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ABSTRACT This research project involves the examination and investigation of the biological correlates of vocational needs. The research attempts to (1) successfully develop a biographical inventory (BI) which can accurately predict vocational needs and (2) extend the construct validity of the Minnesota Importance Questionnaire (MIQ). This paper describes the initial findings of this project in which the following hypotheses were tested: (1) There is a systematic relationship between developmental personal history factors, as measured by a BI, and vocational needs; (2) The same consistent set of relationships can be found across samples from different populations; (3) A weighted BI can significantly predict vocational needs; (4) A weighted BI developed on subjects from one population can significantly predict needs for subjects from a different population. Subjects were 206 college students administered the MIQ and BI forms A and B. The findings support Hypothesis 1 for seven of the MIQ needs, partial support was found for six of the needs, and the hypothesis could not be supported for seven of the needs. Only moderate findings were found in support of Hypothesis 2. Hypothesis 3 was confirmed for six of the 20 MIQ needs and there was no evidence found supporting Hypothesis 4. (YRJ)

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Biographical Correlates of Vocational Needs\*

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## Biographical Correlates of Vocational Needs

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Biographical correlates of vocational behavior have comprised an extensive area of inquiry for both vocational psychologists and industrial psychologists in the last five decades. Studies have tended to focus on biographical characteristics that distinguish between groups of individuals in different occupations (Roe, 1964), who vary in achievement (Freeborg, 1957), work performance (Baehr and Williams, 1963), creativity (Helson, 1965, 1966, 1967), and job tenure (Shuh, 1967). However, in reviewing the literature it was quite evident that there are few studies investigating the biographical correlates of vocational needs. From the point of view of the Theory of Work Adjustment, work-related needs compose an essential set of variables in determining vocational tenure (Dawis, England, and Lofquist, 1964; Dawis, et al., 1968; Lofquist and Dawis, 1969; Gay, Weiss, Hendel, Dawis, and Lofquist, 1971).

The purpose of this research project is two-fold: to develop a biographical inventory (BI) which can accurately predict vocational needs, and to extend the construct validity of the Minnesota Importance Questionnaire (MIQ), an instrument currently being used to measure vocational needs. The development of a BI which predicts vocational needs will greatly supplement the information gained from vocational interests inventories and aptitude tests in vocational counseling, as well as in personnel psychology. This paper describes the initial findings of

this project in which the following hypotheses were tested:

1. There is a systematic relationship between developmental personal history factors, as measured by a BI, and vocational needs.
2. The same consistent set of relationships between BI information and vocational needs can be found across samples from different populations.
3. A weighted BI can significantly predict vocational needs.
4. A weighted BI developed on subjects from one population can significantly predict needs for subjects from a different population.

#### Method

Two faculty members and three graduate students familiar with the MIQ were initially involved in generating developmental, demographic, and concurrent items likely to be correlates of MIQ needs. Based on items found in the APA Division 17 item pool (Glennon, et al., 1966), as well as constructing new items, a 102-item BI in two parts, Form A and Form B, was developed. The MIQ (a 210-item paired comparison questionnaire) and BI forms A and B were administered to 206 college students by the experimenter and others. Three counselors from the Division of Vocational Rehabilitation (DVR), State of Minnesota, administered the MIQ and BI Forms A and B to 60 clients. Thirty-nine parents of some of the participating students returned a short BI (Form P) mailed to them to measure the reliability of some of the student responses on Form A and B. Seventy-five additional college students were administered only BI forms A and B twice, at 48-hour in-

tervals, to assess the test-retest reliabilities of the 102 items. Items not reaching a reliability of .90, being infrequently answered, or applying only to one sex were omitted, reducing the number of analyzed items to 65. Multivariate relationships existing between BI forms and B and MIQ needs were analyzed by the technique of Reciprocal Averages (RA) (Weiss, 1963). Prediction weights developed on 137 students were cross-validated on 69 students and cross-validated, in a separate analysis, on the 60 DVR clients. The results of the analysis on the 69 students served as an estimate of the validity of the weighted BI (Hypothesis III), and the results of the analysis of the 60 DVR clients served as estimate of the generalizability of the weighted BI to another population (Hypothesis IV). Significant PPMC's and etas between MIQ and BI items for the 206 students and 60 DVR clients were also assessed (Hypotheses I and II).

#### Results and Discussion

The findings support Hypothesis I for seven of the MIQ needs, partial support was found for six of the needs, and the hypothesis could not be supported for seven of the needs, (see Table 1 for description of items). While for all of the 20 needs at least one BI item reached significance ( $p < .05$ ), the results could be due to sampling error for some of the correlates. Since 65 items were initially used, by setting the significance level at  $p < .05$ , a distribution of Type I errors with a mean of 3.25 errors must be considered in interpreting the findings. While there is no way of determining which BI correlates are due to chance, given the available sample, those that make "psychological sense,"

TABLE 1

## MIQ ACRONYMS, SCALE NAMES, AND NEED STATEMENTS

Acronym	Scale Name	Need Statement
AU*	Ability Utilization	I could do something that makes use of my abilities.
Ach*	Achievement	The job could give me a feeling of accomplishment.
Act	Activity	I could be busy all the time.
Adv	Advancement	The job would provide an opportunity for advancement.
Au	Authority	I could tell people what to do.
CPP	Company Policies and Practices	The company would administer its policies fairly.
Com**	Compensation	My pay would compare well with that of other workers.
Cow	Co-workers	My co-workers would be easy to make friends with.
Cre	Creativity	I could try out some of my own ideas.
Ind	Independence	I would work alone on the job.
MV	Moral Values	I could do the work without feeling that it is morally wrong.
Rec	Recognition	I could get recognition for the work I do.
Res	Responsibility	I could make decisions on my own.

