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PERSONALITY ORIENTATION AND VOCATIONAL MATURITY:
A STUDY OF PROFILE SIMILARITY

by
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A DISSERTATION

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CHAPTER I

INTRODUCTION

The nature-nurture controversy long has disturbed the educator and psychologist who attempted to understand human behavior within the concept of single causation. Discovery of such simplicity is spurred by the quest for the elusive law of parsimony in theory construction (Millon, 1967; Hall & Lindsay, 1970; Crites, 1969a). The multiple causation quandry is not limited to the contemporary debate over the nature of intelligence (Jensen, 1969), but extends throughout the panoply of human behavior, not the least of which is vocational development.

Behavior as the product of interaction between an individual and his environment (Houchins, 1965; Cumming & Cumming, 1962; Livent, 1971) is the basis of the present study. Despite the general recognition of the importance of this principle, few studies have examined personality and vocational development simultaneously. Such investigations are requisite in order to understand the normal individual from a more positive viewpoint than the absence of diagnostic conditions which characterize the abnormal individual in psychopathology (Gibbs, 1968; Szasz, 1960;

Yamamoto, 1970). Blocker (1966) expressed this conceptual problem:

Even developing a set of constructs or concepts that can be used to describe high-level human functioning presents problems. Are constructs developed primarily to describe pathological behavior useful in explaining human effectiveness? What, if any, are the polar opposites of constructs like anxiety, defensiveness, self-deception, and so forth? An example of the relatively impoverished state of conceptualization represented in psychological thinking on this problem is Karl Menninger's use of the phrase "weller than well." We simply lack terms and concepts that are descriptive of high-level aspects of human behavior [p. 72].

In the remainder of the chapter, "Models of Human Effectiveness," Blocker summarizes the works of Maslow (1954), Allport (1963), Rogers (1962) and others who adhere to this concept.

Recent Federal Developments

U. S. Commissioner of Education, Sidney P. Marland, has proposed a concept of career education which he defined as "education designed to equip every student either for gainful employment or continued education upon completion of the 12th grade [Marland, 1971b, p. 3]." In order to achieve the 100% placement he proposed a massive and thorough reorientation of the schools, not merely expanded and more numerous vocational education programs. Although vocational education, industrial arts education, distributive education, and distributive occupations form a part of the total career education concept, counseling and guidance activities are also an integral part. Existentialism

withstanding, one alternative does not offer a choice situation. According to Marland (1971a) "One choice in anything is simply not enough [p. 577]." The developmental approach to career education as explicated by Marland (1971b) is:

During the first six years of his schooling the youngster would be made familiar with these various clusters of occupations and what is involved in entering them. In grades seven and eight he would concentrate on learning more about those particular job clusters that interest him most. In grades nine and ten he would select a job cluster to explore in some depth, and experience that would include visiting places where this kind of work is going on, trying his own hand at certain basic skills, and in general getting practical experience in what that line of work involves. In grades 11 and 12 he would pursue his selected job area even more intensely, in terms of one of three options: acquiring skills that would enable him to take a job immediately upon leaving high school; taking a combination of academic and on-the-job courses in preparation for entering a post-secondary institution that would train him as a technician, for instance; or electing a somewhat similar combination of courses in preparation for a professional degree from a four year college and beyond [p. 5].

Hardwick (1971) similarly proposed:

In elementary school students are informed about the wide range of jobs in our society and the roles and requirements involved. In junior high school, students may explore several specific clusters of occupations through hands-on experiences and field observations, as well as classroom instruction. . . .

In senior high school students pursue their selected occupational area, exercising one of three options--intensive job preparation for entry into the world of work immediately upon leaving high school, preparation for post-secondary occupational education, or preparation for four year college [pp. 4-5].

The preparation of students, for either continued education at the postsecondary, or baccalaureate level, or entrance into the world of work is no longer amorphously delegated to the school counselor. Career education has been proposed as occupying a central place in the curriculum. Thus, for the first time in this decade of the 1970's, an attempt is being made to consolidate further the efforts of the schools in the absence of societal rites of passage (Tyler, Sundberg, Rohila, & Greene, 1968).

These recent federal proposals support the principle that vocational development is a process as opposed to an event-in-time (Crites, 1969b, p. 125). Although a beginning, such developments do not cover adequately the compartmentalization pointed out by Wolfbein (1968):

The life span of the individual has almost always been viewed as the sum of a number of discrete, although interrelated sectors involving growing up and getting an education, working and making a living, and retiring and reaping the rewards of the first two stages.

. . . the advisability--even the reality of such a series of events has been challenged and the future almost certainly portends a comingling of learning, labor, and leisure over the lifetime of the individual [p. 139].

While developments such as Marland's (1971b) appear to be long overdue and praiseworthy, research in the area of career development had been limited. Well-known longitudinal research investigations in vocational development include the Career Pattern Study (Super, 1957), the Study of Readiness for Vocational Planning (Gribbons & Lohnes,

1964), the Vocational Development Project (Crites, 1965) and the Research at the National Merit Scholarship Corporation and the American College Testing Program (Holland, 1962; 1963a; 1963b; 1963c; 1963d; 1963e; 1964), the seven-year study of Gesell, Ilg, and Ames (1956), and Project Talent (Flanagan, 1960). Several cross-sectional studies in vocational development have been completed (Cooley & Lohnes, 1968; Tiedeman & O'Hara, 1963; Weiss, Dawis, Lofquist, Tinsley, & Waruken, 1969).

Conceptual stages of vocational development have been proposed during the past quarter-century, and were synthesized in Chapter II. Among these was Holland's (1966) personality orientation theory and Super's (1955) self concept theory of vocational behavior. Investigation of the proposed stages through available theory was necessary not only for their support, but also for their possible refinement. Such study was of paramount importance at the commencement of the career education era.

The Problem

The problem examined by this deductive study involved the concept of nomothetic stages of vocational development as opposed to aggregates of ideographic personality types. The questions under consideration were:

1. Do any groups appear to progress through Holland's personality types as a developmental process?

2. Do these progressions through Holland's personality types reveal a vocational development process in accord with the stages postulated by Super, Ginzberg, and other theorists?
3. Do these same progressions appear to offer a refinement of the conceptual stages offered in theory?

Purpose

The present inquiry was made to determine whether or not similarities or dissimilarities in group personality profiles existed when such factors as grade level, sex, curricular program, and intelligence were varied systematically. The purpose of this descriptive investigation was to determine the feasibility of studying personality type, by vocational maturity, as a developmental process encompassing a variety of demographic and objective factors. Additional inspection of the results was made to discover patterns and trends among group profiles. The result of such findings was to encourage an analysis of the factors to determine the degree of contribution each factor made at various stages of individual development, as well as the degree of contribution each factor made to pattern changes in group personality profiles.

Need for the Present Study

Super (1957) noted that vocational development involved an interaction among many individual and environmental factors. Little research has been completed on the simultaneous use of vocational maturity and personality

constructs in relation to vocational development. Crites (1960) conducted research closest to the concepts on which this investigation is based. However, no direct research has been published concerning the dimensions of personality as measured by Holland's (1958) Vocational Preference Inventory (VPI) in conjunction with Super's vocational maturity construct as quantified by Crites' (1969b) Vocational Development Inventory (VDI).

The need for this study was augmented by the fact that Holland (1972) and his staff have performed some unpublished research with these concepts. However, he indicated in private communication that "the VDI appears to correlate with the wrong VPI scales (+r's with Realistic and -r's with Social and Enterprising)." At the same time, he indicated that he knew "of no published research re the relationship of the VPI and the VDI." Continued research into the joint use of these concepts appeared appropriate in examining the separation of personality patterns of vocationally mature and immature groups. This investigation was designed to allow elaboration on the question of the mature personality within the parameter of vocational development. Such information should be obtained not merely for the confirmation or rejection of a proposed theory, but also for the use of consuming practitioners charged with the execution of facilitative programs (Gribbons, 1960; Hill, 1972; Shimberg & Katz, 1962).

Assumptions

Explication of the assumptions upon which any investigation is conducted is important. This particular study was based on five assumptions:

1. Career development is a developmental process which occurs in stages.
2. All individuals experience the dimensions of vocational maturity in their progression toward fuller physical and psychological development.
3. Generically, students at contiguous grade levels are representative of each other on the continuum of vocational development.
4. Individuals have a measurable personality profile.
5. Group personality profiles comprise nomothetic stages of career development.

Definition of Terms

In order to clarify some of the terms used in this study these definitions are provided:

1. Attitude: "is a predisposition to act in a positive or negative way toward persons, objects, ideas, and events [McDonald, 1965, p. 308]."
2. Personality: "is that which gives order and congruence to all the different kinds of behavior in which the individual engages [Hall & Lindsay, 1970, p. 8]."
3. Regular Program: is defined as the "systematic arrangement of courses and activities designed for that group of high school students who are preparing for college regardless of whether or not all members actually expect to attend college [Kapes, 1972, p. 16]."
4. Vocational Development and Career Development: are used interchangeably in this study. These terms are defined as: ". . . an ongoing,

continuous, generally irreversibly, orderly, patterned, and dynamic process, which involves interaction between the individual's behavior, repertoire [sic, repertory] and the demands made by society, that is, by the developmental tasks. Vocational development is essentially a process of compromise or synthesis [Super, 1957, p. 197]." Tiedeman and O'Hara (1963) defined career development as: "those aspects of the continuous unbroken flow of a person's experience that are relevant to his fashioning of an identity at work [p. 2]."

5. Vocational Maturity: is defined as the dispositional response tendencies associated with career decision-making. The phrase "maturity of vocational attitudes" was used interchangeably with "vocational maturity" in this study.
6. Vocational Program: is defined as the "systematic arrangement of courses and activities designed to prepare students for immediate employment [or other non-collegiate postsecondary education] after high school in the particular occupations taught regardless of whether or not the students enrolled in each occupational area actually expect to work at that particular occupation after high school [or other non-collegiate postsecondary education] [Kapes, 1972, p. 18]."

Hypotheses

Two major concepts, personality and vocational maturity, as well as their joint correlates, are reviewed in Chapter II for development of the present problem. The various relationships were investigated through Cattell's profile similarity index (r_p). Initially, r_p values were obtained on data representing personality and vocational maturity for the three dichotomous vocational maturity correlates (i.e., grade level, sex group membership, and curricular program) as well as on the fourth independent

variable, intelligence level. The .01 level of confidence was adopted as the criterion of significance.

Hypothesis I

Eleventh grade students and twelfth grade students are similar or dissimilar at a statistically significant level on profiles of personality and vocational maturity when sex group membership, curricular program, and intelligence levels are controlled.

Hypothesis II

Males and females are similar or dissimilar at a statistically significant level on profiles of personality and vocational maturity when grade level, curricular program, and intelligence levels are controlled.

Hypothesis III

Regular curricular program students and vocational curricular program students are similar or dissimilar at a statistically significant level on profiles of personality and vocational maturity when grade level, sex group membership, and intelligence levels are controlled.

Hypothesis IV

When separated on three intelligence levels ($>+1\sigma$, -1σ through $+1\sigma$, and $<-1\sigma$) individuals are similar or dissimilar at a statistically significant level on profiles of personality and vocational maturity when grade level, sex group membership, and curricular program are controlled.

Limitations

Data used in this study were developed from the Southeastern Career Development Study (SCDS) conducted by the Center for Career Education, Area of Behavioral Studies, The University of Alabama. Participating rural schools were located within the districts served by the Fort Payne City and the DeKalb County School Systems; urban schools were within areas served by the Bessemer City and the Jefferson County School Systems.

The SCDS data bank was composed of demographic and objective information from eleventh and twelfth grade students. Data bank information was limited to those individuals who were in attendance on the date during May, 1972, scheduled for completion of the VDI-A and VPI. The population of this study was limited further to those same students who had also completed the California Short Form Test of Mental Maturity (CSFTMM), or the derivation of that instrument, the Short Form Test of Academic Aptitude (SFTAA), which replaced the CSFTMM in 1971, as part of the state testing program in Alabama at the eleventh grade level. The CSFTMM was administered to the 1971-1972 twelfth grade students during the fall term of their junior year (1970-1971).

A second limitation of this investigation is the implication found in the measurement of a developmental process by sampling behavior at one point in time rather than at several successive points over time.

The final limitation of this study is witnessed by the sole focus on profile separation or overlap. The consequent lack of immediate concern for both other correlational measures among the several factors, as well as analysis of variance amongst the several employed factors disregarded Cronbach's (1959) suggestion.

CHAPTER II

DEVELOPMENT OF THE PROBLEM AND RELATED RESEARCH

Introduction

Theories of vocational choice have been generated from many viewpoints. In 1959, Hilton explained career decision making in terms of (a) the attribute matching model, (b) the need reduction model, (c) the economic man model, (d) the social man model, and (e) the complex information processing model. Osipow (1968) classified them into four categories: trait-factor approaches, sociology and career choice, self-concept theory, vocational choice and personality theories. Herr (1970) identified the frames of reference as trait-factor or actuarial, economic, social structure, complex information processing, need, and self-concept theories. Herr and Cramer (1972) designated five groups: trait-and-factor or actuarial, decision theory, sociological, psychological, and developmental. Crites (1969a) ordered them into the non-psychological and the psychological frames of reference.

Those classified as non-psychological attribute choice phenomena to environmental factors such as (a) chance or contingency factors, (b) the laws of supply and demand,

and (c) the folkways and institutions of society. In contrast to the accidental, economical, and sociological theories of vocational choice, psychological theories focus more on the individual, e.g., his intelligence, interests, and personality (Crites, 1969a). Super (1969b) summarized this diversity from a historical perspective by offering the observation that vocational psychology from its beginnings until shortly after 1950 was essentially a psychology of occupations rather than of people.

An Influence From Super's Developmental
Self-Concept Theory Of
Vocational Behavior

Super (1955) introduced the concept of vocational maturity to denote the progression of development from the time of early fantasy choices in childhood to decisions about retirement from work in old age. In 1957 he stated that "the concept of vocational development leads logically to that of vocational maturity [p. 185]." The following definition of vocational maturity was provided by Super (1957):

Vocational Maturity is used to denote the degree of development, the place reached on the continuum of vocational development from exploration to decline. Vocational maturity may be thought of as vocational age, conceptually similar to mental age in early adolescence, but practically different in late adolescence and early adulthood because more distinctions can be made in the developmental curve at those stages [p. 186].

Furthermore, Super (1957) defined two measures of vocational maturity:

Vocational Maturity I focuses on life stages and is indicated by the actual life stage of an individual in relation to his expected life stage (based on his chronological age). Vocational Maturity II focuses on developmental tasks and is represented by the behavior of the individual in handling the developmental tasks with which he actually is coping [p. 132].

To the extent that a person successfully copes with the developmental tasks of a life stage, he can be considered as more or less vocationally mature (Crites, 1969b). As an individual matures vocationally, he passes through a series of stages, each of which corresponds to some phase in the development of self-concept (Super, 1957). Vocational maturity ". . . refers to the maturity of an individual's vocational behavior as indicated by the similarity between his behavior and that of the oldest individuals in his vocational life stage [Crites, 1961, p. 259]."

Vocational maturity is a comprehensive construct encompassing such variables as choice competencies, choice consistency, and choice realism (Super, 1955; Crites, 1965, 1969b). Several indices of vocational maturity have been utilized in studies reported in the literature. Super's (1957) Career Pattern Study (CPS) was based upon judges' assessments of protocols from a standard interview. The employed variables, or indices of vocational maturity, were gathered from interviews, ratings, or standard tests and reported by Super and Overstreet (1960):

- (a) concern with choice
- (b) use of resources in orientation

- (c) specificity of information
- (d) specificity of planning
- (e) extent of planning activity
- (f) consistency of vocational preferences within fields, levels, and families
- (g) degree of patterning of measured interests
- (h) interest maturity
- (i) liking for work
- (j) degree of patterning of work values
- (k) orientation toward rewards for work
- (l) acceptance of responsibility for choice and planning
- (m) independence of work experience
- (n) agreement between measured interests and preferences
- (o) agreement between ability and preference
- (p) agreement between measured interests and fantasy preferences
- (q) agreement between occupational level of measured interests and level of preference
- (r) socioeconomic accessibility of preferences

In addition to the construction and development of a Career Questionnaire, Forrest (1971) reviewed several other measures of the vocational maturity construct. Among the procedures reviewed were the Readiness for Career Planning Scale (Gibbons & Lohnes, 1964) which is based on a structured interview, the multidimensional Vocational Maturity Test (Westbrook, 1967), and Crites' (1969b) Vocational Development Inventory. The latter was developed from the

Vocational Development Project (VDP) and consists of two parts, the attitude scale and the competence test, in order to study both the dispositional response tendencies and the cognitive variables which are involved in the vocational decision making process. Super (1972) reported the availability of an unpublished multifactor index of vocational maturity, the Career Development Inventory (CDI) for research purposes.

Personality As Reflective Of A Stage On A
Developmental Continuum

Generally, personality is accepted as a construct defined as:

. . . the particular empirical concepts which are part of the theory of personality employed by the observer. Personality consists concretely of a set of scores or descriptive terms which are used to describe the individual being studied according to the variables or dimensions which occupy a central position within the particular theory utilized [Hall & Lindsay, 1970, p. 9].

Consequently, personality profiles derived from a set of scores on a psychometrically accepted instrument (Stahmann, 1972), which consists of occupational titles, are conceptualized as yielding nomothetic stages in vocational development. Tiedeman and O'Hara (1963) indicated:

The intricacies of the relationship of personality and career . . . have been explored more from the concept of personality than from the concept of career. Actually the relationship is best explored while considering both concepts simultaneously. In this way one has an opportunity to avoid the delusion that the one flows from the other when in reality the two are interpenetrating [p. iv].

Borow (1961; 1966) highlighted the problem when he indicated:

The main objective of research on career development is not the prediction of vocational choice but rather an attempt to describe and account for the manner in which youth grows up vocationally. Vocational development research is principally a search for the psychological meaning of vocationally relevant acts [1966, p. 163].

An Influence From Holland's Career Typology Theory
Of Vocational Behavior

Among the psychological theories of vocational development is the one developed by Holland (1966) which is based on four propositions:

1. In our culture, most persons can be categorized as one of six types--Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic.
2. There are six kinds of environments: Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic.
3. People search for environments and vocations that will permit them to exercise their skills and abilities, to express their attitudes and values, to take on agreeable problems and roles, and to avoid disagreeable ones.
4. A person's behavior can be explained by the interaction of his personality pattern and his environment [pp. 9-12].

Holland introduced the concept of development into his theory by means of the individual's life history, which is defined as "a particular pattern of living," in the Adlerian sense of life style. A person's life history can be traced over time by identifying interactions engaged in, during growth, with different environments. These

environments include: parents and siblings, peers, schools, colleges, churches and other similar institutions, and eventually, work situations. To the extent that personality fits the environment, development is considered to be more or less stable.

In short, personality stability is the outcome of passing through a series of consistent environments that foster and strengthen one's ability to cope with the world in an integrated way. Instability, in contrast, results from living in a succession of inconsistent environments that create and perpetuate inaccurate, contradictory self-concepts and conflicting ineffective coping behavior [Holland, 1966, p. 84].

A narrative description of the six personality types was offered by Osipow (1968):

1. The Realistic orientation is characterized by aggressive behavior, interest in activities requiring motor coordination, skill and physical strength, and masculinity. People oriented toward this role prefer "acting out" problems; they avoid tasks involving interpersonal and verbal skills and seek concrete rather than abstract problem situations. They score high on traits such as concreteness, physical strength, and masculinity, and low on social skill and sensitivity.
2. The Intellectual person's main characteristics are thinking rather than acting, organizing and understanding rather than dominating or persuading, and associability rather than sociability. These people prefer to avoid close interpersonal contact, though the quality of their avoidance seems different from their Realistic colleagues.
3. The Social people seem to satisfy their needs for attention in a teaching or therapeutic situation. In sharp contrast to the Intellectual and Realistic people, Social people seek close interpersonal situations and are skilled in their interpersonal relations, while they

avoid situations where they might be required to engage in intellectual problem solving or use extensive physical skills.

4. The Conventional style is typified by a great concern for rules and regulations, great self control, subordination of personal needs, and strong identification with power and status. This kind of person prefers structure and order and thus seeks interpersonal and work situations where structure is readily available.
5. The Enterprising people are verbally skilled, but rather than use their verbal skills to support others as the Social types do, they use them for manipulating and dominating people. They are concerned about power and status, as are the Conventional people, but differ in that they aspire to the power and status while Conventionals honor others for it.
6. The Artistic orientation manifests strong self-expression and relations with other people indirectly through their artistic expression. Such people dislike structure, rather prefer tasks emphasizing physical skills or interpersonal interactions. They are intracceptive and asocial much like the Intellectuals, but differ in that they are more feminine than masculine, show relatively little self-control, and express emotion more readily than most people [pp. 40-41].

These six personality types and corresponding environments have been given operational definitions in terms of Holland's (1958) Vocational Preference Inventory (VPI), and Astin and Holland's (1961; Astin, 1963) Environmental Assessment Technique, among other procedures.

The Independent Variables

The concept of vocational maturity was developed from the Career Pattern Study (CPS) (Super & Overstreet, 1960). Their investigation and others since have indicated

that the maturity of vocational attitudes concept appears to be related to: (a) the grade level an individual has reached in school as a chronological point in time rather than age; (b) the curricula of the school in which a person is enrolled (academic students tend to score better on the VDI-A than vocational students); (c) the intelligence level of a student; and the reported differences attributable to the organismic variable of (d) sex, seem to be contradictory.

Grade Level

Crites (1969b) concluded that dichotomous choice responses to statements of vocational attitudes were related monotonically more to grade than to age (Bartlett, 1968; Jalkanen, 1971). Although he recognized that Super required measures of developmental variables to be related to time, this finding was not surprising due to the similarity of experiences afforded through the educational system. However, Myers (1967) reported finding no differences based upon grade level.

Sex Group Membership

The finding that girls tend to score significantly higher on the VDI-A than boys in the eighth and tenth grade in Pennsylvania (Smith, 1972; Smith & Herr, 1972) contradicted Crites' (1969b), Jalkanen's (1971) and Vriend's (1969) conclusion that sex differences were not of such significance to be important. Although statistical treatment of the data in all these studies varied, other

researchers (Hanley, 1971; Meerback, 1972; Myers, 1967; Rollings, 1968) reported sex differences were influential in vocational decision making. Similarly, Mulherin (1972) confirmed this finding even though he used the Readiness for Vocational Planning Schedule (RVPS).

Curricular Program

Curricular differences have been consistently demonstrated on the VDI-A within grade groupings in several studies (Navin, 1969; Gribbons & Lohnes, 1968; Vriend, 1969).¹ For example, ninth and tenth grade Pennsylvanians were studied (Kapes, 1972) for the prediction of curricular success from one level to the next. New Jersey twelfth grade students in both a vocational-technical high school and a vocational and general comprehensive high school were studied (Wertheim, 1972) for vocational maturity. Both studies confirmed Crites' (1969b) report of curricular differences in relation to vocational maturity. However, Munson (1971) reported no significant findings between vocational maturity and curricular program.

Intelligence Level

Vocational maturity was found to be related significantly to intelligence (Asbury, 1969; Cover, 1969; Gribbons & Lohnes, 1968; Jalkanen, 1971; Meynard, 1971; Navin, 1969; Super & Overstreet, 1960; Williams, 1968). Additionally, Meerback (1972) indicated creative individuals tend to be more vocationally mature than less creative persons due to

personality attributes, and concluded that creativity can be considered a correlate of vocational maturity.

The Dependent Variables

Although Super and Overstreet (1960) failed to find a relationship between vocational maturity and personality as measured by the Thematic Apperception Test (TAT), personality factors as measured on some Minnesota Multiphasic Personality Inventory (MMPI) and Adjective Check List (ACL) scales reflected a relationship with vocational maturity (Bartlett, 1968). Operationally defined as verbal vocational behaviors, or scores on the VDI-A, vocational maturity was the first dependent variable in this study.

Vocational Maturity

This construct was investigated in several types of research, and these were reported by Crites (1969b). However, several additional studies were completed since. Direct comparability of reported research was difficult since statistical procedures employed with the data varied, explanation of experimental treatment was often vague, and research designs frequently allowed assertion of plausible conclusions other than the hypotheses of the investigator; all or some of which in turn may have influenced the findings.

The vocational maturity of several different populations have been studied. Ansell (1970), in addition to concluding that the RVPS and VDI-A both measure the same

construct, reported vocational maturity increased with age for lower class Caucasians and lower class Negroes, and the rate of increase is approximately two years slower than the rate of vocational development for middle class Caucasians. Houg (1971), in a seven-year study of superior Wisconsin high school students, concluded the closer the individual is to the actual choice point the more likely he is to make a choice and actually work toward implementation of that choice. Jalkanen (1971) found no racial differences and reported that individuals who scored higher on the VDI-A were from a lower socio-economic urban school setting in a large metropolitan area. On the other hand, Maynard (1971) concluded the use of the VDI-A with urban lower socio-economic groups was impractical because the instrument inherently has a heavy loading of intelligence factors, seems culture bound, and has questionable readability for these students. Similarly, Werner (1969) indicated Mexican-Americans scored significantly lower on the VDI-A than the original standardization groups. Unlike earlier studies, however, the factors systematically varied in this present study included: grade level, sex group membership, curricular program, and intelligence level. In addition, the present study used a population in the Southeastern region of the U. S.

Other Vocational Maturity Research

Studies of the effects of various experimental treatments (employment selection processes, individual and/or group counseling, and vocational training) have appeared to establish the impervious nature of the vocational maturity construct (Asbury, 1969; Donahue, 1971; Hanley, 1971; Martin, 1971; Nichol, 1970; Rollings, 1968). The longer treatments (Neighborhood Youth Corps participation, and a structured career related activities program) ranging from six months (Myers, 1967) to two years (Vriend, 1969) affected vocational maturity; however, an alternative conclusion was that the increments were due to maturation. Vriend (1969) suggested:

. . . a program which integrates vocationally-related knowledge and activities into the total educational experience of inner-city youth can positively modify and influence vocational development, irrespective of sexual or curricular group membership [p. 122].

Two vocational maturity evaluation studies essentially confirmed the Hawthorne Effect and two reported the lack of this classical occurrence. Another plausible explanation was that the reported effects were due to the different age levels utilized. Stenson (1971) indicated positive results when short-term counseling of tenth grade students increased their VDI-A scores. Mulherin (1972) reported similar findings with ninth grade students after use of the Life Career Game, a simulated career planning experience. No significant differences on VDI-A pre- and post-measures were found

between experimental and control groups by the treatment method of the Program of Education and Career Exploration, a group exercise (Olson, 1972). Likewise, Jackson (1972) failed to obtain significance by use of a formal program of career exploration on the vocational maturity of college freshmen.

Personality

Using Holland's hexagonal model of personality (Edwards & Whitney, 1972) as a profile, this study inquired if profiles of vocational maturity and personality types between groups were different or similar in both shape and elevation by Cattell's r_p technique (1949) when the several factors related to vocational maturity were systematically varied as independent variables. According to Crites (1969a), Freud recognized "satisfying and satisfactory Arbiten as one of the hallmarks of maturity in adulthood [p. 606]." The present study employed Holland's personality types which has been the focus of more research than many other systems of vocational choice, and likewise has been confirmed by such studies (Ashby, Wall, & Osipow, 1966; Osipow, Ashby, & Wall, 1966; Peck, 1971; Wall, Osipow, & Ashby, 1967) among others. Edwards and Whitney (1972) on the basis of factor and configural analysis concluded:

These results as well as the successful application of the hexagonal model to the Strong, Kuder, Minnesota Vocational Interest Inventory, and the ACT Vocational Interest Profile by Cole and

Hanson (1971) suggest that the hexagonal arrangement of the personality types has strong empirical support as well as some useful generality [p. 144].

Studies concerning the reliability and validity of Holland's theory have been conducted in several geographic regions on samples ranging from ninth grade students to college alumni. High-ability males at the twelfth grade level were studied by Bailey (1971) whose conclusions offered neither support nor disproof for Holland's theory. In attempting to describe future educators, Carmody (1971) reported findings which were neither contradictory nor supportive of Holland's theory; however, Crabtree (1971) reported positive results in support of Holland's model. Hauselman's (1972) study indicated that the vocational stereotype model had construct validity. Curricular as well as sex differences were reported by Johnson (1972). Different trends for males and females were found by Folsom (1972) in a correlation study of VPI validity similar to Holland's (1960). Hollender (1968) concluded (a) that adolescent stereotypes of the six occupations were generally consistent with Holland's theoretical formulations, (b) that adolescents preferred an occupation for which they held a stereotype positively related to their self-description, and (c) that Holland's theory could be generalized to a younger population, representing heterogeneous levels of academic ability.

Bartlett (1968) indicated a positive relationship between the maturity of vocational attitudes and several

scales (Self-Confidence, Achievement, Autonomy, and Dominance) on the Adjective Check List (ACL) of Gough and Heilbrun (1965). Crites (1969b) reported Schalou's (1965) and Hollender and Schalou's (1965) significant correlations of the VDI-A and Minnesota Multiphasic Personality Inventory (MMPI) scales (Depression, Psychopathic Deviate, and Psychasthenia scales, and number of T-scores above 70). In addition, he reported their significant correlations of VDI-A and ACL (Gough & Heilbrun, 1965) scales (Achievement, Endurance, Order, Intraception, and Aggression).

Conceptual Stages In Vocational Development Theory

The concept of progressive stages is inherent in psychological theories of vocational development. Buehler (1933) pointed out generic phases in human development, namely the growth, exploration, establishment, maintenance and decline periods of life. In psychoanalytic tradition, Roe (1957) focused on the importance of parent-child relationships during the first six years of life, a stage not unlike Buehler's growth stage. Ginzberg, Ginsburg, Axelrad, and Herma (1951) listed three periods in the vocational development process. Their (a) fantasy period concept was akin to Buehler's growth stage and Roe's infancy-childhood focus; the first and the last named stages were characterized by use of the pleasure principle. Ginzberg, et al. (1951) associated the (b) tentative and (c) realistic periods of development with adolescence, where the progression

in self-knowledge (interests, capacities, values) and incremental use of the reality principle parallels their fantasy, tentative (transition), and realistic (exploration, crystallization, and specification) stages of vocational development. Tiedeman (1961) named two stages: (a) anticipation or preoccupation, composed of the exploration, crystallization, choice, and clarification substages; and (b) implementation or adjustment, comprised of the induction, reformation, and integration substages.

Holland's theory (1966) was based on the Adlerian development of life style and the latter's inherent and unstated stages. Rather than stages, Havighurst (1964) explicated vocational development tasks in accordance with the chronological maturation continuum: middle childhood, identification with a worker; early adolescence, acquiring the basic habits of industry; late adolescence and early adulthood, acquiring identity as a worker in the occupational structure; adulthood, becoming a productive person; late adulthood, maintaining a productive society; old age, contemplating a productive and responsible life.

Super (1969a) combined the stage and task concepts, and emphasized the process of exploration of the self in addition to the world of work. This appeared to support or parallel the psychological conception of personality as ego-environment interaction which was postulated by Holland (1966). As antecedent conditions to adolescence, Super appeared to have accepted Buehler's growth stage, Holland's

conception of Adlerian life style development in the home, school, and community environments, and the fantasy period of Ginzberg and associates. In addition, Super seemed to have accepted their transition stage, which is characterized by a shift from the pleasure principle to the reality principle, but he referred to this period as the reality-testing stage.

Other theorists have proposed progressive stages; however, they were not included in this synthesis since their orientations were more sociological-economic (e.g., Miller & Form, 1951), than psychological-developmental.

Figure 1 (Crites, 1969a, p. 186) represents an illustration of the stages postulated by Super, Ginzberg, and others.

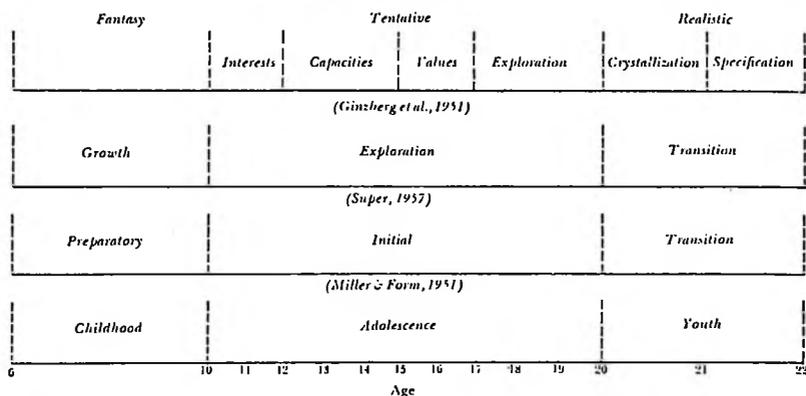


Fig. 1 Proposed stages in the vocational development process

CHAPTER III

DESIGN OF THE PRESENT STUDY

Statement of the Problem

This study investigated the concept of nomothetic stages of vocational development as revealed by the similarity-attraction (Hogan, Hall, & Blank, 1972) hypotheses of Holland's personality types by vocational maturity when grade level, sex group membership, curricular program, and intelligence level factors were varied systematically.

The Population

The present study employed eleventh and twelfth grade students who attended schools within the district of participating school systems, as a population in the Southeastern region of the United States.

In addition, the particular grade levels employed in this study afforded a reflection for a large number of individuals who were about to graduate, or within one calendar year of departure from the educational system. The SCDS data bank afforded an understanding of the vocational maturity and personality types of individuals who were leaving or about to leave the schools prior to the introduction of

career education concepts. Hopefully, this understanding yielded direction for the introduction of career education concepts.

Participating School Systems

School systems employed in the Southeastern Career Development Study (SCDS) reflected both urban and rural geographic areas of Alabama. Each area included both a city and county educational system. The urban areas were the Bessemer (Alabama) City and Jefferson County (Alabama) school systems; the rural areas studied were the Fort Payne (Alabama) City and DeKalb County (Alabama) school systems. Each of the districts serves a cross section of socio-economic, ethnic, and racial populations and offers normal high school programs similar to other secondary schools in the state of Alabama. With one exception, all schools from each system with grades 11 and 12 were included; this exception was in Jefferson County where 4 of the 14 secondary schools did not participate. Appendix A lists the participating schools.

The Student Sample

Data concerning group personality types and vocational maturity were obtained from the responses of secondary school students enrolled in the eleventh and twelfth grade in either regular or vocational curricular programs. In addition to the completion of the testing program conducted

by the State of Alabama, Department of Education during the fall term of the eleventh grade, these same students participated in the Southeastern Career Development Study (SCDS) of the Center for Career Education, Area of Behavioral Studies, The University of Alabama. Table 1 describes the twelve groups at both grade levels classified by the other three variables (sex group membership, curricular program, and intelligence level) which were employed.

Objective Data and Instrumentation

The investigation was based on the ego-environment interaction theory of career development postulated by Holland (1966), as well as the vocational development theory of Super (1957), especially his vocational maturity concept. The measures developed by Holland (1958) and Crites (1965), the Vocational Preference Inventory (VPI) and the Vocational Development Inventory-Attitude Scale (VDI-A) respectively, appeared to be the appropriate instruments for use in this study. Additionally, both measures were constructed by the rational-empirical method.

Although the VPI has been used primarily with college students (Carmody, 1971; Hauselman, 1972; Livent, 1971), several recent investigations reported use of the VPI with high school students (Crabtree, 1971; Folsom, 1972; Johnson, 1972; Nichols, 1972). Consequently, use of this assessment instrument in the present study appeared to be justified.

TABLE 1
GROUPS FORMED BY INDEPENDENT VARIABLES AND SAMPLE SIZE

Group	Independent Variables				N
	Grade Levels	Sex Groups	Curricular Programs	Deviation IQ Levels	
1	11	F	R	>+1 σ	70
2	11	F	R	-1 σ through +1 σ	392
3	11	F	R	<-1 σ	118
4	11	F	V	>+1 σ	13
5	11	F	V	-1 σ through +1 σ	270
6	11	F	V	<-1 σ	145
7	11	M	R	>+1 σ	57
8	11	M	R	-1 σ through +1 σ	493
9	11	M	R	<-1 σ	134
10*	11	M	V	>+1 σ	5
11	11	M	V	-1 σ through +1 σ	191
12	11	M	V	<-1 σ	196
13	12	F	R	>+1 σ	143
14	12	F	R	-1 σ through +1 σ	356
15	12	F	R	<-1 σ	77
16	12	F	V	>+1 σ	20
17	12	F	V	-1 σ through +1 σ	222
18	12	F	V	<-1 σ	84
19	12	M	R	>+1 σ	164
20	12	M	R	-1 σ through +1 σ	270
21	12	M	R	<-1 σ	64
22	12	M	V	>+1 σ	30
23	12	M	V	-1 σ through +1 σ	167
24	12	M	V	<-1 σ	104

*Insufficient data, 11th grade n=5

LEGEND FOR TABLE 1

Grade Levels

11	Eleventh Grade
12	Twelfth Grade

Sex Groups

F	Female
M	Male

Curricular Programs

R	Regular curricular program
V	Vocational curricular program

Deviation IQ

$>+1\sigma$	Above average
-1σ through $+1\sigma$	Average
$<-1\sigma$	Below average

Vocational Development Inventory (VDI)

The VDI consists of two parts, the Competence Test (VDI-C) and the Attitude Scale (VDI-A). The VDI-C, not yet published, was designed to assess the aptitude dimensions of vocational development and has five subtests: (a) problems; (b) planning; (c) occupational information; (d) self-knowledge; and (e) goal selection (Crites, 1964).

The VDI-A is composed of self-descriptive statements about an individual's vocational attitudes and behaviors. Appendix B contains a copy of the VDI-A. The examinee responds to the 50 items by indicating agreement or disagreement with them, and the vocational maturity score is the total number of responses made which are like those of the twelfth grade students, the criterion group used in standardizing the sample.

Crites (1965) described the development of the VDI-A and has provided evidence attesting reliability (test-retest coefficient = .71, standard error of measurement = 3.12), validity (74% interjudge agreement on content validity), and usefulness in vocational development research.

VDI-A items were written from statements made by clients in vocational counseling and concepts proposed in vocational development theory to represent the dispositional response tendencies which are defined by:

1. involvement in the process of vocational choice,
2. orientation toward the problem of vocational choice,

3. independence in decision making,
4. preferences for factors in vocational choice,
5. conceptions of vocational choice.

A peculiarity of this paper-and-pencil test resided in the fact that "item endorsements [tend] to shift from predominantly True responses in the lower grades to largely False responses in the upper grades [Crites, 1969b, p. 71]." While Super (1969a) criticized the VDI-A for this trend, Holland (1969) disagreed with Super by pointing out that Crites has provided a simple practical measure of vocational maturity, rather than merely an empirical measure to which an individual learned to respond negatively.

Vocational Preference Inventory (VPI)

The VPI is a personality inventory composed entirely of occupational titles. Holland (1970) stated that "the primary purpose of the VPI is to assess personality [p. 1]." Additionally, he indicated this instrument can be used (a) as an interest inventory, (b) to assess personality types in a theory of vocational choice, and (c) to stimulate occupational exploration.

A person completes the inventory by merely indicating the occupations liked or disliked. Generally, most people require 15 to 30 minutes to complete the self-administering inventory. Ten scales are scored by counting the correct responses using a single scoring stencil for all scales. The Acquiescence score, the eleventh scale, is

obtained by counting the number of "Like" responses among Items 1 through 30.

VPI scales. Holland (1970) provided the following conceptual definitions for each VPI scale used in the present study.

1. This scale [sic, Realistic] represents the following cluster of variables: realism, practicality, masculinity, and conventionality [p. 17].
2. The Intellectual Scale measures a cluster of variables which include intellectuality, intelligence, unsociableness, scientism, and rationality [p. 18].
3. The Social Scale appears to measure a cluster of variables sociability, femininity, passivity, problem solving by means of feeling rather than thinking, and dependency [p. 19].
4. The Conventional Scale represents conventionalism: conformity, a whole-hearted uncritical acceptance of cultural values and attitudes, a living in the eyes of others with its emphasis on excessive self-control [p. 20].
5. This scale [sic, Enterprising] encompasses . . . : dominance, risk taking, sociability, and enthusiasm [p. 21].
6. The Artistic Scale appears to tap a cluster of traits . . . : artistic interest, anxiety and immaturity, expressiveness, originality, unconventionality, erratic effort and behavior [p. 22].

Other VPI scales include (7) the Self-Control Scale, (8) the Masculinity-Femininity Scale, (9) the Status Scale, (10) the Infrequency Scale (Social Desirability Scale), and (11) the Acquiescence Scale. These scales were not of importance in the present study, since they are primarily validity scales. Two studies (Morrow, 1971; Thomas, 1971)

reported significant findings on the dimensions of scale consistency and congruency, but contradictory results for scale homogeneity. While Hughes (1971) and Danek (1971) reported doubtful validity for the consistency concept, studies by Johnson (1972), Lucy (1971), and Nichols (1972) appeared to contradict this finding.

Reliability. The retest reliability coefficients (Kuder-Richardson formula 21) for 6,289 males and 6,143 females ranged from a low of .60 for one group on the Infrequency Scale to a high of .89 for both groups on the Intellectual Scale; thus suggesting a moderate to high reliability. The standard error of measurement ranged from 1 to 5 raw score points over brief time intervals (6 weeks - 4 months). Lower retest reliability coefficients (.27 - .58) were reported over a four-year time period (Holland, 1970).

Validity. Since the possibility exists that an inventory may have construct validity but have little practical value, the following developments were reported by Holland (1970). First, the relation of the VPI to other scales were correlated with scales measuring similar constructs. The VPI MF Scale is significantly correlated in the appropriate direction with femininity scales from the Cattell Sixteen Personality Factor Questionnaire (16 PF), California Psychological Inventory (CPI), and MMPI. Second, administered to a great range of educational, occupational, and hospitalized groups, the VPI differentiates normals,

psychiatric TB patients, and psychopaths, as well as psychotic and non-psychotic patients.

Third, people who were administered the VPI were asked to rate or describe themselves on traits which the various scales are assumed to measure. Some scales correlated significantly with supervisory ratings and job satisfaction; scales have been intercorrelated with a student's self ratings of personal traits and abilities, life goals and values, coping behavior and competencies, and self-characterization in an adjective check list.

The VPI has been found to be moderately predictive of choice of major field and vocation over one- and two-year intervals for students of high aptitude (Holland, 1962). However, prediction was not a central concern in this investigation, since this instrument was employed to reveal personality profiles, which it appeared to do by concurrent validity. The VPI was published by Consulting Psychologists Press, 577 College Avenue, Palo Alto, California.

California Short-Form Test Of
Mental Maturity (CSFTMM)

The CSFTMM (Clark & Tiegs, 1963) is a one class-period adaptation of the California Test of Mental Maturity (CTMM). This timed intelligence test of

. . . the functional capacities that are basic to learning, problem-solving, and responding to new situations . . . serves both survey and analytical purposes for educators, counselors, psychologists, and employers . . . in scholarship qualification and high school counseling programs, as well as in personnel selection and placement [p. 5].

The CSFTMM was modified in content and composition from the CTMM, and was scaled to the Stanford-Binet Intelligence Scale, Form L-M. This instrument was published by California Test Bureau, Monterey, California.

The 1963 revision (Level 4) contained both a 60 item Language and a 60 item Non-Language section. Arranged in ascending order of difficulty, these multiple-choice items were in seven subtests. Number Problems, Verbal Comprehension, and Delayed Recall comprised the Language Section. Opposites, Similarities, Analogies, and Numerical Values comprised the Non-Language Section.

Deviation IQ scores were determined from conversion tables (Clark & Tiegs, 1963, pp. 40, 41, 42, 43) by adding Language and Non-Language raw scores and use of the examinee's age in months.

