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Relationship Between Assessment Center Performance and Psychological Types of Cooperative Extension Agents in Ohio

Joseph B. Ishaya, Ministry of Agriculture & Natural Resources
Jalingo, Taraba State, Nigeria
Janet L. Henderson, Associate Professor
J. David McCracken, Professor
Ohio State University

An assessment center is a place and process where individuals are evaluated for managerial capabilities in order to select, promote, or facilitate the development of an individualized training program in an organization (Thornton & Byham, 1982). Assessment center personnel conduct a job analysis to describe the attitudes, knowledge, and skills required for management positions. The attitudes, knowledge, and skills derived from the job analysis are then used to design assessment center activities. Assessment center participants are involved in selected activities while their managerial capabilities are being determined by trained evaluators. Assessment centers attempt to measure managerial capabilities for the purpose of assessment, selection, promotion, and training (Thornton & Byham, 1982).

Research has shown that psychological types related to "performance measures and behavior ratings" (Mendelsohn, 1965), job roles (Church, 1982), and selection and training (Wachowiak & Bauer, 1977). Psychological types attempt to measure attitude, perception, judgment, and orientation to help people reach their potential through understanding their psychological make-up (Jung, 1921; Myers, 1962). The theory of psychological types may be related to assessment center situations and processes because psychological make-up is being assessed by both processes. However, the relationships between psychological types and assessment center performance remain unstudied. Lack of such information represents a gap in the knowledge of assessment center performance.

Purpose and Objectives

The purpose of this study was to describe the relationships between psychological types and assessment center performance of Ohio Cooperative Extension Service (OCES) agents. Demographic variables that could have influenced the possible relationships between psychological types and assessment center performance were identified and measured.

The objectives of the study were to:

> Describe the OCES extension agents who attended the OCES assessment center on the following variables: gender, age, number of years of work experience in the OCES, highest academic degree, year the extension agent attended the assessment center, and major program area (agriculture, home economics, 4-H and youth or community and natural resources development (CNRD)).
>
> Describe the assessment center scores for the OCES extension agents.
>
> Describe the psychological profile of extension agents who attended the assessment center according to the Myers-Briggs Type Indicator

(MBTI).

Describe the extension agents who attended the assessment center according to their psychological preference for attitude, perception, judgment, and orientation.

Determine the relationships between selected demographic variables and assessment center performance.

Determine the relationship between psychological types and assessment center performance.

Methodology

This study employed ex post facto research. The independent variable was the psychological types of extension agents as measured by the MBTI. The extension agents' psychological types included an attitude score (i.e., either extraversion or introversion), a perception score (i.e., either sensing or intuition), a judgement score (i.e., either thinking or feeling), and an orientation score (i.e., either perceiving or judging). The MBTI defines the preferences in the following manner:

Extraversion (E) attitude - a person's interests flow mainly to the outer world of objects and persons.

Introversion (I) attitude - a person's interests flow mainly to the inner world of ideas and concepts.

Sensing (S) - perceptions observable through the five senses (i.e., touch, smell, taste, sight, and hearing).

Intuition (N) perception - perceptions based on possibilities (i.e., hunches, gut feelings).

Thinking (T) judgment - the decision process that joins ideas together by making impersonal and logical connections.

Feeling (F) judgment - the decision process that weighs the relative values and merits of issues and how they matter to others.

Perceiving (P) orientation - living in a spontaneous, flexible way, aiming to understand and adapt to life.

Judging (J) orientation - living in a decisive, planned, and orderly way, aiming to regulate and control events.

The MBTI score consists of a letter to denote the direction of preference and a number to indicate the strength or consistency of that preference. The greatest number of points indicates the direction of preference and hence the latter part of the preference score (i.e., E18 and I7 yield E, E7 and I18 yield I).

An individual categorical preference score is a person's choice between each of the four dichotomous scales -- attitude (extraversion/introversion), perception (sensing/intuition), judgment (thinking/feeling), orientation (judging/perceiving) and is used to identify the structure (letters preferences) of an individual's psychological type in one of 16 MBTI psychological types (e.g., ESTJ).

An individual's continuous score is a linear transformation of preference scores, using the following convention described by Myers and McCaulley (1985): (1) for E, S, T, or J preference scores, the continuous score is 100 minus the numerical portion of the preference score, and (2) for I, N. F, or P preference scores, the continuous score is 100 plus the numerical portion of the preference score.

