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Automated Assessment of Reasons For Joining an Organization

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ABSTRACT. An automated instrument capable of identifying and rank ordering reasons for joining the United States Marine Corps was developed and administered to a sample of 150 men. Testing time ranged from slightly less than 3 min to 5 1/2 min. Because of its ease of administration and effectiveness in identifying motivators, the automated instrument holds significant potential for use in a variety of settings in which personal characteristics (e.g., preferences, choice criteria, values, etc.) must be rapidly identified.

A WIDE VARIETY of counseling and quasicounseling procedures require the identification of personal desires, choice criteria, motivators, or values, as well as the measurement of their relative strengths. For example, (a) high school students exploring further education need to identify the characteristics of colleges and universities; (b) persons planning travel need to know about accommodations, price structures, and recreation opportunities; and (c) workers entering or moving within the job market need to identify the job characteristics they seek. The results of such assessments can then be used in automated or nonautomated retrieval and display systems.

The objective of the research reported here was to design, develop, and test an automated instrument that would assess the relative strengths of certain occupational characteristics known to serve as motivators for joining an or-

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ganization. The specific context for instrument development was military recruiting, but the instrument's potential transcends that domain.

Military recruiting of Americans requires a rapid means of identifying an enlistment applicant's motivation for entering the service. This information can facilitate the recruiting interview and, ultimately, enhance the applicant's classification and assignment.

Across the services, enlistment applicants are typically career-naive men and women entering their first full-time job (Baker, 1985). The military recruiter must acquaint the applicants with the various career opportunities available while accurately portraying the work milieu. If enlistment motivations (i.e., reasons for entering the service) can be determined, the recruiter can respond directly to these rather than launching into a long narrative, much of which may be irrelevant to the applicant.

By identifying the applicant's "hot buttons" (dominant enlistment motives), and determining their relative importance, the recruiter can tailor his or her approach to the applicant (U.S. Army Recruiting Command, 1986). This emphasis on the most relevant aspects of military service increases the likelihood of a mutually informative recruiting interview.

Given the time constraints affecting recruiting interviews (Baker, 1985), the identification and reporting of enlistment motivations must be rapid. These time constraints mean that any instrument proposed must be brief if there is to be hope of implementation and that any additional paper-and-pencil testing at the recruiting site is precluded; computerization is a must.

Army recruiting doctrine recognizes five distinct, recognizable "dominant buying motives" for enlistment (U.S. Army Recruiting Command, 1986). These motivators were considered optimal for the development of a prototype instrument. The five motivators, designated by the mnemonic TEAMS, are

1. *Training*: acquisition of job skills transferable to civilian work;
2. *Education*: schooling and formal coursework for academic credit;
3. *Adventure*: exciting assignments requiring courage and stamina.
4. *Money*: financial benefits obtainable from military service, for example, salary, promotions, housing and food allowances, and bonuses; and
5. *Service to country*: duty and patriotism.

Previous research in the measurement of vocational interests indicates that it is unnecessary to construct elaborate inventories for use in interest assessment (Norris & Katz, 1970). If individuals understand the general concept of, for example, a clerical job, there is no need to ask a battery of questions about the separate tasks characteristic of that type of work (e.g., sorting, filing, organizing, and alphabetizing). If respondents understand the job, they can simply answer the question, "Do clerical activities interest you?," and the

degree of their interest can be scaled as accurately as if they had answered an entire inventory.

If respondents do not understand what a clerical job is, then their answers to questions about sorting and filing will be unreliable and the inventory will be useless. Because the five TEAMS motivators are readily understandable with a minimum of analytical definition, it seemed probable that direct questions, such as "How important to you is money as a reason for enlisting?," would be just as productive as inventory-like batteries exploring attitudes toward salary, promotion, housing allowances, and so forth.

Computerized vocational guidance (CVG) systems have been based on work values, the underlying theory being that different occupations tend to provide varying amounts of opportunity to satisfy different work values. Once the user's values have been made explicit, these systems can provide mechanisms for locating occupations that tend to satisfy the user's important values and, perhaps, can help identify the risks of pursuing those values (Chapman, Katz, Norris, & Pears, 1977). In such a guidance system, each value is defined on a computer screen, and the user indicates the value's importance to him or her on some relatively simple scale. This method is simple, direct, and effective. Because the TEAMS motivators are, in effect, work values, it seemed likely that they could be successfully assessed in the same manner.

Method

The TEAMS motivators were defined in accordance with U.S. Army sales doctrine (U.S. Army Recruiting Command, 1986). A 7-point scale was constructed with responses ranging from *not at all* (0) to *wow!* (6). The instrument consisted of two sections.

In the *level-of-interest* section, the motivation and its definition were displayed on the screen; the motivation was presented as a benefit to be obtained by joining the Army. Beneath the definition appeared a 7-point scale. The subject responded by pressing a key (0-6). This response was highlighted on the scale, and, after a few seconds, the next motivator was shown. This continued until the subject had responded to all five motivators. On the final screen, all responses were shown together, and the subject was given an opportunity to change his or her response to any or all of the motivators.