Short Form Test of Academic
Aptitude (SFTAA)

This instrument, also published by California Test Bureau, was designed to assess level of intellectual development and was derived from the California Test of Mental Maturity (CTMM). SFTAA is the successor to the California Short-Form Test of Mental Maturity (CSFTMM). Working time is 34 minutes as opposed to 39 minutes for the CSFTMM. SFTAA, Level 5, has 85 items in four subtests as opposed to 120 items for seven subtests in the CSFTMM. Vocabulary and Memory subtests constitute the Language section; Analogies and Sequences make up the Non-Language section.

Again, deviation IQ scores were obtained from conversion tables (Sullivan, Clark, & Tiegs, 1970, pp. 30, 31, 32, 33) by combining Language and Non-Language raw scores as well as use of the examinee's age in months.

Deviation IQ scores were "gridded" on one answer sheet (form 101 Alphabetic) after conversion from CSFTMM and SFTAA raw score data provided by each school system on computer "print-outs." Conversion tables prepared by Clark and Tiegs (1963) and Sullivan, Clark, and Tiegs (1970) were used respectively.

Demographic Data

Information regarding sex group membership, grade level, date of birth, curricular program, school code number, and race was "gridded" on each answer sheet (National Scanning, Inc., Columbus, Ohio, form numbers 101 Alphabetic, and 103 Numeric) in response to directions read by the research team leader. Appendix C, SCDS Examiner's Manual, contains a copy of the instructions presented to all students.

Data Collection

During the second and third weeks of May, 1972, students in attendance at participating schools completed the VDI-A and the VPI in large group settings conducted typically in either school auditoriums, libraries, or cafeterias. Twelfth grade students at one school completed the instruments during Physical Education and Band periods

scheduled throughout the day in a special classroom set aside for this purpose. Normally, testing sessions were scheduled immediately after morning homeroom periods.

SCDS research teams of at least two master's degree level behavioral scientists administered the individual school sessions. In all instances, team leaders were either doctoral candidates or recent Ph.D. recipients from either the departments of Counseling and Guidance or Educational Psychology in the College of Education at The University of Alabama. The number in each research team varied in proportion to the number of students to be tested by an approximate ratio of one examiner per 100 examinees. Appendix D lists the SCDS research examiners from The University of Alabama. Appendix E lists the cooperating personnel from each participating school system.

Statistical Procedure

Many statistical procedures piecemeal the data of a study and lose sight of the rich field of information available in a profile. The Cattell Profile Analysis (r_p) technique permits examination of the richness of global behavior rather than treating data groups separately. This procedure has two distinct features for the behavioral researcher: it can accommodate inferential as well as descriptive studies, it takes into consideration both the shape and the elevation of a profile. A further advantage for the pilot investigator is that this technique assumes no correlation in the

population between different pairs of variables. Williams (1969) concluded that Cattell's r_p technique may be used with correlated as well as non-correlated variables. Treloar (1970) replicated Williams' investigation and showed the robustness of this technique in further violation of basic assumptions.

Every correlation technique assumes linearity. The Cattell (r_p) technique is used to determine pattern overlap and whether separate and differentiated groups can be found in the overall profile. Cattell (1949) stated that the researcher should study the total person rather than particular levels of a specific variable. Ingram (1970) discussed the limitations of treating personality types as discrete data and recommended profile analysis as a means of differentiating subjects in correlational studies.

CHAPTER IV

PRESENTATION OF FINDINGS

The conceptual level of this particular research study was developed in the previous three chapters. The conceptual presentation was discussed by Tiedeman and O'Hara (1963) in these terms:

Language permits a medium for symbolic representation of pertinent aspects of experience. In momentarily stopping the continuous flow of experience, language permits examination of experience at least in symbolic reality if not in objective reality. The encapsulation of experience in language is akin to having only a bucketfull of water to analyze and to evaluate after that bucketfull of water is removed from a swift-running brook [p. 2].

Chapter IV presents the empirical level of the present study as affirmation or rejection of the former presentation concerning deductive concepts and experimental hypotheses (H_E). In other words, the previous three chapters offered the symbolic reality through language; approximations toward objective reality are examined in the present chapter.

Purpose

The present inquiry, concerning the deduced concepts of vocational maturity and personality, was made to determine whether or not similarities or dissimilarities existed in group profiles of personality and vocational maturity as

nomothetic patterns when such factors as grade level, sex group membership, curricular program, and intelligence level, were varied systematically. The purpose of this investigation was to determine the feasibility of studying personality type, by vocational maturity, as a developmental process encompassing a variety of demographic and objective factors. Additional inspection of the results was made to discover trends among the group profiles. The results of such findings were to encourage an analysis of the several factors to determine the degree of contribution each factor made at various stages of individual development, as well as the degree of contribution each factor made to pattern changes in group personality profiles.

Population Of This Study

Eleventh and twelfth grade males and females enrolled in regular as well as vocational curricular programs were divided into three intelligence levels, namely $>+1\sigma$, -1σ through $+1\sigma$, and $<-1\sigma$. These several factors afforded division of these students into the 24 groups shown in Chapter III, Table 2. Students attended schools within geographic districts served by the school systems listed in Appendix A as participants in the Southeastern Career Development Study (SCDS).

Analysis of the Data

Data for this study were prepared at The University of Alabama Test Service from answer sheets processed by an

optical scanner (Optscan 100 DM, Optical Scanning Corporation) which transferred the graphite image to magnetic tapes. The tapes were programmed on the Model 360-50 IBM computer at the University Computer Center for preparation of machine key-punched cards. Sample size for each of the 24 groups was determined after hand matching VPI and VDI-A computer cards for each person. Cattell coefficients of profile similarity (r_p) were generated by use of a computer program developed by Williams (1972).

Global patterning between each of the three dichotomous and the intelligence level triad used as independent variables in this study was determined by using Cattell's r_p technique. Profile coefficients were interpreted by their departure from a zero point at which chance factors alone cause similarity or the opposite in the shape and elevation of total profiles. Coefficients signed positively which approach +1.0 indicate complete pattern overlap or similarity. Conversely, coefficients signed negatively which approach -1.0 indicate complete pattern separation or dissimilarity.

Hypotheses Tested

The several factors used as independent variables were (a) grade level, (b) sex group membership, (c) curricular program and (d) intelligence level. The dependent variable was a profile consisting of vocational maturity and a hexagonal personality profile which consisted of six scales:

(a) Realistic, (b) Intellectual, (c) Social, (d) Conventional, (e) Enterprising, and (f) Artistic.

The null hypothesis format was used in this investigation; the .01 level of confidence was accepted as the criterion of rejection. The experimental hypotheses (H_E) stated in Chapter I were transformed to null form (H_0) and subjected to statistical analysis by the Cattell r_p technique.

Hypothesis I

There is no statistically significant similarity or dissimilarity between eleventh and twelfth grade students on profiles of personality and vocational maturity when sex group membership, curricular program and intelligence level factors are controlled. Specific group profiles compared were:

1. Grade 11 students and Grade 12 students;
2. Grade 11/females/regular curriculum/>>+1 σ intelligence level and grade 12/females/regular curriculum/>>+1 σ intelligence level;
3. Grade 11/females/regular curriculum/-1 σ through +1 σ intelligence level and grade 12/females/regular curriculum/-1 σ through +1 σ intelligence level;
4. Grade 11/females/regular curriculum/ <-1 σ intelligence level and grade 12/females/regular curriculum/ <-1 σ intelligence level;
5. Grade 11/females/vocational curriculum/>>+1 σ intelligence level and grade 12/females/vocational curriculum/>>+1 σ intelligence level;
6. Grade 11/females/vocational curriculum/-1 σ through +1 σ intelligence level and grade 12/females/vocational curriculum/-1 σ through +1 σ intelligence level;

7. Grade 11/females/vocational curriculum/<-1 σ intelligence level and grade 12/females/vocational curriculum/<-1 σ intelligence level;
8. Grade 11/males/regular curriculum/>+1 σ intelligence level and grade 12/males/regular curriculum/>+1 σ intelligence level;
9. Grade 11/males/regular curriculum/-1 σ through +1 σ intelligence level and grade 12/males/regular curriculum/-1 σ through +1 σ intelligence level;
10. Grade 11/males/regular curriculum/<-1 σ intelligence level and grade 12/males/regular curriculum/<-1 σ intelligence level;
11. Grade 11/males/vocational curriculum/>+1 σ intelligence level and grade 12/males/vocational curriculum/>+1 σ intelligence level;
12. Grade 11/males/vocational curriculum/-1 σ through +1 σ intelligence level and grade 12/males/vocational curriculum/-1 σ through +1 σ intelligence level;
13. Grade 11/males/vocational curriculum/<-1 σ intelligence level and grade 12/males/vocational curriculum/<-1 σ intelligence level.

Hypothesis II

There is no statistically significant similarity or dissimilarity between males and females on profiles of personality and vocational maturity when grade level, curricular program, and intelligence level factors are controlled. Profiles compared between groups were:

1. Females and males;
2. Females/grade 11/regular curriculum/>+1 σ intelligence level and males/grade 11/regular curriculum/>+1 σ intelligence level;
3. Females/grade 11/regular curriculum/-1 σ through +1 σ intelligence level and males/grade 11/regular curriculum/-1 σ through +1 σ intelligence level;

4. Females/grade 11/regular curriculum/<-1 σ intelligence level and males/grade 11/regular curriculum/<-1 σ intelligence level;
5. Females/grade 11/vocational curriculum/>+1 σ intelligence level and males/grade 11/vocational curriculum/>+1 σ intelligence level;
6. Females/grade 11/vocational curriculum/-1 σ through +1 σ intelligence level and males/grade 11/vocational curriculum/-1 σ through +1 σ intelligence level;
7. Females/grade 11/vocational curriculum/<-1 σ intelligence level and males/grade 11/vocational curriculum/<-1 σ intelligence level;
8. Females/grade 12/regular curriculum/>+1 σ intelligence level and males/grade 12/regular curriculum/>+1 σ intelligence level;
9. Females/grade 12/regular curriculum/-1 σ through +1 σ intelligence level and males/grade 12/regular curriculum/-1 σ through +1 σ intelligence level;
10. Females/grade 12/regular curriculum/<-1 σ intelligence level and males/grade 12/regular curriculum/<-1 σ intelligence level;
11. Females/grade 12/vocational curriculum/>+1 σ intelligence level and males/grade 12/vocational curriculum/>+1 σ intelligence level;
12. Females/grade 12/vocational curriculum/-1 σ through +1 σ intelligence level and males/grade 12/vocational curriculum/-1 σ through +1 σ intelligence level;
13. Females/grade 12/vocational curriculum/<-1 σ intelligence level and males/grade 12/vocational curriculum/<-1 σ intelligence level.

Hypothesis III

There is no statistically significant similarity or dissimilarity between regular curricular program and vocational curricular program students on profiles of personality and vocational maturity when grade level, sex group

membership, and intelligence level factors are controlled.

Group profiles were compared between:

1. Regular curriculum students and vocational curriculum students.
2. Regular curriculum/grade 11/females/>+1 σ intelligence level and vocational curriculum/grade 11/females/>+1 σ intelligence level;
3. Regular curriculum/grade 11/females/-1 σ through +1 σ intelligence level and vocational curriculum/grade 11/females/-1 σ through +1 σ intelligence level;
4. Regular curriculum/grade 11/females/<-1 σ intelligence level and vocational curriculum/grade 11/females/<-1 σ intelligence level;
5. Regular curriculum/grade 11/males/>+1 σ intelligence level and vocational curriculum/grade 11/males/>+1 σ intelligence level;
6. Regular curriculum/grade 11/males/-1 σ through +1 σ intelligence level and vocational curriculum/grade 11/males/-1 σ through +1 σ intelligence level;
7. Regular curriculum/grade 11/males/<-1 σ intelligence level and vocational curriculum/grade 11/males/<-1 σ intelligence level;
8. Regular curriculum/grade 12/females/>+1 σ intelligence level and vocational curriculum/grade 12/females/>+1 σ intelligence level;
9. Regular curriculum/grade 12/females/-1 σ through +1 σ intelligence level and vocational curriculum/grade 12/females/-1 σ through +1 σ intelligence level;
10. Regular curriculum/grade 12/females/<-1 σ intelligence level and vocational curriculum/grade 12/females/<-1 σ intelligence level;
11. Regular curriculum/grade 12/males/>+1 σ intelligence level and vocational curriculum/grade 12/males/>+1 σ intelligence level;
12. Regular curriculum/grade 12/males/-1 σ through +1 σ intelligence level and vocational curriculum/grade 12/males/-1 σ through +1 σ intelligence level;

13. Regular curriculum/grade 12/males/ $< -1\sigma$ intelligence level and vocational curriculum/grade 12/males/ $< -1\sigma$ intelligence level.

Hypothesis IV

There is no statistically significant similarity or dissimilarity among students at three levels of intelligence ($>+1\sigma$, -1σ through $+1\sigma$, $<-1\sigma$) on profiles of personality and vocational maturity when grade level, sex group membership, and curricular program factors are controlled. Group profiles were compared between:

1. Above-average ($>+1\sigma$) intelligence level students and average (-1σ through $+1\sigma$) intelligence level students;
2. Average intelligence level students and below-average ($<-1\sigma$) intelligence level students;
3. Above-average intelligence level students and below-average intelligence level students;
4. Above-average intelligence level/grade 11/females/regular curriculum and average intelligence level/grade 11/females/regular curriculum;
5. Average intelligence level/grade 11/females/regular curriculum and below-average intelligence level/grade 11/females/regular curriculum;
6. Above-average intelligence level/grade 11/females/regular curriculum and below-average intelligence level/grade 11/females/regular curriculum;
7. Above-average intelligence level/grade 11/females/vocational curriculum and average intelligence level/grade 11/females/vocational curriculum;
8. Average intelligence level/grade 11/females/vocational curriculum and below-average intelligence level/grade 11/females/vocational curriculum;
9. Above-average intelligence level/grade 11/females/vocational curriculum and below-average intelligence level/grade 11/females/vocational curriculum;

10. Above-average intelligence level/grade 11/males/
regular curriculum and average intelligence level/
grade 11/males/regular curriculum;
11. Average intelligence level/grade 11/males/regular
curriculum and below-average intelligence level/
grade 11/males/regular curriculum;
12. Above-average intelligence level/grade 11/males/
regular curriculum and below-average intelligence
level/grade 11/males/regular curriculum;
13. Above-average intelligence level/grade 11/males/
vocational curriculum and average intelligence
level/grade 11/males/vocational curriculum;
14. Average intelligence level/grade 11/males/voca-
tional curriculum and below-average intelligence
level/grade 11/males/vocational curriculum;
15. Above-average intelligence level/grade 11/males/
vocational curriculum and below-average intelli-
gence level/grade 11/males/vocational curriculum;
16. Above-average intelligence level/grade 12/females/
regular curriculum and average intelligence level/
grade 12/females/regular curriculum;
17. Average intelligence level/grade 12/females/regu-
lar curriculum and below-average intelligence
level/grade 12/females/regular curriculum;
18. Above-average intelligence level/grade 12/females/
regular curriculum and below-average intelligence
level/grade 12/females/regular curriculum;
19. Above-average intelligence level/grade 12/females/
vocational curriculum and average intelligence
level/grade 12/females/vocational curriculum;
20. Average intelligence level/grade 12/females/voca-
tional curriculum and below-average intelligence
level/grade 12/females/vocational curriculum;
21. Above-average intelligence level/grade 12/females/
vocational curriculum and below-average intelli-
gence level/grade 12/females/vocational curriculum;
22. Above-average intelligence level/grade 12/males/
regular curriculum and average intelligence level/
grade 12/males/regular curriculum;

23. Average intelligence level/grade 12/males/regular curriculum and below-average intelligence level/grade 12/males/regular curriculum;
24. Above-average intelligence level/grade 12/males/regular curriculum and below-average intelligence level/grade 12/males/regular curriculum;
25. Above-average intelligence level/grade 12/males/vocational curriculum and average intelligence level/grade 12/males/vocational curriculum;
26. Average intelligence level/grade 12/males/vocational curriculum and below-average intelligence level/grade 12/males/vocational curriculum;
27. Above-average intelligence level/grade 12/males/vocational curriculum and below-average intelligence level/grade 12/males/vocational curriculum.

Results From Cattell's Coefficient Of Profile Similarity

All hypotheses in this exploratory study involved comparisons among profiles of personality and vocational maturity as generated from the VPI and VDI-A, respectively. Frequency polygons for each of these comparisons are contained in Appendix F. Cattell's r_p technique pools all data and develops mean z scores on each variable for every group in the population studied. Coefficients for r_p are determined according to the formula:

$$r_p = \frac{\sum k - \sum d^2}{\sum k + \sum d^2}$$

Hypothesis I

Profiles of Holland's hexagonal model of personality and Super's vocational maturity construct compared globally by each grade level used in this study produced the mean z score results shown in Table 2.

The Cattell r_p coefficient obtained for profile analysis of eleventh and twelfth grade students, Hypothesis I 1., was -0.889 , $p .01$. Thus, statistically significant dissimilar profiles were found by grade level alone.

When the other independent variables (sex group membership, curricular program, and intelligence level) were controlled respectively, the results displayed in Table 3 were found.

When contrasted by grade level statistically significant r_p coefficients which indicated dissimilarity were obtained for (a) females in a regular curricular program at less than one standard deviation below the mean on a deviation IQ scale, (b) females in vocational programs at both less than one standard deviation below the mean and (c) greater than one standard deviation above the mean intelligence levels. Additionally, statistically significant coefficients for dissimilar profiles were found between grade levels for (d) males in a regular program both within one standard deviation of the mean and (e) less than one standard deviation from the mean intelligence levels, as well as (f) males in a vocational program greater than one standard deviation from the mean on a deviation IQ scale. Consequently, Hypothesis I was neither accepted nor rejected since only six of the twelve analyses were at the criterion of rejection adopted in this study.

TABLE 2
 MEAN z SCORES BY GRADE LEVEL FOR SIX
 PERSONALITY TYPES AND VOCATIONAL MATURITY

Dependent Variable	Grade Level	
	11th Grade (N=2084)	12th Grade (N=1701)
Realistic	-0.209	0.257
Intellectual	-1.395	1.709
Social	-1.935	2.371
Conventional	-1.766	2.163
Enterprising	-1.371	1.680
Artistic	-2.480	3.038
Vocational Maturity	-5.168	6.332

TABLE 3

r_p COEFFICIENTS BETWEEN GRADE LEVELS WHEN SEX
GROUP MEMBERSHIP, CURRICULAR PROGRAM, AND INTELLIGENCE LEVEL WERE CONTROLLED

Hypotheses	Independent Variables				r_p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	Intelligence Level	
1. 11 vs 12					-0.889*
2. 11 vs 12		F	R	above-average***	-0.253
3. 11 vs 12		F	R	average***	0.134
4. 11 vs 12		F	R	below-average***	-0.671*
5. 11 vs 12		F	V	above-average	-0.871*
6. 11 vs 12		F	V	average	0.075
7. 11 vs 12		F	V	below-average	-0.682*
8. 11 vs 12		M	R	above-average	-0.453
9. 11 vs 12		M	R	average	-0.615*
10. 11 vs 12		M	R	below-average	-0.630*
11. 11 vs 12**		M	V	above-average	-0.859*
12. 11 vs 12		M	V	average	0.245
13. 11 vs 12		M	V	below-average	0.597

*p = .01

**Insufficient data, 11th grade n=5.

***above-average = $>+1\sigma$ average = -1 σ through +1 σ below-average = $<-1\sigma$

Hypothesis II

Profile analysis on six descriptive personality scales and a vocational maturity scale contrasted by sex group membership provided mean z scores contained in Table 4.

The r_p coefficient for analysis of Hypothesis II 1., the male and female group profiles, was -0.993 , $p .01$. Almost perfect statistically significant dissimilar personality and vocational maturity profiles were obtained contrasting sex group membership.

Other independent variables (grade level, curricular program, and intelligence level) used in this study were controlled subsequently. The results thus found are reported in Table 5 and are depicted in Appendix F.

Grade level, curricular program, and intelligence level were controlled as constants when male and female profiles on the seven dependent variables were analyzed. In every case, statistically significant dissimilarities were obtained; Hypothesis II was rejected.

Hypothesis III

The presence or absence of curricular profile similarity on the several dependent variables was the focus of the third hypothesis. Table 6 lists the mean z scores when the profiles of regular and vocational curricular program students were analyzed by Cattell's r_p technique.

The coefficient of profile similarity for Hypothesis III 1., regular and vocational curricular program groups,

TABLE 4
 MEAN z SCORES BY SEX GROUP MEMBERSHIP
 FOR SIX PERSONALITY TYPES AND VOCATIONAL MATURITY

Dependent Variable	Sex Group Membership	
	Females (N=1910)	Males (N=1875)
Realistic	-23.508	23.947
Intellectual	- 7.175	7.309
Social	13.049	-13.293
Conventional	1.898	- 1.933
Enterprising	- 7.185	7.319
Artistic	2.944	- 2.999
Vocational Maturity	5.579	- 5.684

TABLE 5

I_p COEFFICIENTS BETWEEN SEX GROUP MEMBERSHIP WHERE GRADE LEVEL, CURRICULAR PROGRAM, AND INTELLIGENCE LEVEL WERE CONTROLLED

Hypotheses	Independent Variables				I_p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	Intelligence Level	
II. 1.		M vs F			-0.993*
2.	11	M vs F	R	above-average***	-0.907*
3.	11	M vs F	R	average***	-0.910*
4.	11	M vs F	R	below-average***	-0.948*
5.	11	M vs F**	V	above-average	-0.965*
6.	11	M vs F	V	average	-0.931*
7.	11	M vs F	V	below-average	-0.951*
8.	12	M vs F	R	above-average	-0.931*
9.	12	M vs F	R	average	-0.924
10.	12	M vs F	R	below-average	-0.947*
11.	12	M vs F	V	above-average	-0.929*
12.	12	M vs F	V	average	-0.946*
13.	12	M vs F	V	below-average	-0.932*

*p = .01

**insufficient data, 11th grade n=5

***above-average = >+1 σ average = -1 σ through +1 σ below-average = <-1 σ

TABLE 6
 MEAN z SCORES BY CURRICULAR PROGRAM
 FOR SIX PERSONALITY AND VOCATIONAL MATURITY

Dependent Variable	Curricular Program	
	Regular (N=2338)	Vocational (N=1447)
Realistic	-2.439	3.941
Intellectual	3.273	-5.289
Social	0.509	-0.822
Conventional	-3.353	5.418
Enterprising	-0.663	1.071
Artistic	0.918	-1.484
Vocational Maturity	4.352	-7.032

was -0.926 , $p .01$. Statistically significant dissimilar profiles of personality and vocational maturity were found by analysis of two curricular program groups.

When grade level, sex group membership, and intelligence level variables were held constant, the coefficients of profile similarity reported in Table 7 were obtained and are shown in Appendix F.

Eleventh grade females at an intelligence level of greater than one standard deviation from the mean are statistically dissimilar by curricular program on profiles of personality and vocational maturity. Profile analysis of the same scales for eleventh grade males at two intelligence levels ($>+1\sigma$, and -1σ through $+1\sigma$) revealed statistically significant dissimilarity. Another group which derived statistically significant dissimilarity was twelfth grade females at an intelligence level greater than one standard deviation above the mean. Twelfth grade males at all intelligence levels showed statistically significant dissimilarity. Thus, results were inconclusive concerning Hypothesis III because merely seven of the twelve group profile comparisons were statistically significant when the independent variables were controlled.

Hypothesis IV

Three intelligence levels, (a) $>+1\sigma$, (b) -1σ through $+1\sigma$, and (c) $<-1\sigma$, were the concern of the last hypothesis. Contrasting intelligence levels against each other produced mean z scores reported in Table 8.

TABLE 7

I_p COEFFICIENTS BETWEEN CURRICULAR PROGRAMS WHEN GRADE LEVEL, SEX GROUP MEMBERSHIP, AND INTELLIGENCE LEVEL WERE CONTROLLED

Hypotheses	Independent Variables				I_p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	Intelligence Level	
III. 1.	11	F	R vs V	above-average***	-0.926*
2.	11	F	R vs V	average***	-0.909*
3.	11	F	R vs V	below-average***	-0.454
4.	11	M	R vs V**	above-average	-0.376
5.	11	M	R vs V	average	-0.883*
6.	11	M	R vs V	below-average	-0.535*
7.	11	M	R vs V	above-average	0.244
8.	12	M	R vs V	average	-0.792*
9.	12	M	R vs V	below-average	-0.443
10.	12	M	R vs V	above-average	-0.041
11.	12	M	R vs V	below-average	-0.987*
12.	12	M	R vs V	average	-0.517*
13.	12	M	R vs V	below-average	-0.658*

*p = .01

**Insufficient data, 11th grade n=5

***above-average = $>+1\sigma$ average = -1 σ through +1 σ below-average = $<-1\sigma$

TABLE 8
 MEAN z SCORES AMONG THREE
 INTELLIGENCE LEVELS FOR SIX
 PERSONALITY SCALES AND VOCATIONAL MATURITY

Dependent Variable	Intelligence Level		
	>+1 σ (N=502)	-1 σ through +1 σ (N=2361)	<-1 σ (N=922)
Realistic	-0.758	-0.121	2.050
Intellectual	2.137	-0.840	-0.657
Social	-0.468	-0.782	1.538
Conventional	-0.426	-0.415	3.070
Enterprising	-1.120	-0.458	2.253
Artistic	2.334	-0.938	0.498
Vocational Maturity	6.595	2.001	-8.604

Coefficients of profile similarity were (a) -0.509 , $p .01$ for Hypothesis IV 1., above-average and average intelligence level profiles, (b) -0.873 , $p .01$ for Hypothesis IV 2., average and below-average intelligence level profiles, and (c) 0.991 , $p .01$ for Hypothesis IV 3., above-average and below-average intelligence level profiles.

Controlling the other independent variables (grade level, sex group membership, and curricular program) produced the coefficients of profile similarity presented in Table 9 and the frequency polygons depicted in Appendix F.

At every intelligence level, in which sufficient data was available, statistically significant dissimilar profiles of personality and vocational maturity were discovered. Hypothesis IV was rejected.

The Developmental Aspect of This Study

The hypothesis concerning profiles of personality and vocational maturity at two grade levels was inconclusive. The developmental aspect regarding progressive stages of vocational development remained similarly amorphous. Apparently, this phenomenon of vocational development was unresolved by the present study.

Trends Among Profiles

Hypotheses II and IV which in turn dealt with sex group membership and intelligence level were rejected ($p .01$). Conclusions regarding specific scale differences were unwarranted by the purpose and the statistical data of this study.

TABLE 9

r_p COEFFICIENTS AMONG INTELLIGENCE LEVELS WHEN GRADE LEVEL, SEX GROUP MEMBERSHIP, AND CURRICULAR PROGRAM WERE CONTROLLED

Hypotheses	Independent Variables			r_p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	
IV. 1.				-0.509*
2.				-0.873*
3.				-0.991*
4.	11	F	R	-0.585*
5.	11	F	R	-0.840*
6.	11	F	R	-0.928*
7.	11	F	V	-0.894*

TABLE 9 (Continued)

Hypotheses	Independent Variables				r_p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	Intelligence Level	
IV. 8.	11	F	V	average vs below-average	-0.839*
9.	11	F	V	above-average vs below-average	-0.957*
10.	11	M	R	above-average vs below-average	-0.811*
11.	11	M	R	above-average vs average	-0.920*
12.	11	M	R	average vs below-average	-0.956*
13.	11	M	V	above-average** vs below-average	0.403
14.	11	M	V	above-average vs average	-0.911
15.	11	M	V	above-average** vs below-average	-0.924*

TABLE 9 (Continued)

Hypotheses	Independent Variables				r _p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	Intelligence Level	
IV. 16.	12	F	R	above-average vs average	-0.716*
17.	12	F	R	average vs below-average	-0.848*
18.	12	F	R	above-average vs below-average	-0.940*
19.	12	F	V	above-average vs average	-0.530*
20.	12	F	V	average vs below-average	-0.802*
21.	12	F	V	above-average vs below-average	-0.873*
22.	12	M	R	above-average vs average	-0.695*
23.	12	M	R	average vs below-average	-0.903

TABLE 9 (Continued)

Hypotheses	Independent Variables				r _p Coefficient For Dependent Variables
	Grade Level	Sex Group Membership	Curricular Program	Intelligence Level	
IV. 24.	12	M	R	above-average vs below-average	-0.936*
25.	12	M	V	above-average vs average	-0.892*
26.	12	M	V	average vs vs below-average	-0.884*
27.	12	M	V	above-average vs below-average	-0.907*

*p = .01

**Insufficient data, 11th grade n=5

***above-average = $>+1\sigma$

average = -1σ through $+1\sigma$

below-average = $<-1\sigma$

However, preparation of profiles for males at each intelligence level and females likewise divided was justified. Table 10 presents mean z score results for males and females according to three intelligence levels. These data were graphically displayed as descriptive composites in Figures 2 and 3.

Inspection of the frequency polygon in Figure 2 indicated the female pattern as: Social, Conventional, Enterprising, Artistic, Intellectual, and Realistic. In an almost reverse trend Figure 3 depicted the male pattern as: Realistic, Enterprising, Artistic, Conventional, Intellectual and Social. Only the Intellectual scale remained stable in both patterns.

Summary

Statistical significance ($p < .01$) was obtained between profiles based on grade level alone. However, when the independent variables were controlled only six of the twelve group comparisons on global profiles of personality and vocational maturity reached the criterion of rejection accepted in this study. Therefore, a conclusion concerning either acceptance or rejection of Hypothesis I was not warranted by the data.

All male and female profiles were subjected to profile analysis in two ways: by allowing all other independent variables to vary and by controlling such variables. In

TABLE 10
 MEAN z SCORES AT THREE INTELLIGENCE LEVELS FOR MALES
 AND FEMALES ON SIX PERSONALITY SCALES AND VOCATIONAL MATURITY

Intelligence Levels	Dependent Variables						Vocational Maturity
	Realistic	Intellectual	Social	Conventional	Enterprising	Artistic	
Females							
>+1σ	- 5.803	1.323	5.579	4.117	0.682	6.076	7.422
-1σ through +1σ	- 7.058	-2.527	3.634	1.486	-2.167	0.792	3.459
<-1σ	- 6.657	-3.760	9.810	9.597	1.896	-1.828	- 6.953
Males							
>+1σ	4.287	-4.090	-6.517	-3.984	-1.405	-0.905	5.751
-1σ through +1σ	7.276	0.845	-5.218	-1.798	1.251	-2.588	- 0.542
<-1σ	10.758	2.445	0.682	3.747	5.903	2.824	-10.255

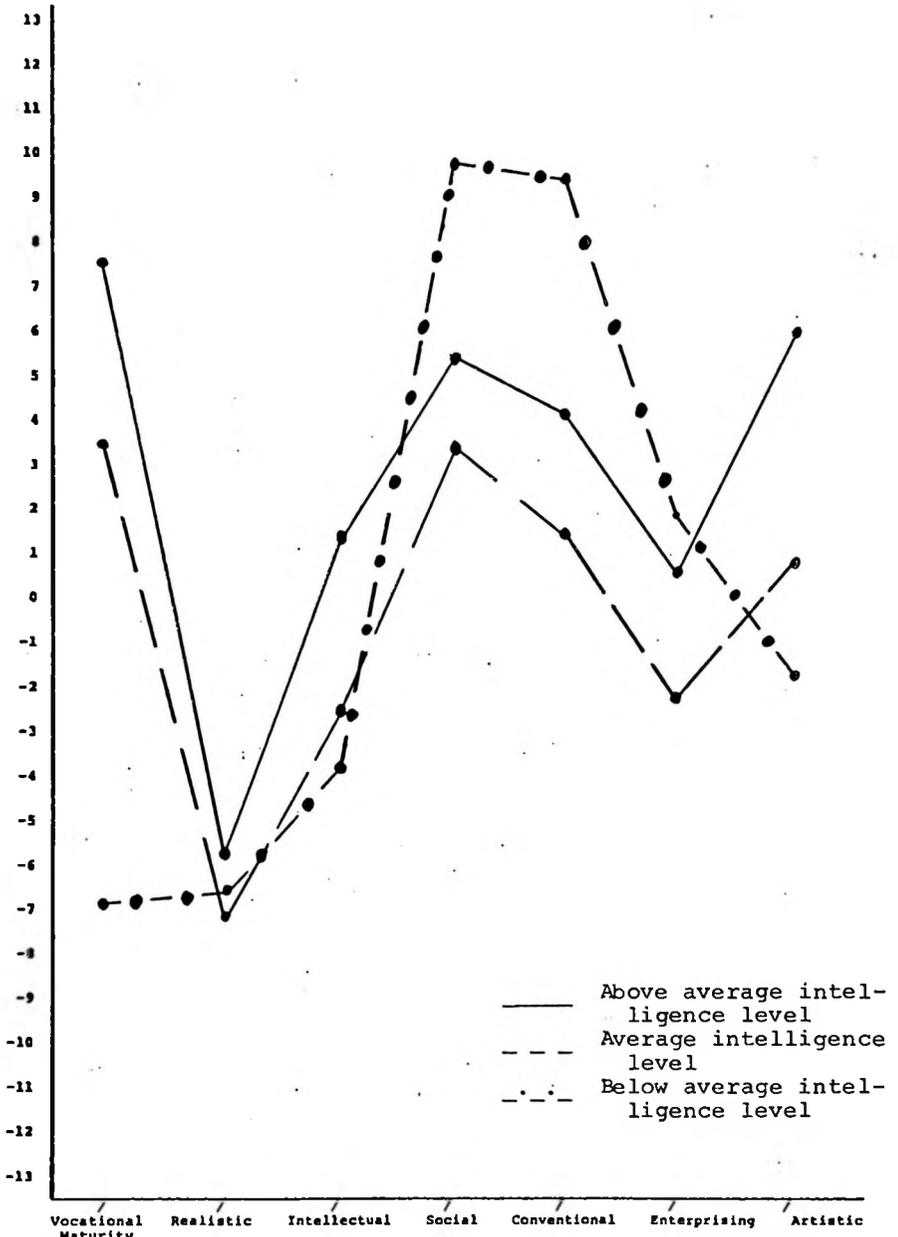


Fig. 2 z score frequency polygon--females by intelligence level

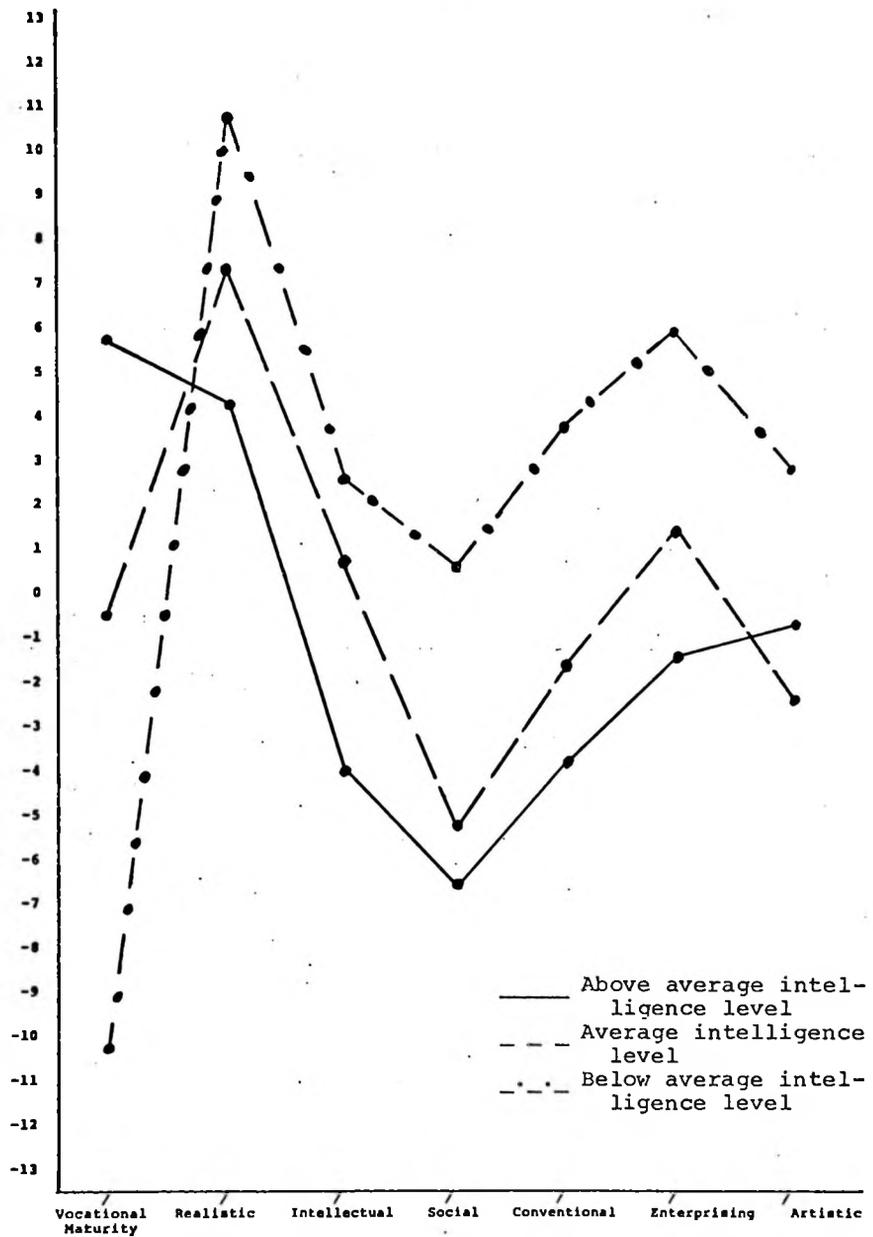


Fig. 3 z score frequency polygon--males by intelligence level

both approaches, statistically significant dissimilarities were found for all analyses. Hypothesis II was rejected.

Statistically significant dissimilarity was obtained between regular and vocational curricular program profiles. When grade level, sex group membership, and intelligence level variables were controlled and curricular program profiles were analyzed, only seven of the twelve comparisons were found to be dissimilar at a statistically significant level. Hypothesis III was neither accepted nor rejected, since either conclusion was unwarranted by the findings of this study.

At every intelligence level used in this study, profile analysis yielded statistically significant dissimilarities. Hypothesis IV was rejected.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V provides an overview of the descriptive study concerning profiles of personality and vocational maturity for a population of eleventh and twelfth grade students in the Southeastern region of the U. S.

Summary

Sample Population

Students (N=3785) attended schools within four school systems in urban and rural geographic areas of Alabama. Each area included both a city and county education system which participated in the Southeastern Career Development Study (SCDS) conducted by the Center for Career Education, Area of Behavioral Studies, The University of Alabama.

Purpose

The deductive inquiry was made to determine whether or not similarity or dissimilarity existed in group profiles of personality and vocational maturity when the independent variables of grade level, sex group membership, curricular program, and intelligence level were varied systematically. The purpose of this descriptive investigation was to

determine the feasibility of studying personality type, by vocational maturity, as a developmental process encompassing a variety of demographic and objective factors. Additional inspection of the results was made to discover patterns among group profiles. The results of such findings were to encourage an analysis of the factors to determine the degree of contribution each factor made at various stages of individual development, as well as the degree of contribution each factor made to pattern changes in group profiles.

Assumptions

The five assumptions upon which this study was based included: (a) career development is a developmental process which occurs in stages; (b) individuals experience vocational maturity in their progression toward fuller physical and psychological development; (c) student groups at contiguous grade levels are representative of each other on the continuum of vocational development; (d) individual personality profiles are measurable; (e) group personality profiles comprise nomothetic stages of career development.

Instrumentation of Objective Data

This investigation was based on the ego-environment interaction theory of career development postulated by Holland (1966), as well as the vocational development theory of Super (1957), especially his vocational maturity concept. The measures developed by Holland (1958) and Crites (1965), the Vocational Preference Inventory (VPI), and the Vocational

Development Inventory-Attitude Scale (VDI-A) respectively, appeared to be the appropriate instruments for use in this study. During the fall term of the eleventh grade, a testing program is conducted annually by the Department of Education, State of Alabama. Twelfth grade students in this particular study completed the California Short-Form Test of Mental Maturity (Level 4, 1963); eleventh grade student deviation intelligence levels ($>+1\sigma$, -1σ through $+1\sigma$, $<-1\sigma$) were determined from the Short-Form Test of Academic Aptitude (Level 5, 1970).

Demographic Data Collection

Information regarding sex group membership, grade level, date of birth, curricular program, school code number and race was "gridded" by the student on each answer sheet (National Scanning, Inc., Columbus, Ohio, form numbers: 101 Alphabetic, and 103 Numeric) as a response to verbal questions.

Hypotheses Tested

The null hypotheses used in this descriptive investigation included:

Hypothesis I. There is no statistically significant similarity or dissimilarity between eleventh (N=2084) and twelfth (N=1701) grade students on profiles of personality and vocational maturity when sex group membership, curricular program, and intelligence level variables are controlled.

Hypothesis II. There is no statistically significant similarity or dissimilarity between males (N=1875) and females (N=1910) on profiles of personality and vocational maturity when grade level, curricular program, and intelligence level variables are controlled.

Hypothesis III. There is no statistically significant similarity or dissimilarity between regular curricular program (N=2338) and vocational curricular program (N=1447) students on profiles of personality and vocational maturity when grade level, sex group membership, and intelligence level variables are controlled.

Hypothesis IV. There is no statistically significant similarity or dissimilarity among students at three levels of intelligence [$>+1\sigma$ (N=502), -1σ through $+1\sigma$ (N=2361), $<-1\sigma$ (N=922)] on profiles of personality and vocational maturity when grade level, sex group membership, and curricular program variables are controlled.

Statistical Method

Coefficients of profile similarity were used as indices of pattern separation or overlap. Values for r_p were generated from a program on a 360-50 model IBM computer. The criterion of rejection was established at the .01 level of confidence. The robustness of Cattell's Profile Analysis technique with non-orthogonal data was demonstrated by Williams (1969) and Treloar (1971) by violations of several assumptions concerning the r_p statistic.

Conclusions

The profile analysis technique used for study of the data in this investigation provided indices of pattern separation or configural overlap. Statistically significant ($p .01$) dissimilar personality and vocational maturity configurations were obtained when each independent variable was used separately, and no control was exerted on the remaining independent variables, e.g. male profiles compared to female profiles. However, when experimental control was extended to independent variables (grade level, curricular program, and intelligence level) other than the one being varied, e.g. sex group membership, all profiles were not found either alike or unlike at the criterion of rejection. Due to mixed results no conclusions were reached regarding curricular program. Another dyad of null hypotheses was concerned with sex group membership and deviation intelligence level, respectively. Experimental hypotheses were asserted in lieu of these null hypotheses.

The rejection of Hypothesis II, which was concerned with sex group membership, indicated a failure in vocational development conceptual and empirical data to allocate for significant dissimilarity in patterns of males and females. Hypothesis IV focused on three intelligence levels and was rejected; however, pattern shape appeared to be similar exclusive of the degree of elevation. Intelligence level, unlike sex group membership, was reported by other empirical

data; yet, this factor was not incorporated explicitly into any theory currently conceptualized.

In this study, 52 of 66 coefficients derived from profile analysis indicated complete dissimilarity at a statistically significant level ($p .01$). This finding seemed to support exploration as a stage in the vocational development continuum postulated by Ginzberg, et. al. and Super, among others. The significant profile dissimilarities for males and females, as well as above-average, average, and below-average intelligence levels suggested that the exploratory stage occurred at a variable rate of differentiation.

This study tentatively offered feasible evidence for investigation of stages of vocational development by the rational-deductive method. In addition to the use of other measures of feasibility, further study of the SCDS data was also encouraged.