\*p&lt;.05

\*\*p&lt;.10

TABLE - Continued

Acronym	Scale Name	Need Statement
Sec**	Security	The job would provide for steady employment.
SSe	Social Service	I could do things for other people.
SSt*	Social Status	I could be "somebody" in the community..
SHR	Supervision- Human Relations	My boss would back up his (with top management).
S-T**	Supervision-Technical	My boss would train his men well.
Var	Variety	I could do something different every day.
WC	Working Conditions	The job would have good working conditions.

\*p<.05

\*\*p<.10

and reach high levels of significance ( $p < .01$ ), are less likely to be chance correlations. Using the aforementioned criterion the hypothesis was generally supported for the following needs: AU, Ach, Adv, Cre, Res, SSe, and SSt. For all of the seven needs at least four items, and as many as 11 items were significant, and in each case the majority of items painted a rather consistent and psychologically meaningful picture.

Students high on AU tended to come from a rich, and work-oriented environment. Few disruptions caused by changing residence or changing schools occurred. The parents may have served as models of the value of productive work. Family income tended to be high, allowing the students environmental stimuli and opportunities not available to lower income families. A somewhat similar description emerges of students high on Ach, which is not surprising given the high correlation between the two scales (Gay, et al., 1971). Students high on Ach differ from high AU students only in tending to come from rural or farm backgrounds of moderate income.

Students high in Adv tended to come from a background of belonging to organizations. Their parents, who tended to be joiners of clubs and organizations, may have served as models. Pride in advancement and achievement, within an organizational framework, is evidenced by their tendency to display trophies, awards, certificates, and diplomas.

Intrinsic reinforcement for achievement and pursuing ideas characterizes the high Cre students. These students tended to be active pursuers of hobbies, interests, and chores. They tended to be involved in activities such as writing stories, composing music, inventing gadgets, and performing household chores.



Personal autonomy best describes the developmental behavior of high Res students. They tended to take responsibility for choosing their own clothes at an early age. Ideas and projects tended to be pursued without a need for external supervision, whether it be written instruction or parental advice.

High SSe students can be characterized as having a rich history of social interactions. Both in the elementary and high school years they tended to socialize with many friends and tended to play in team sports.

High SSt students can be characterized as seeking reinforcement for activities from external sources, such as authority figures or money, rather than from internal satisfactions such as from having solved a problem or having completed a project. The development of an external reinforcement system is evidenced by the tendency of their parents to have given them money for bringing home good grades. While they tended not to be leaders in high school, it was important to them that others know of their achievement and affiliations through wearing medallions, rings, and insignias of their school, social club, or even their own initials.

Some evidence supporting the first hypothesis was found for six of the remaining needs (MV, Rec, Sec, SHR, Cow, and WC), although they tended to have less consistent findings than the first seven previously discussed. Little or no evidence was found for the remaining seven (Act, Au, CPP, Com, Ind, Var, and S-T).

The second hypothesis, which stated that the same consistent set

of relationships found between biographical information and vocational needs can be found across samples from different populations, was generally unsupported. Negative results were partially due to the small size of the DVR sample.

The third hypothesis states that a weighted biographical inventory can predict vocational needs. Three of the 20 needs were successfully cross-validated at a significant level ( $p < .05$ ) and three others approached significance ( $p < .10$ ) as is shown in Table 1. However, the correlations were not high enough to be of practical use. Therefore, partial confirmation of the third hypothesis was found. The last hypothesis states that a weighted biographical inventory developed on subjects from one population can significantly predict needs for subjects from a different population. The findings did not support this hypothesis. None of the differentially weighted BI items significantly generalized ( $p < .10$ ) on the DVR sample.

Concordance of responses of parents and their offspring were only moderate, varying from correlations in the .70s to nonsignificant correlations. The results suggest inaccurate recall of childhood and adolescent experiences by students, their parents, or both. Since results suggest that developmental BI items may not be accurately recalled, caution is required in interpreting the findings. Nevertheless, the findings are meaningful inasmuch as they reflect relationships between measured vocational needs and recalled items which appear in a counseling interview. Therefore, retrospective information obtained in the interview can still be used to infer vocational needs,

regardless of its validity as a developmental measure.

The findings reported in this project represent an initial effort at developing a useful BI for use in vocational counseling and for personnel psychology. These results indicate the feasibility of developing such a BI, although more research is necessary to develop a set of BI items which can accurately predict relevant vocational needs applicable to many counseling and industrial settings.

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