The MBTI standardized form G was used in this study to measure the personality preferences of OCES extension personnel. The MBTI form G is a 126 item, self-reporting, pencil and paper instrument designed for normal adults. Hoffman (1974), Myers (1962), and Webb (1964) reported phi coefficients ranging from moderate (.43) to high (.75) for all of the categorical sub-scales in the MBTI. Test-retest reliability coefficients have been estimated based on the percent of agreement of types over time intervals from 5 weeks to 6 years with coefficients ranging from .69 to .92 across all scales. Split-half reliability coefficients calculated on the continuous scores range between .80 and .92 across all four scales for the age groups 15 through 60+ years (Myers & McCaulley, 1985).

The extraneous variables were the extension agents' gender, age, years of experience in OCES, highest academic degree, major program area, and year attended the assessment center.

The dependent variable was the extension agents' assessment center performance rating. During the course of the assessment, usually two to three days, the agents participate in a series of seven activities designed to allow them to demonstrate skills and abilities that are believed to be essential for successful on-the-job performance. The assessment center exercises are: nonassigned role-group discussion, assigned role-group discussion, in-basket communications, interview simulation, written case study, fact-finding, and background interview.

Three trained evaluators rate the extension agents who attend the assessment center on the seven exercises to determine the agents' ability on 16 dimensions: oral communication, leadership/delegation/persuasiveness, sensitivity, initiative, planning/organizing, development of coworkers, judgment/decision-making/decisiveness, behavioral flexibility/adaptability, assertiveness, organizational sensitivity, objectivity, written communication, perception, management control, collaborativeness, and evaluation.

After the assessment center participants complete the seven exercises, the evaluators rate the participants on the 16 dimensions (1=low, 5=high). The evaluators meet and discuss their individual ratings. Where there is disagreement, the evaluators continue to discuss the dimensions until a consensus is reached. The evaluators determine a consensus rating of assessment center performance for each participant as follows:

1 = Meeting management expectations is questionable
2 = Should meet normal management expectations with further development.
3 = Should meet normal management expectations.
4 = Should exceed normal management expectations.

The overall assessment center reliability has been computed using the consensus scores of the evaluators on the 16 assessment center dimensions. The results reveal a Cronbach's alpha reliability coefficient of .95. Data obtained from assessors' ratings reveal an inter-rater reliability value of .79.

The population for the study was the 135 OCES extension agents who attended the assessment center between April 1985 and May 1990 and who were employed by the OCES as of November, 1990. A census of the 135 currently employed extension agents who attended the assessment center was conducted.

The MBTI and the demographic questionnaire were mailed on to the 135 extension agents who participated in the study. Agents who had not responded after two weeks were sent a reminder and after three weeks nonrespondents were sent another set of questionnaires. A total of 120 (89%) extension agents responded to the survey. Four of the surveys contained incomplete data, leaving a data set of 116 cases for analysis. The criterion established by Davis (1971) was used to describe the strengths of the relationships between the variables in the study. Analysis revealed that respondents and nonrespondents shared similar characteristics.

Findings

Of the population of extension agents who attended the assessment center, 60 percent were male and 40 percent were female. The extension agents ranged in age from 25 years to 60 years--the average age was 41 years. Ninety-two percent of the agents had completed degrees above the bachelor's level and five percent had completed a doctoral degree. The majority (87%) of the extension agents had served the OCES more than six years. The average number of years of work experience in the OCES was 14 years. Major program areas of the agents were agriculture (39%), home economics (25%), 4-H and youth programs (24%), and CNRD (4%).

As shown in Figure 1, 16 percent of the agents were rated by the assessment center evaluators to exceed normal management expectations, 46 percent of the agents were expected to meet normal management expectations,. 36 percent were expected to meet normal management expectations with further development, and 2 percent obtained ratings that questioned their capabilities to meet normal management expectation.s. The median assessment center performance scores for extension agents in CNRD was 3.5, for agriculture 3.0, for home economics 3.0, and for 4-H/Youth 2.0.

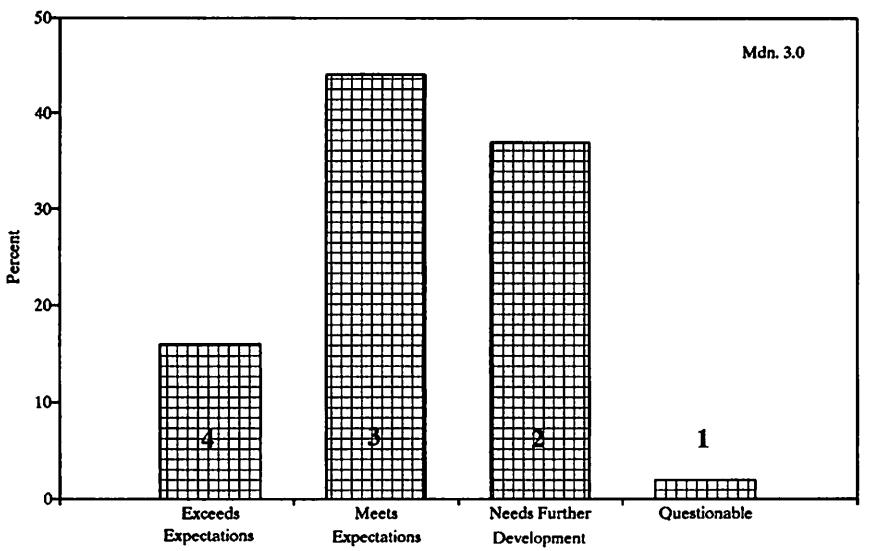

Figure 1. Percentage Distribution of the Assessment Center Performance Scores of Extension Agents Who Attended the Assessment Center from 1985-1990.