Recommendations

Oftentimes, research raises more questions than those originally posed. Such an outcome was certainly one of the results of this study. The intent of this particular investigation was to determine if there were value in the simultaneous exploration of personality and vocational maturity. The question posited was: Are profiles of personality and vocational maturity similar or dissimilar between several groups? Profile dissimilarity as the answer, generated several additional questions which future research need

attempt to resolve. Examples of questions concerning the relationships and interaction effects of the several demographic and objective factors which remained unanswered included:

1. What is the specific relationship between the maturity of vocational attitudes and personality patterns?
2. What is the relationship between intelligence levels and personality patterns?
3. What is the relationship, if any, between curricular program and personality patterns?
4. What is the relationship between sex group membership and personality patterns?
5. What is the relationship, if any, between grade levels and personality patterns?
6. What is the degree of relationship, if any, between grade level, sex group membership, curricular program, intelligence level, and vocational maturity on one hand, and personality pattern on the other?

Further statistical examination of the SCDS data-bank was necessary to adequately answer these questions. Recommended approaches included factor analytic, analysis of variance and covariance as well as correlational techniques other than the Cattell Profile Similarity Index. Similarly, SCDS data regarding the VPI validity scales (Self-Control, Masculinity-Femininity, Acquiescence, Consistency, and Infrequency) as well as age, race, and geographic setting variables should be incorporated into future investigations.

While more than a decade has passed since introduction of the concept of vocational maturity, standardized instruments developed within psychometric principles have

only begun to appear recently. These developments should be pursued; and if not found to be equivalent, the present study should be replicated with the refined measures of vocational maturity.

The locus-of-control aspect of personality should be investigated additionally along the dependency-independency continuum. This aspect seemed to undergird current approaches to measures vocational maturity.

An efficiency index should be determined for the use of personality as a variable in the study of vocational development. The estimate should parallel the epsilon statistic in predictive research. Until this index is determined, the use of personality should not be overlooked in attempts to describe how youth grows up vocationally.

In a longitudinal investigation change scores should be studied by groups and by levels in a Lindquist design. Foci of other replication studies should be molecular stages of vocational development, rather than the molar approach of this research. Discrete stages, extant conceptually, need be investigated in order to describe the process of career development on an empirical level.

According to the data of this study, career education programs, or other efforts to facilitate vocational development should be characterized more by diversity than similarity during the exploratory stage.

Expansion of research into the process of vocational development should be undertaken on a level at least

commensurate with the implementation of career education programs. Research projects which can be compared from several geographic regions should also be supported at a similar level.

Distinct personality patterns emerged for groups in this study. If these are found by other research, an additional enigmatic frontier may well appear. The question becomes: Are the personality patterns true measure of personality (ideographic means), or are they reflecting stages or substages of vocational development (nomothetic means)? In other words, is there a developmental process through Holland's personality types? If so, is the temporal sequence in harmony or disharmony with the stages postulated by Super, Ginzberg, and others, or a possible refinement of them?

Finally, revision of current theory or the genesis of additional explanations of vocational development should attempt to account for both sex group membership as well as intelligence level factors.

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APPENDICES

APPENDIX A
SCHOOLS PARTICIPATING IN THE SCDS
BY EDUCATIONAL SYSTEM

SCHOOLS PARTICIPATING IN THE SCDS
BY EDUCATIONAL SYSTEM

Rural Geographic Area

DeKalb County (Alabama) School System

Collinsville High School
Crossville High School
Fyffe High School
Geraldine High School
Ider High School
Plainview High School
Sylvania High School
Valley Head High School

Fort Payne (Alabama) City School System

Fort Payne High School

Urban Geographic Area

Bessemer City (Alabama) School System

Jackson S. Abrams High School
Jess Lanier High School

Jefferson County (Alabama) School System

Berry High School
Gardendale High School
McAdory High School
Minor High School
Mortimor Jordan High School
Pinson Valley High School
Rogers Area Vocational School
Shades Valley High School
Springdale High School
Wenonah High School

APPENDIX B

VOCATIONAL DEVELOPMENT INVENTORY--
ATTITUDE TEST (VDI-A)

THE VOCATIONAL DEVELOPMENT INVENTORY

FORM IV

Directions: There are a number of statements about occupational choice and work listed in this booklet. Occupational choice means the kind of job or work that you think you will probably be doing when you finish all of your schooling.

If you agree or mostly agree with the statement, use your pencil to blacken the circle in the column headed T on the separate answer sheet. If you disagree or mostly disagree with the statement, blacken the circle in the column headed F on the answer sheet. Be sure your marks are heavy and black. Erase completely any answer you wish to change.

1. Once you choose a job, you can't choose another one.
2. In order to choose a job, you need to know what kind of person you are.
3. I plan to follow the line of work my parents suggest.
4. I guess everybody has to go to work sooner or later, but I don't look forward to it.
5. A person can do any kind of work he wants as long as he tries hard.
6. I'm not going to worry about choosing an occupation until I'm out of school.
7. Your job is important because it determines how much you can earn.
8. Work is worthwhile mainly because it lets you buy the things you want.
9. The greatest appeal of a job to me is the opportunity it provides for getting ahead.
10. I often daydream about what I want to be, but I really haven't chosen a line of work yet.

11. Knowing what you are good at is more important than knowing what you like in choosing an occupation.
12. Your parents probably know better than anybody which occupation you should enter.
13. If I can just help others in my work, I'll be happy.
14. Work is dull and unpleasant.
15. Everyone seems to tell me something different, until now I don't know which kind of work to choose.
16. I don't know how to go about getting into the kind of work I want to do.
17. Why try to decide upon a job when the future is so uncertain.
18. I spend a lot of time wishing I could do work that I know I cannot ever possibly do.
19. I don't know what courses I should take in school.
20. It's probably just as easy to be successful in one occupation as it is in another.
21. By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.
22. There are so many things to consider in choosing an occupation, it is hard to make a decision.
23. I seldom think about the job I want to enter.
24. It doesn't matter which job you choose as long as it pays well.
25. You can't go very far wrong by following your parents' advice about which job to choose.
26. Working is much like going to school.
27. I am having difficulty in preparing myself for the work I want to do.
28. I know very little about the requirements of jobs.
29. The job I choose has to give me plenty of freedom to do what I want.

30. The best thing to do is to try out several jobs, and then choose the one you like best.
31. There is only one occupation for each person.
32. Whether you are interested in a particular kind of work is not as important as whether you can do it.
33. I can't understand how some people can be so set about what they want to do.
34. As long as I can remember I've known what kind of work I want to do.
35. I want to really accomplish something in my work--to make a great discovery or earn lots of money or help a great number of people.
36. You get into an occupation mostly by chance.
37. It's who you know, not what you know, that's important in a job.
38. When it comes to choosing a job, I'll make up my own mind.
39. Choose an occupation which gives you a chance to help others.
40. When I am trying to study, I often find myself daydreaming about what it will be like when I start working.
41. I have little or no idea of what working will be like.
42. Choose an occupation, then plan how to enter it.
43. I really can't find any work that has much appeal to me.
44. Choose a job in which you can someday become famous.
45. If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.
46. Choose a job which allows you to do what you believe in.
47. The most important part of work is the pleasure which comes from doing it.
48. I keep changing my occupational choice.

49. As far as choosing an occupation is concerned, something will come along sooner or later.
50. Why worry about choosing a job when you don't have anything to say about it anyway.

APPENDIX C
SCDS EXAMINER'S MANUAL

EXAMINER'S MANUAL

SOUTHEASTERN CAREER DEVELOPMENT STUDY

This manual contains instructions for administering the Vocational Development Inventory - Attitude Test (VDI-A), and the Vocational Preference Inventory (VPI). Instructions are also provided for reading directions to student groups, for completion of answer sheets, and for the return of all survey material.

Time Format for Sample Session

- | | |
|--|-----------------|
| 1. Student entrance to testing facility
(lunchroom/cafeteria, library) | 5 minutes |
| 2. Distribution of ANSWER SHEET (GREEN)
for the VDI-A | 5 minutes |
| 3. Reading DIRECTIONS to students | 5 minutes |
| 4. Student COMPLETION of answer sheet
information | 5 minutes |
| 5. Student completion of VDI-A | 15 - 30 minutes |
| 6. Exchange of VDI-A booklet for
VPI answer sheet (PINK) | 1 minute |
| 7. Copying of identifying information
from GREEN answer sheet to PINK
answer sheet | 5 minutes |
| 8. Student completion of VPI | 15 - 30 minutes |
| 9. COLLECTION of <u>ALL</u> materials | 5 minutes |
| a. VPI | |
| b. Green answer sheet | |
| c. Pink answer sheet | |
| d. #2 pencils | |
| 10. Student EXIT from the testing facility | |

No timing of test sections is necessary; however, students should be encouraged to work as quickly as they can. They should indicate their first response to the item; they should not linger over any item. Most students complete the instrument in 15 - 30 minutes.

DAILY SESSION SCHEDULE: (Subject to changes due to local conditions)

Session "A"	8:00 a.m. - 9:30 a.m.
Session "B"	9:30 a.m. - 11:00 a.m.
Session "C"	1:00 p.m. - 2:30 p.m.

- EXAMINERS MUST:
1. Arrive at the school at least 15 minutes BEFORE the first scheduled session.
 2. Report to the Principal's Office where you will be expected.
 3. Bring survey material with you to the Principal's Office.
 4. Be escorted to the testing facility in the school.

GENERAL REMARKS: We will appreciate any suggestions you have for possible improvements in our procedures, and for helping us make the data collection program more effective.

Since enrollments in the 11th and 12th grade, and since the maximum capacity of lunchroom/cafeteria, or library facilities vary at each school, three sessions (A, B, & C) are necessary only where the number of students and/or the limitation of facilities require this. If the school has a suitable facility that will accommodate all 11th and 12th grade students at one time, a sufficient number of examiners will be sent to the school to complete the administration in one 1-1/2 hour time block.

GENERAL INSTRUCTIONS: Uniform procedures are essential in a program that involves many people administering measuring instruments, and many people completing them. The results will be comparable only if all supervisors adhere to the same schedule and give exactly the same instructions. Become thoroughly familiar with these instructions before the administration sessions, and PLEASE follow them exactly.

GENERAL DUTIES: As examiner, your primary concerns are to conduct the sessions efficiently, and quietly, protect the students from disturbance, and return the materials promptly. (In TUSCALOOSA all materials should be returned to: Apt. O, 711 11th Street, 345-6799). No one is to have the opportunity to have any test book at any time, except the student as he takes the tests. No one may reproduce or copy a part of any test.

Examiners should walk about the room as the students complete each instrument in order to collect the VDI-A and distribute the PINK answer sheet. You should also make sure that every student is working on the appropriate instrument, and marking his answers on his answer sheet in the corresponding numerical area.

Examiners should at all times give strict attention to their duties. They should not read or talk while an examination is in progress. If an examiner passes behind a candidate, he should not remain there long enough to disturb or embarrass the student.

HANDICAPPED STUDENTS: Use your own judgment to determine extent of disability. DO NOT test anyone under special conditions. All testing is to be done in the room where you are located. Special education classes are NOT included in this sample.

INFORMATION ABOUT GUESSING: If the students ask whether or not they should guess, refer them to the directions at the beginning of each instrument. The VPI has three choices: (1) True, (2) False, (3) Undecided (left blank). The VDI-A has two choices: (1) True, (2) False. They should not leave blanks on the VDI-A GREEN answer sheet.

REGULATIONS AT THE FACILITY: The use of scratch paper is unnecessary. No marks should be made in the test books, and no stray marks should be made on the answer sheets. While completing the instruments the students should have nothing on their desks/tables other than a copy of the test, answer sheet(s), and #2 pencil.

COMMUNICATION: Examiners should communicate by telephone with the Center for Career Education. Office: 348-7575; Home: 345-6799. University Test Service (Roy Smith): 348-6760; Home: 758-2911.

SCHOOL CODE NUMBER: (IMPORTANT!) The school code number appears on the Examiner's Report Form to the right of the school name and address. Post it in full view (or repeat it s-l-o-w-l-y) for all candidates when they are filling out their first answer sheet (GREEN). You may enter it in this manual where you will need to read it to students as part of the instructions.

EQUIPMENT FOR THE ADMINISTRATION: The only equipment you need to provide is a reliable watch to keep track of the time, and transportation acceptable to the other member(s) of your team.

You may use the check list on the Examiner's Report Form to check each item that you receive from the Center for Career Education. That form, together with all materials received, must be returned.

PENCILS: Special pencils MUST be used. Ink or ball point pens must not be used. A supply of pencils with erasers has been included in the materials from the Center for Career Education. Pencils MUST be returned.

ABSENCES: No special arrangements will need be made for students who are absent on the day of your visit. The sample will be so large as to correct for this within the normal distribution.

ATTENDANCE ROSTER: No attendance roster need be prepared by the examiners.

EXCUSES FROM THE TEST: Students should not be permitted to leave the testing facility, unless they are given appropriate permission by a regular school staff member. Refer all such requests to the school personnel in attendance. No extra testing time should be allowed in the event that a student is allowed to go to the rest room, etc.

SEATING STUDENTS: It is a good idea to direct alternate students to opposite sides of the testing facility as they enter the room. This serves to separate friends and relieve some of the peer influences which may otherwise go unchecked. Students should be seated so that they are sufficiently comfortable to complete the answer sheet while looking at the instrument.

RECORDING INFORMATION ON THE ANSWER SHEET: You must instruct students on the proper procedure to follow in "gridding" their identifying information on their answer sheets. The "grid" is a set of individually identified spaces in which the students are asked to record information so that it may be read electronically. It is most important that the identifying information be gridded completely and correctly. PLEASE spend as much time in explanation as is necessary to ensure accurate gridding.

BEGINNING THE SESSION: School officials have promised to have students at the chosen in-house facility at 8:05 a.m., 9:30 a.m., and 1:00 p.m. Close the doors of the facility promptly at the appointed time. Any student who has been delayed by an unusual circumstance may be admitted at your discretion, provided his admission will not disturb other students. If you decide to admit a student who arrives a few minutes late, you must allow him time to read the instructions on the instrument, give him directions for completing the answer sheet data, and give him the full time (15-30 minutes).

Visitors should not be permitted to enter the room while the students are completing their responses to the instruments.

DISTRIBUTING MATERIALS: Distributing and collecting materials by a prepared plan will expedite the process and help account for all materials. If you are forced to use more than one room, keep a record of the number of materials in each room.

After all candidates are seated, one examiner should distribute an answer sheet to each student individually, if possible, while the other examiner reads the directions slowly, and in a loud clear voice. Only one answer sheet should be completed (GREEN first) at the beginning. Students will copy their responses from one answer sheet to the second (PINK) answer sheet without the entire directions being reread.

Read all directions in boxes, pausing when four dots appear to allow time for the procedures described to be carried out. Encourage students to work rapidly, but carefully, in completing the "gridding" of their name, etc. **DO NOT** depart from these directions or answer any questions regarding the content of the tests.

When the students have been seated, SAY:

You will have approximately one (1) hour to complete two (2) surveys. This is an attempt to find out what students think about some statements. There are no right or wrong answers. Scratch paper is not needed. Use only the pencil which is given to you, and which must be returned. **INK OR BALL POINT PENS MUST NOT BE USED.**

[Examiner: If the situation arises that no pencils are available allow the use of any other writing instrument, keep the answer sheets separate, and the responses will be re-recorded by Center for Career Education personnel at a later time.]

If any material which you receive is defective, raise your hand. When you get your answer sheet, place it so that it is longer from side to side than from top to bottom. The words "Department" and "Date" should be at the top.

[Examiner: Hold one up to illustrate.]

On the right hand side of your answer sheet, in the boxes at the top of the group of columns labeled "Name," print the letters of your last name (or as many as you can fit into the available spaces), your first name, and middle initial

Beneath each box blacken the appropriate space containing the same letter

Where it says "Social Security Number" leave the boxes and spaces blank. Where it says "Birth Date" enter the numerals for the month, day, and year of your birth. Beneath each box blacken the appropriate space containing the same number. NOTE that zeros must be treated the same as any other number In the columns labeled "Class or Section"

enter your school code which is _____ (and which is posted on the _____). Blacken

the appropriate spaces in these columns

Next blacken the space indicating your sex

Next blacken the space in the column "Rank" indicating your grade level, F=Freshman, S=Sophomore, J=Junior, S=Senior In the column headed QTR SEM, blacken space number one (1) if you are now in a vocational program at school, or space two (2) if you are in a regular or non-vocational program at school. This should be the program you are in now, not the one you were in last year, or the one you will be in next year In the column headed "Test Form" blacken space "A" if you are Negro or Black, "B" if you are Caucasian, or "C" if you are neither of these.

[Examiner: as you walk around the room see that this last entry has been made, if not, do it.]

If you have made an error, correct it now. Are there any questions? On the line at the top labeled "Department" enter the name of your school On the line to the right of "Department," where it reads "Date," enter today's date.

[Examiner: give the numerals for today's date:
5/___/72.]

Do not enter anything on the next line which has a space for an Instructor's name, and a course name.

Now turn your answer sheet (green) so that you can read the numbers from one (1) through one hundred and sixty (160). You will use only the first fifty numbers on this answer sheet (green). NOTICE that the numbers go ACROSS the page.

Most students complete each answer sheet in 15-30 minutes. Record your first response to an item. Do not linger over any item more than 1/2 minute. Work rapidly and quickly. When you are finished sit quietly so that other students may complete their responses. In less than 30 minutes, the second survey will be distributed. Begin as soon as you can.

WHEN YOUR ASSISTANT (or student helpers) HAVE DISTRIBUTED THE YELLOW SHEET AND THE PINK ANSWER SHEET, SAY:

Copy the "gridding" information which you recorded on the first answer sheet, the Green one, onto the right-hand side of the second answer sheet, the PINK one, just as you entered it on the first answer sheet. Then, read the directions at the top of the yellow sheet. Notice that there are numbers on both sides of the yellow sheet. Enter your responses to the yellow sheet on the pink answer sheet. Work rapidly, and quietly. Begin as soon as you can.

Circulate around the room with a supply of second answer sheets (PINK) and YELLOW VPI sheets.

Unless other arrangements are made between you and school officials, students should remain at their places when they are finished. They may study, or read, but they should not talk as it will disturb those who have not yet finished.

Make sure you have collected all testing materials, including pencils. Collect answer sheets FIRST, then test booklets. Collect answer sheets and booklets separately, for easier counting, and for use during the next session. Place materials where students do not have access to them as they leave the room.

Before the students depart, SAY

THANK YOU FOR YOUR COOPERATION.

Note any irregularities on the back of the Examiner's Report Form. List students who became ill, sick, or did not complete answer sheets.

Thank any school personnel who assisted you for their cooperation. Indicate that they should address any questions which they may have to the Center for Career Education, P. O. Box 2367, University, Alabama 35486.

APPENDIX D

SCDS RESEARCH TEAM MEMBERS FROM
THE UNIVERSITY OF ALABAMA

SOUTHEASTERN CAREER DEVELOPMENT STUDY
RESEARCH TEAM MEMBERS FROM
THE UNIVERSITY OF ALABAMA

Mrs. Michelle Alexander

Mrs. Joan Bergman

Mrs. Alice Frederick

Mrs. Vicki Gayles

Mr. Dale Gunn

Mr. Gerald Hall

Miss Dana Hardy

Mrs. Barbara Hunnicutt

Mr. Richard Lovell

Miss Lucy Magnus

Mr. Roy C. Smith

Dr. Jean B. Stancil

Dr. Ian T. Sturrock

Mr. David E. Sweaney

Mr. Vincent Whelan

APPENDIX E
COOPERATING SCHOOL SYSTEM PERSONNEL

COOPERATING SCHOOL SYSTEM PERSONNEL

Jefferson County

Mrs. Margaret Beard
Mr. Thomas L. Clements
Mr. Royce G. Creel
Dr. William F. Dodson
Mr. Ernest Douglas
Mrs. Jimmie Ruth Fadeley
Mrs. Tizzie D. Gamble
Mrs. Edith V. Gates
Mr. Jack Gibson
Mrs. Mae Odom Hale
Mrs. Charlotte Hamilton
Mr. William Hawes
Mrs. Ruth Matthews
Mrs. Marion L. McCowan
Mrs. Mary McKinnon
Mr. Donald Moon
Mr. B. H. Oden
Mr. Eddie J. Pruden
Mr. Thomas Shaw
Mr. Jimmie A. Trotter
Miss Edna J. Vaughn
Mrs. Martha B. Vines
Mr. Fred Ward
Mr. Hoyt Washington
Mr. Bob Watson
Mrs. Velma Wimbs
Mrs. Joyce Wood

Bessemer City

Dr. Jack Hale
Mr. Bonds Henderson
Mr. Horace Peterson

Fort Payne City

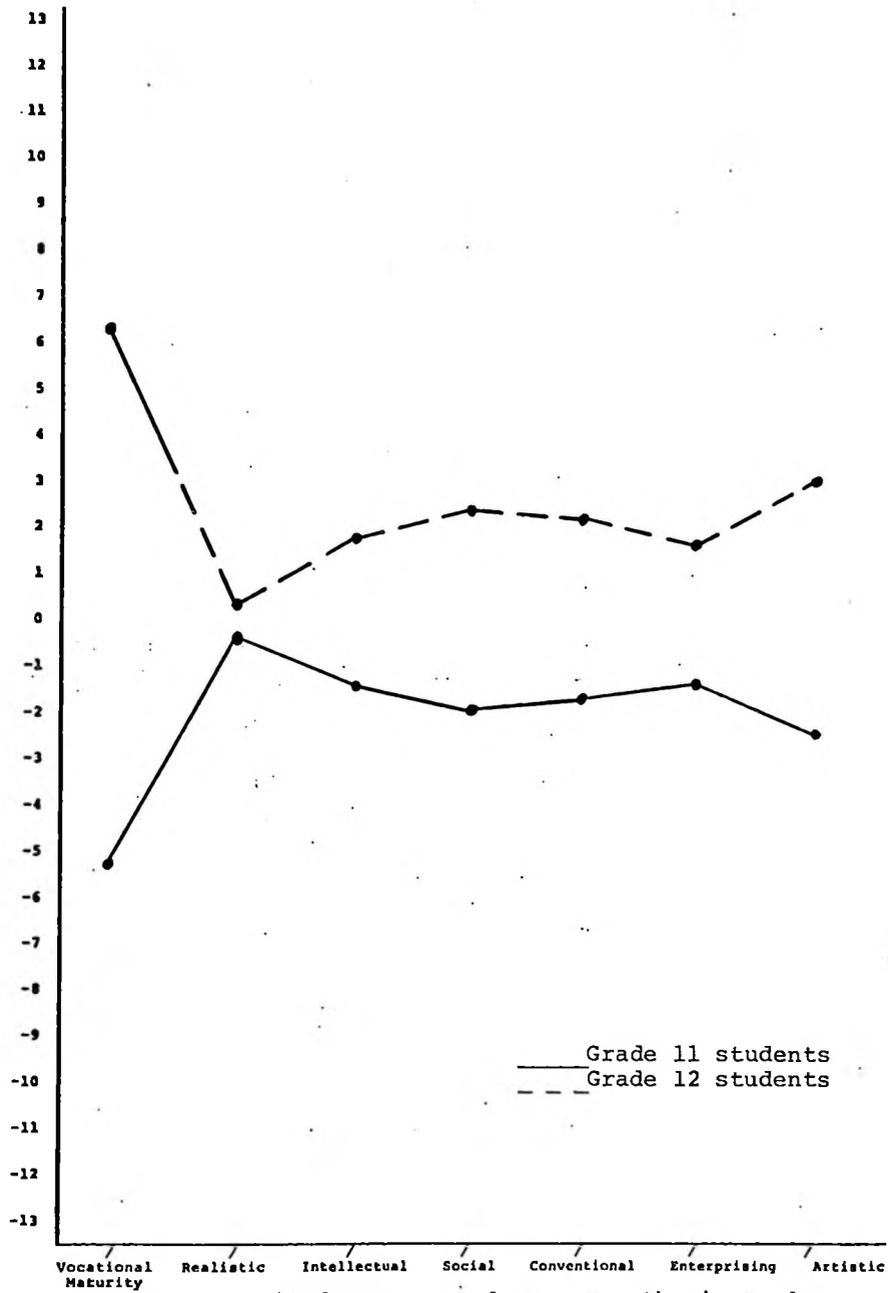
Mr. Ted Noles

DeKalb County

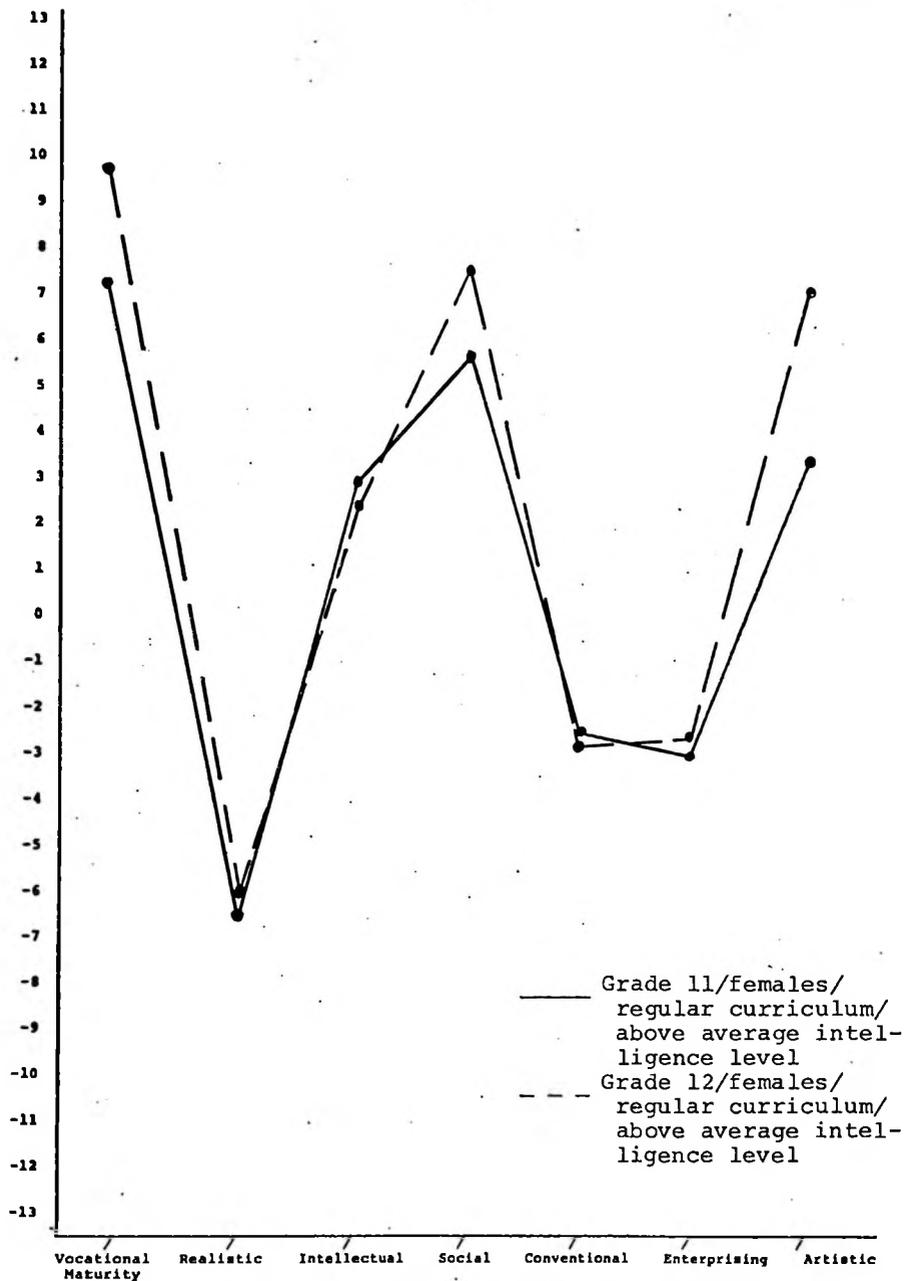
Mr. A. H. Bailey
Mr. Jerry Edmonds
Mr. W. H. Isbell
Mr. Tommie Johnson
Mr. W. D. Kirk
Mr. Howard Kitchens
Mr. Billy J. Laney

APPENDIX F

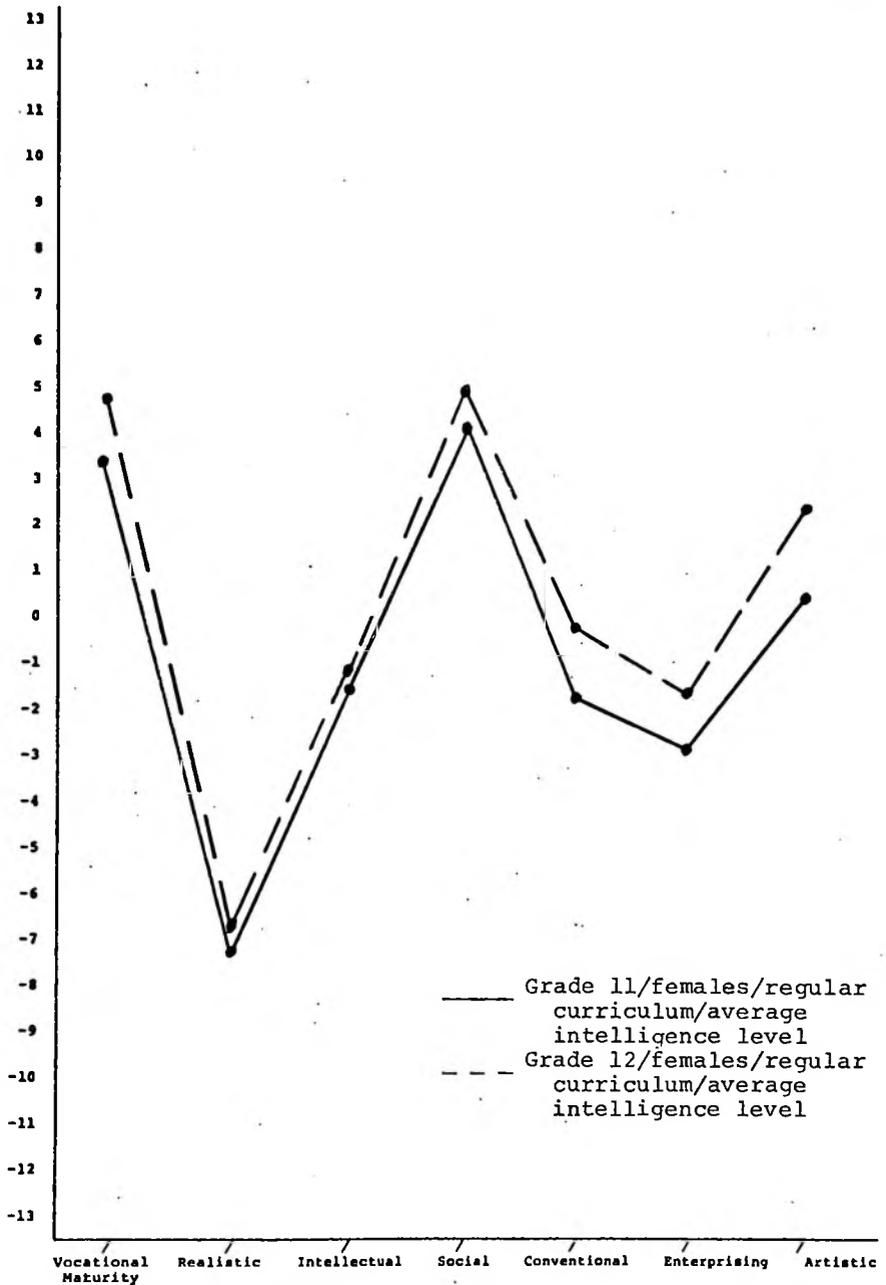
FREQUENCY POLYGONS BETWEEN GROUPS
COMPARED IN HYPOTHESES I - IV



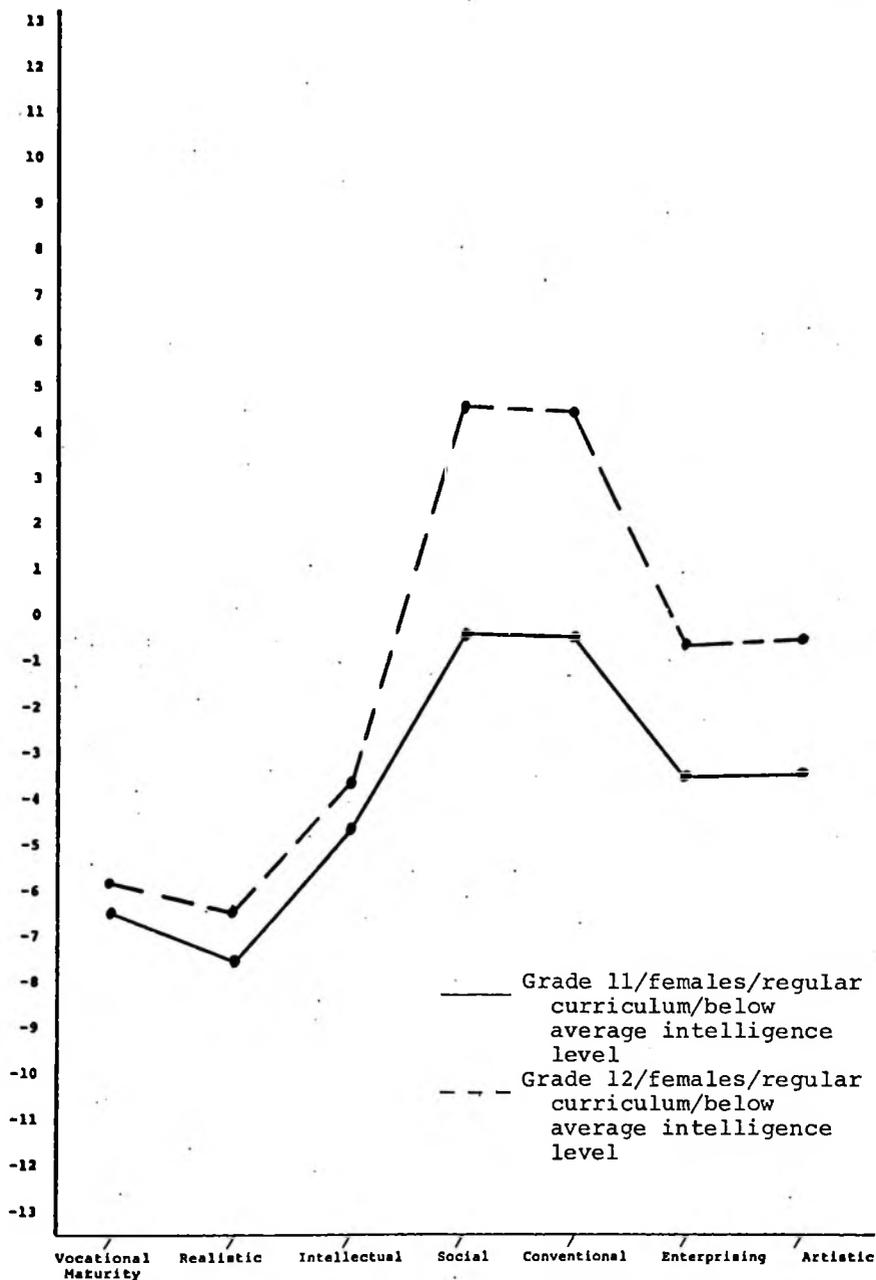
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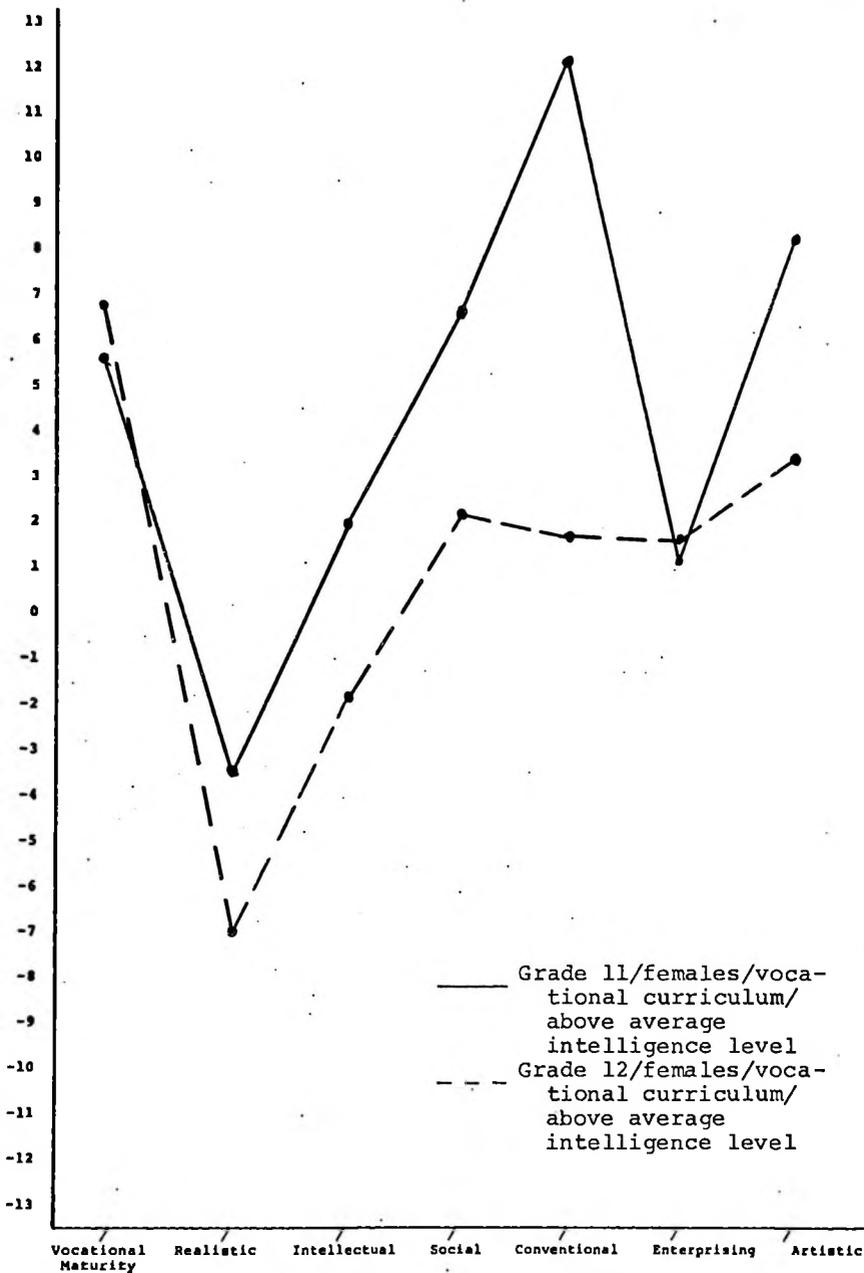
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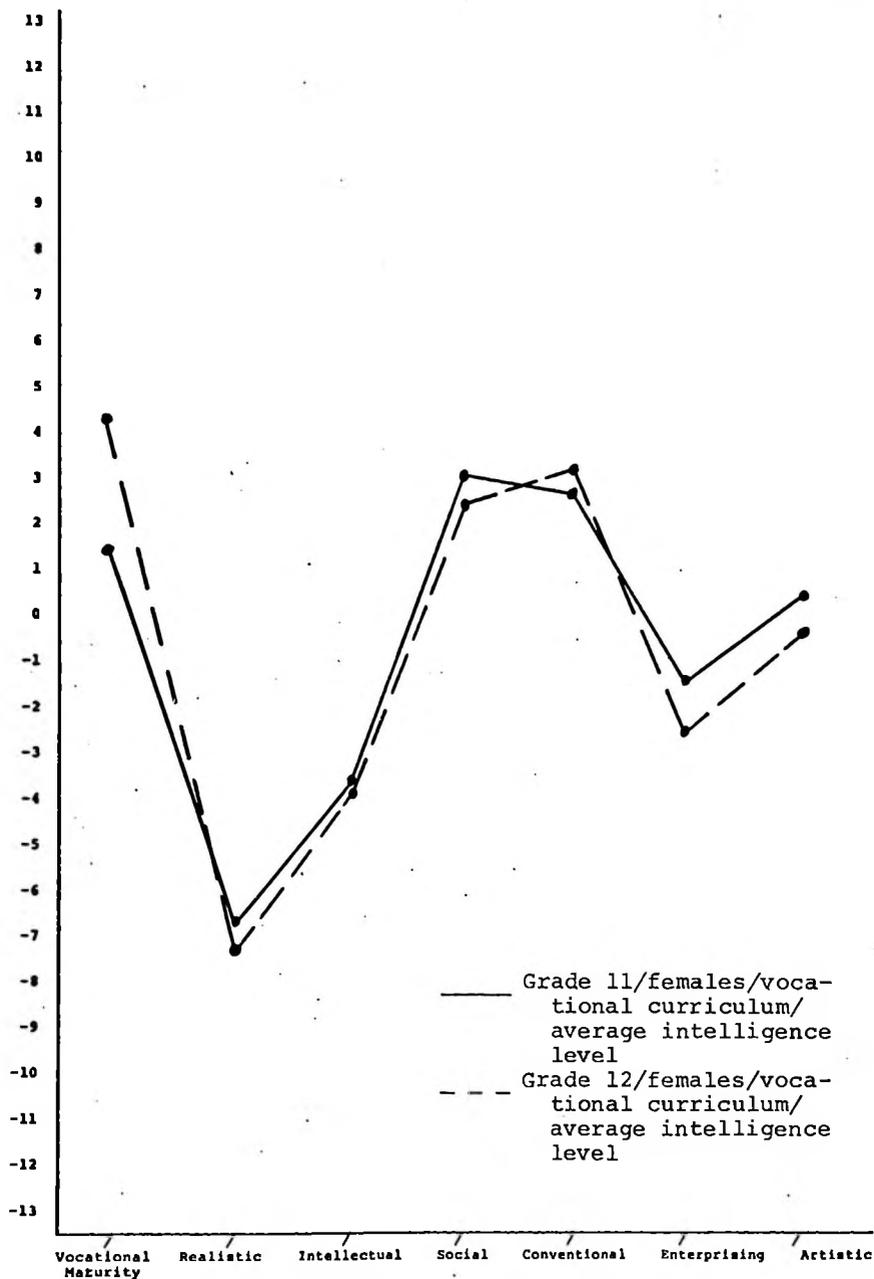
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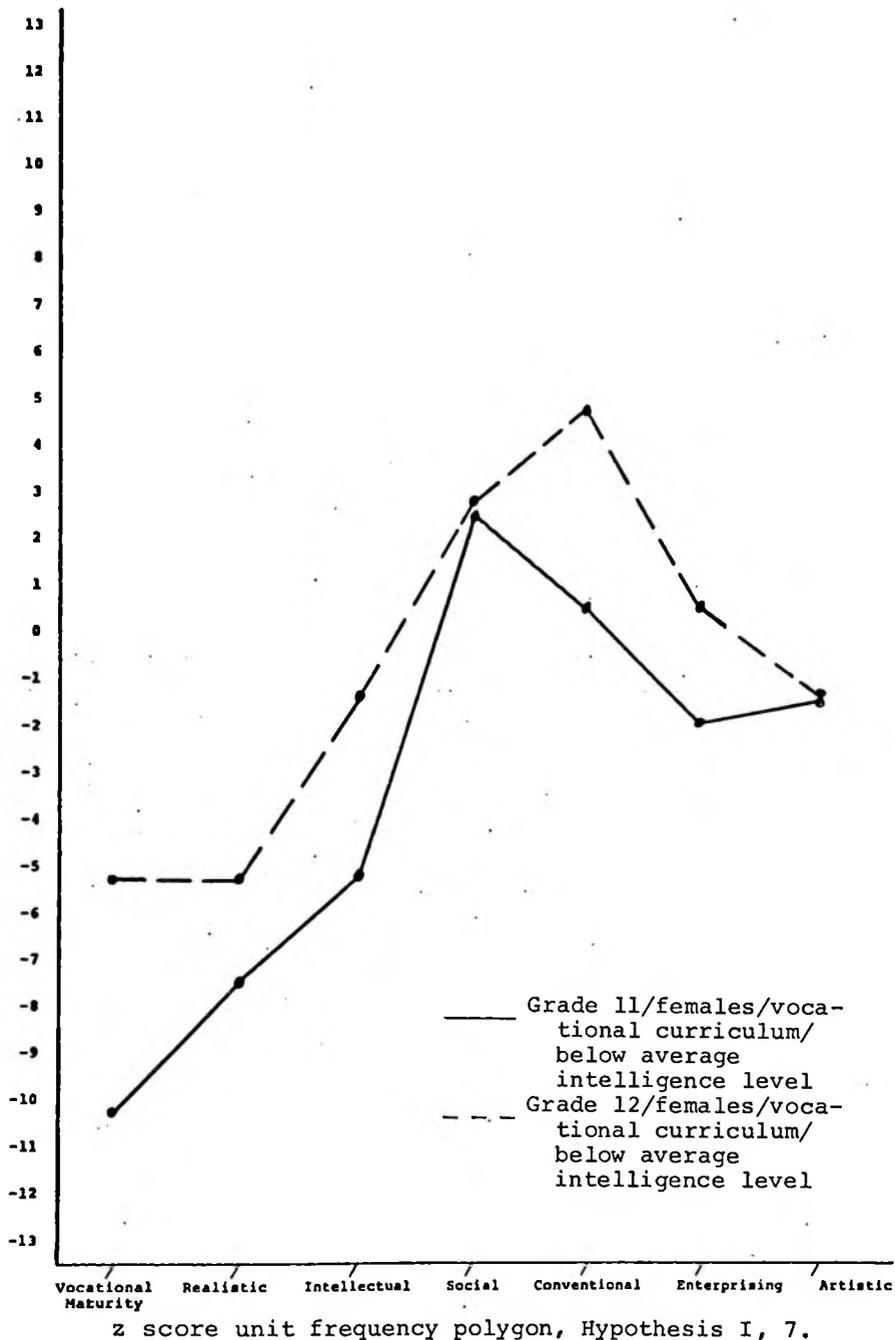
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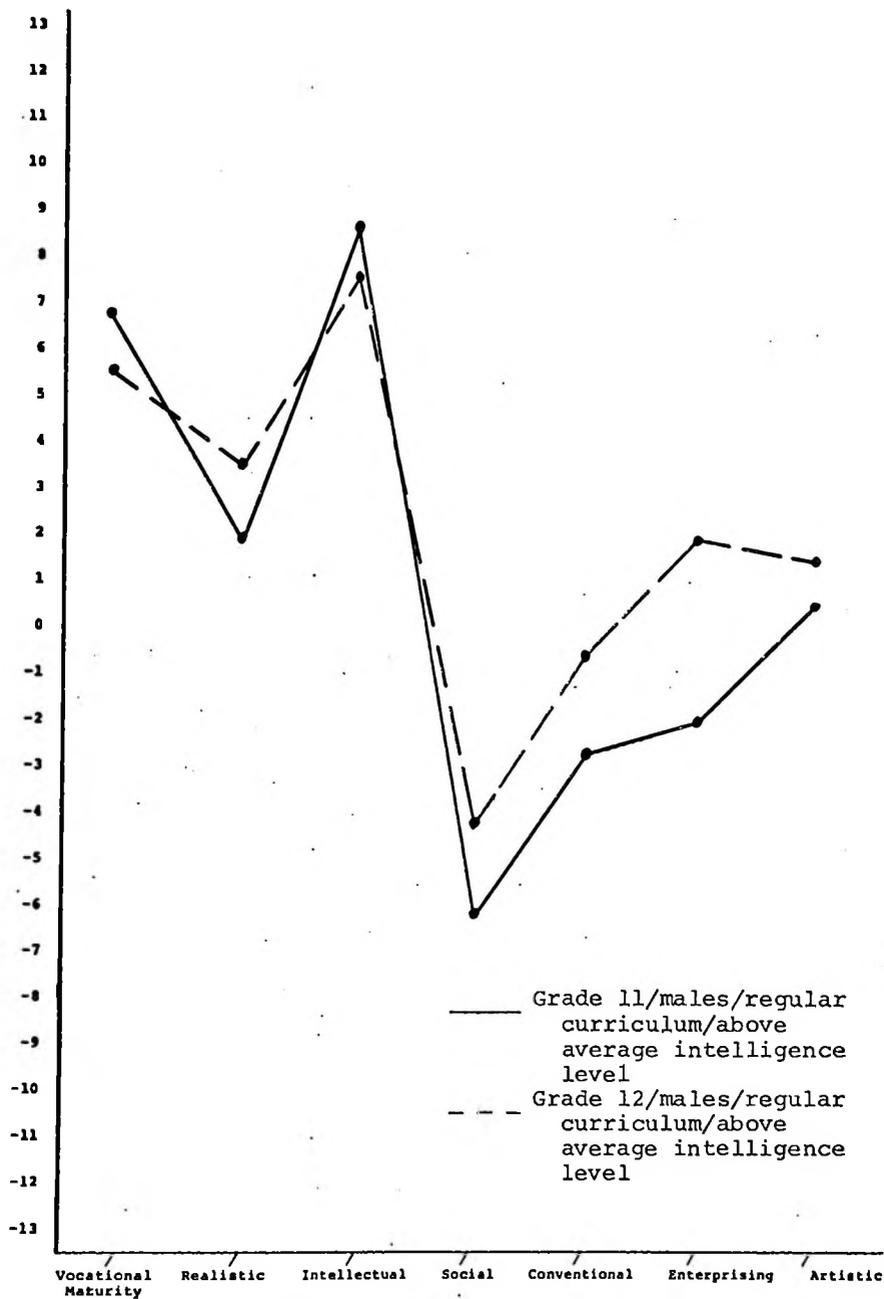


