A, B, AND C BY STUDENTS  
COMPLETING THE CAREER DEVELOPMENT INVENTORY

Table XII.-

Raw Scores Obtained on Scales A, B, and C by Students  
Completing the Career Development Inventory.

Freshmen						Seniors					
Experimentals			Controls			Experimentals			Controls		
A	B	C	A	B	C	A	B	C	A	B	C
113	311	16	102	263	10	103	255	6	112	244	22
82	275	8	98	226	22	150	316	20	117	231	12
116	270	9	83	197	2	155	380	23	132	265	12
125	287	19	95	303	16	154	370	22	76	261	19
107	294	18	83	194	13	96	307	18	96	311	18
88	191	7	105	223	20	118	271	22	63	213	18
127	313	19	109	205	17	123	227	14	87	156	25
128	286	12	76	182	9	105	241	22	92	189	19
87	296	19	93	206	18	131	288	17	74	236	8
75	196	19	100	236	17	106	300	19	77	248	21
94	218	17	95	253	21	84	225	12	93	192	13
101	222	14	86	181	11	137	313	22	83	260	11
93	227	11	91	139	12	148	285	17	93	217	14
102	300	21	88	194	14	86	234	10	106	227	20
103	266	20	95	224	13	132	367	21	114	208	24
108	274	16	138	290	20	102	194	19	93	323	20
111	334	21	96	177	18	130	269	22	94	255	19
100	302	26	115	287	12	128	339	24	85	189	18
94	224	11	87	211	18	140	288	21	120	308	9
124	238	10	76	172	6	99	237	5	48	213	20
92	309	16	83	197	5	94	317	4	75	266	18
101	246	15	98	242	17	106	327	19	66	198	20
108	225	19	85	211	15	100	189	18	89	185	11
118	302	17	81	209	9	108	254	24	124	249	19
98	275	22	132	358	18	114	260	24	97	250	20

Table XII.- (Continued)

Freshmen						Seniors					
Experimentals			Controls			Experimentals			Controls		
A	B	C	A	B	C	A	B	C	A	B	C
102	265	11	90	227	14	94	227	12	122	259	14
106	272	8	75	211	20	119	282	17	76	98	18
122	257	22	84	218	11	103	256	6	78	253	25
126	322	13	81	152	13	117	309	21	103	170	15
104	261	7	76	210	13	120	292	13	98	181	19
123	310	13	79	244	13	132	347	16	109	215	21
81	241	14	86	171	8	97	250	6	110	355	21
86	245	7	78	215	13	131	265	21	113	303	21
138	278	25	135	340	23	153	310	23	92	177	20
101	271	19	131	316	12	152	289	18	128	315	26
87	260	14	110	212	15	102	257	10	79	243	14
127	272	16	93	182	15	128	273	13	138	230	10
145	368	15	92	274	11	79	262	17	123	321	24
87	253	6	100	314	20	87	182	5	124	233	15
94	314	19	121	328	20	127	284	15	89	227	12
117	310	16	88	172	17	99	310	16	89	221	19
102	312	25				153	285	13	89	224	20
91	239	16							83	289	15
103	251	16							102	278	18
105	232	12							92	250	18
108	264	25							103	171	19

APPENDIX 5

ABSTRACT OF

CLARIFYING THE CONCEPT OF VOCATIONAL MATURITY THROUGH THE USE  
OF A CAREER DEVELOPMENT PROGRAM WITH  
HIGH SCHOOL FRESHMEN AND SENIORS

## ABSTRACT OF

Clarifying the Concept of Vocational Maturity Through the Use  
of a Career Development Program with  
High School Freshmen and Seniors<sup>1</sup>

One of the more adequate approaches used in describing vocational development is the approach which traces vocational development through a series of stages. In this approach, successful vocational development is seen as occurring as a result of the completion of vocational developmental tasks. The degree to which one is able to cope with these developmental tasks is referred to as one's level of vocational maturity.

The present study investigated whether a particular career development program, Life Career, would have a differential effect on the vocational maturity of high school freshmen and seniors as measured by the Career Development Inventory. A differential effect was expected based on the nature of the career development program and the stages of vocational development in which the two groups were expected to be.

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<sup>1</sup> Roger W. Sorochty, doctoral thesis presented to the School of Graduate Studies of the University of Ottawa, Ontario, June 1976, x-181 p.

A total of 175 students participated in the study. There were forty-two senior experimentals and forty-six senior controls along with forty-six freshman experimentals and forty-one freshman controls. The experimentals were engaged in the Life Career Game twice a week for six weeks totaling approximately seven hours. The controls pursued their normal activities.

The data produced by the three scale scores of the Career Development Inventory were analyzed using a one-way multivariate analysis of variance for the freshmen and seniors. When an F-ratio significant at the .05 level was found for each class, a one-way univariate analysis of variance was used as a post hoc procedure comparing the scores of experimentals and controls in each class to determine which scales contributed to the significance.

The results obtained only partially upheld the specific research hypotheses. The Life Career Game was found to have the same effect on the vocational maturity of seniors as it did for freshmen.

These results were discussed in relation to the theoretical rationale of the present study, other theories of vocational development and other aspects of development. It was concluded that vocational maturity is a useful concept for measuring outcomes as well as for assessing deficiencies

in vocational development. Implications for the use of the concept of vocational maturity as well as the applicability of the notion of vocational exploration beyond the period of adolescence were discussed.