As illustrated in Figure 2, a wide range of psychological types was found among the extension agents. All of the 16 psychological profiles that MBTI can "type" were represented in the population of the extension agents who attended the assessment center. The largest percentage (16%) of the agents were typed as ESTJs. The least represented psychological type was ISTP.

ISTJ	ISFJ	INFJ	INTJ
N = 16 % = 13.8 ********** *	N = 10 % = 8.6 **********	N =4 % = 3.4 ****	N = 8 % = 6.9 ********
ISTP	**ISFP**	**INFP**	**INTP**
N = 1 % = 0.9 *	N = 5 % = 4.3 *****	N = 3 % = 2.6 ***	N = 2 % = 1.7 **
ESTP	**ESFP**	**ENFP**	**ENTP**
N = 5 % = 4.3 *****	N = 4 % = 3.4 ****	N = 10 % = 8.6 **********	N = 9 % = 7.8 *********
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
N = 19 % = 16.4 ********** ****	N = 7 % = 6.0 *******	N = 4 % = 3.4 ****	N = 9 % = 7.8 *********

* = 1 person, N = 116

Figure 2. MBTI Psychological Profile of Ohio Cooperative Extension Service Agents Who Attended the Assessment Center (1985-1990)

As illustrated in Figure 3, the majority of the extension agents were "typed" by the MBTI as extroverts (57%) with sensing (57%), thinking (58%), and judging (65%) preferences. The majority of the extension agents were people who were more interested in the outer world, who perceive things through their five senses, who made impersonal and logical decisions, and who lived in a decisive, planned, orderly manner aiming to control life's events.

The findings concerning the relationships between the demographic variables and assessment center performance are reported in Table 1. Higher scores were obtained by those agents who: a) were in administration or CNRD, b) attended the assessment center in 1985, and c) had more years of experience. Lower assessment center scores were obtained by the agents who: a) were in the 4-H and youth program, b) attended the assessment center between 1986 and 1990, and c) had fewer years of experience.

Table 2 displays the relationships between the psychological type preference scores and assessment center performance. Scores on the JP orientation scale of the Myers-Brigg were negatively related to the assessment center performance of the extension agents. The agents who were perceiving oriented obtained lower assessment center performance scores and those who were judging oriented obtained higher assessment center performance scores. A statistically significant relationship was found between the continuous orientation preference score and assessment center performance.

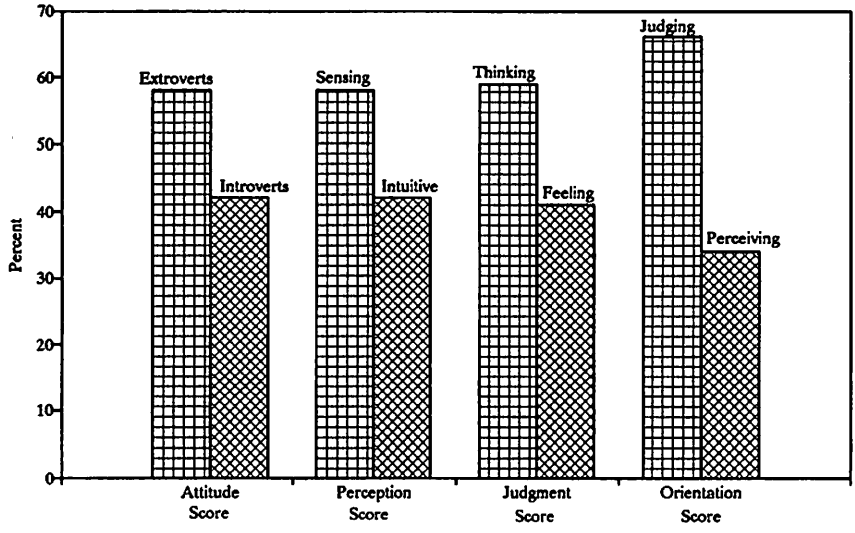

Figure 3. Distribution of the Extension Agents Who Attended the Assessment Center According to Their Psychological Type Preference for Attitude, Perception, Judgment, and Orientation.