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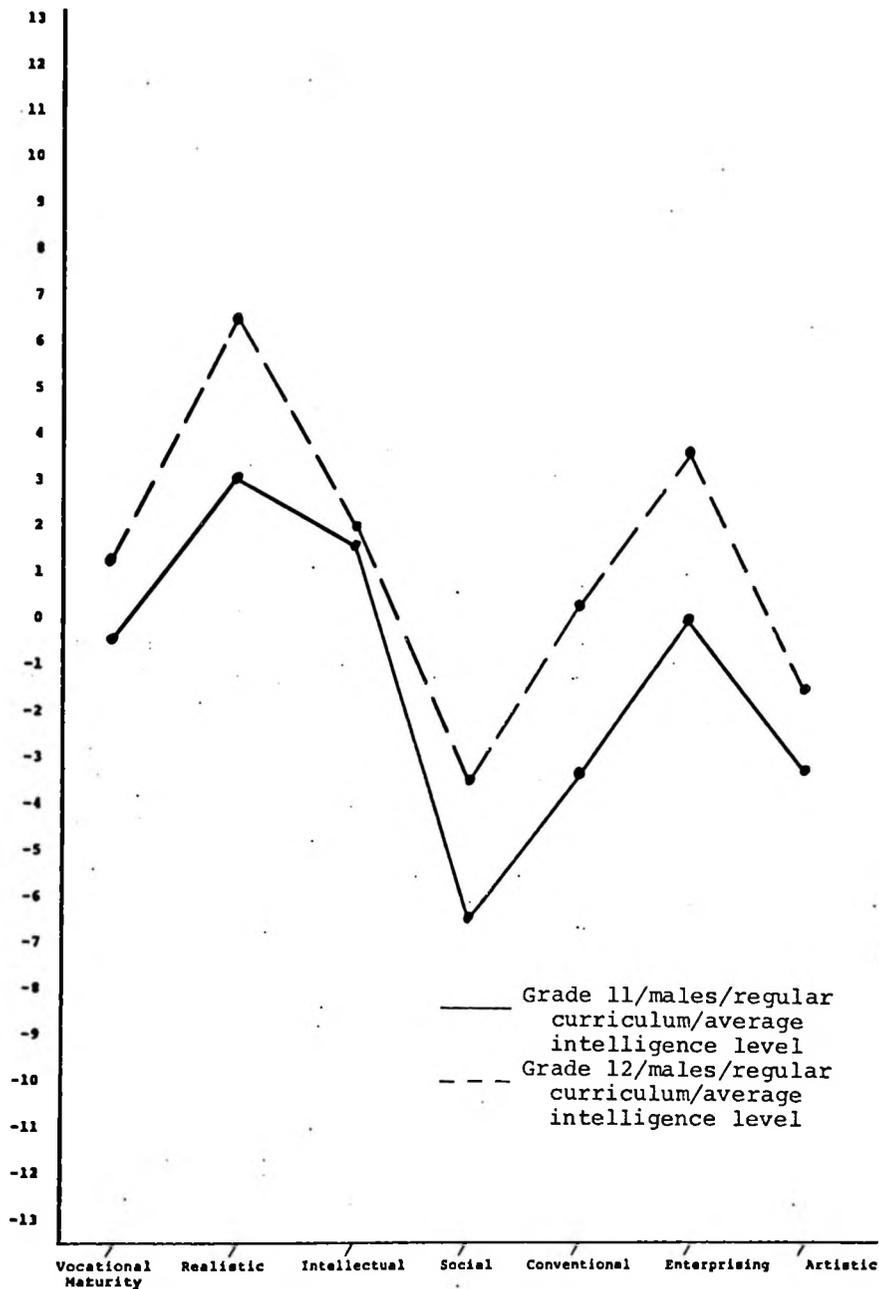


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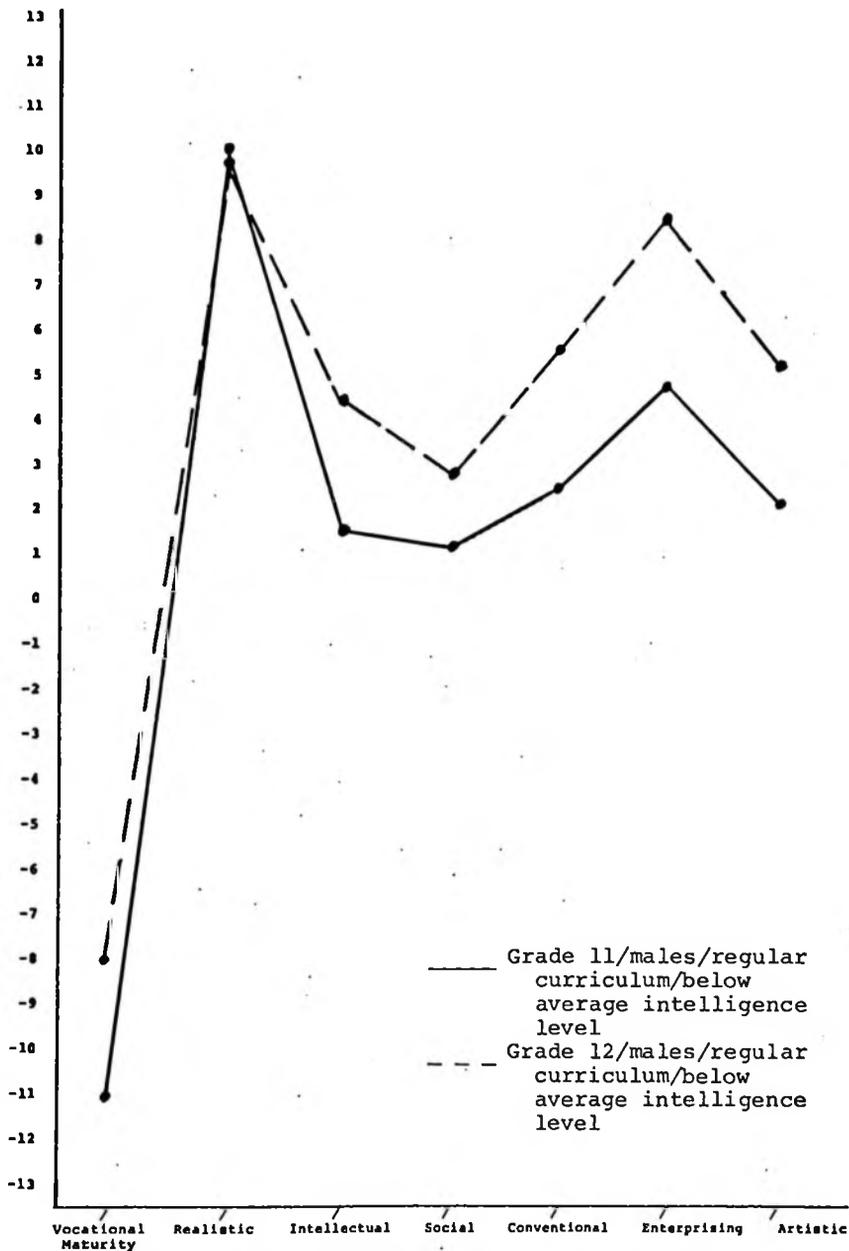




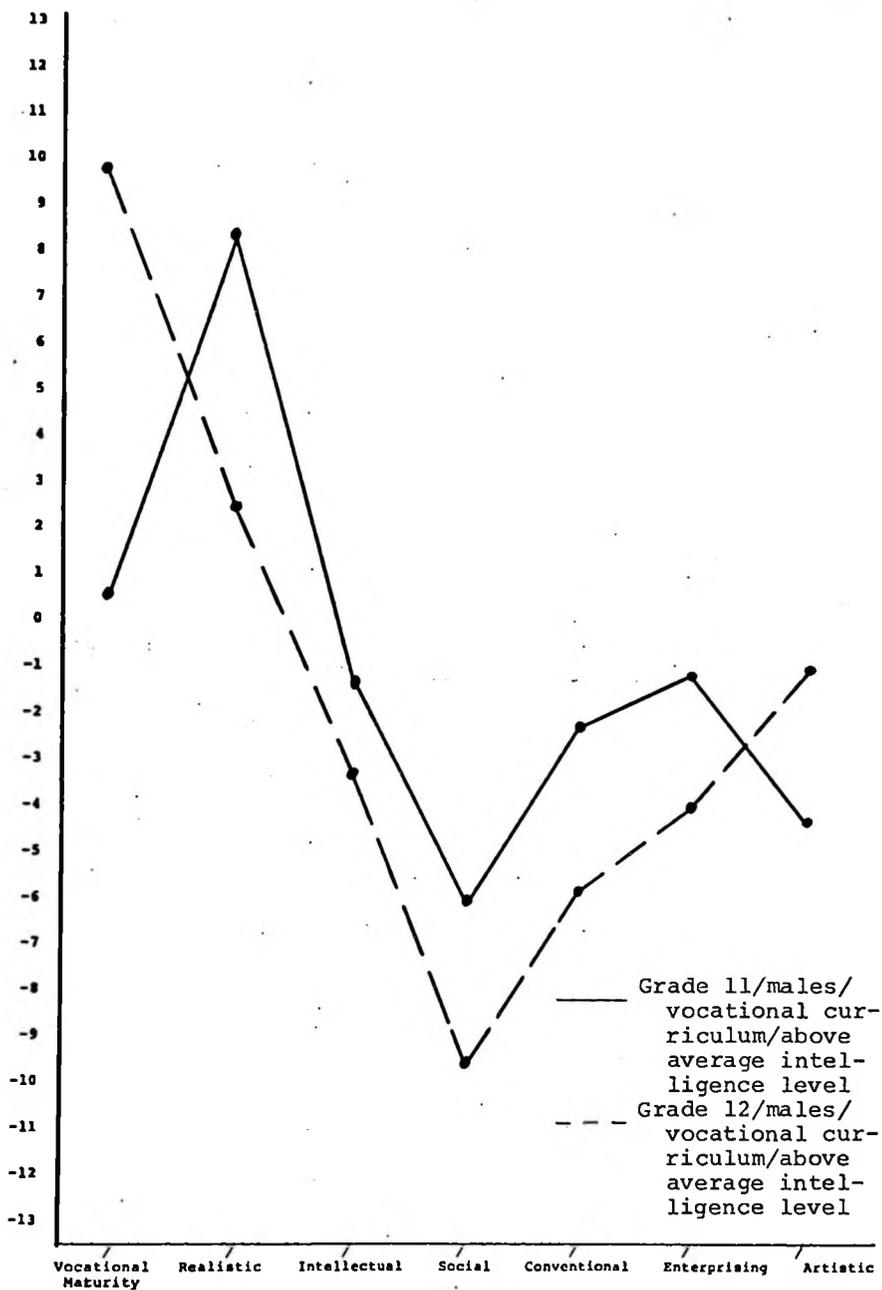
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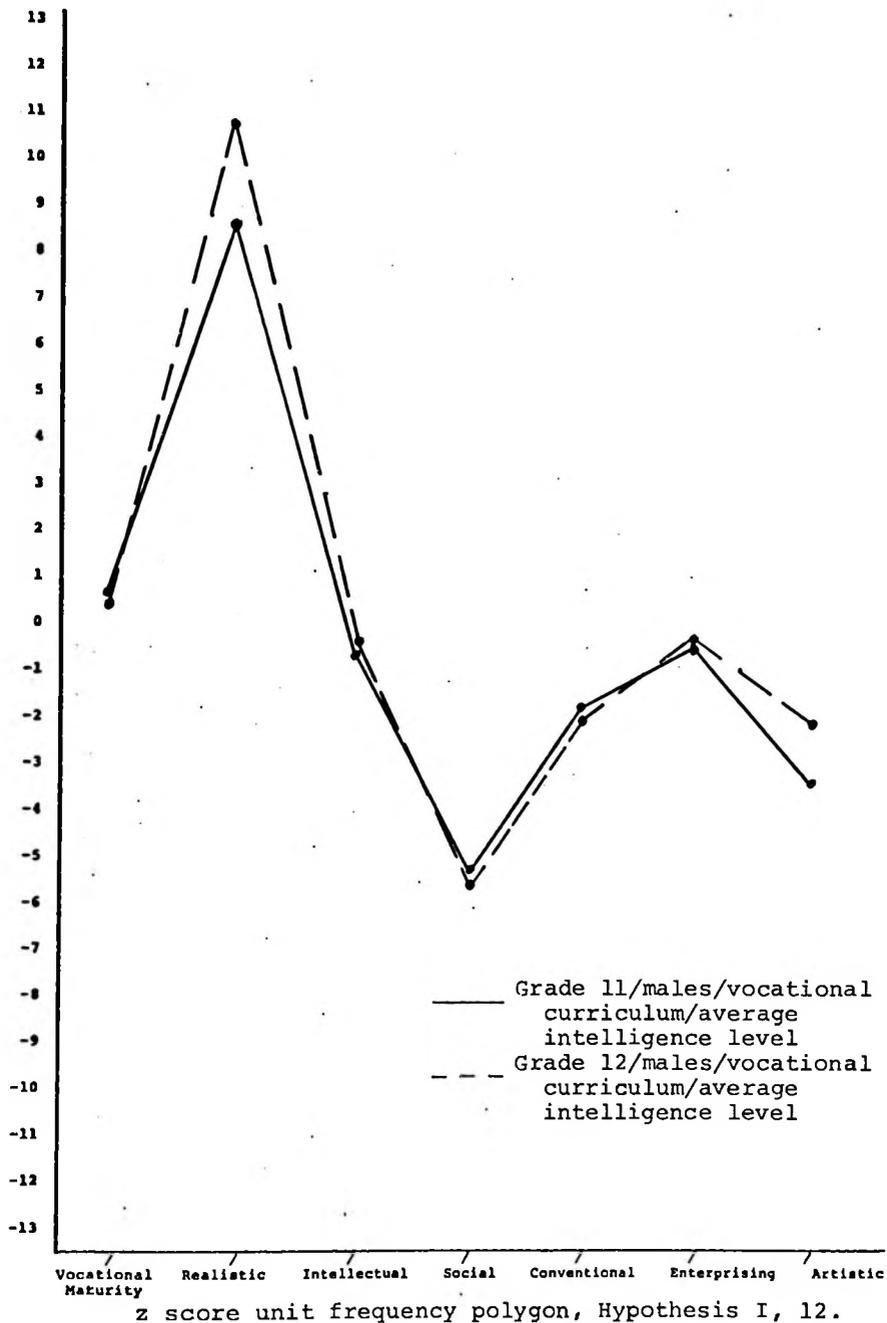
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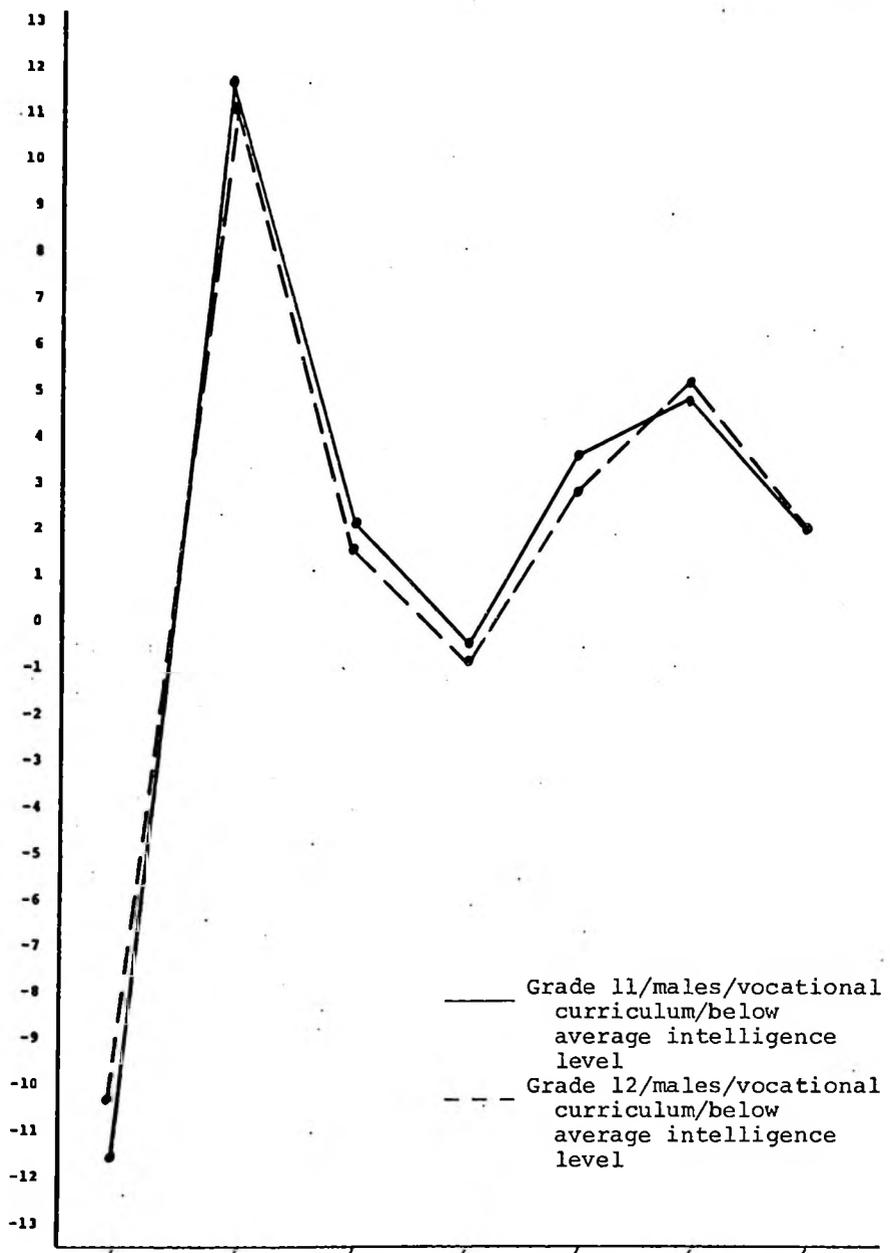


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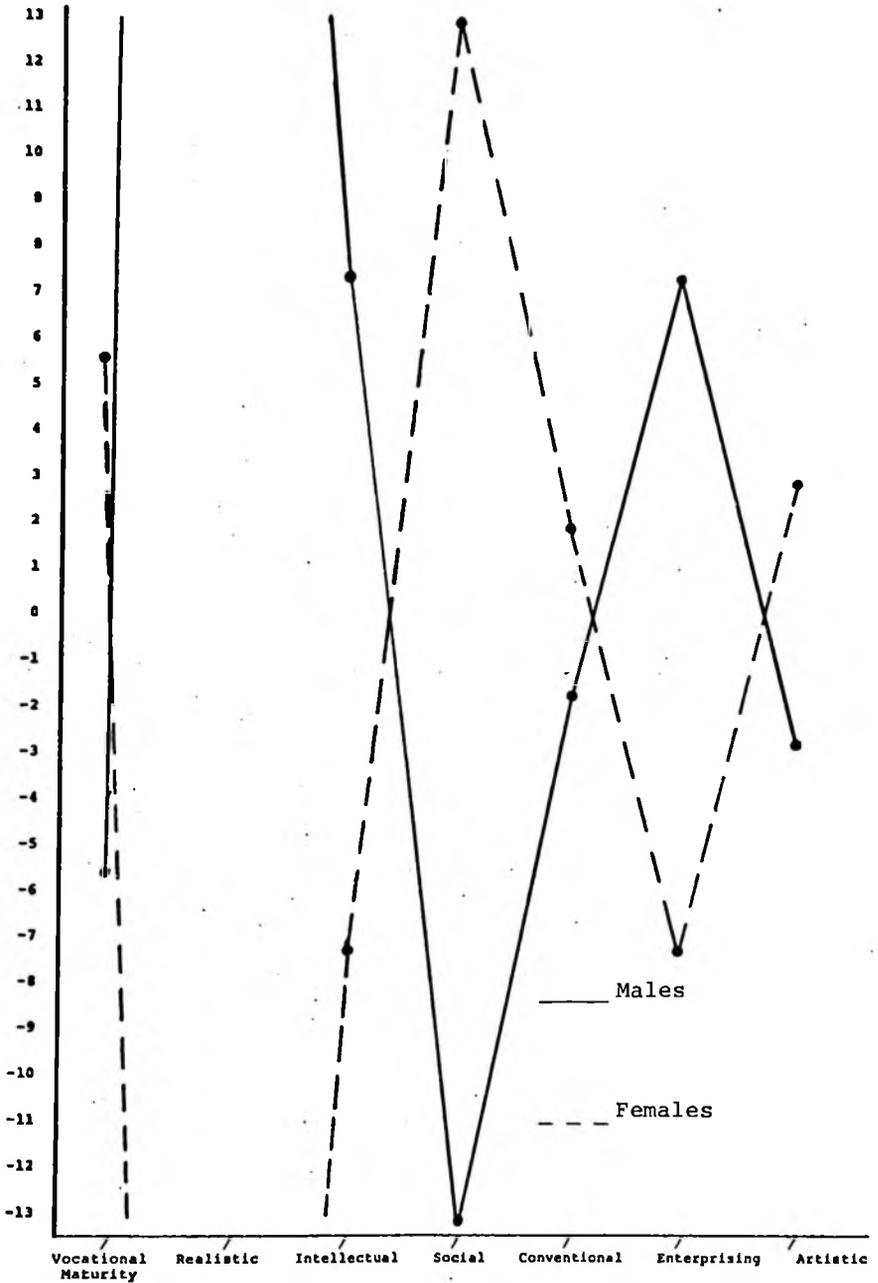


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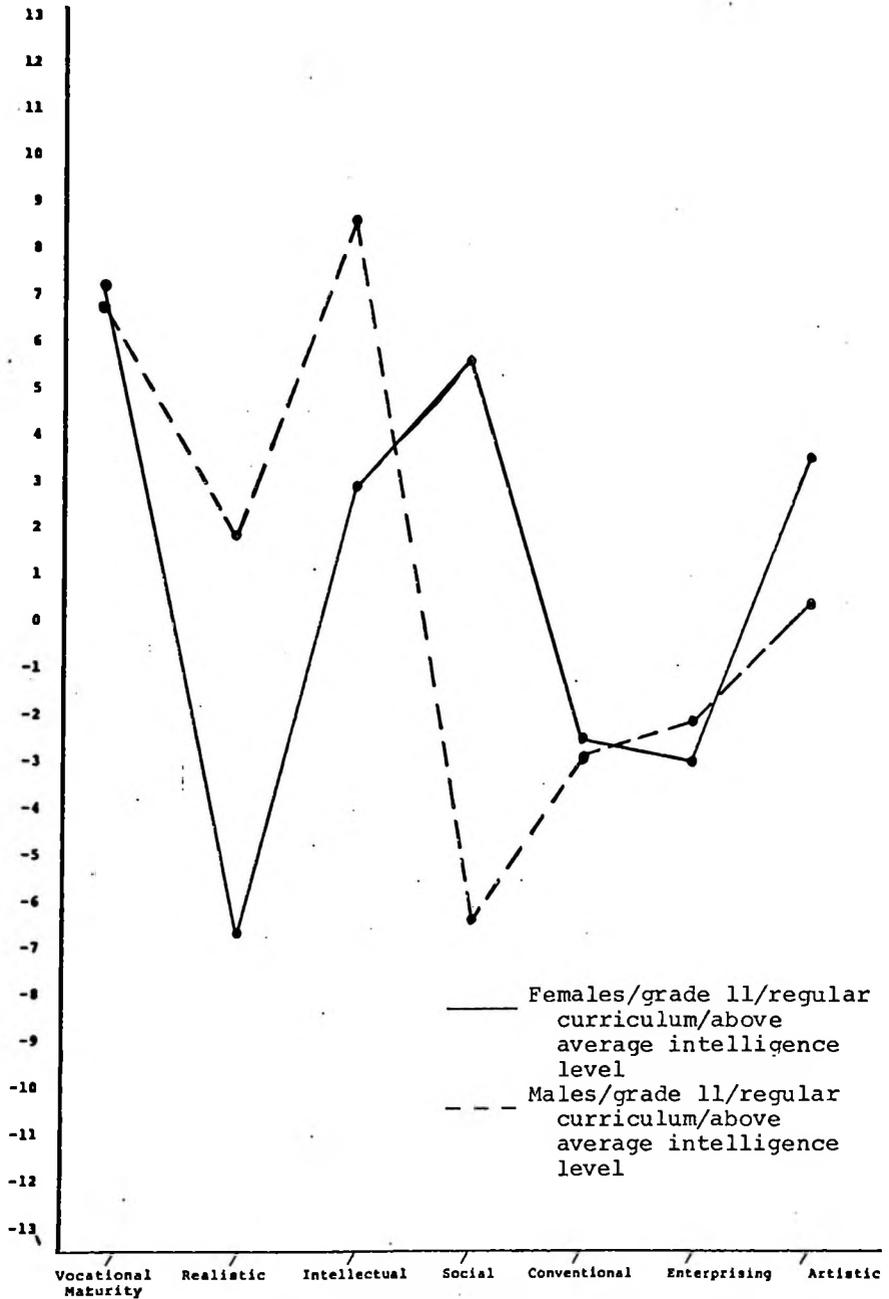