After a screen prompt, the *rank-ordering* section appeared. We included this section because research has shown that test subjects tend to rank many items highly, particularly (and quite commonly) when the various response targets have been selected on the basis of the characteristics of the typical respondent and when the subjects are somewhat homogeneous (due to preselection, etc.). For example, one would expect academic program, cost, and location all to be highly important to potential college students.

Consequently, in the second section, the subject ranked all five motivators in importance from highest to lowest. Again, the subject was allowed to change responses until he or she was satisfied. At the end of the session, the subject's completed response protocol was displayed on the screen.

Programming

The instrument was programmed in Turbo PASCAL and featured user-friendly, menu-driven software with color graphics. The software operates on an IBM personal computer (PC) or any IBM-compatible microcomputer.

Test Administration

Four IBM PCs were set up in a testing room at the Marine Corps Recruit Depot (MCRD) in San Diego. Marine Corps recruits ($N = 150$) were randomly selected. Personnel were chosen from the receiving barracks, where they were housed before commencing recruit training, in an attempt to minimize bias. As a group, the recruits were briefed on the instrument and its purpose and were assured that participation would not affect their service status or career progression.

The four testing stations were activated and kept in operation until all recruits were tested. Each administration began with on-line instructions and the recruit's entry of name and social security number. At the end of each test administration, individual results were saved in a data file coded by social security number.

Results

Responses to the Motivators

Individual responses for each item (training importance, training rank, education importance, etc.) were tabulated by simple summation. The frequency with which each item was scored as the top choice is shown in Table 1. Service to country was the most frequently chosen primary motivator (31.3%), and education was close behind (27.3%). Money was the top motivator for only 2.7% of the recruits.

For second-choice motivator, training was most favored (32.7%), followed by education (21.3%), as seen in Table 2. At the second-choice level, money, service to country, and adventure were chosen nearly equally (16%, 6%, and 14%, respectively).

All the motivators were highly regarded by the recruits (see Table 3). Although an individual score on the total scale could range from 0 to 6, the

TABLE 1
Frequency Distribution for First Choice on the TEAMS Instrument

First choice	Frequency	Percentage of respondents
Service of country	47	31.3
Education	41	27.3
Training	34	22.7
Adventure	24	16.0
Money	4	2.7

TABLE 2
Frequency Distribution for Second Choice on the TEAMS Instrument

Second choice	Frequency	Percentage of respondents
Training	48	32.7
Education	32	21.3
Money	25	16.7
Service of country	24	16.0
Adventure	21	14.0

means ranged from 4.5 (money) to 4.99 (service), suggesting that many items received the maximum importance score of 6. Ties were broken, of course, by the ranking scale. Examination of the data revealed that 20 of the 150 recruits assigned a value of 6 (wow!) to four or five items.

As illustrated in Table 4, when the second-choice motivator was combined with the first-choice motivator, a different result emerged. Twenty-two percent of the recruits chose education first and training second.

The mean score for all items was 4.6, and scores ranged from 0 (not at all) to 6 (wow!). Pearson correlations were calculated among the importance ratings of TEAMS items. Money correlated with two motivators—adventure ($p < .01$) and education ($p < .001$; see Table 5). Training correlated with education ($p < .001$), and service to country correlated with adventure ($p < .05$).

Ease of Administration

Subjects displayed appropriate attitudes toward the testing situation, and no one declined to participate in the study. The computer program did not capture

TABLE 3
Mean Scores and Standard Deviations on the TEAMS Instrument

Motivation	Importance ^a		Rank ^b	
	M	SD	M	SD
Training	4.96	1.35	2.46	1.13
Education	4.78	1.43	2.75	1.46
Service to country	4.99	1.39	2.82	1.56
Adventure	4.89	1.35	3.36	1.43
Money	4.54	1.39	3.60	1.12

^aMeasured from not at all (0) to wow! (6). ^bMeasured from first choice (1) to last choice (5).

TABLE 4
Frequency Distribution for First- and Second-Choice TEAMS Items

First choice/second choice	Frequency (No. of respondents)	Percentage of respondents
Service to country		
Training	16	10.66
Education	17	11.33
Adventure	11	7.33
Money	3	2.00
Total	47	31.32
Education		
Training	22	13.33
Money	9	6.00
Service to country	9	6.00
Adventure	1	.66
Total	41	25.99
Training		
Education	11	7.33
Money	9	6.00
Service to country	6	4.00
Adventure	8	5.33
Total	34	22.66
Grand total	122	79.97

test administration time, but random timings made by the test administrators revealed that the mean testing time was 4 min and 43 s, and that testing time ranged from 2 min and 45 s to 5 min and 14 s. Few recruits were observed altering their responses. Recruits had not difficulty with either the computerized test format or the computer itself, and no one required assistance from the test administrators.