Table 1. Relationships Between Demographic Variables and Assessment Center Performance

Demographics	Assessment Center Performance Correlation (r)	Correlations Were Interpreted As Follows:
Gender	.02[a]	Negligible Association
Age	.16[c]	Low Association
Degree	.09[b]	Negligible Association
Years of Experience	.23[c]	Low Association
Year Attended Assessment Center	.25[c]	Low Association
CES Major Program Area	.43[c]	Moderate Association

[a]Ranked - biserial correlation (r_{rb}).

[b]Ranked - multiple correlation (R_{rb}).

[c]Ranked Spearman multiple correlation (R_{rb}).

The major program area was the only variable found to be related to both the dependent and independent variables. Those agents in administration and CNRD were also judging oriented. Being judging oriented could offer a tenable explanation for performing better at the assessment center.

Conclusions and Recommendations

All of the 16 psychological profiles of the MBTI were represented in the population of extension agents. The OCES has not systematically excluded any particular profile and can accommodate a wide variety of personality types within the organization. The

Table 2. Relationship Between MBTI Preference Scores and Assessment Center Performance Ratings

Preference Scores	r[a]	Correlations Were Interpreted As Follows:
Attitude		
Categorical	.05	Negligible Association
Continuous	.07	Negligible Association
Perception		
Categorical	.01	Negligible Association
Continuous	-.02	Negligible Association
Judgment		
Categorical	-.15	Low Association
Continuous	-.06	Negligible Association
Orientation		
Categorical	-.20	Low Association
Continuous	-.24	Low Association

[a]Ranked biserial correlation (r_{rb})

majority of the agents exhibited extroversion attitudes, sensing perceptions, thinking judgments, and judging orientations, with the largest number of agents being classified as ESTJs. These findings are comparable with other research studies (Von Franz, 1964; Wright, 1966; Lawrence & DeNovellis, 1974; Hoffman, 1975) that found the majority of preservice teachers, practicing teachers, and school administrators to be categorized as ESTJs.

The findings support the expectation that the agents who obtained low orientation preference scores, that is, judging orientation, would demonstrate more administrative abilities and skills than those who obtained high orientation preference scores, that is, perceiving orientation. However, users of this research should be aware of the correspondence between judging orientation and participation in the major program areas of administration and CNRD. Participating in these major program areas offers a competing explanation for obtaining higher assessment center ratings. The hypothesis that agents preferring extroversion attitude (E), intuition perception (N), and thinking judgement (T) would have higher assessment center scores than those preferring introversion attitude (I), sensing perception (S), and feeling judgement (F) was not supported.

The OCES could use the MBTI as a supplemental measure to assessment center measures to expand its current knowledge of the extension agents for career development and performance improvement and for overall organizational development. If the OCES knows more about the extension agents, including their psychological profiles, as measured by the MBTI, then the organization can attempt to plan projects, team work, and other activities based on this information to develop the agents' less preferred functions, and hence, professional growth for the agent and increased productivity and prosperity for the organization.

The MBTI could be used to help the extension agents prepare individualized development plans. Individualized training plans are consistent with the current management literature which underscores the value of people. Information obtained from the MBTI and the assessment center could assist agents and managers to focus on specific attitudes and orientations targeted for improvement.

At the current time, the OCES is not gathering MBTI information. Since all of the 16 psychological profiles of the MBTI were represented in the population of this study, the

OCES could use the MBTI to indicate the psychological type diversity among the agents for focusing inservice programming.

Additional studies could be conducted using various personality forms (e.g., Strong Vocational Interest Bank-Strong Campbell Interest Inventory (SVIB-SCII)) to determine whether or not the results obtained in this study would be similar with a different assessment instrument as a justification or reliability check. If studies conducted using a variety of personality instruments produce similar results, then the results of those studies and this study would provide congruent validity justification for the MBTI and assessment center performance. Studies conducted with different personality instruments would determine the extent to which the results of this study are congruent with other instruments which measure the same constructs.

Identifying and examining the relationships of other independent variables such as the extension agent's management responsibilities in current job role, number of relevant in-service training sessions, seniority, levels of skill, company loyalty, needs, goals, energy level, drive, motivation, perceived purpose of assessment centers, perceived reward of management, aspiration for management, perceived career and organizational development associated with assessment center performance. Such independent variables may provide additional information about why some agents score higher in certain areas than others at the assessment center.

Further research could be conducted using the MBTI and a more definitive measure of assessment center performance to more accurately reveal the relationships between psychological types and assessment center performance. If evaluators observe the extension agents performance on the job using observation rating instruments with greater variance then a more definitive measure of the extension agents' managerial capabilities will be obtained.

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