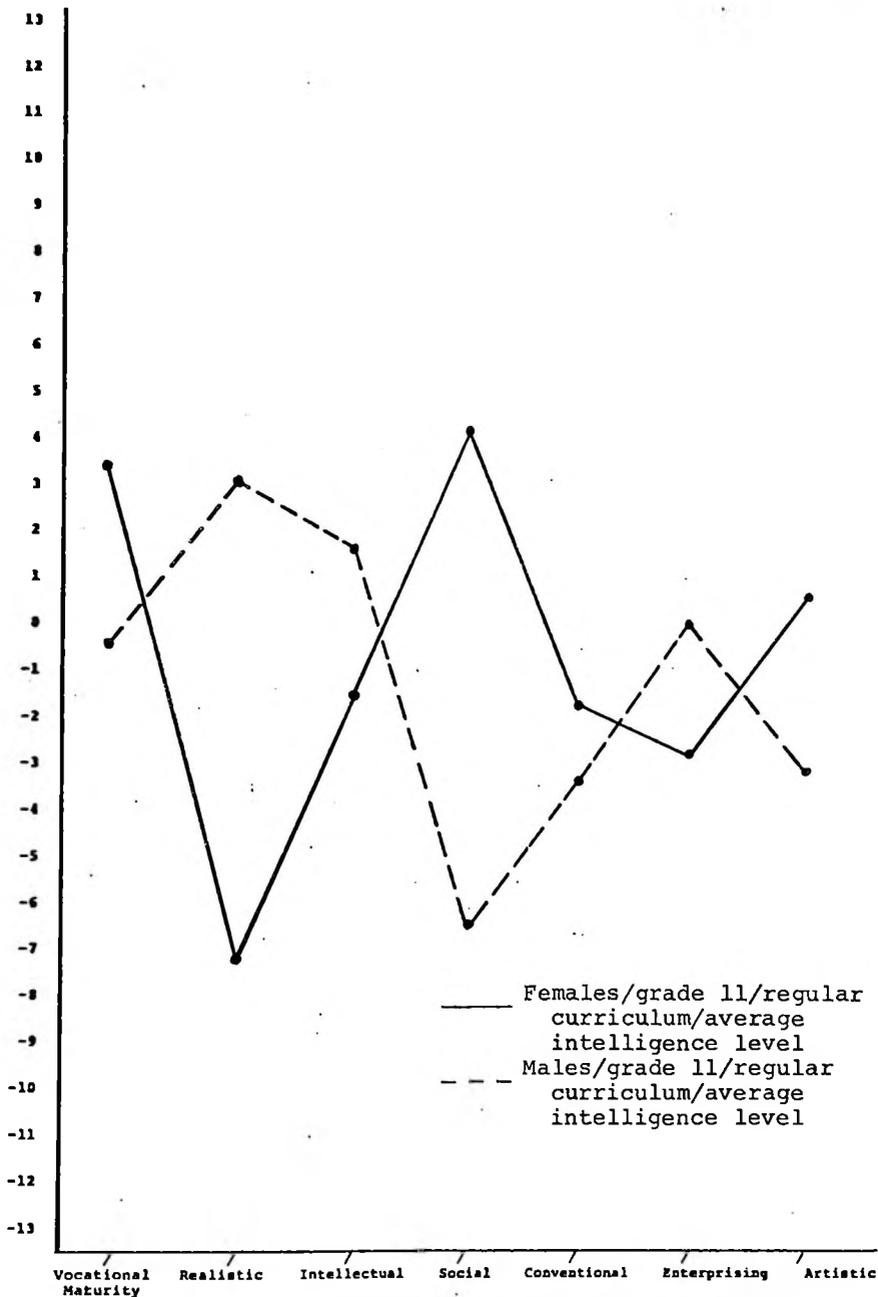
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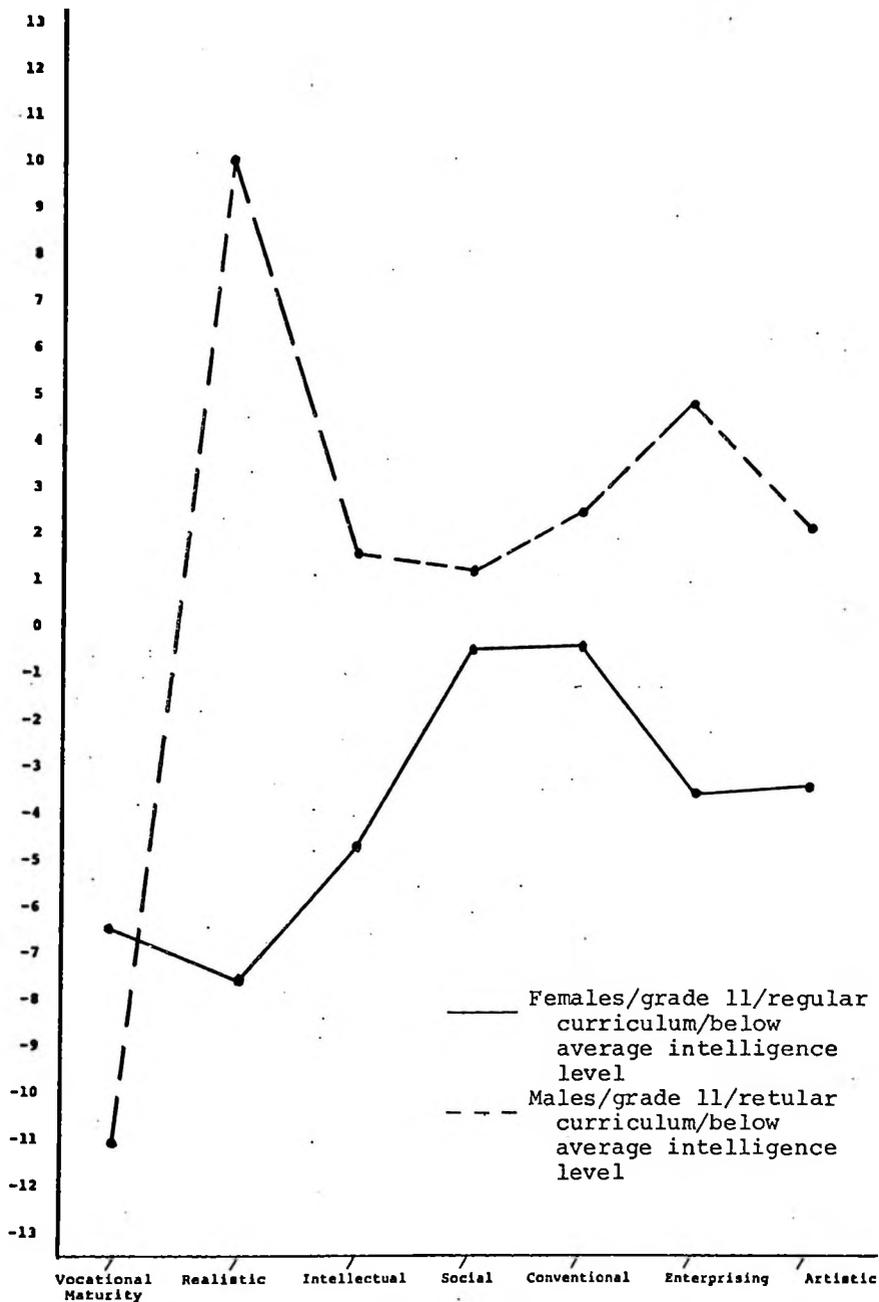
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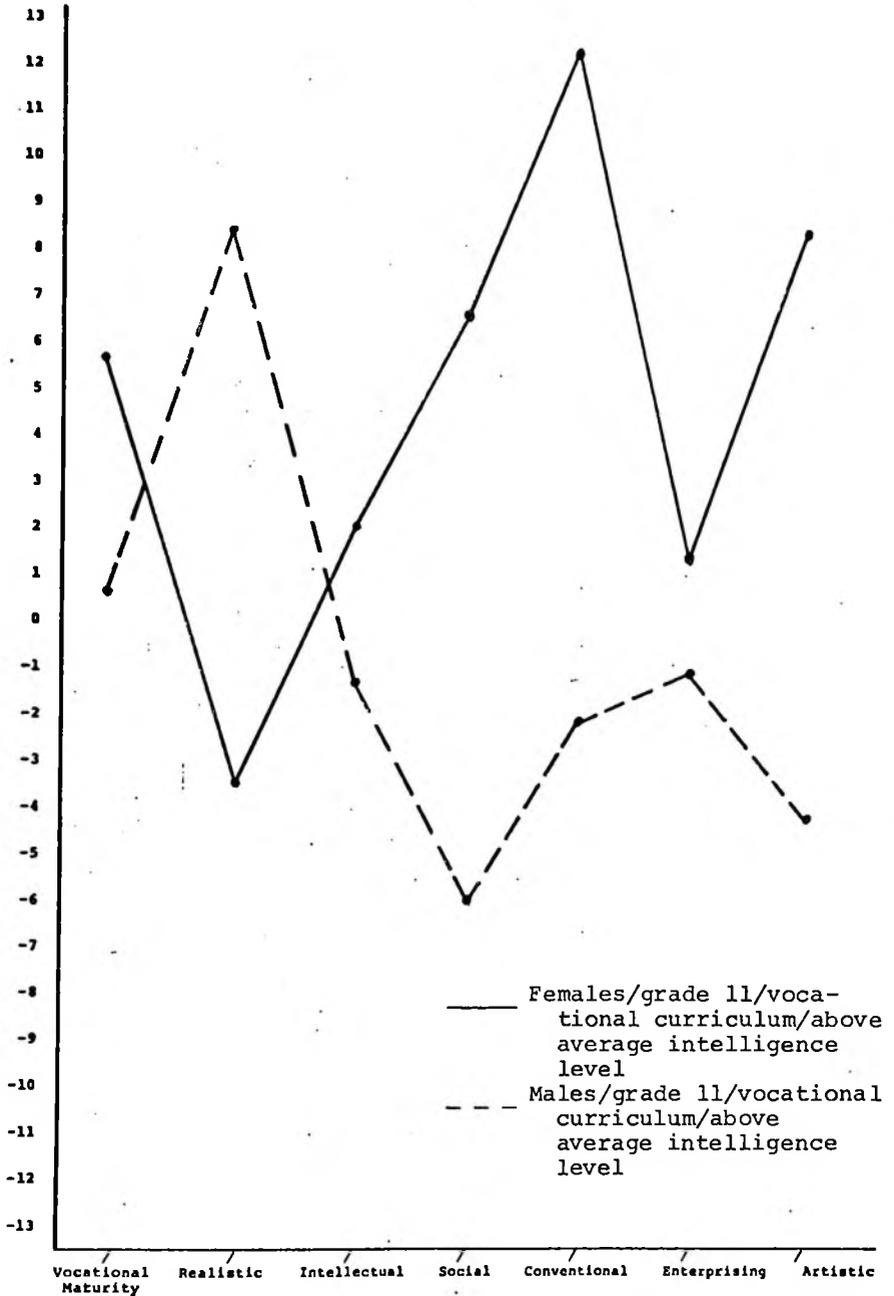
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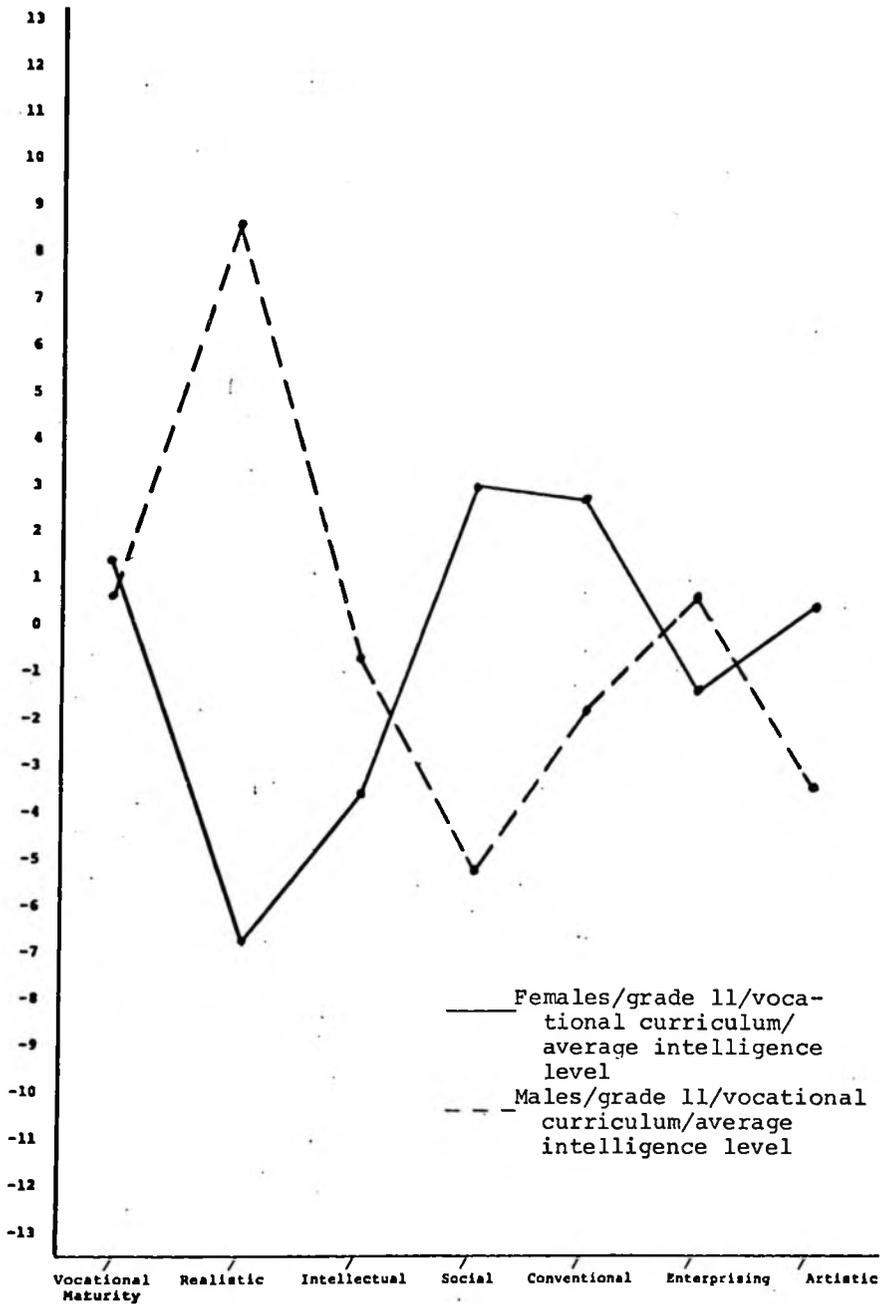
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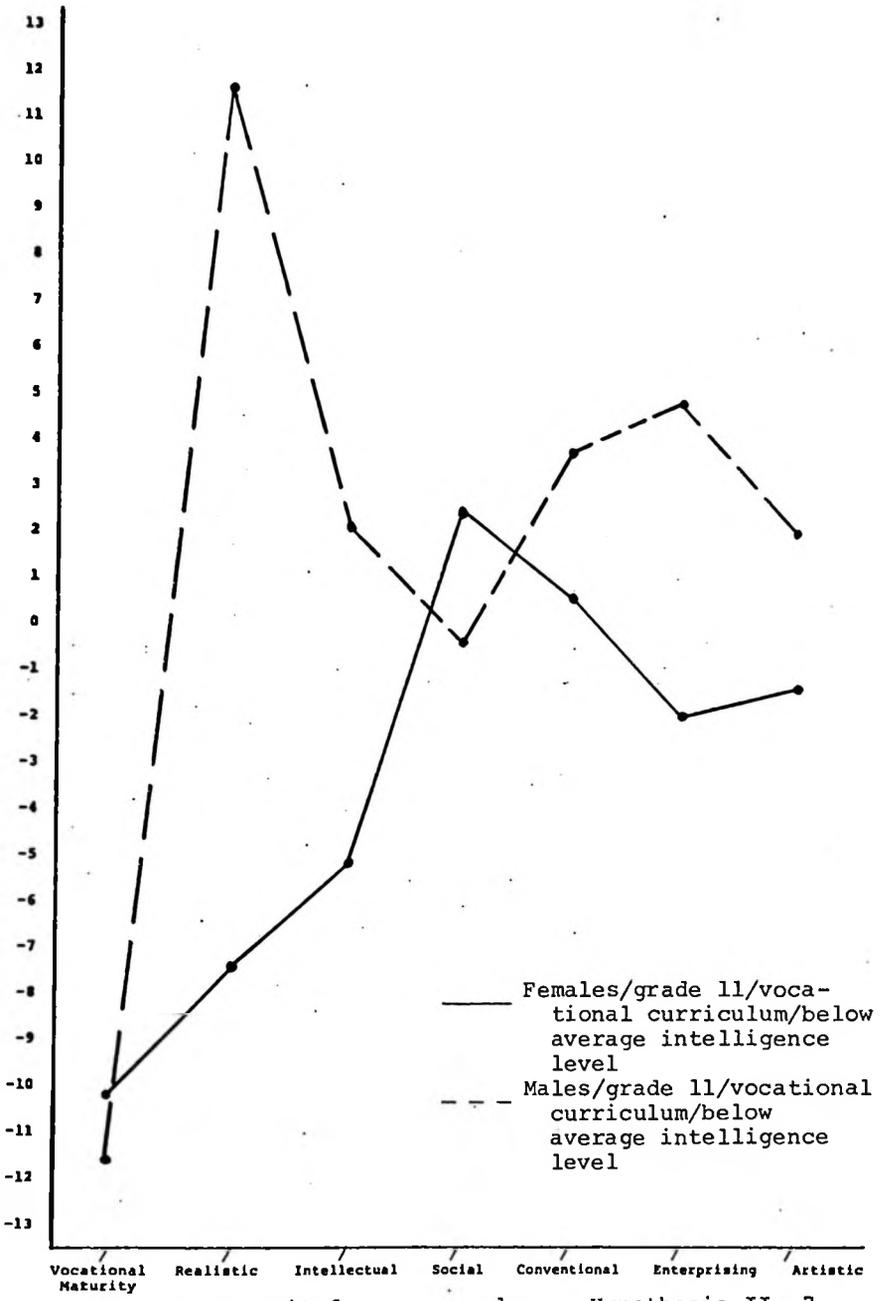
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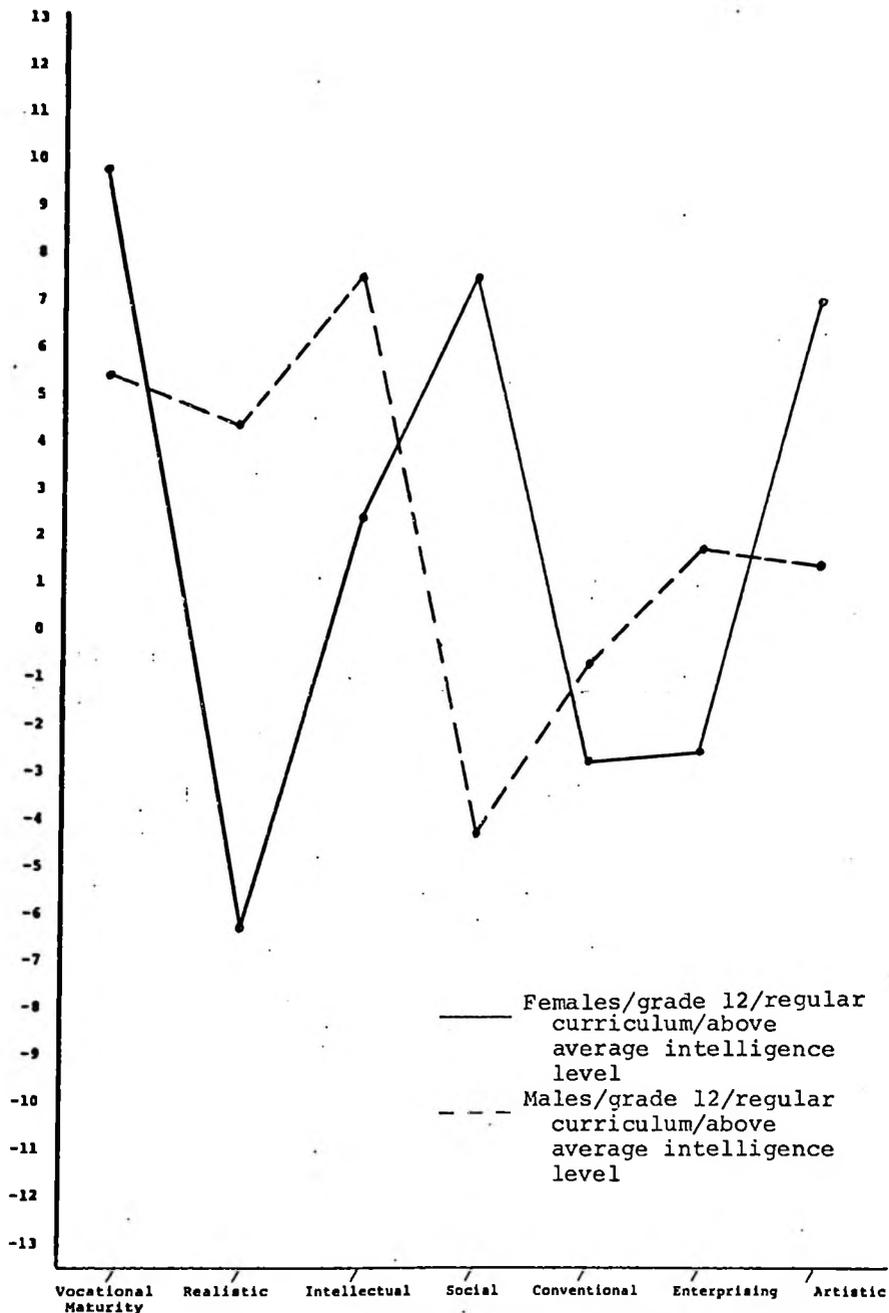
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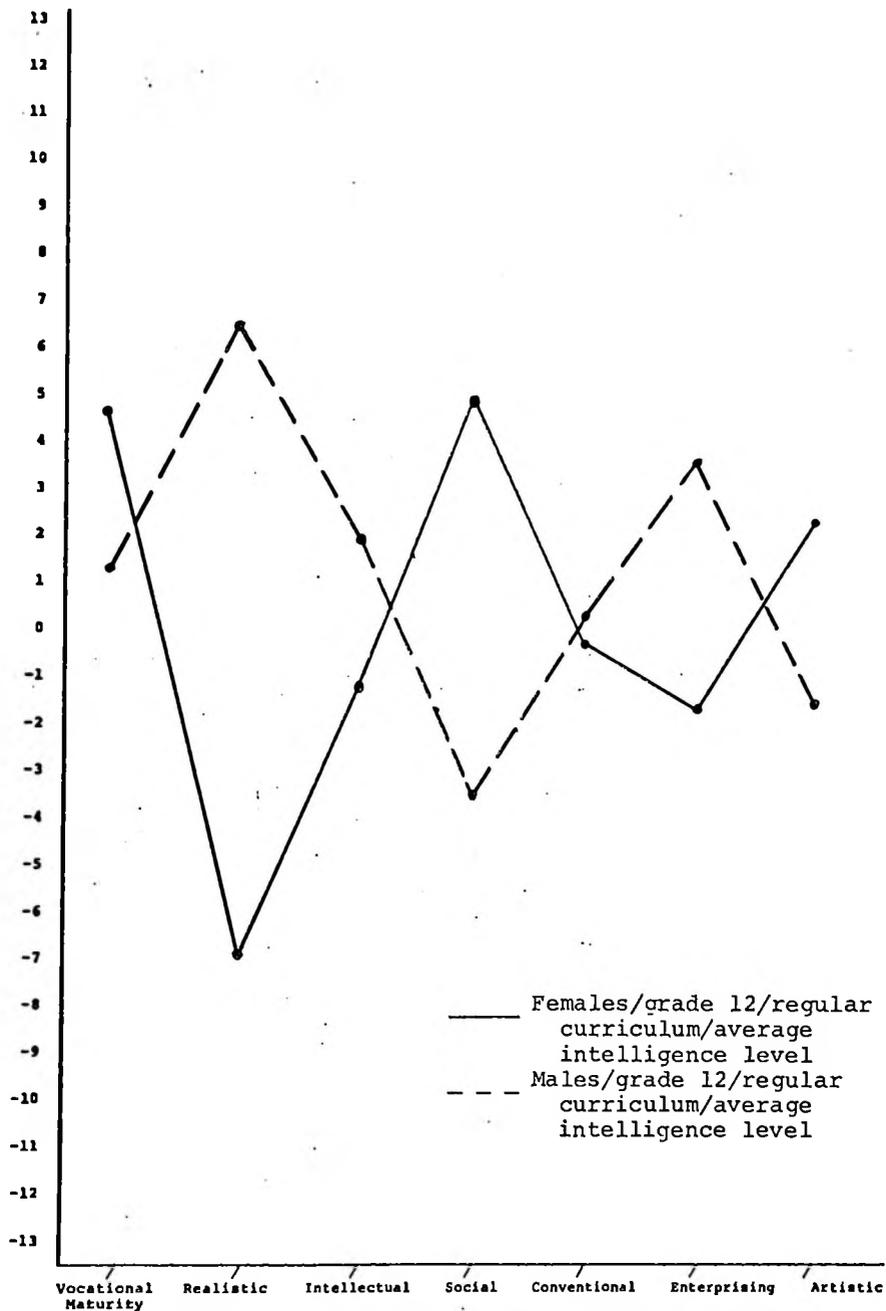
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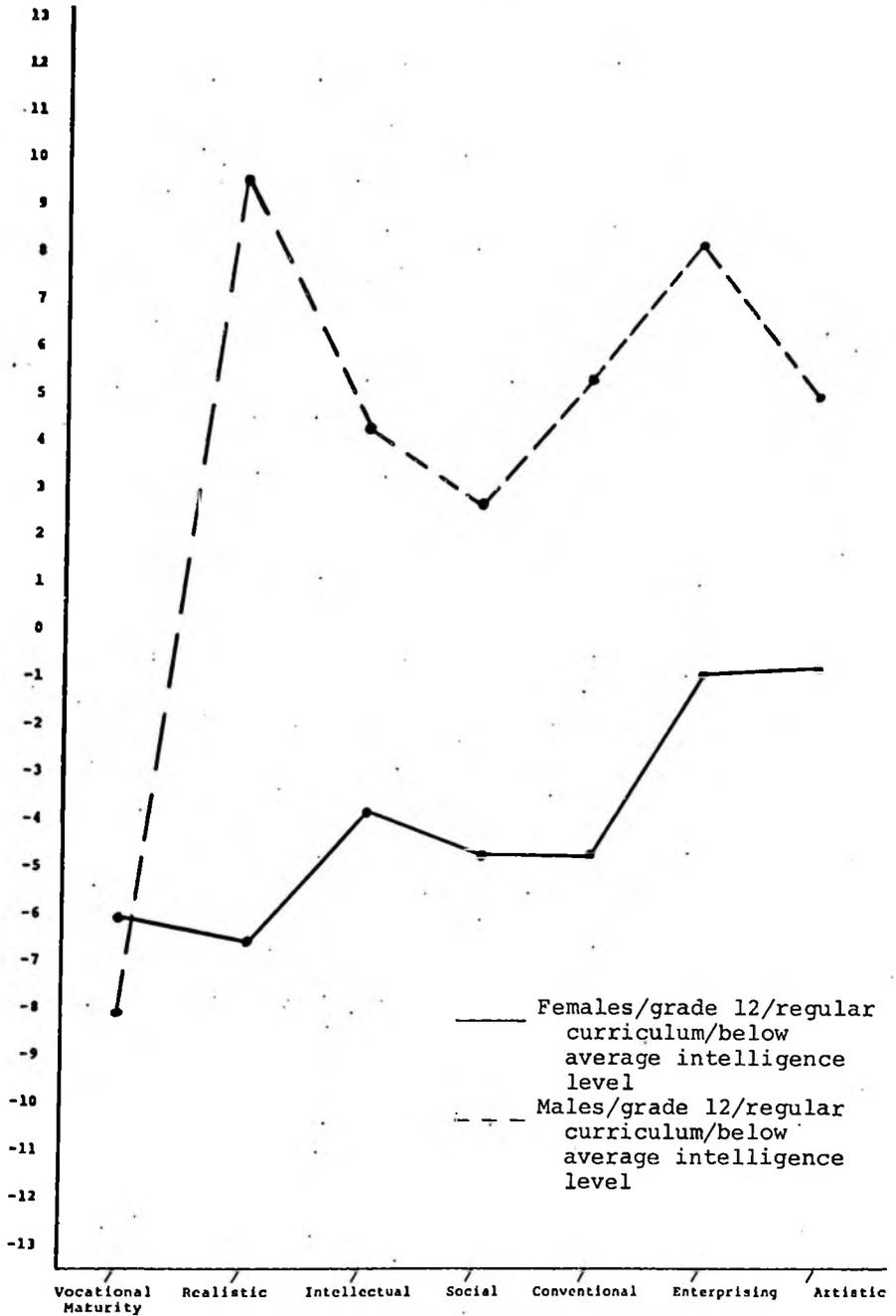
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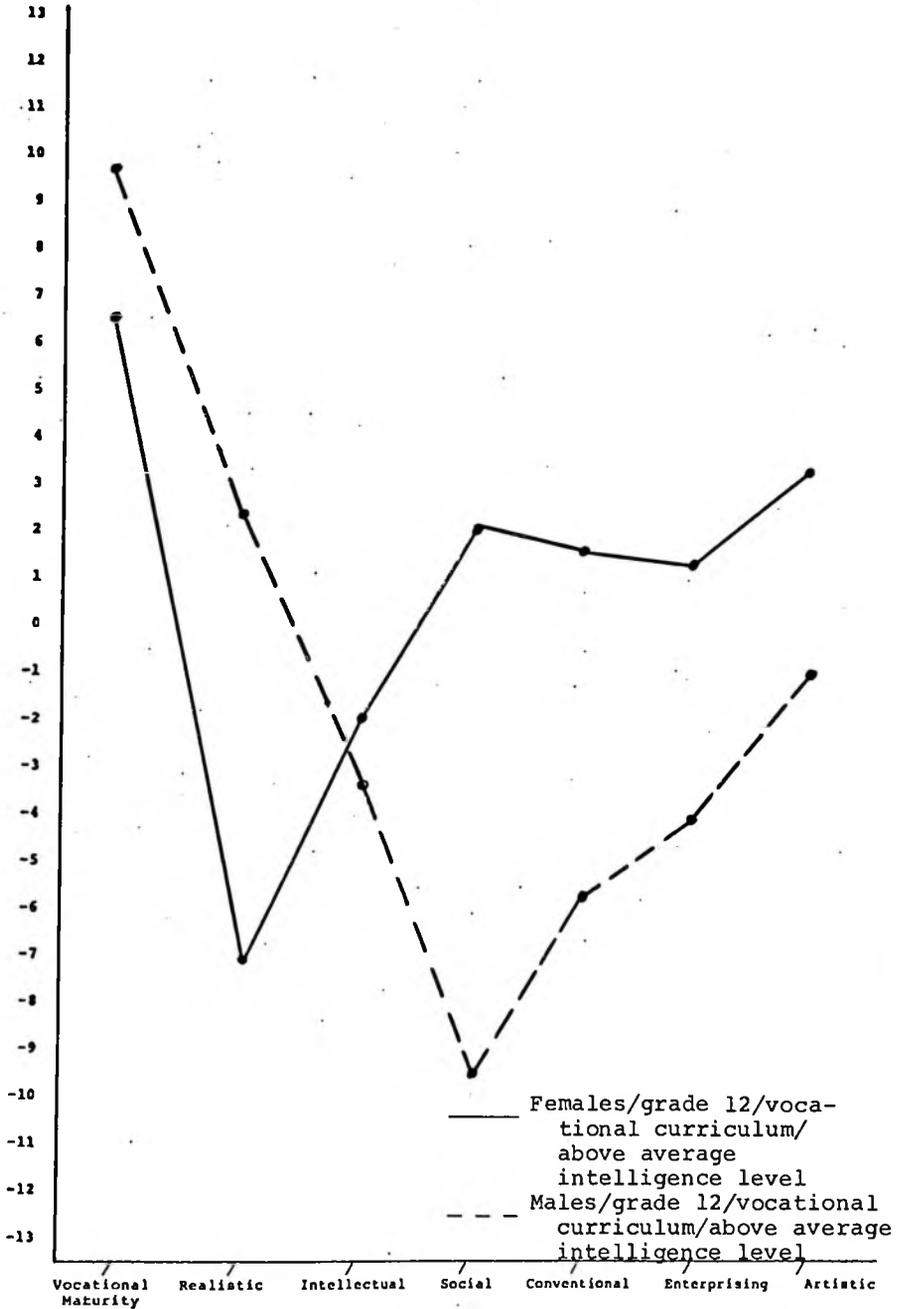
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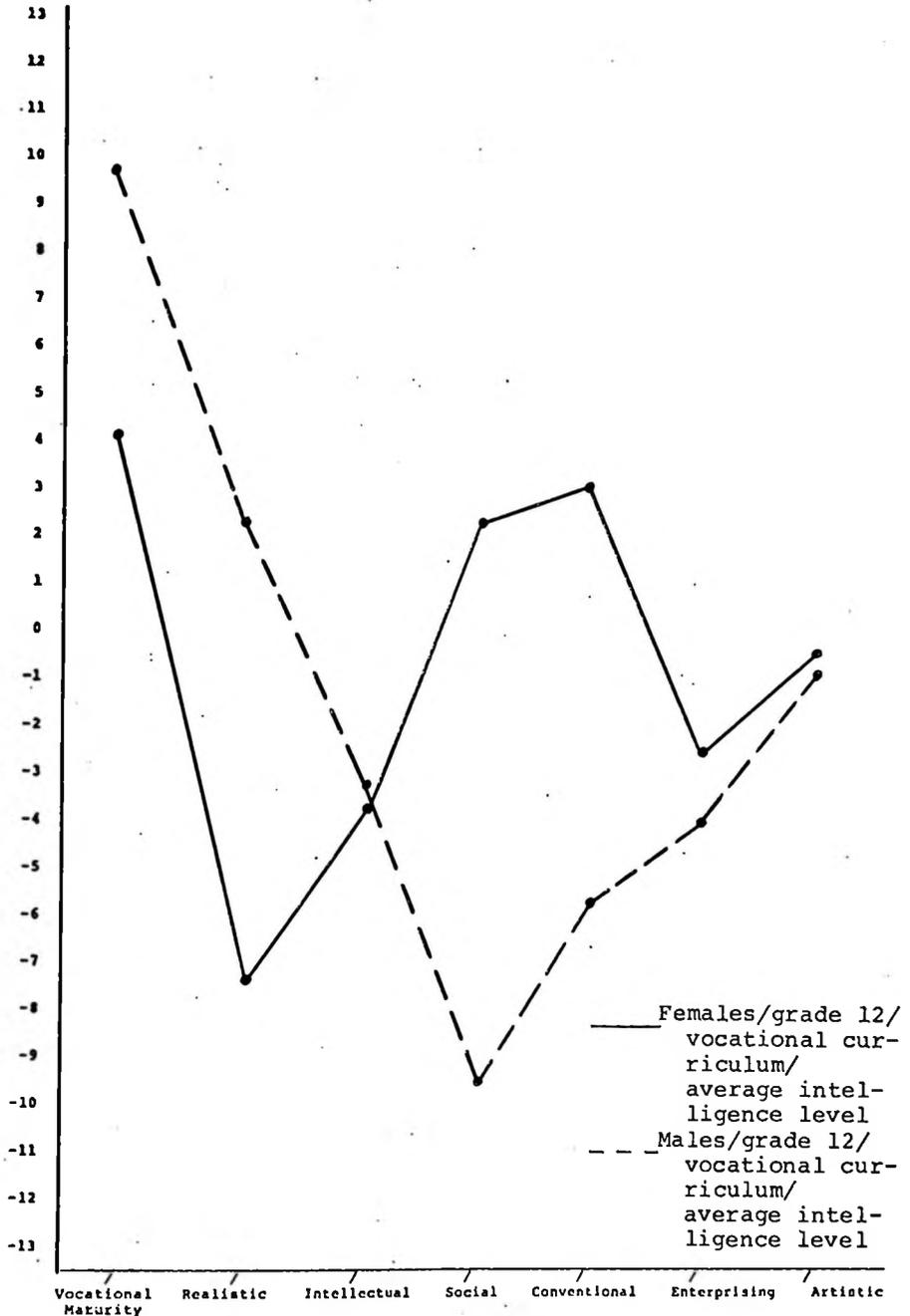
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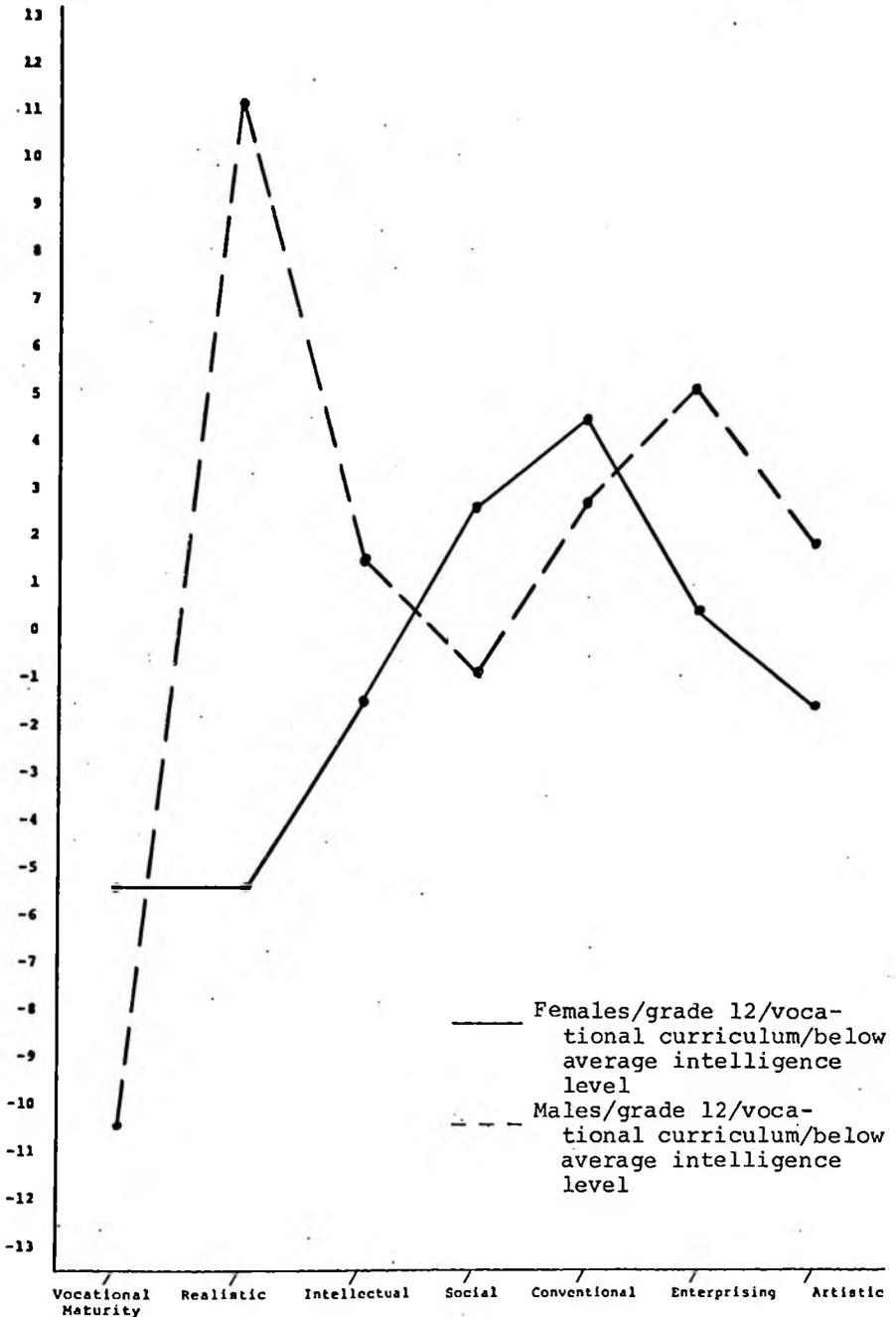
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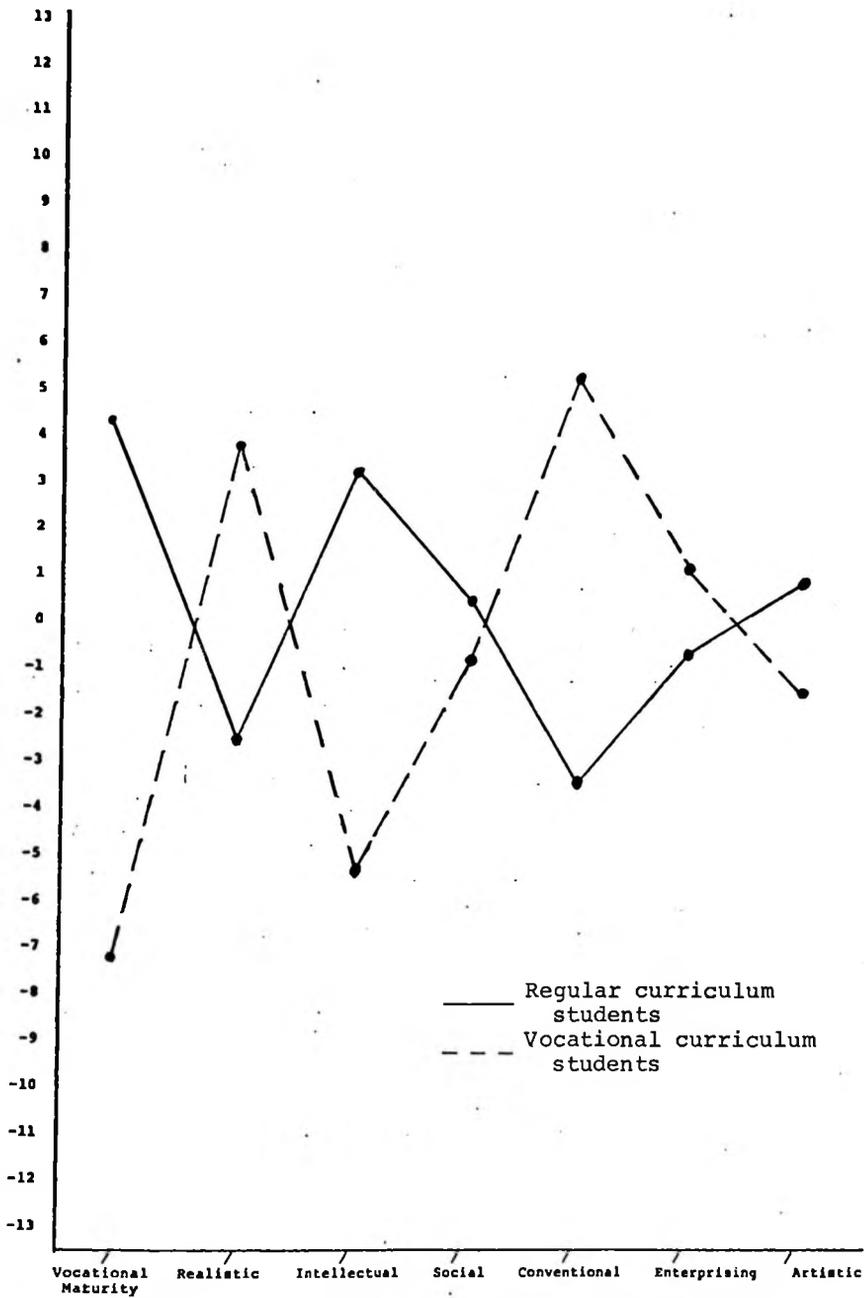
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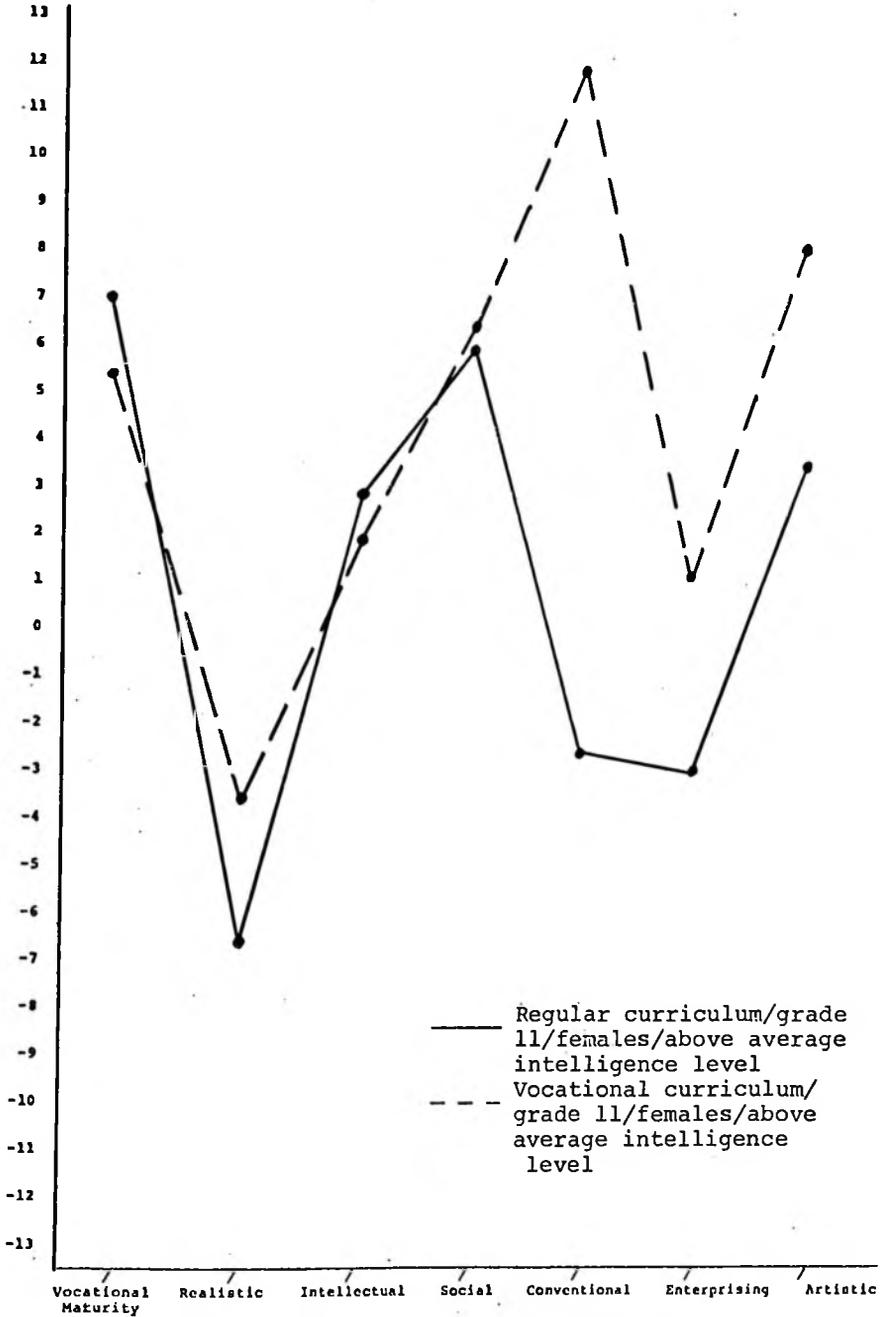
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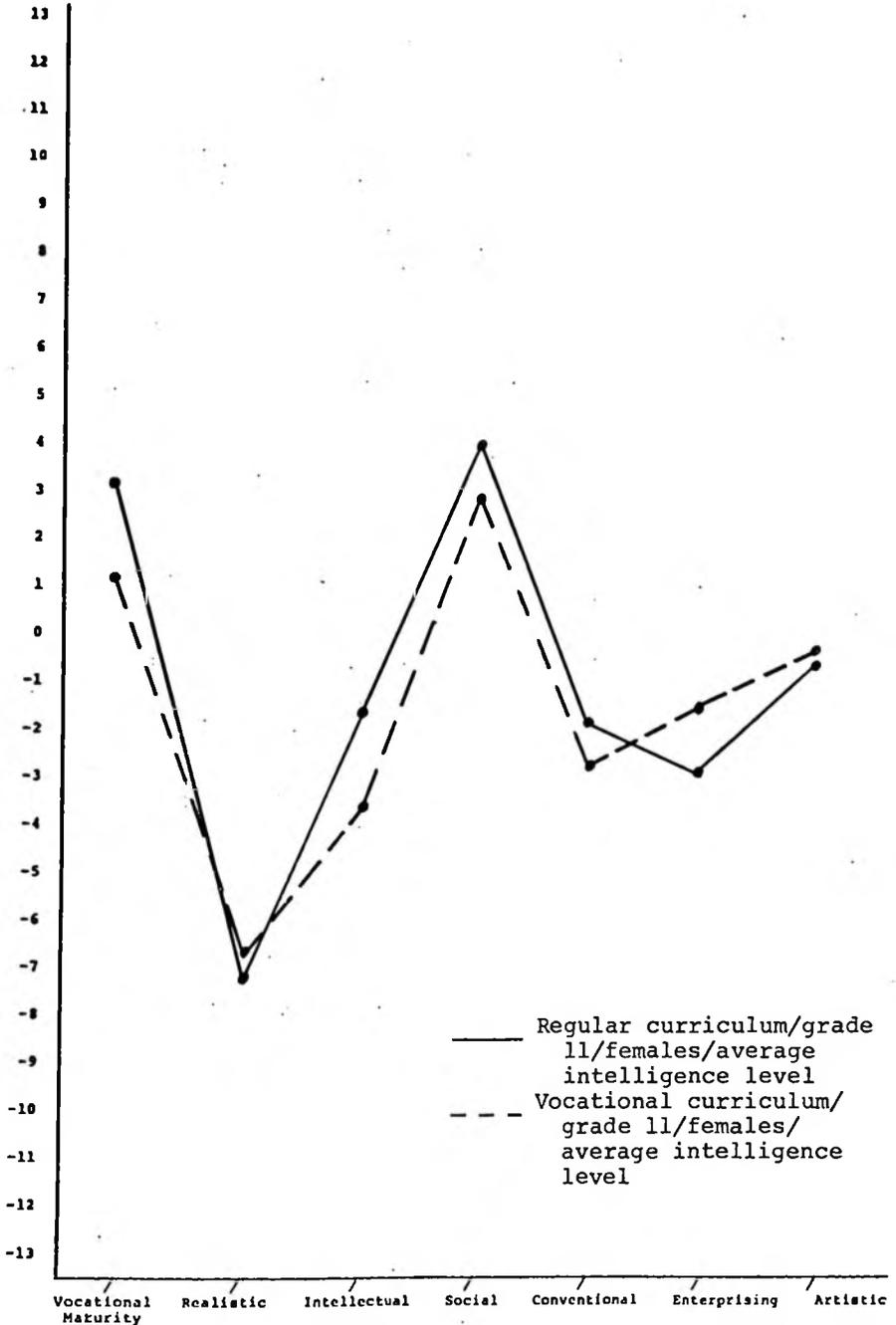
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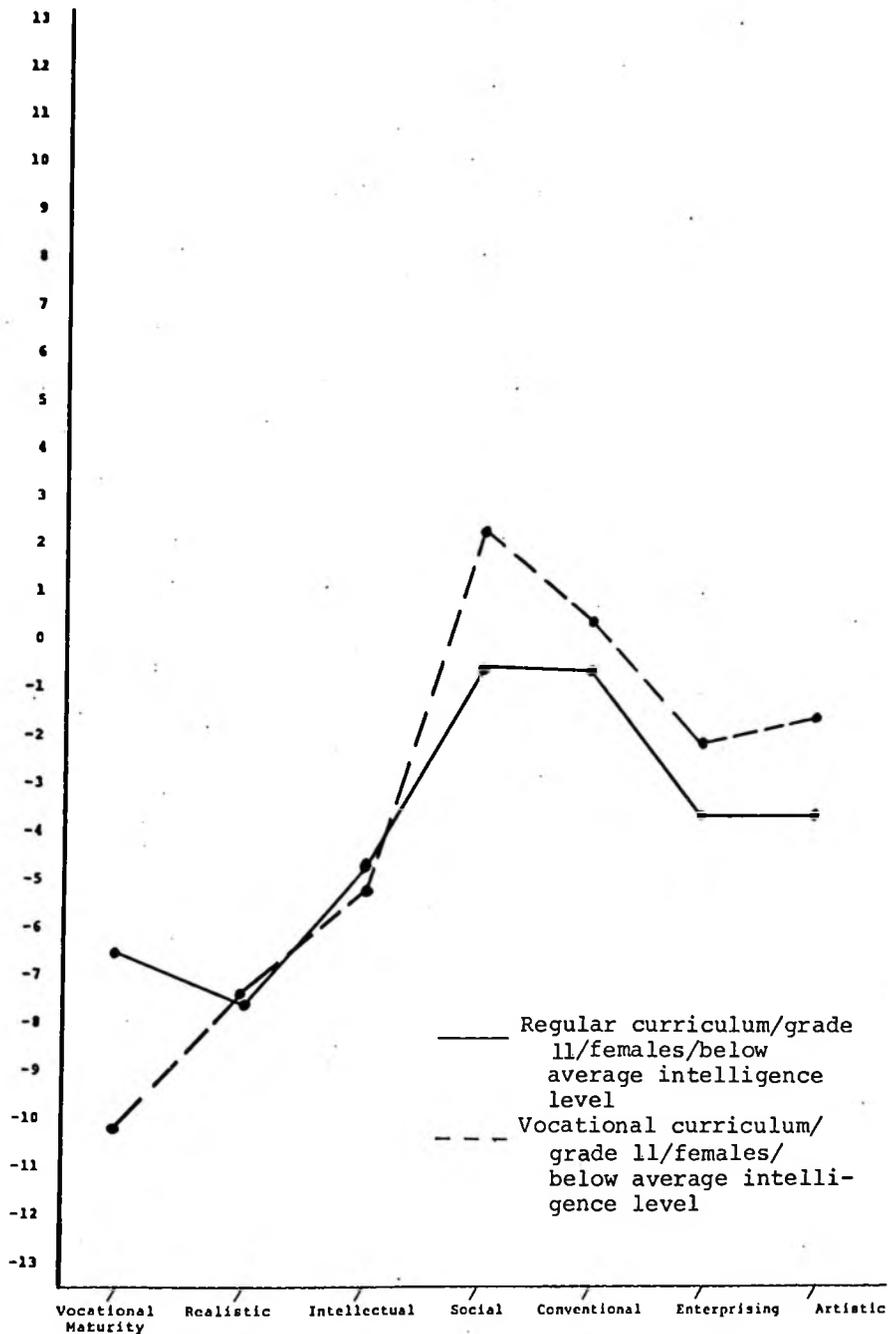
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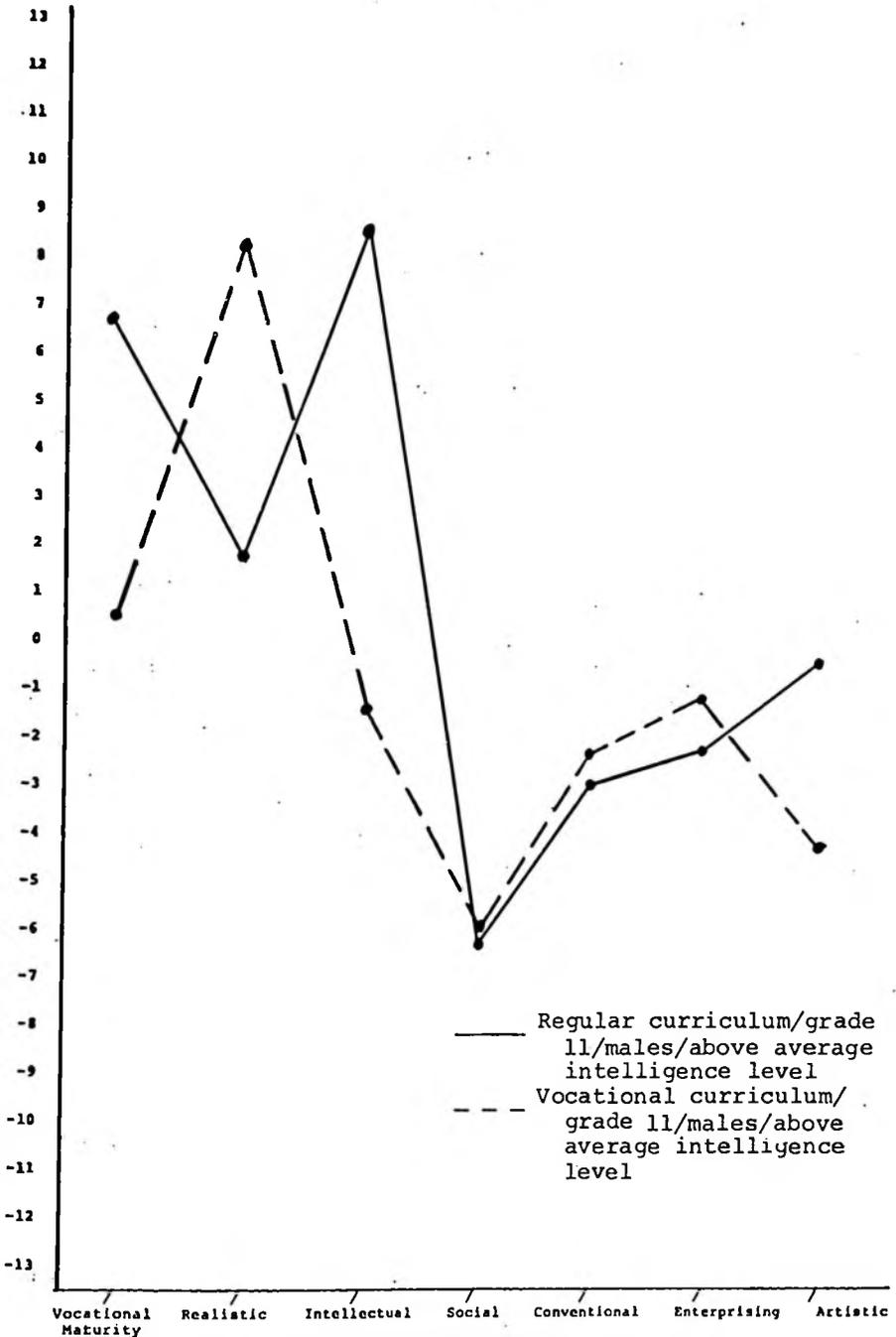
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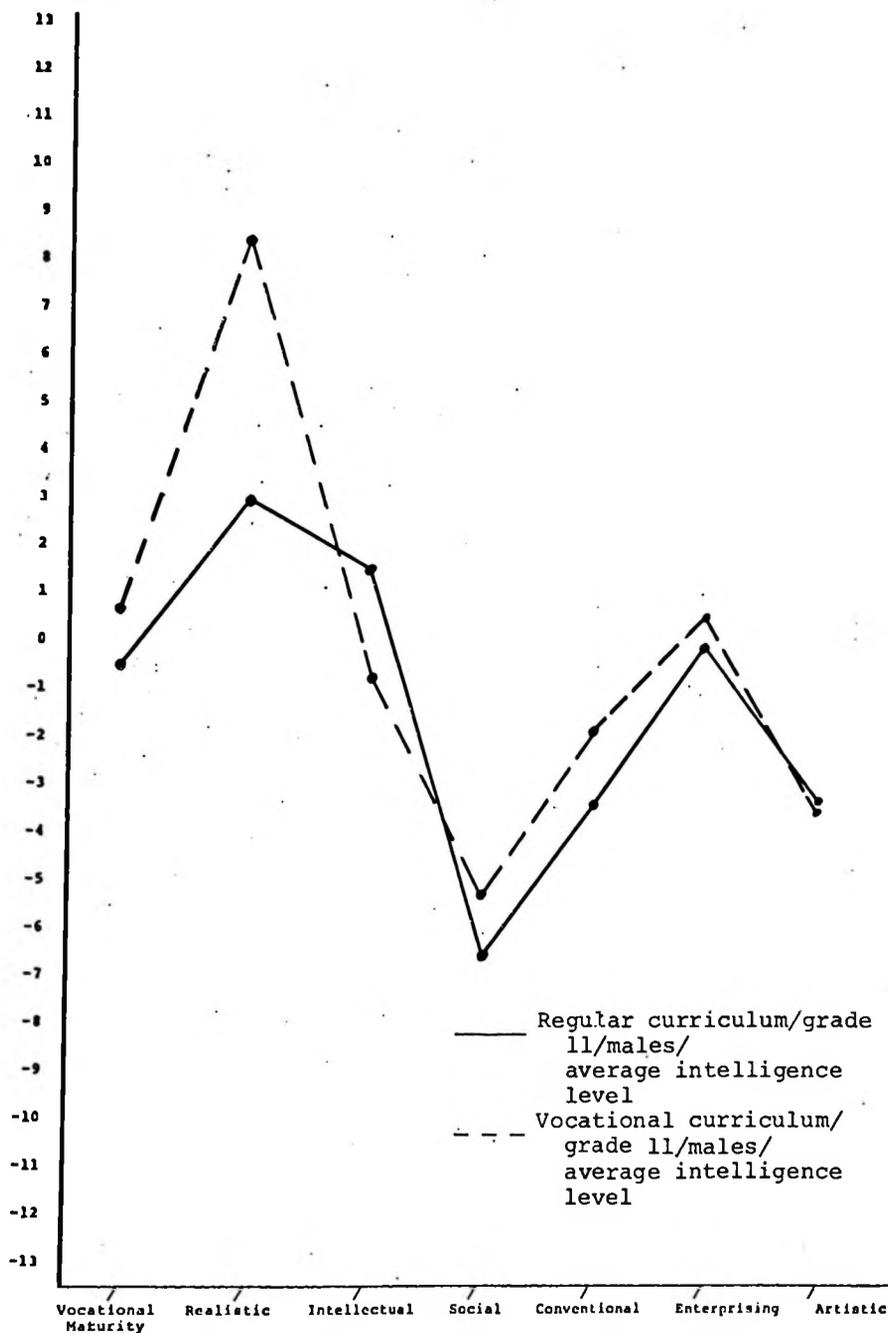
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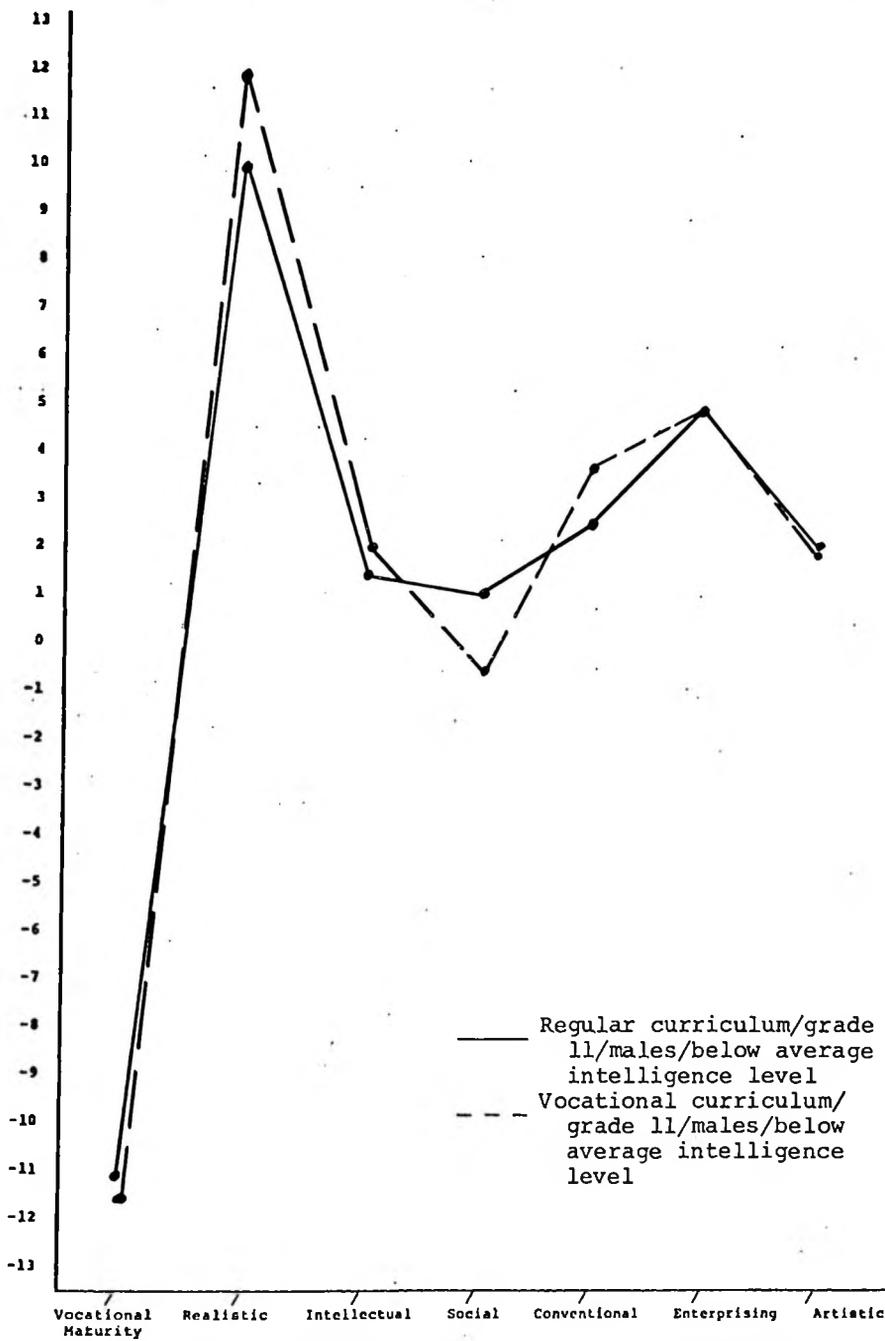
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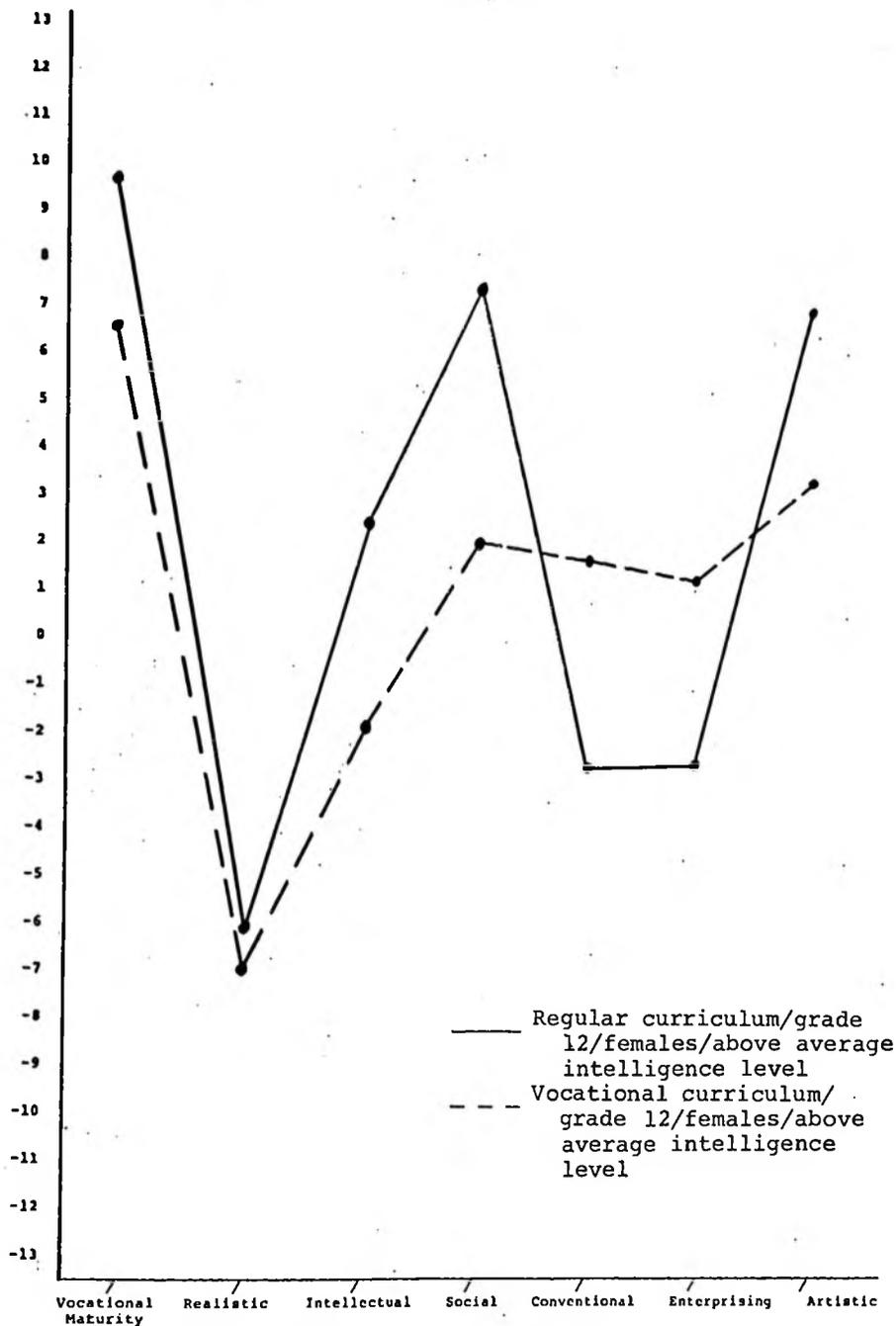
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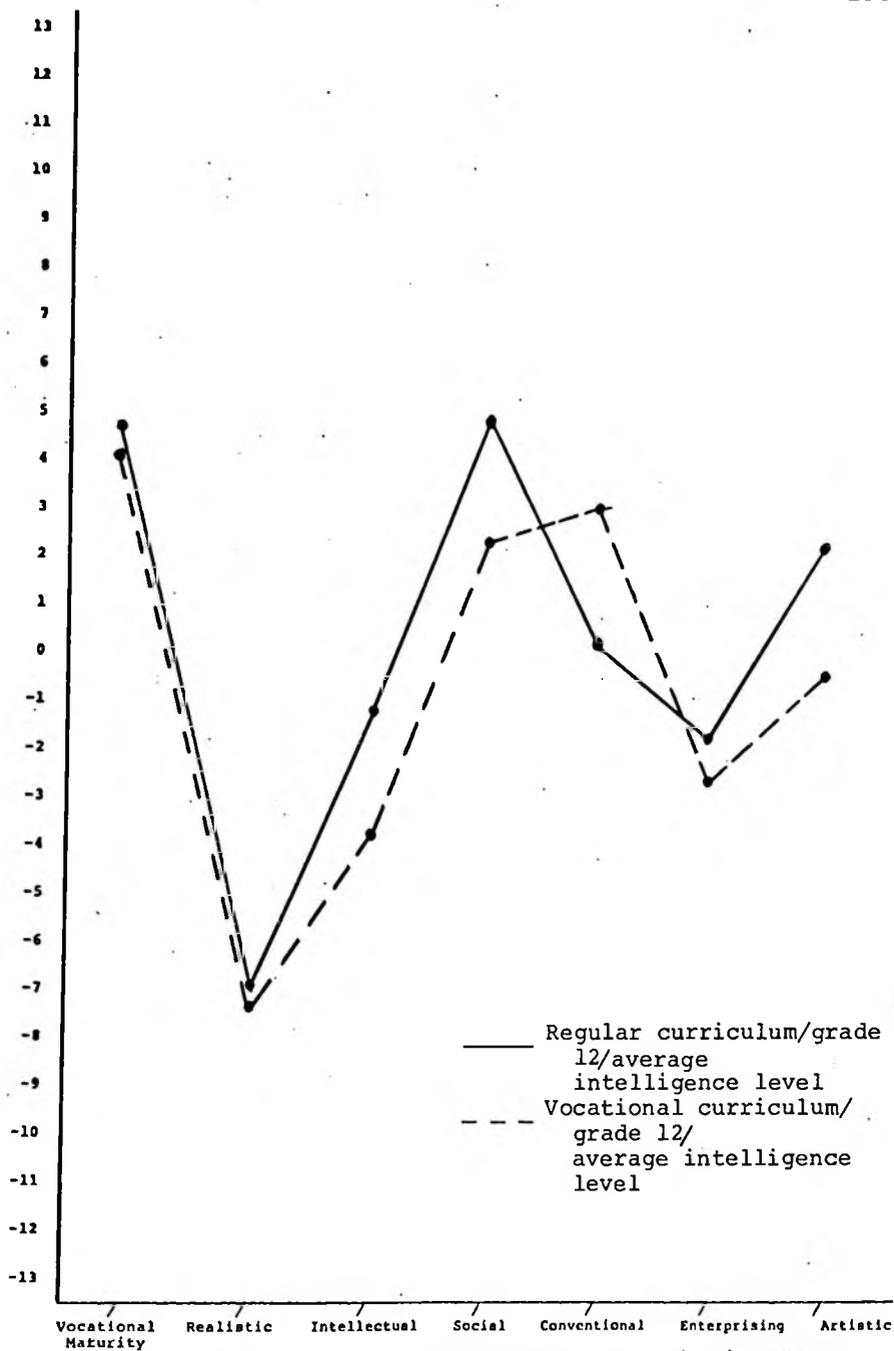
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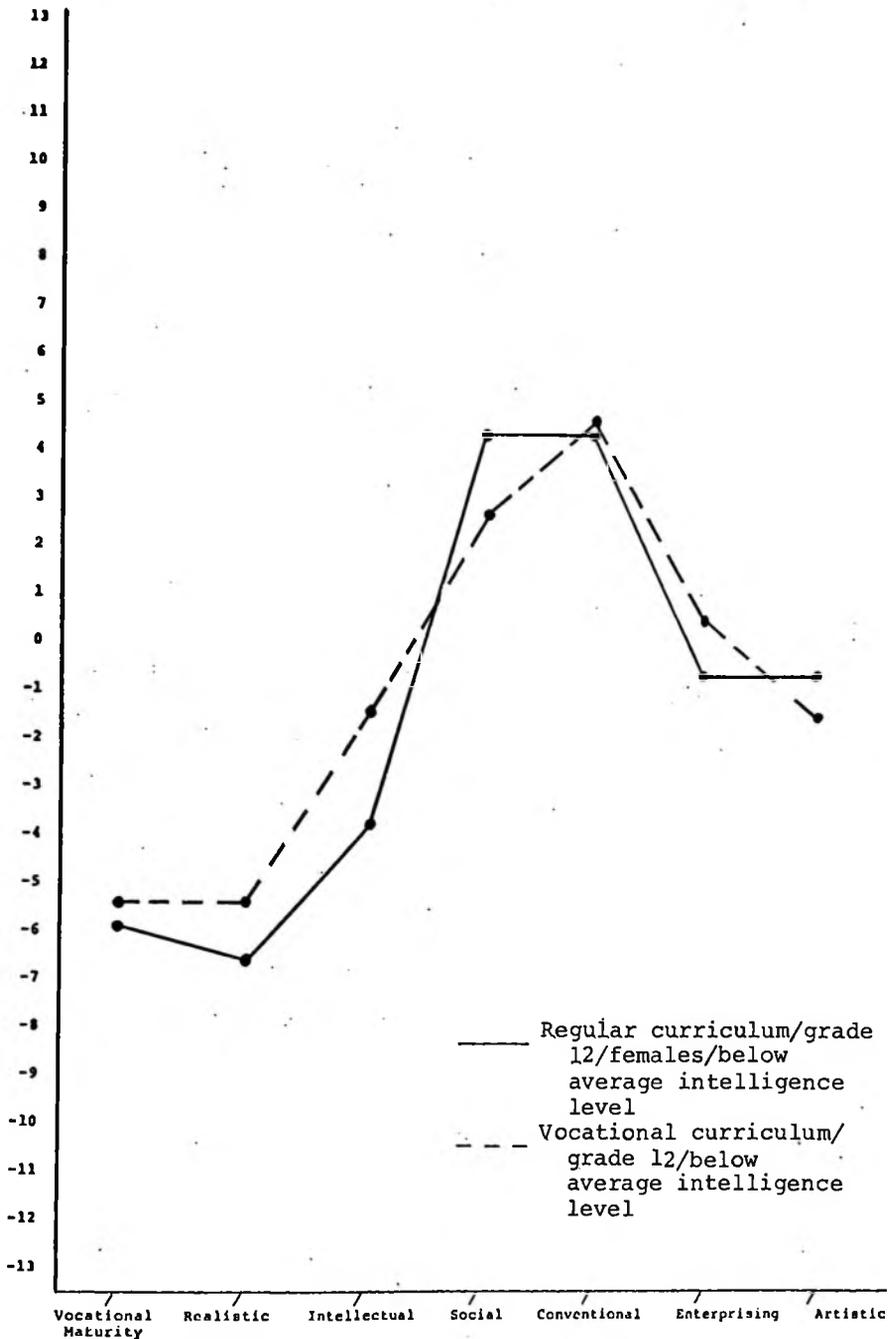
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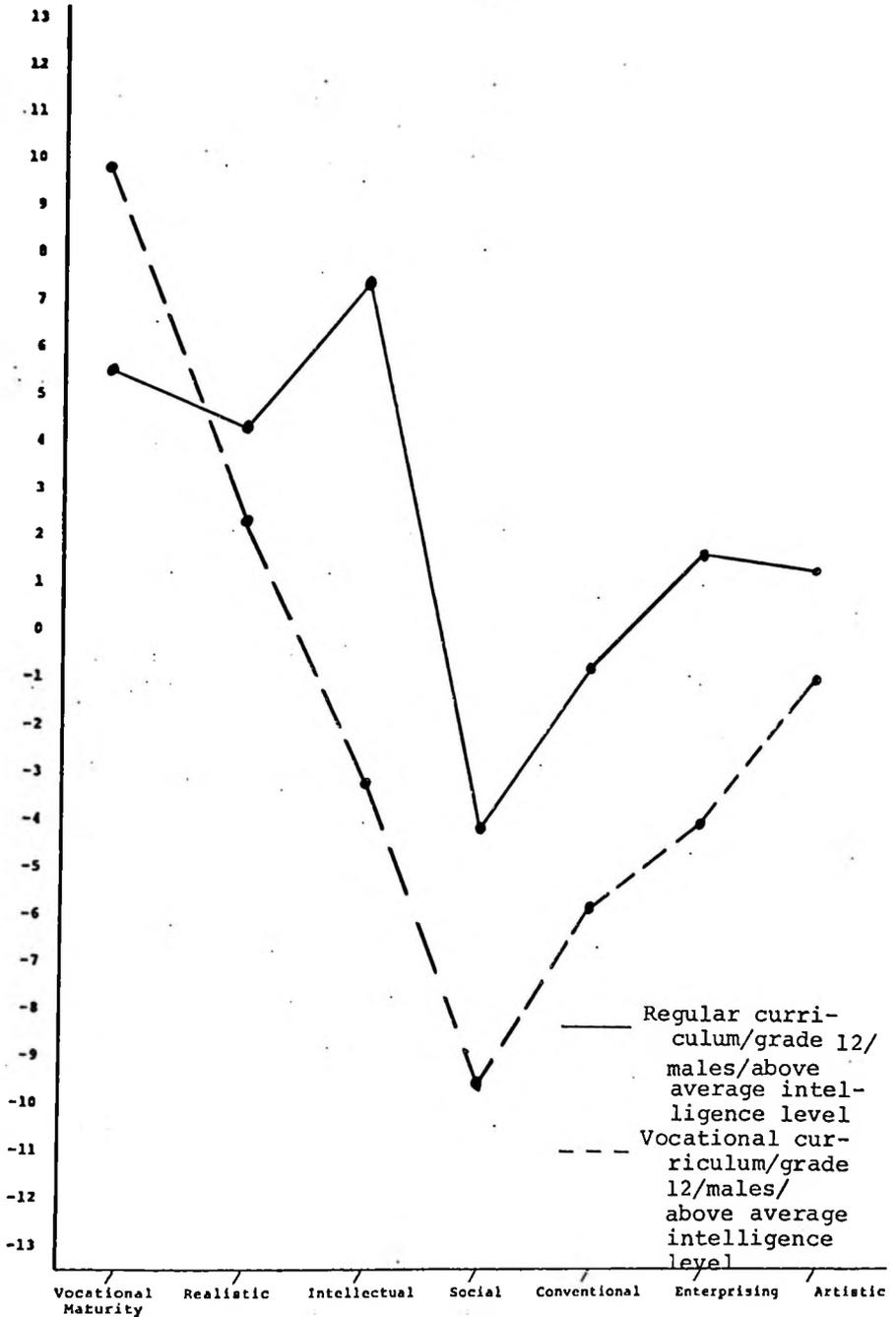
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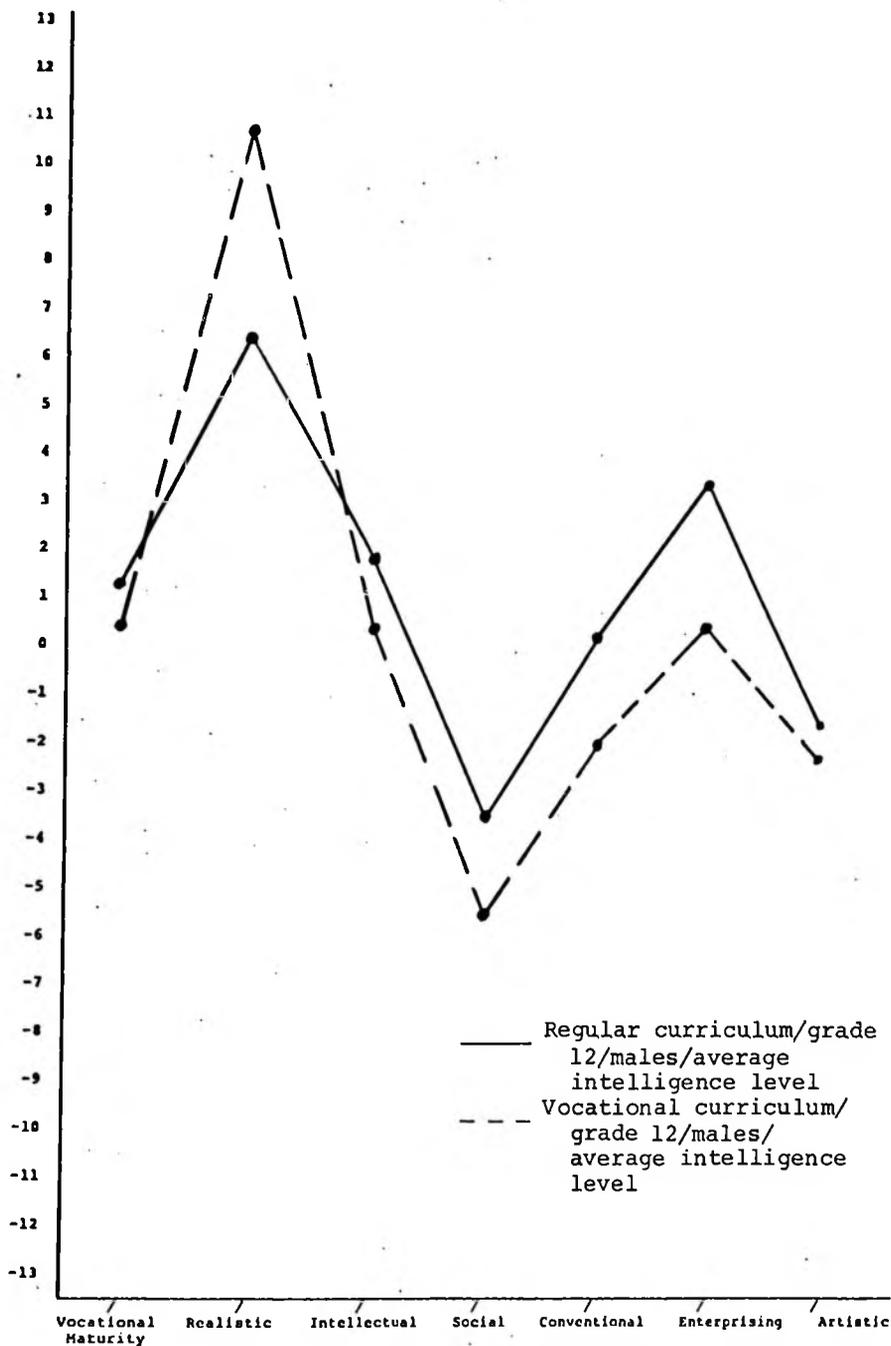
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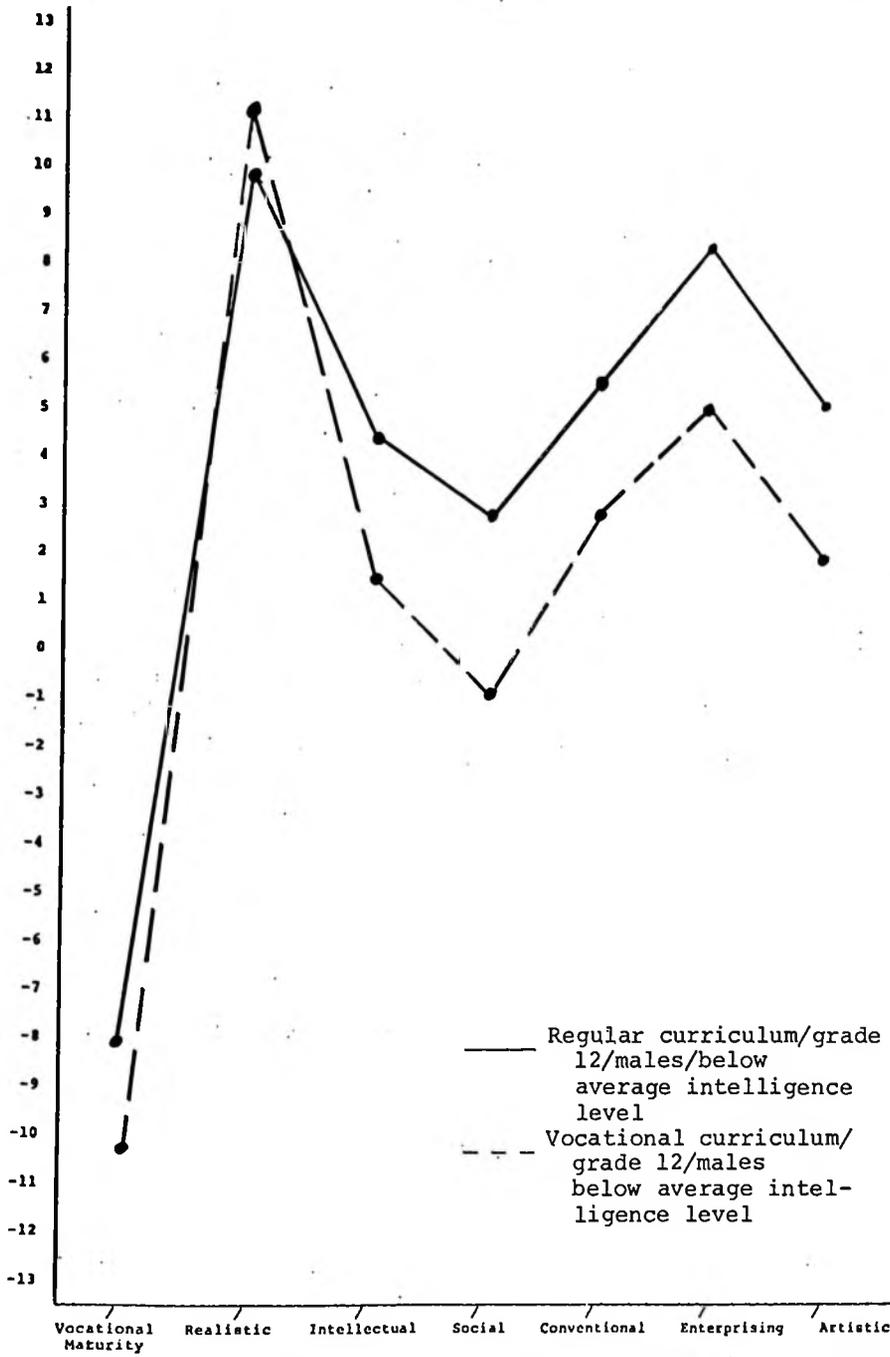
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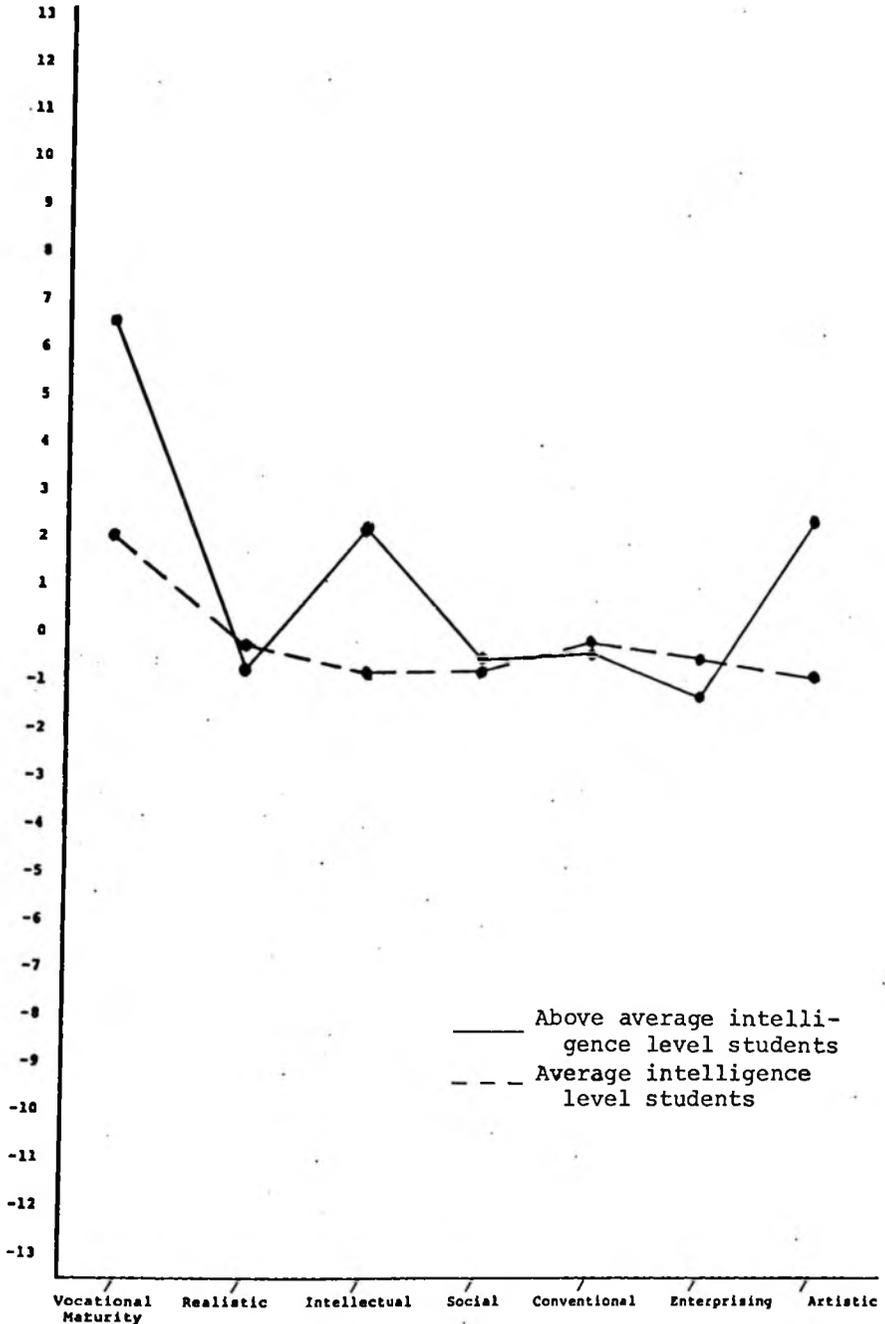
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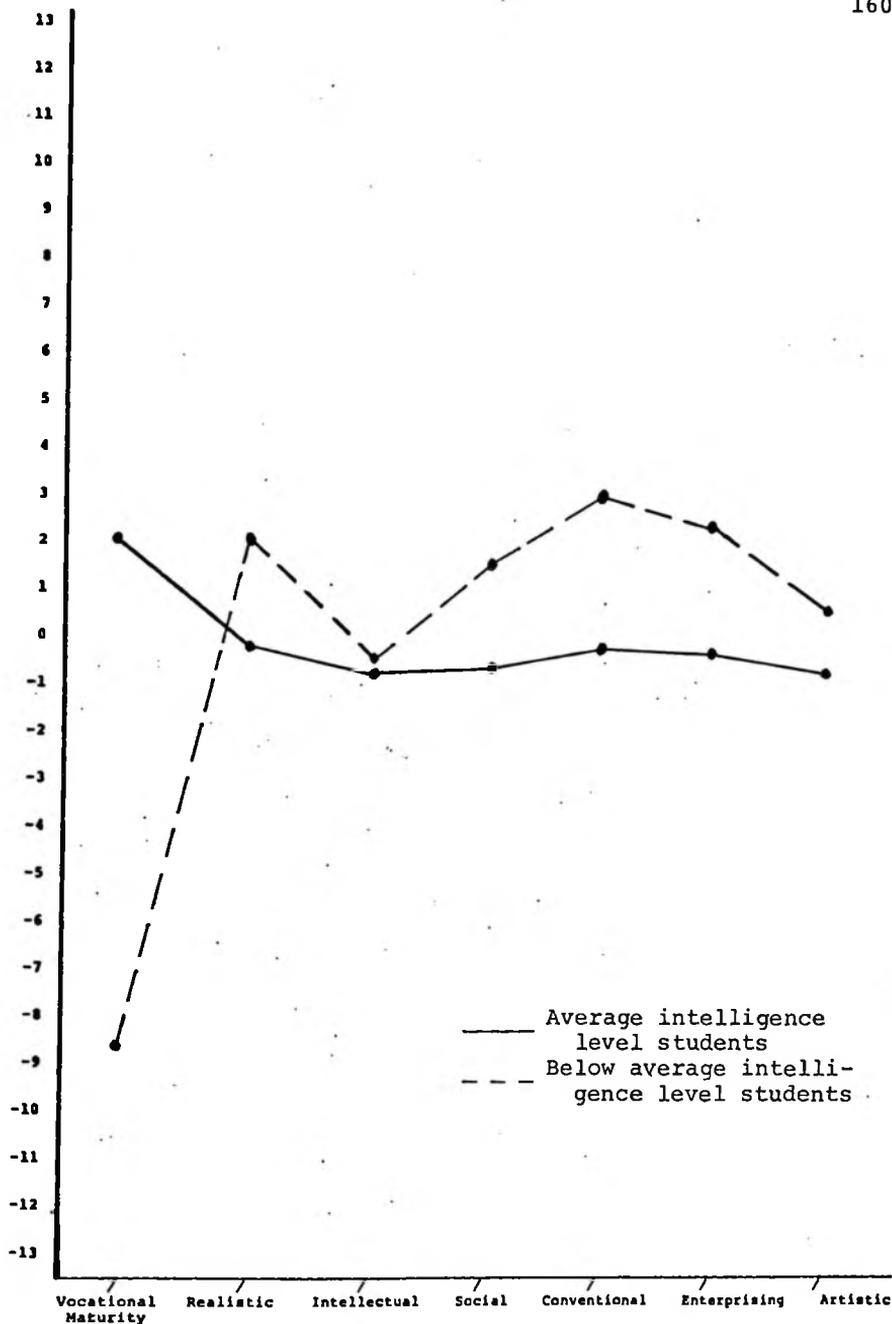
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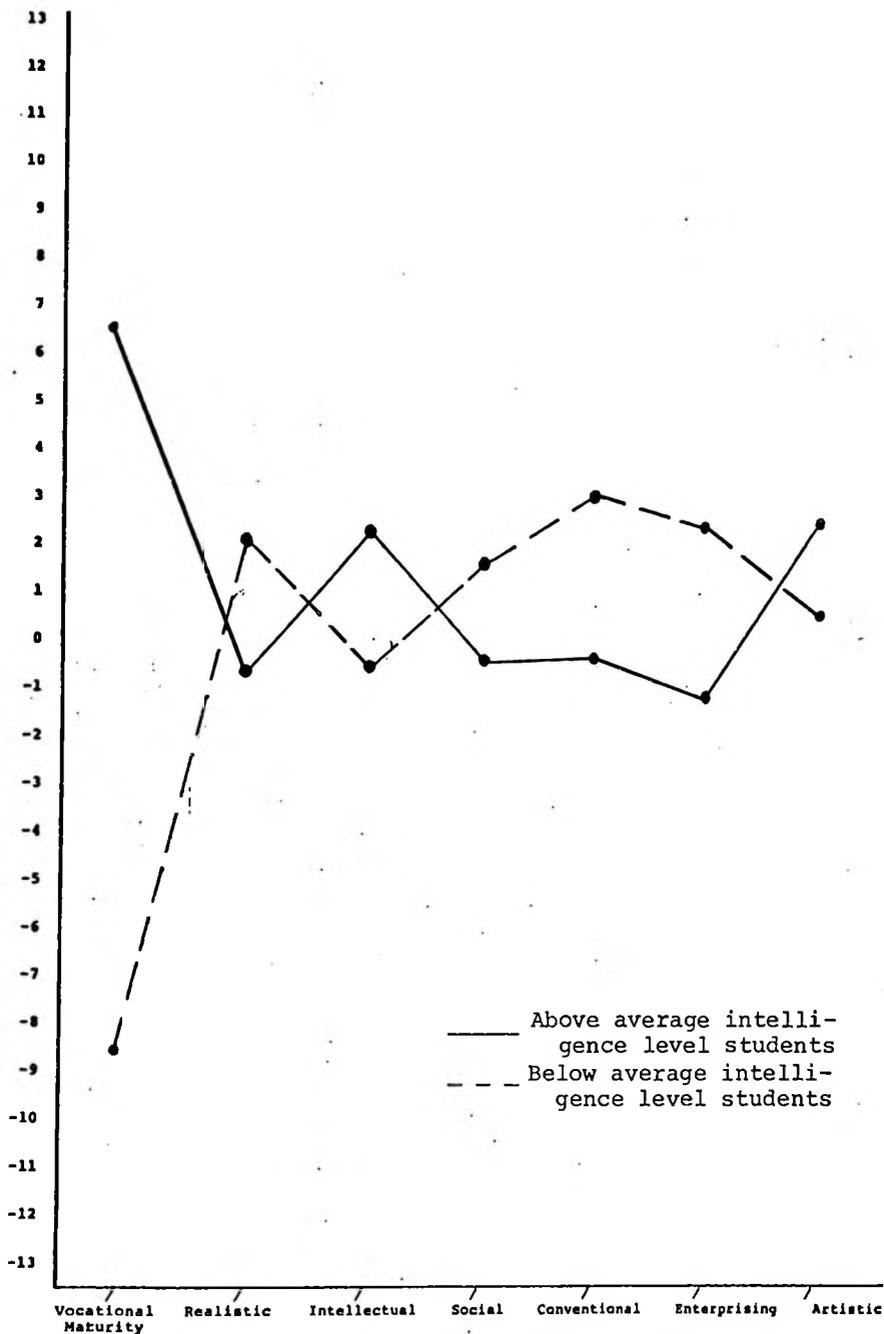
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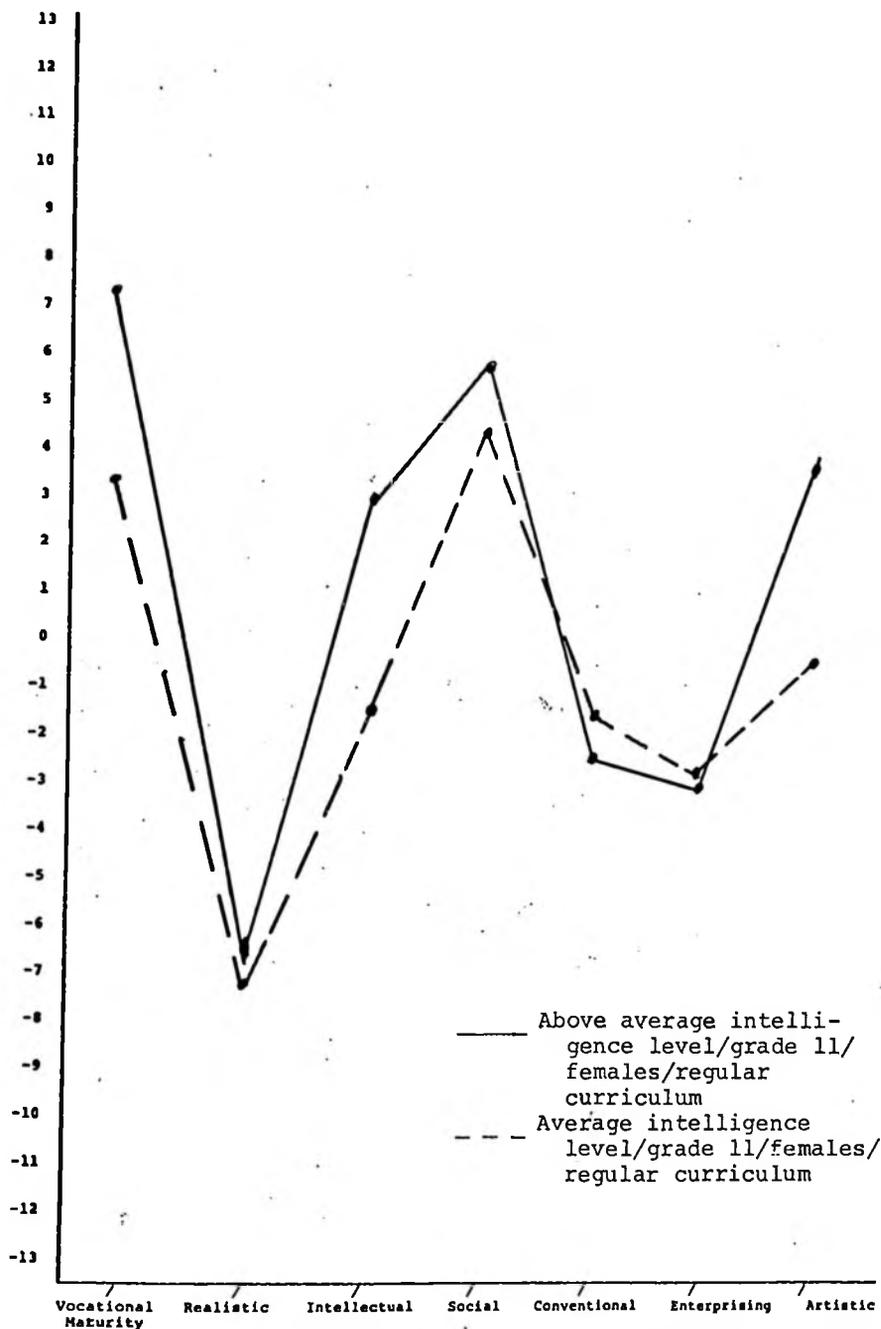
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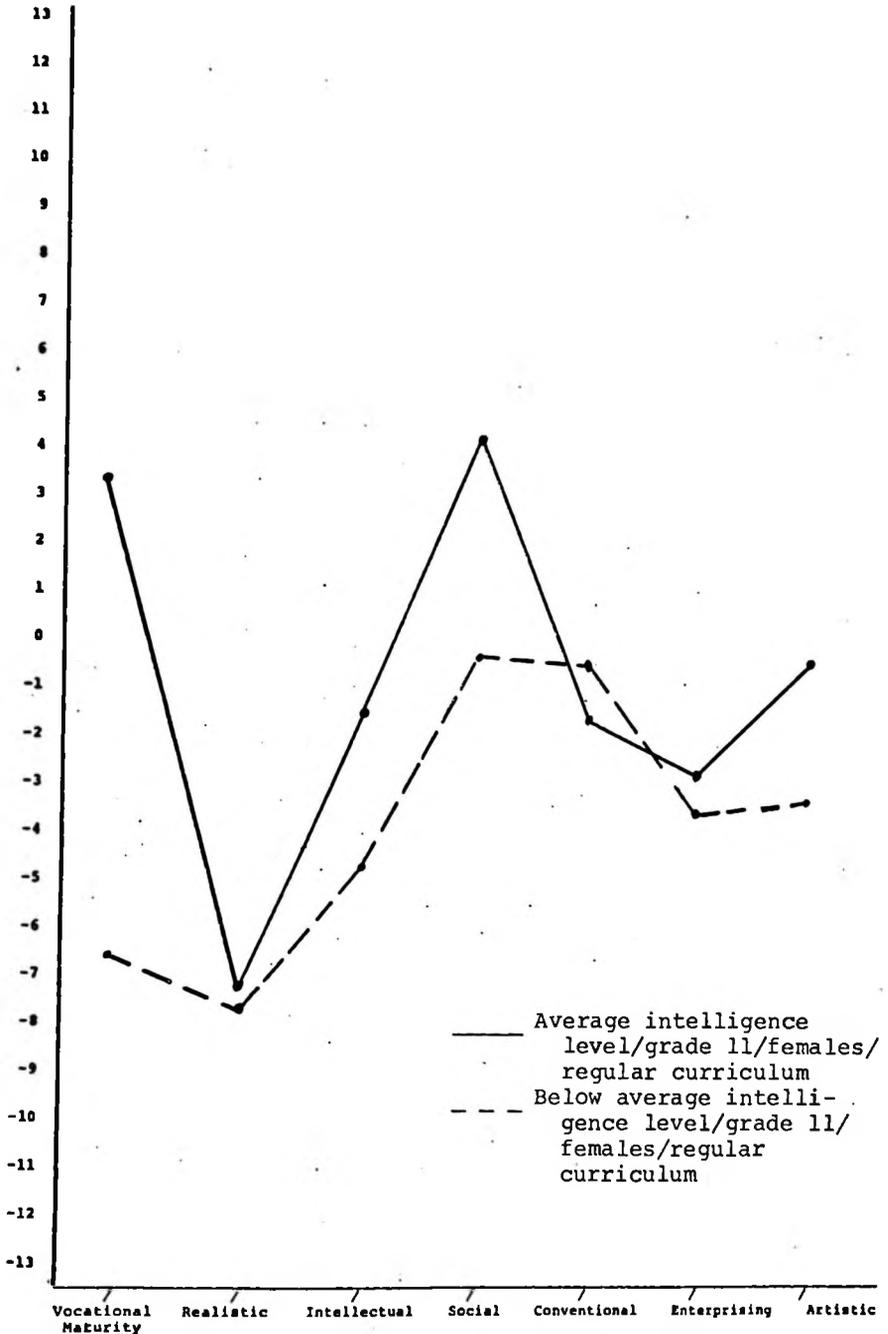
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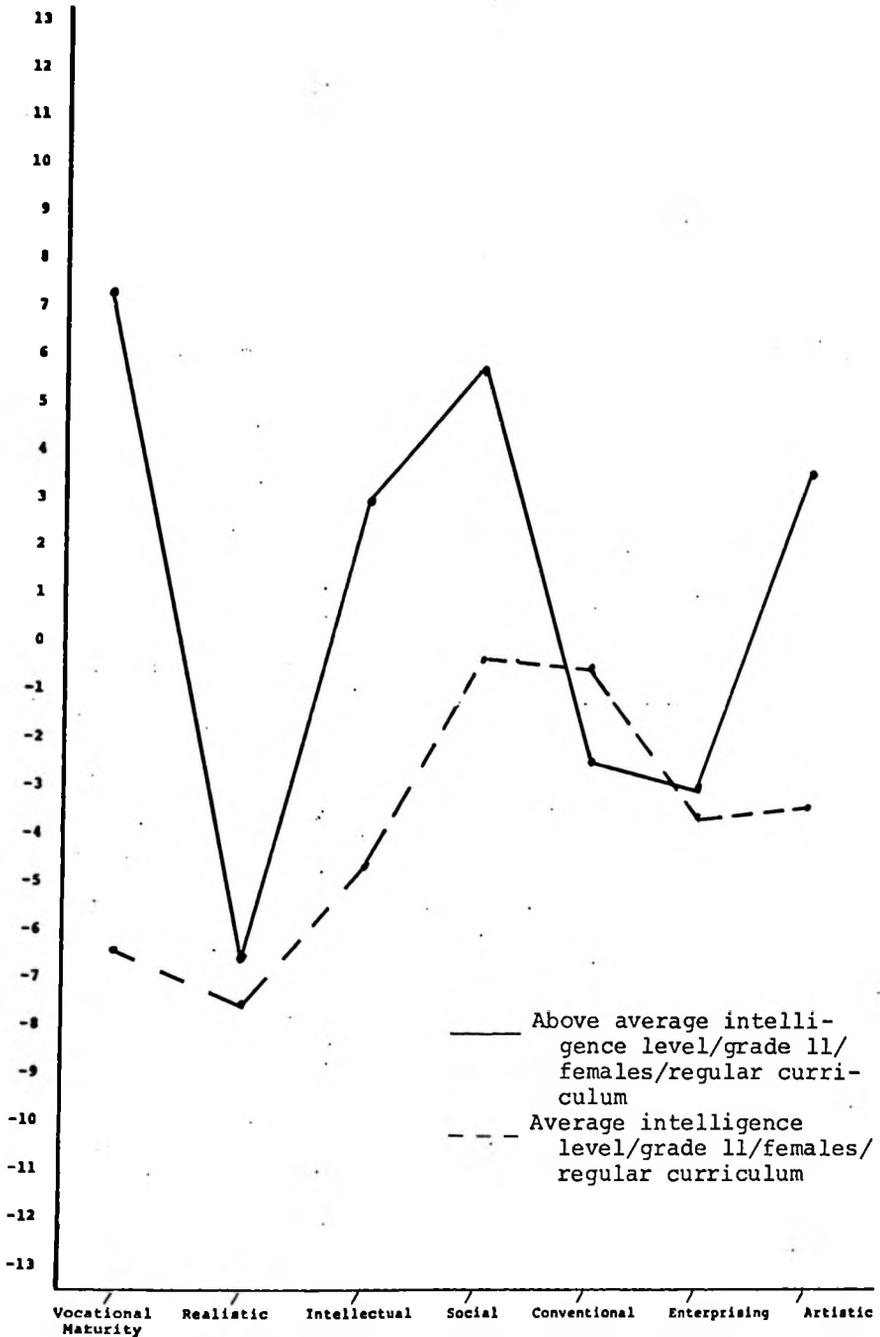
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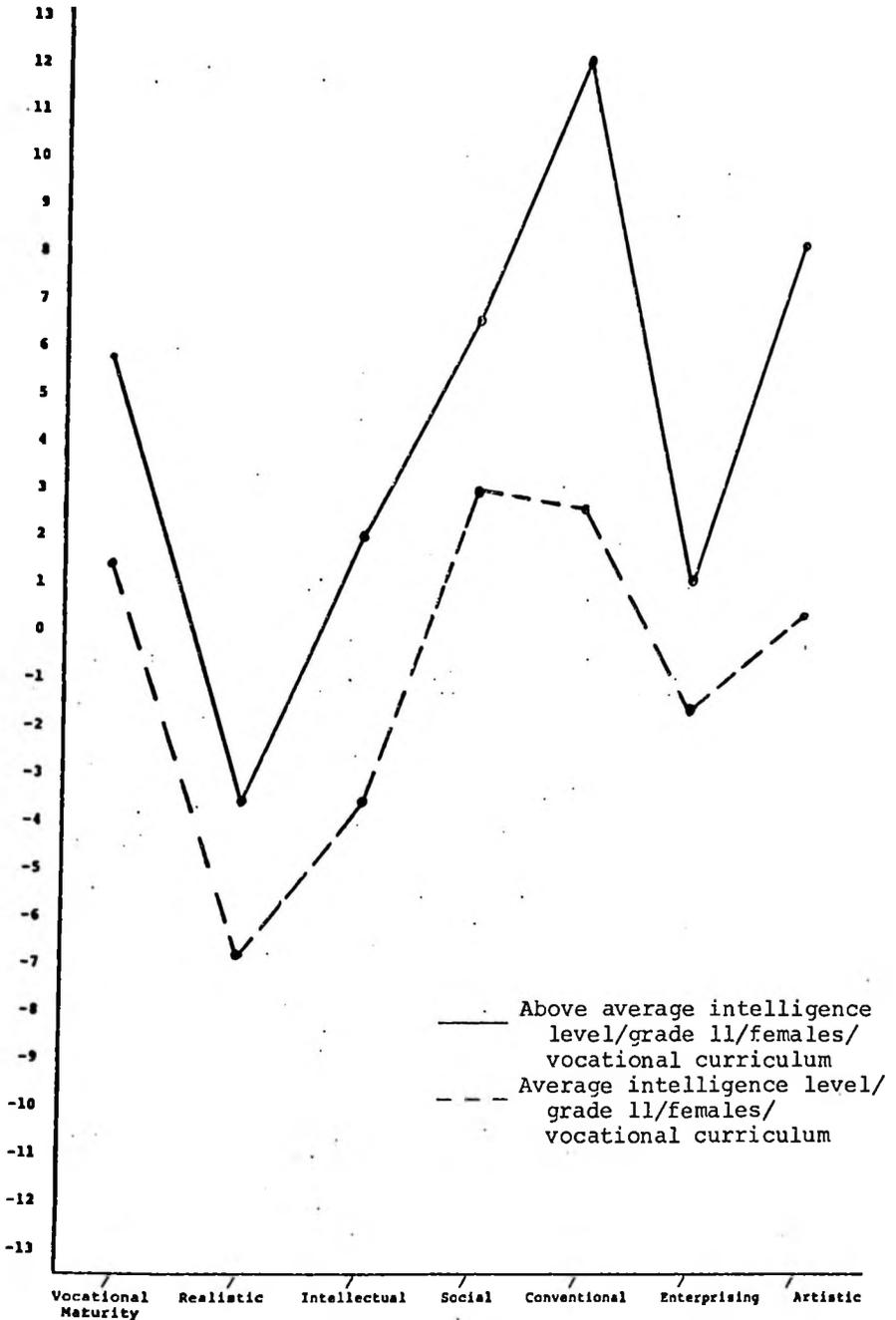
z score unit frequency polygon, Hypothesis IV, 4.