TABLE 5
Intercorrelations of Importance Ratings of TEAMS Items

Item	Training	Education	Adventure	Money	Service to country
Training	1.0				
Education	.36***	1.0			
Adventure	.16*	-.06	1.0		
Money	.12	.30***	.24**	1.0	
Service to country	.16*	.01	.19*	.02	1.0

Note. N = 150. Ratings ranged from not at all (0) to wow! (6).

*p < .05. **p < .01. ***p < .001.

Discussion

The mean importance scores for all motivators indicate that the recruits tended to score all items highly. Many recruits spent more time on the ranking section, which suggests that discriminating between highly rated items was difficult. Nevertheless, the forced-choice format did reveal service to country to be the primary incentive for enlistment. If several motivators have equal strength, however, it may make little difference which two of them are selected for focused presentation by the recruiter.

Many findings from this pilot test support the viability of the TEAMS instrument: Administration was quick, and subjects understood the procedure, experienced no difficulty, and responded appropriately. High rankings for training are not surprising. In repeated surveys of potential enlistees over a 20-year period, training has consistently been one of the top three motivators (Glickman, 1974; Goldman & Worstine, 1980).

However, the specific enlistment motivators found for this sample of Marine Corps recruits may not generalize to the target civilian population. Although the recruits had not yet begun military training, they represent persons who (a) were self-selected through a decision to enlist, (b) chose the Marine Corps, and (c) had already been screened in the course of the enlistment process. Administration of the TEAMS instrument to recruits in other branches of the military, to enlistment applicants for all the services, and to unselected enlistment-age youths would help broaden its generalizability.

The possible effects of such subject biases underscore the need to extend this research into the target population—persons who are considering enlistment and have entered a recruiting station for information. Some information seekers will decide against enlistment, and some will decide in its favor. Of the latter, some will be found ineligible for service, and the remainder will

enlist. Because the subjects in this study already had applied and been found eligible, there were not representatives of people who reject enlistment or who fail to meet enlistment criteria.

The TEAMS instrument successfully identified the top motivators of military enlistment and indicated their relative strengths. In this pilot application, the computerized TEAMS instrument accomplished this in less than 5 min, indicating that it shows promise for time-pressured recruiting settings.

The TEAMS motivators were suitable for use in prototype instrument development. Should this computerized instrument prove beneficial for Marine Corps recruiting, similar instruments could be developed for the other branches of military service on the basis of the various taxonomies of features and benefits used by their recruiting officers.

A number of uses suggest themselves. First, at the recruiting station, the TEAMS instrument could be used as designed to help the recruiter identify applicants' reasons for enlisting. The TEAMS instrument also may prove useful in recruiter training, especially in role-playing situations.

As recruiting offices become equipped with computers, the TEAMS instrument can be integrated into a more auto-directed system, such as the CVG systems being developed. After an applicant has indicated his or her top choice, for example, the computer could immediately branch to a presentation of relevant features and benefits. In the same vein, a self-contained computerized system could be designed for walk-up use at job fairs, in counseling offices, or even in stores and shopping malls. There, the system could present appropriate information to interested passersby and could perhaps provide the local recruiter's name and telephone number as a source of additional information.

The computer technology described herein has a host of applications other than in military recruiting. For example, students' motivation for enrolling in a particular college or university could be assessed with only minor changes to the computer program. Such an application could assist high school guidance counselors and could significantly enhance the sales presentations of college recruiters. The same process could facilitate health-plan shopping by consumers, who could choose among options offered by cafeteria-style plans. In addition, rapidly administered and rapidly scored surveys, along a variety of dimensions, could be administered without the expense of test administrators and with minimized computer time spent in preliminary qualifying searches.

REFERENCES

Baker, H. G. (1985). Antecarrier crisis: Military recruiting and the youthful job applicant. *Armed Forces and Society*, 11(4), 565-580.

Chapman, W., Katz, M. R., Norris, L., & Pears, L. (1977). *Stat: Field test and evaluation of a computer-based system of interactive guidance and information* (Vol. 1). Princeton, NJ: Educational Testing Service.

Glickman, A. S. (1974, March). Career motivation in the Navy. In E. I. Jores (Ed.), *Symposium Proceedings: Occupational Research and the Navy—Prospectus 1980* (Tech. Rep. 74-14, pp. 164-183). San Diego, CA: Navy Personnel Research and Development Center.

Goldman, L. A., & Worstine, D. A. (1980, October). Why soldiers enlist, re-enlist and separate. *Proceedings of the 22nd Conference of the Military Testing Association* (pp. 357-369). Toronto: Canadian Forces Personnel Applied Research Unit.

Norris, L., & Katz, M. (1970). *The measurement of academic interests: Part II. The predictive validities of academic interest measures*. Princeton, NJ: Educational Testing Service.

U.S. Army Recruiting Command. (1986). *Recruiter salismanship* (U.S. Army Recruiting Command 350-7). Fort Sheridan, IL: Author.

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