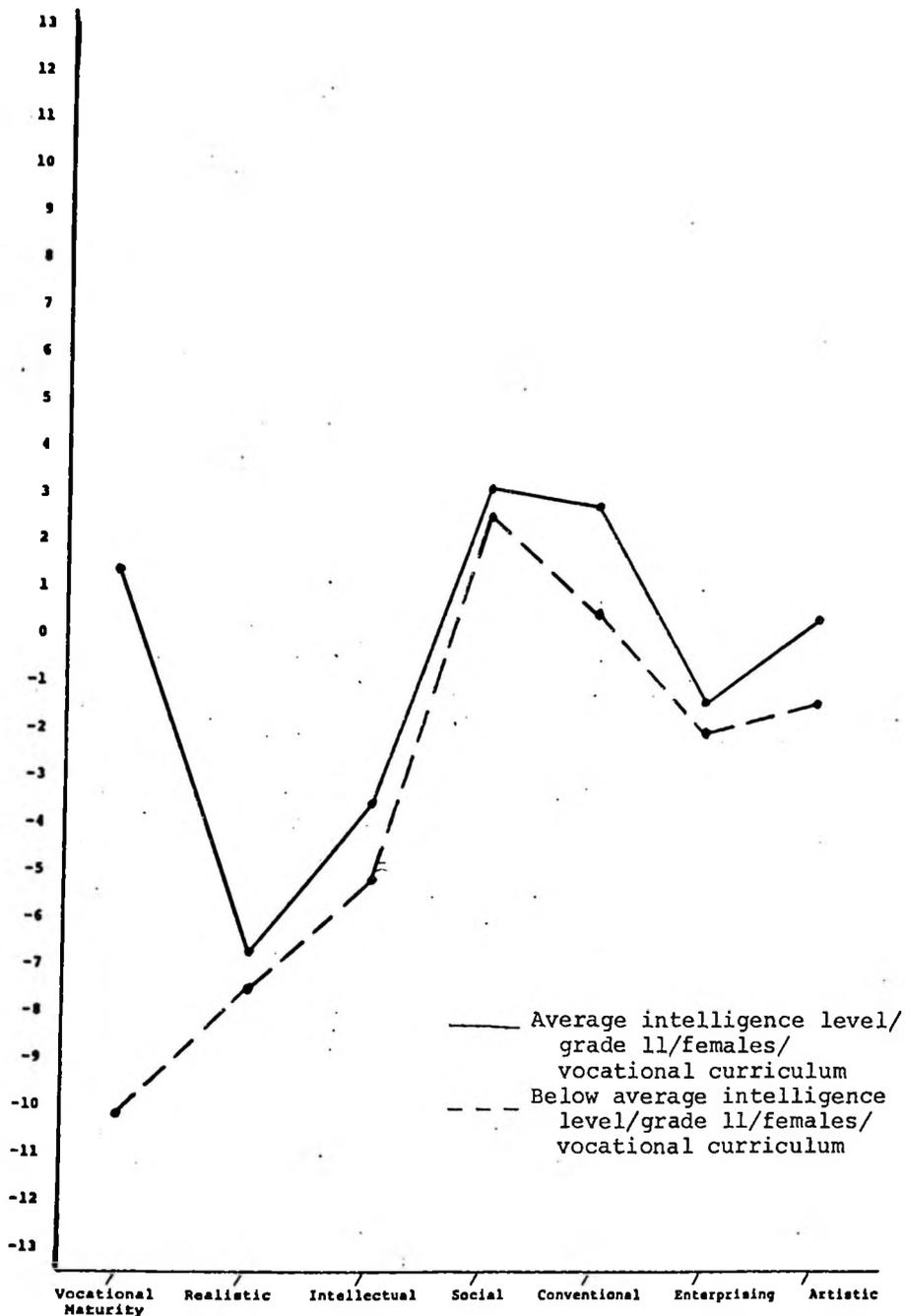
z score unit frequency polygon, Hypothesis IV, 5.



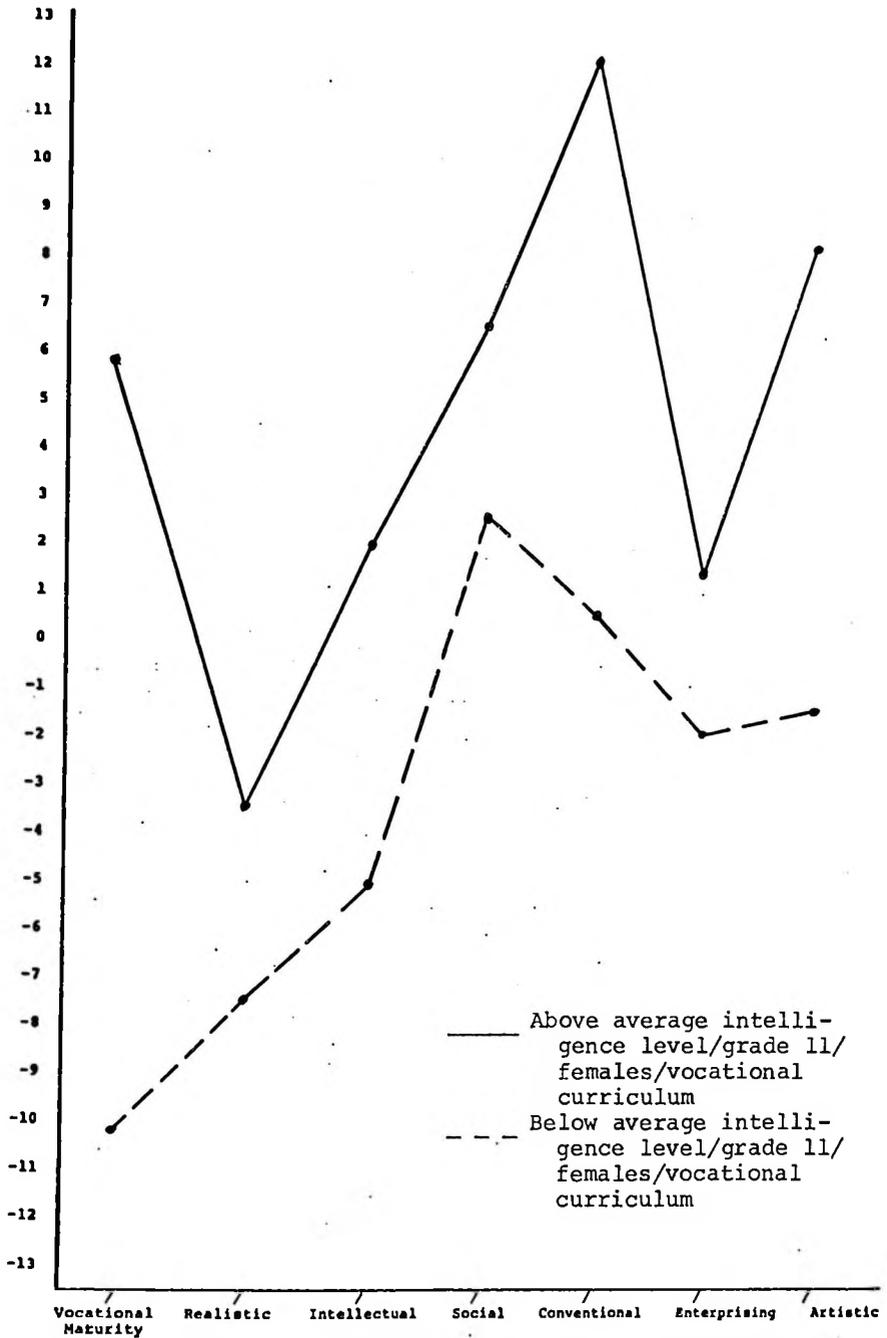
z score unit frequency polygon, Hypothesis IV, 6.



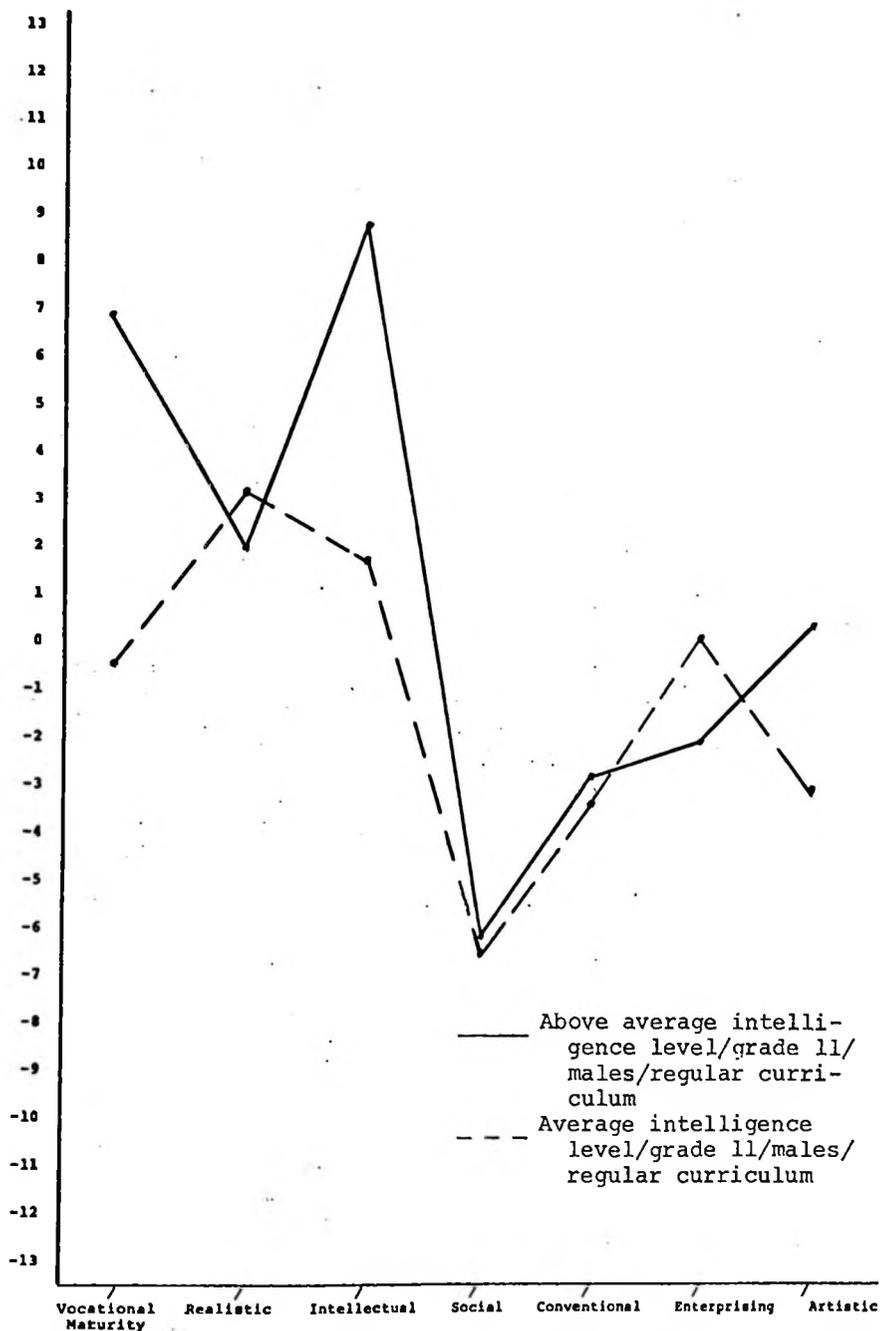
z score unit frequency polygon, Hypothesis IV, 7.



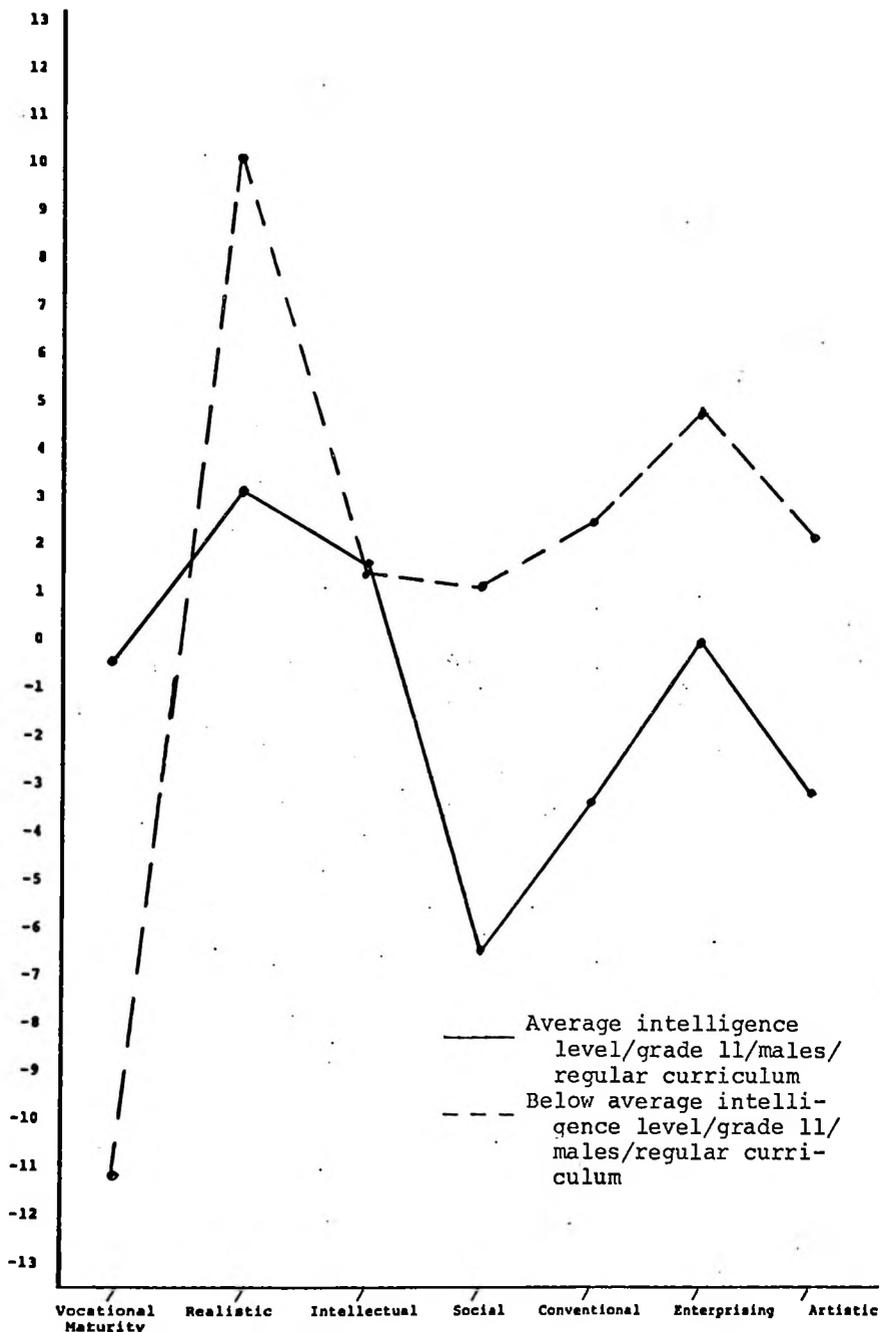
z score unit frequency polygon, Hypothesis IV, 8.



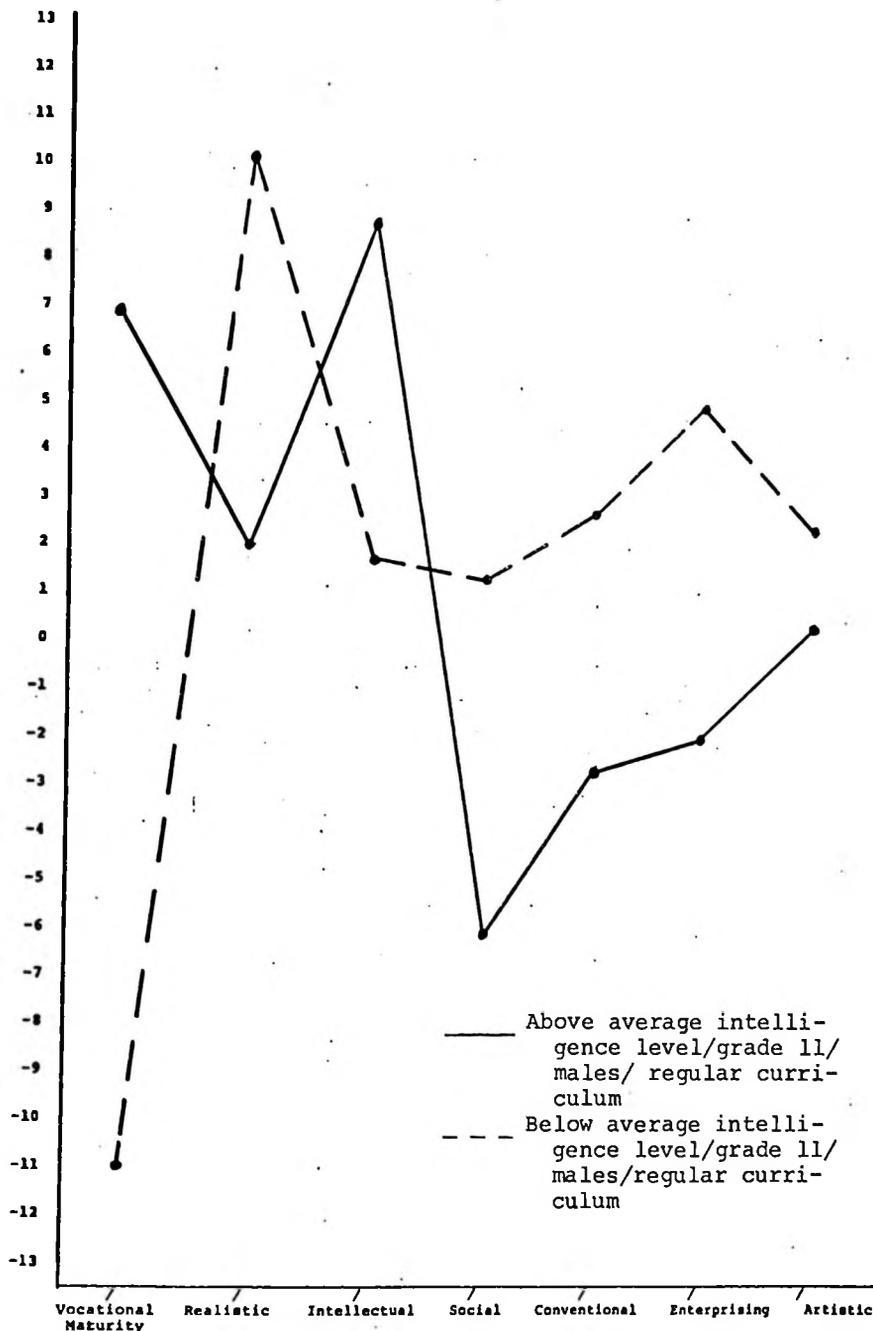
z score unit frequency polygon, Hypothesis IV, 9.



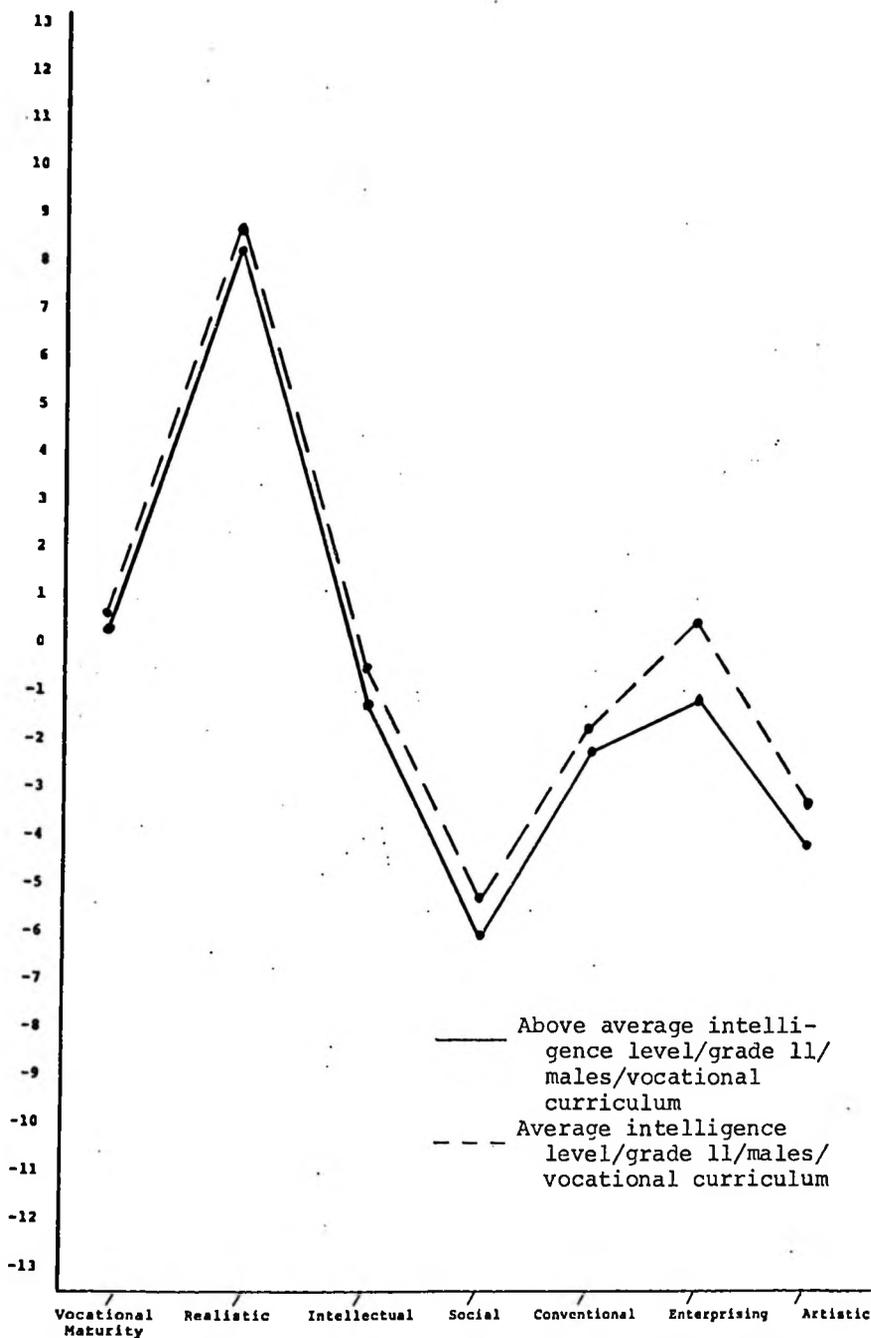
z score unit frequency polygon, Hypothesis IV, 10.



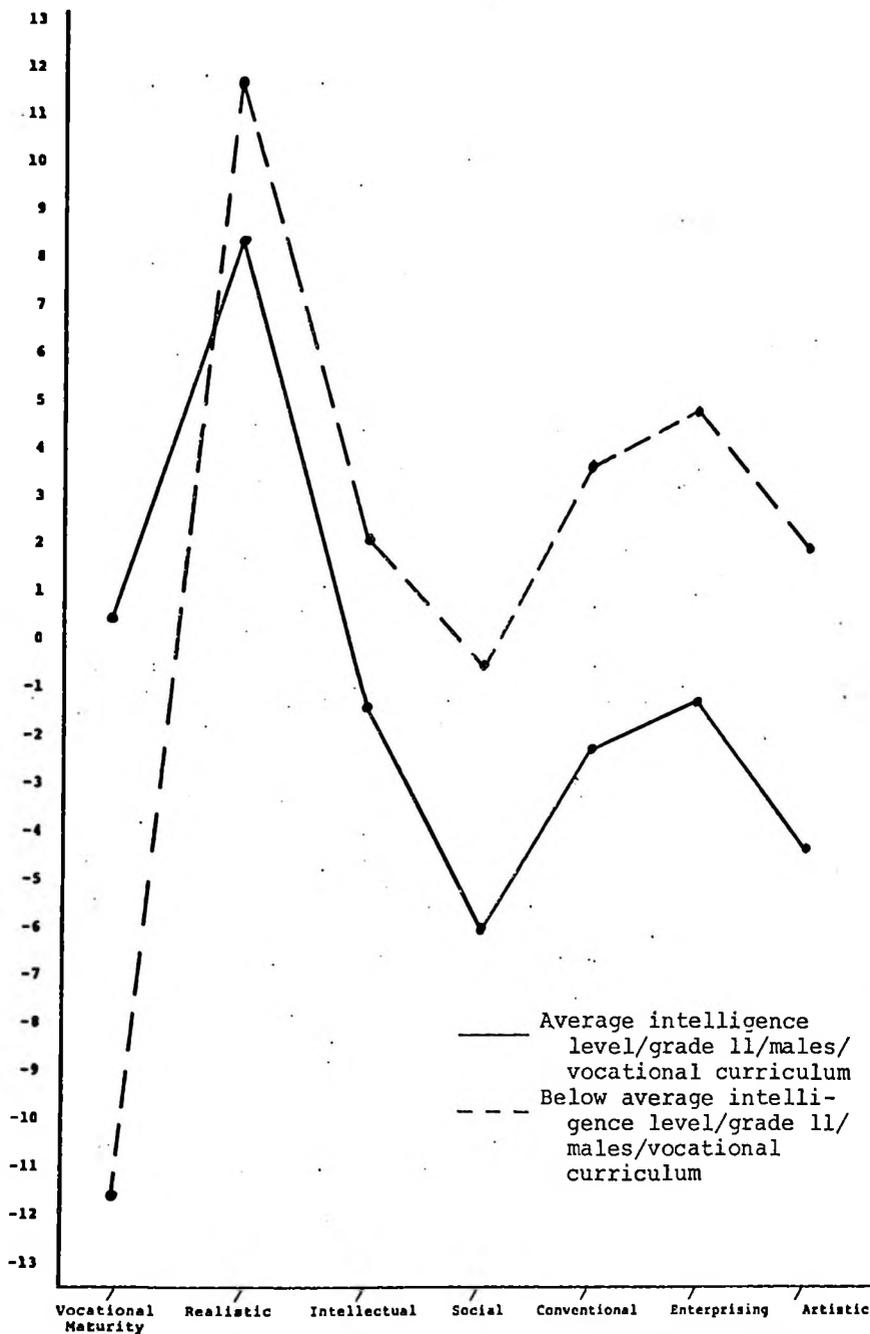
z score unit frequency polygon, Hypothesis IV, 11.



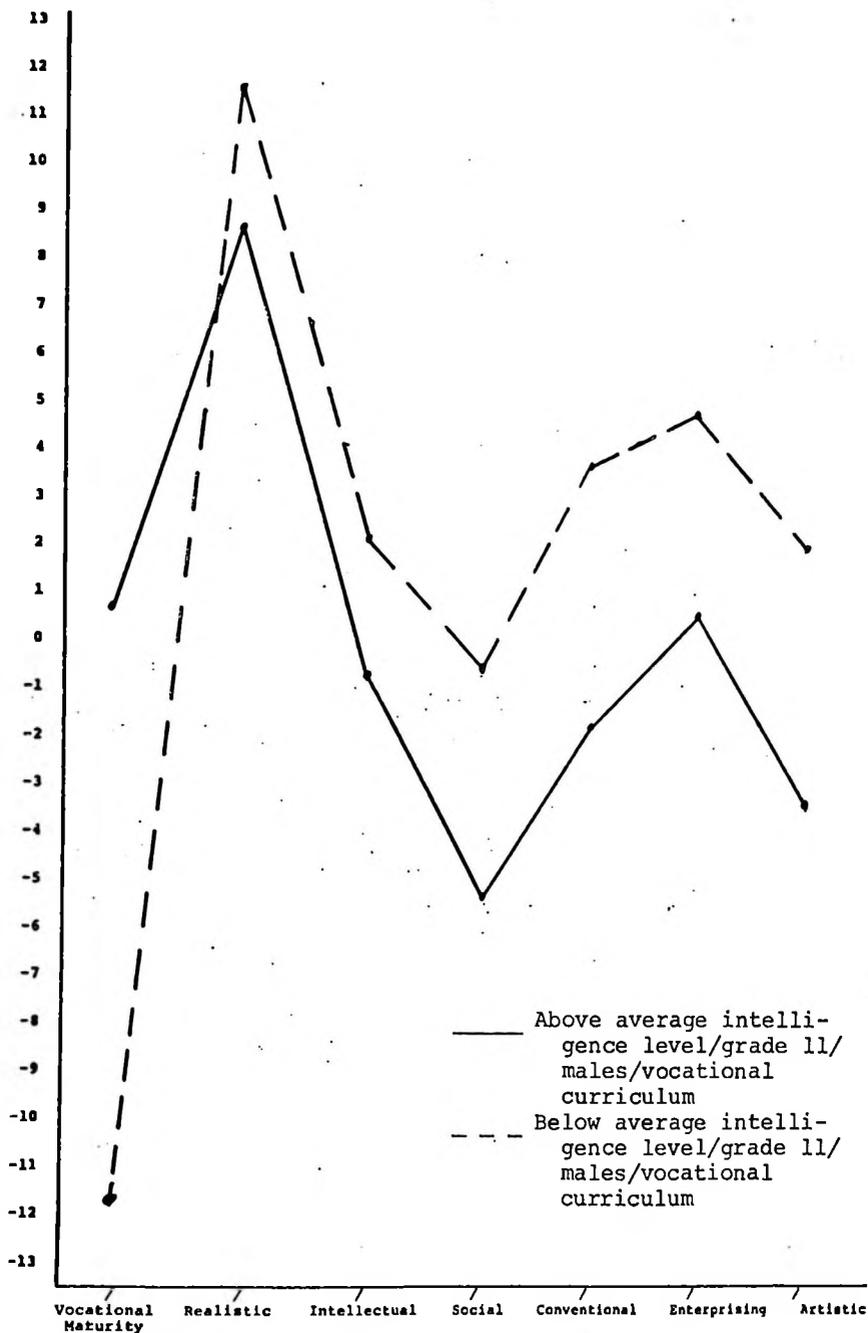
z score unit frequency polygon, Hypothesis IV, 12.



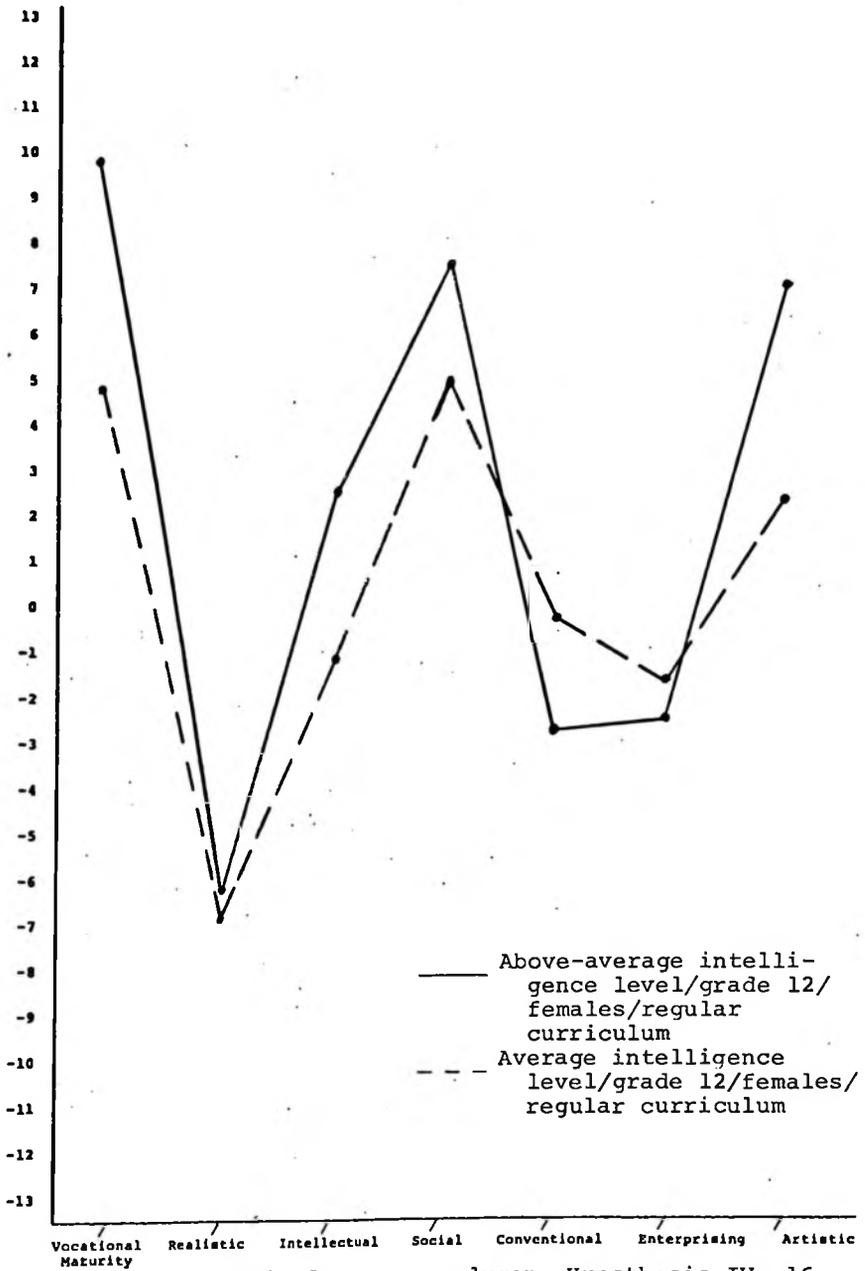
Z score unit frequency polygon, Hypothesis IV, 13.

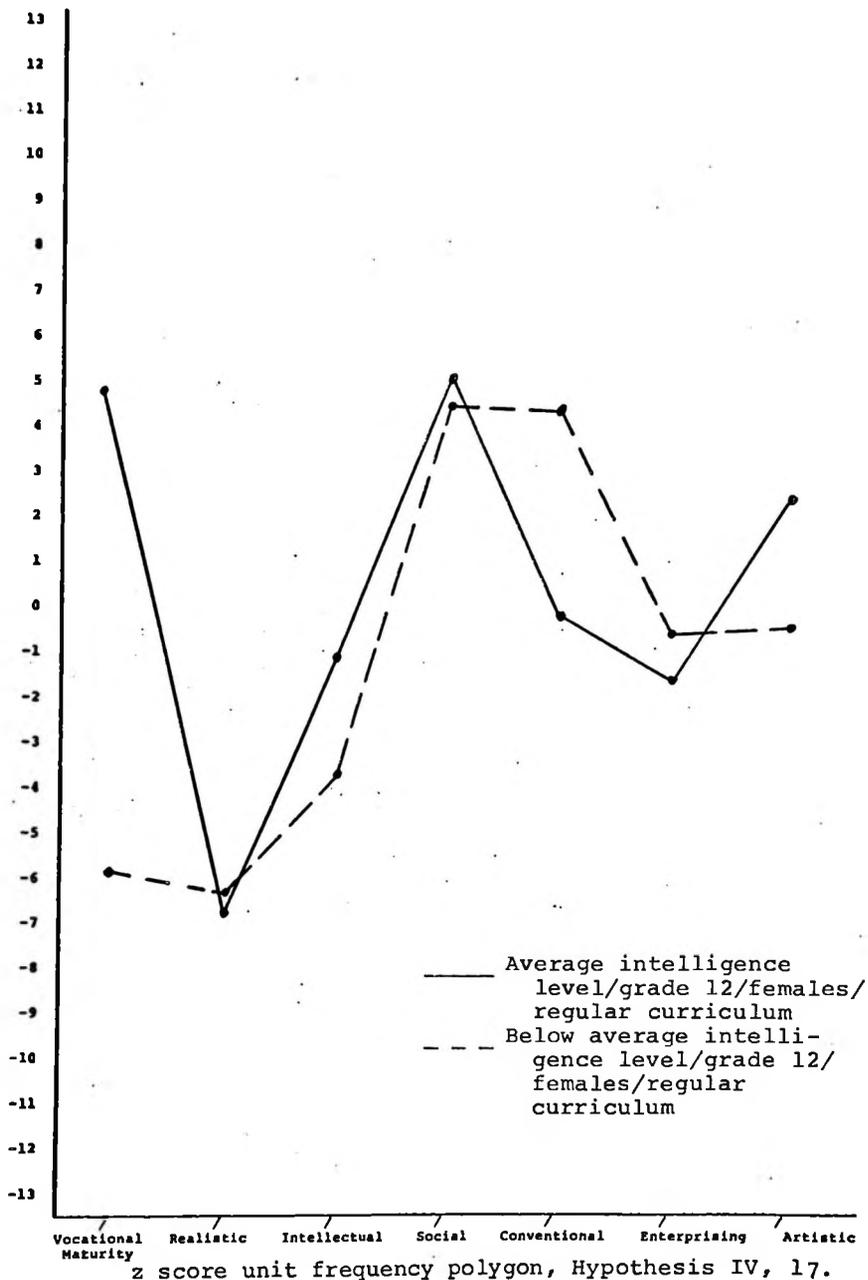


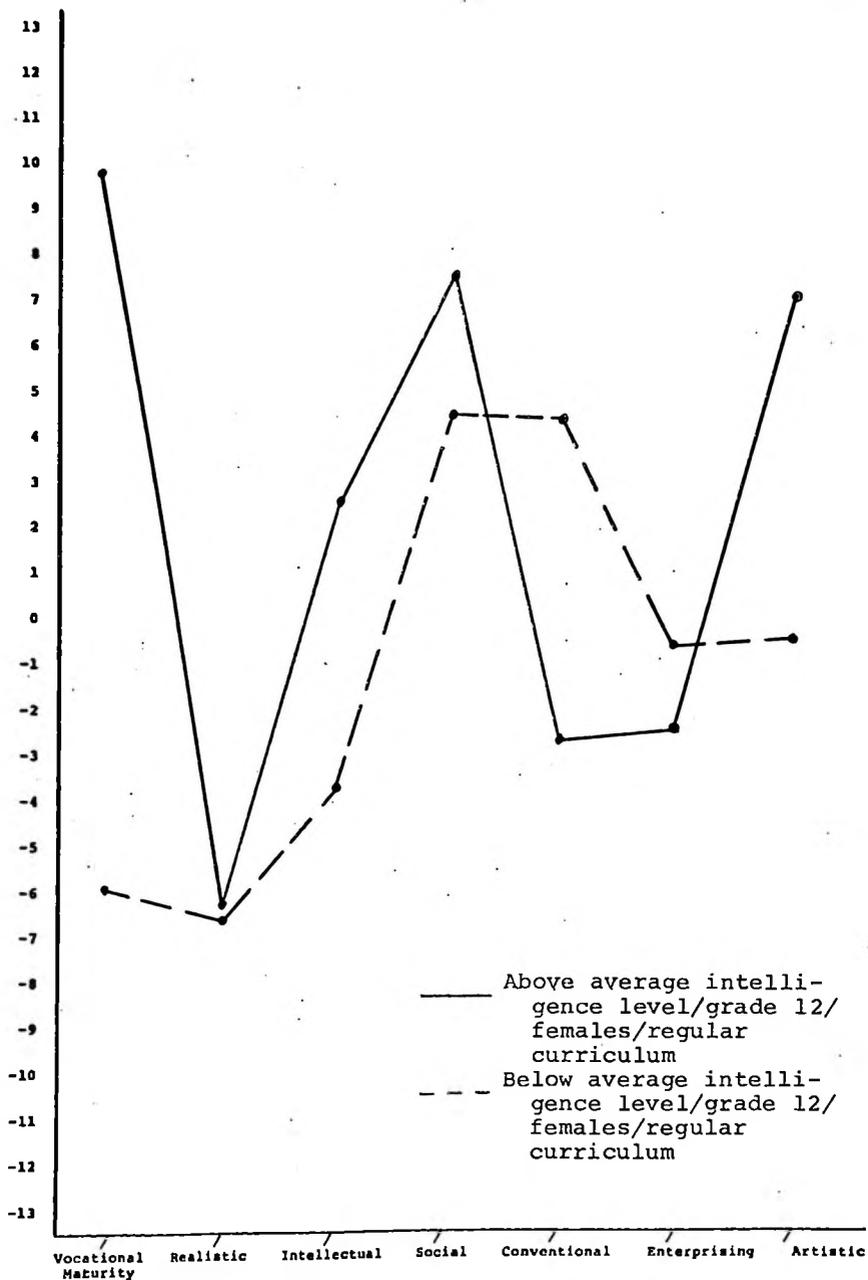
z score unit frequency polygon, Hypothesis IV, 14.



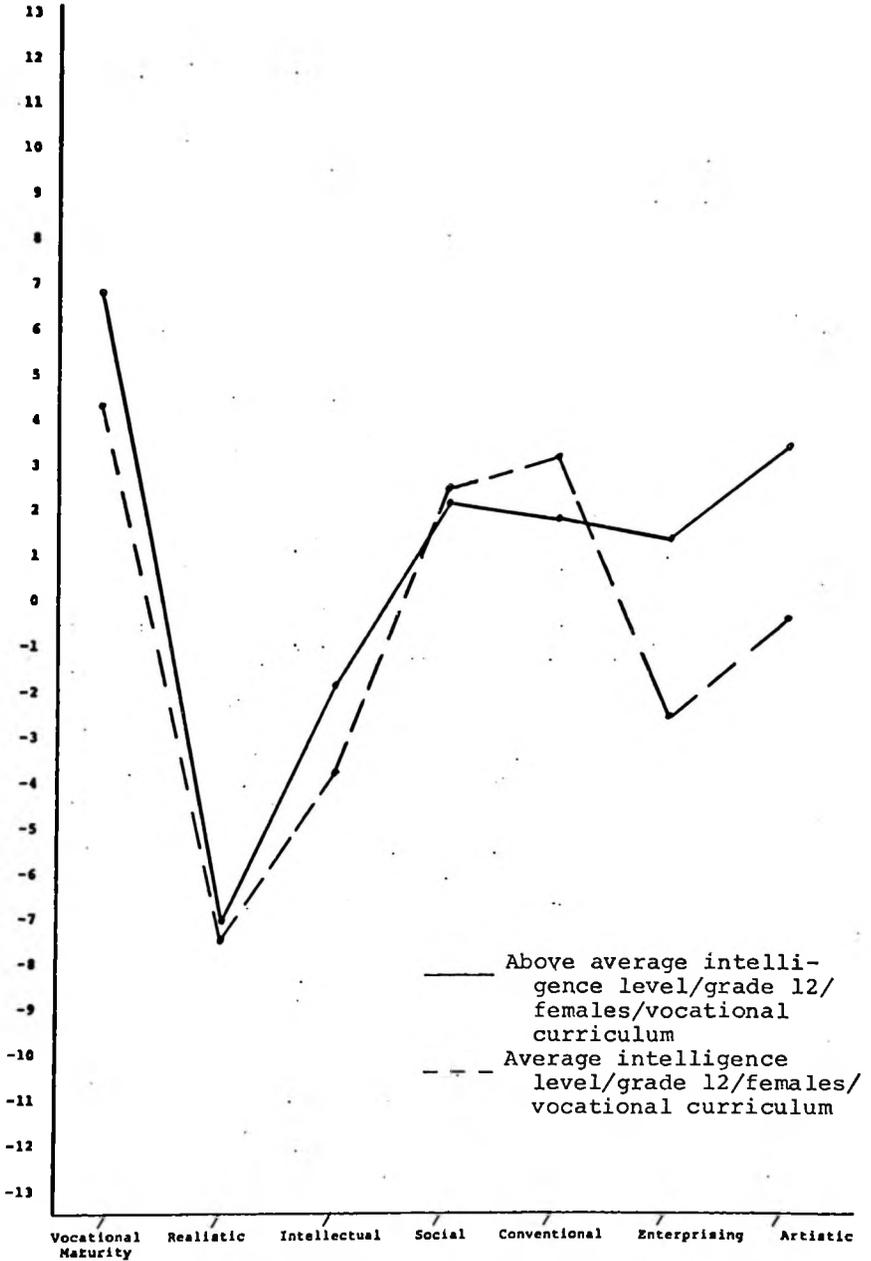
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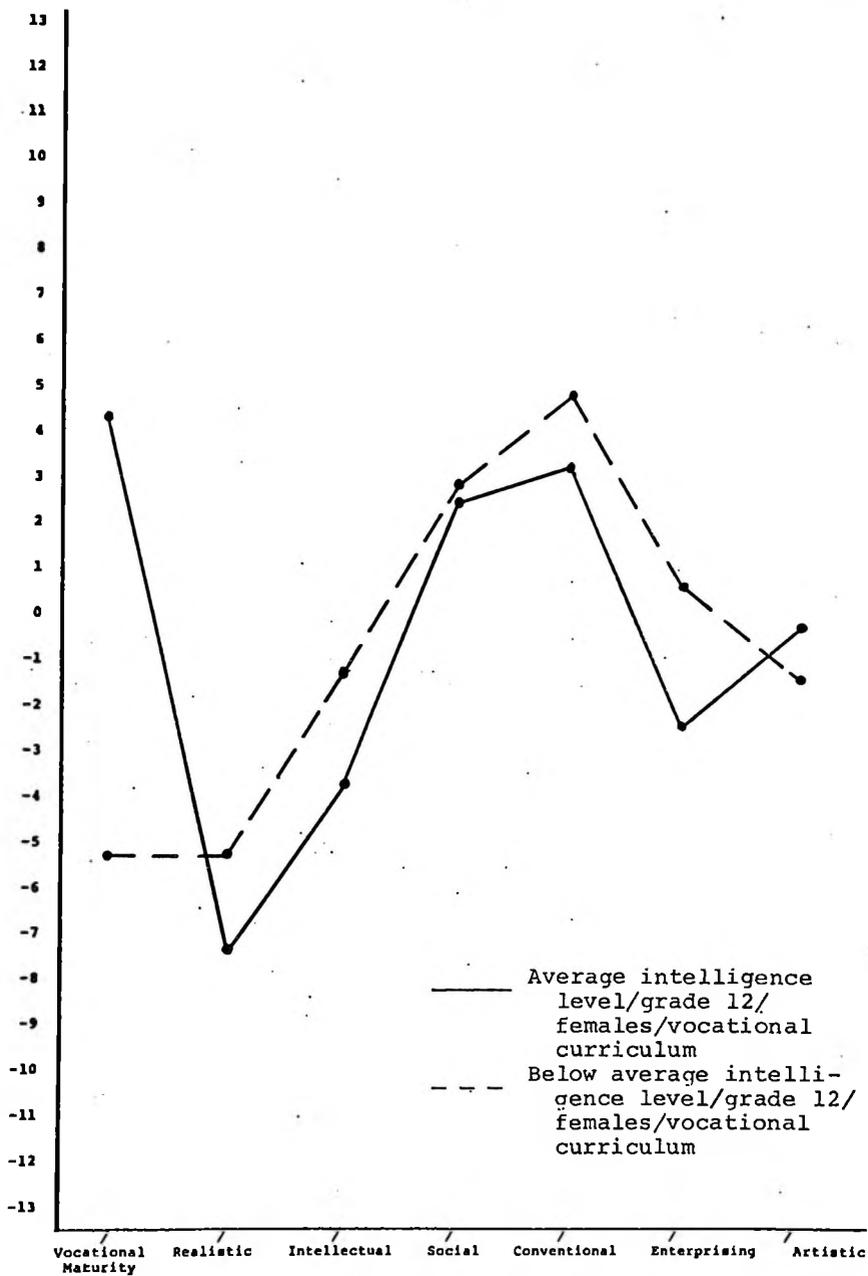




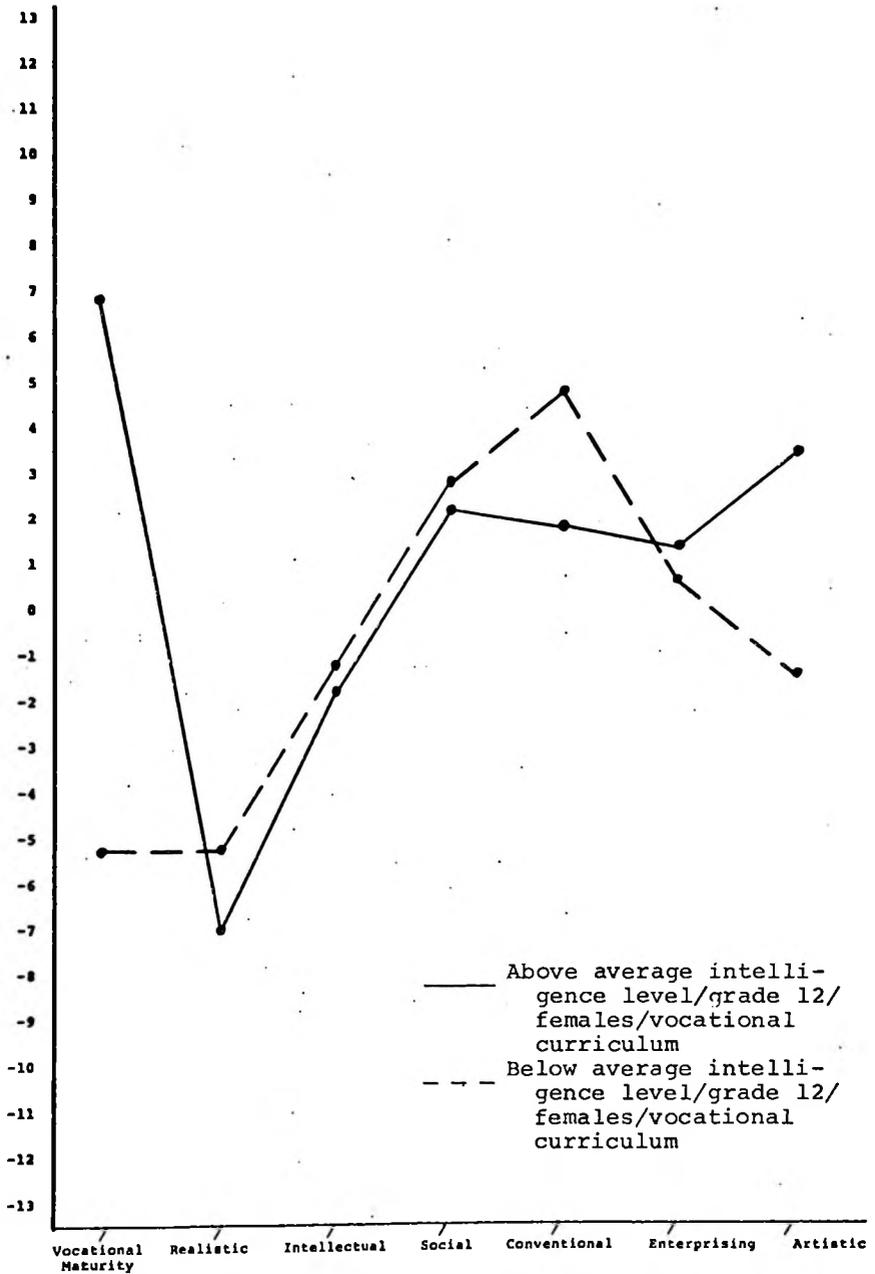
z score unit frequency polygon, Hypothesis IV, 18.



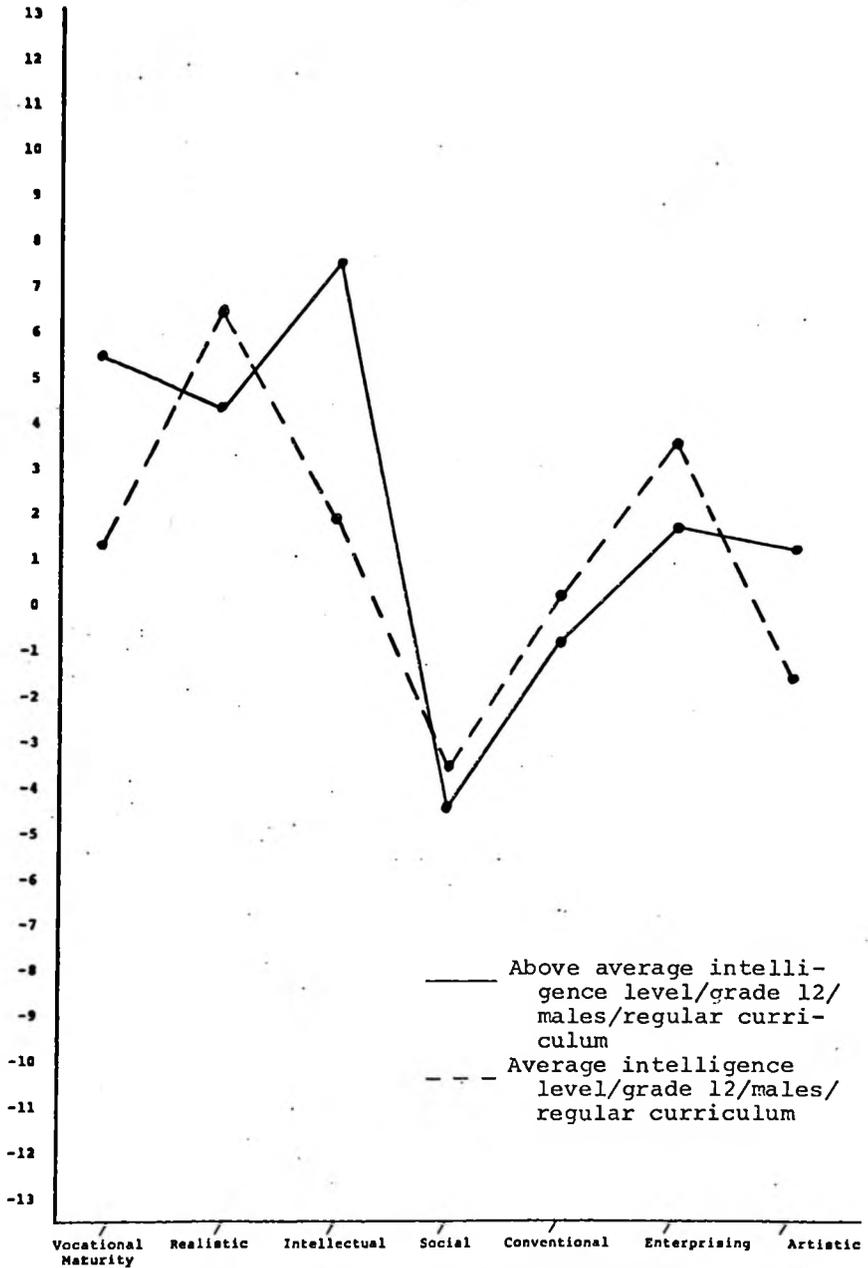
z score unit frequency polygon, Hypothesis IV, 19.



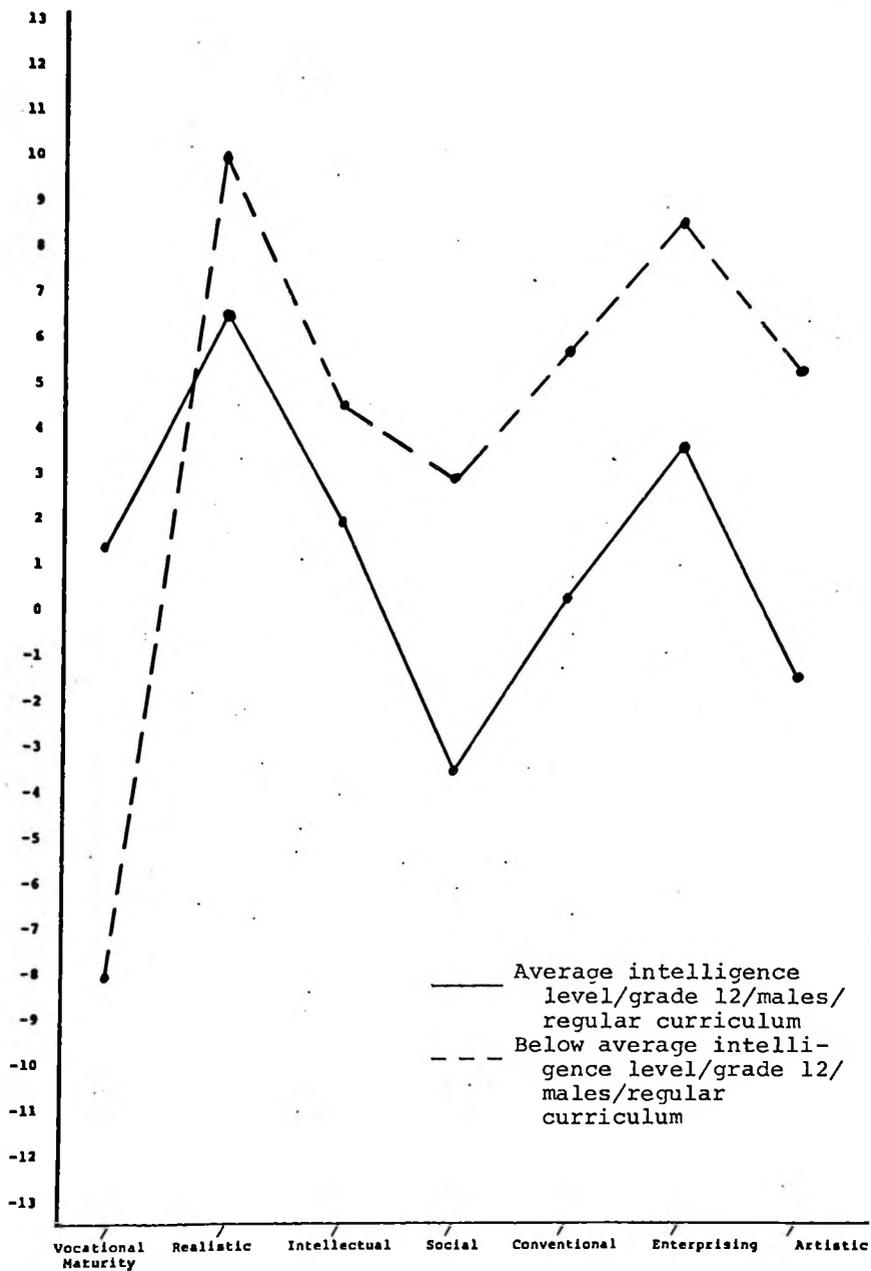
z score unit frequency polygon, Hypothesis IV, 20.



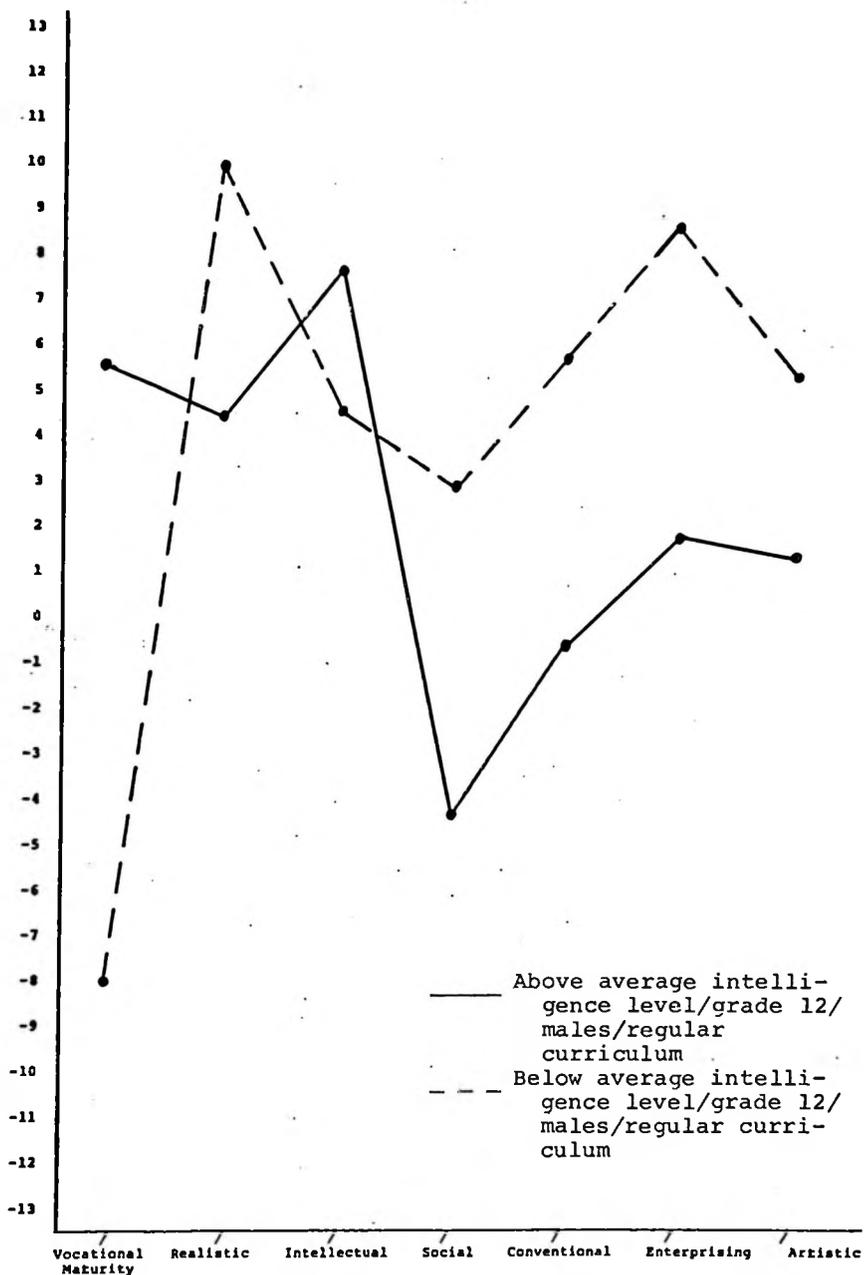
z score unit frequency polygon, Hypothesis IV, 21.



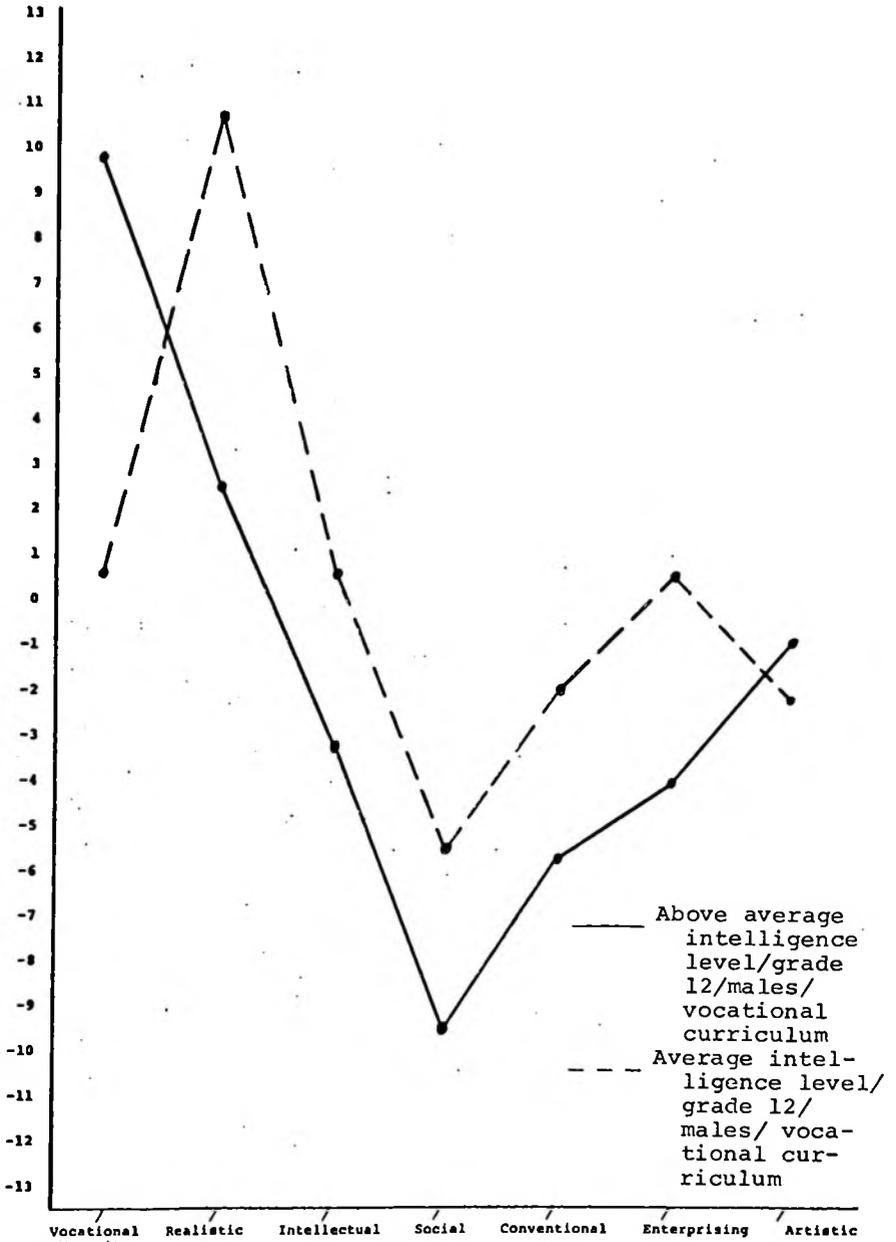
z score unit frequency polygon, Hypothesis IV, 22.



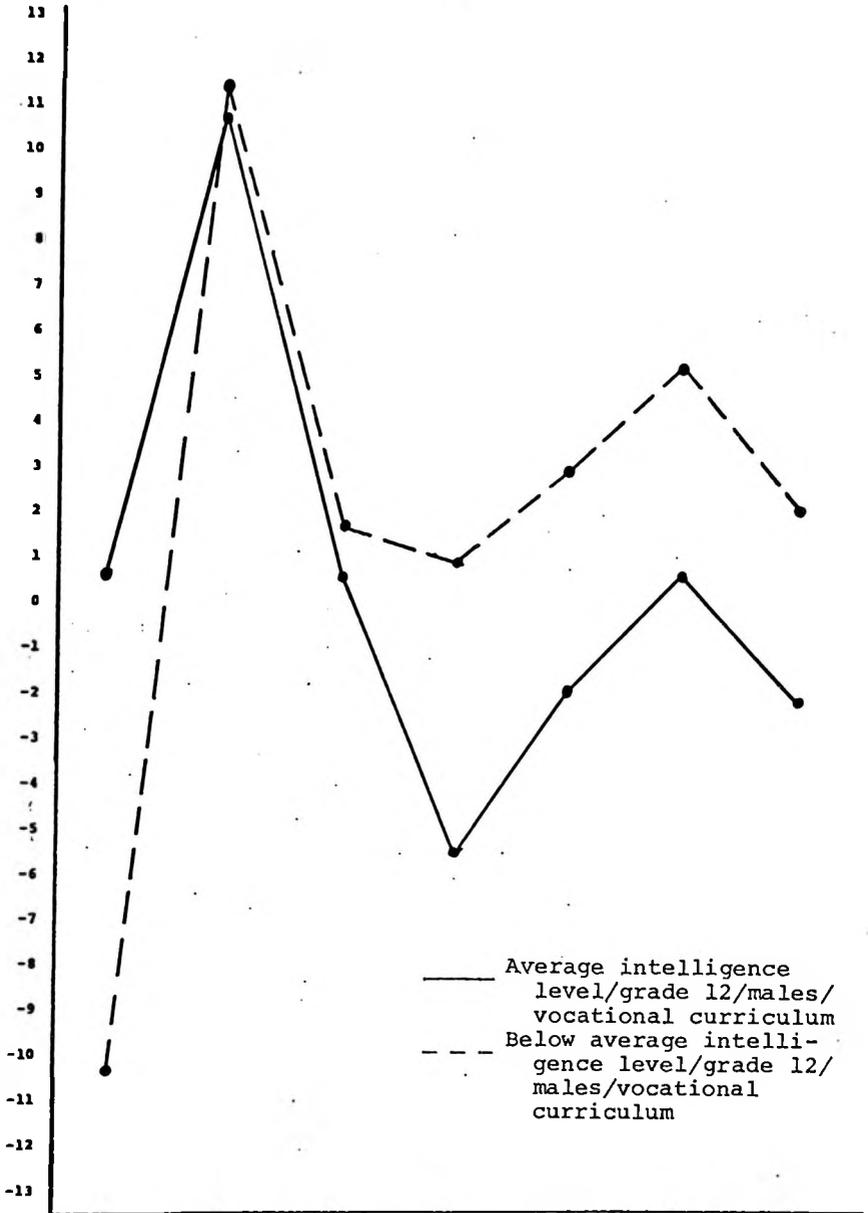
z score unit frequency polygon, Hypothesis IV, 23.



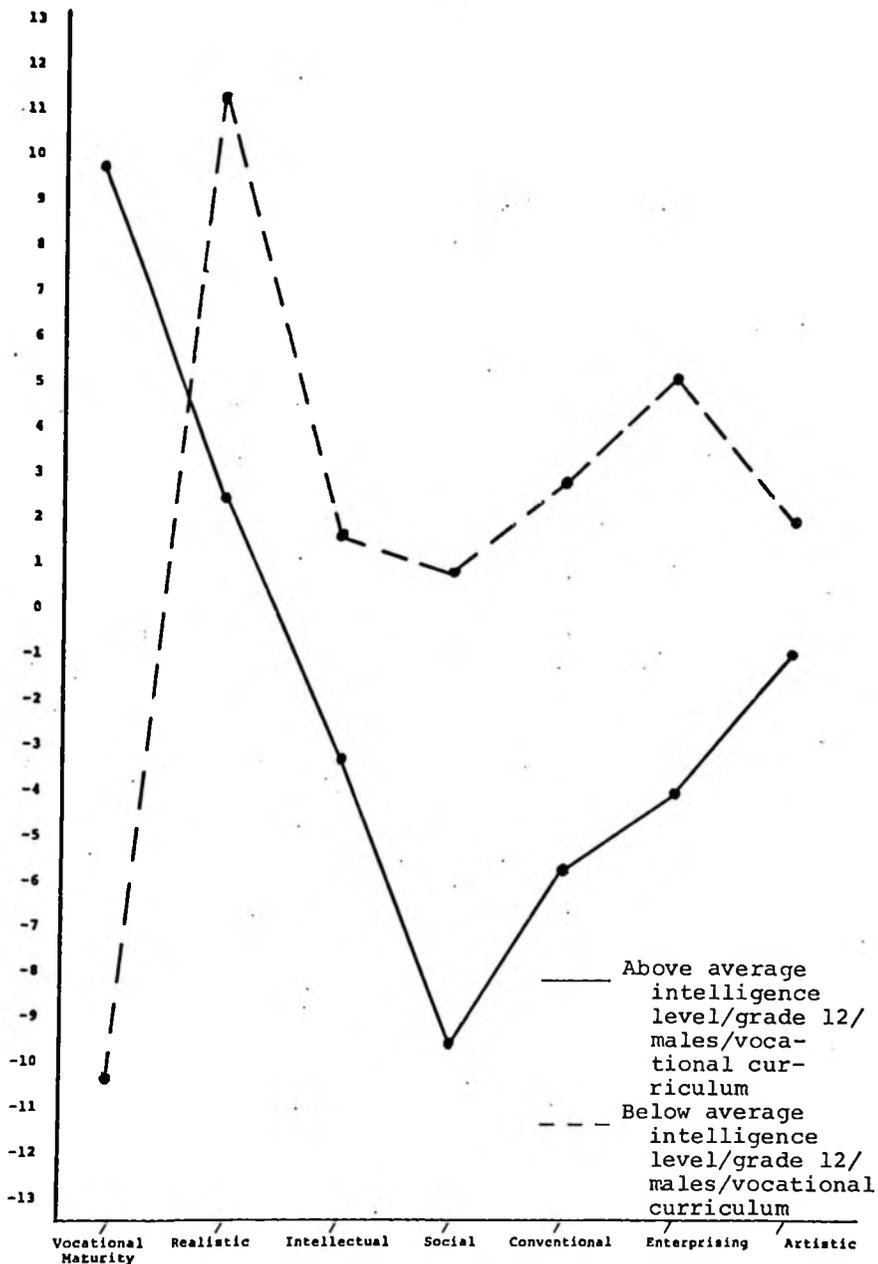
z score unit frequency polygon, Hypothesis IV, 24.



z score unit frequency polygon, Hypothesis IV, 25.



z score unit frequency polygon, Hypothesis IV, 26.



z score unit frequency polygon, Hypothesis IV, 27.