THE RATING POLICIES OF CORPORATE AND SCHOOL DISTRICT RECRUITERS: EFFECT OF PROTOTYPES ON THE JUDGEMENT AND RETRIEVAL OF PERSONAL DATA SHEET INFORMATION OF COLLEGE SENIORS

by

Mary Catherine McCoy

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Approved:

Roseanne Foti, Chair

Neil Hauenstein

Stephen Zaccaro

Joseph Sgro

Frederick Hills

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ABSTRACT

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Committee: Roseanne Foti (chair), Joseph Sgro, Neil Hauenstein, Stephen Zaccaro, Frederick Hills

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(Abstract)

The purpose of this study was to examine the effect of occupational prototypes on the evaluation and retrieval of information provided in hypothetical personal data sheets of college seniors. Prototypes for mechanical engineers and elementary school teachers were generated by college students majoring in engineering and education. These prototypes were used to construct a simulated personal data sheet evaluation exercise. A total of 36 personal data sheets [2(replications) X 3(GPA: high, medium, low) X 2(extracurricular activities: prototypic, nonprototypic) X 3(work experience: high, medium, low)] were developed for each occupation. Each of the 36 personal data sheets were rated by corporate or school district recruiters.

Based on the results of the study, several conclusions were proposed. First, it was apparent that prototypes differed structurally between occupations, and that these prototypes may differ slightly between students and recruiters. Second, it was noted that not all aspects of a prototype were weighted equally during information

processing. One dimension, GPA, was heavily emphasized by the majority of recruiters, with little consideration given to work experience and extracurricular activities. Third, it was suggested that schematic organization affected the recruiters rating process because 85% of the engineering recruiters and 87% of the education recruiters used the same rating policy. Furthermore, while prototypes differed structurally between occupations, the weighting, or importance, of a particular dimension in the rating process may be equivalent for all occupations. Thus, although the underlying structure of the prototypes differed between occupations, the emphasis on GPA by both groups of recruiters resulted in the identical rating policies of both engineering and school district recruiters. Finally, recruiters tended to remember prototypic rather than nonprototypic information from the Personal Data Sheets. These results suggest that schematic organization and prototypes are affecting the judgement and retrieval of Personal Data Sheet information of college seniors.

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Introduction

The initial screening of a potential employee usually occurs with the evaluation of a resume, job application, or personal data sheet. Although this stage of personnel selection is considered of primary importance, the literature demonstrates that decisions made from resume information are commonly biased due to gender, race or age of the applicant. Empirical and theoretical literatures on information processing and schemas, however, have facilitated understanding of how these biases result from the processing and evaluation of resume information.

It is proposed that employers have schemas and prototypes of employees within a given occupation. For example, secretaries are typically thought of as female and attractive. Thus, a male and/or unattractive applicant is considered to be less qualified than a female and/or attractive applicant for a secretarial position. Therefore, the interviewer's pre-existing prototype of a secretary influences the evaluation of any applicant for that position.

The influence of occupational schemas, then, will be the focus of this proposal. Specifically, prototypes for two different occupations will be generated by undergraduate college students in Part I of the study. Part II and Part III of the study will be designed to test two stages of an information processing model: 1) judgements made of the stimulus information, and 2) retrieval of the stimulus information. Part II of the study will address evaluation and judgement and will be designed and analyzed using policy capturing procedures. In this part of the study, personal data sheets will be developed for the two occupations based on the prototypes generated in Part I of the study and rated by corporate and school district recruiters. The results of these evaluations should demonstrate how the recruiters combine and use information when making recommendations for employment interviews. It is expected that occupational prototypes will affect how stimulus information is used during this evaluation and judgement process. Part III of the study will address the retrieval of information. It is expected that prototypic items will be more available in memory. Therefore, a higher frequency of prototypic personal data sheet information should be reported by recruiters than nonprototypic or less prototypic items. These result would indicate that prototypes not only affect the evaluation and judgement of information, but also affect the storage and retrieval of stimulus information.

In the following discussion, four areas of literature will be reviewed. First, an overview of schema theory will be presented, including person schemas, occupational prototypes, role schemas, stereotypes, and the role of schemas in encoding, retrieval, and judgement. The processes of schema activation, development, perseverance, and change will also be discussed. Second, a review of the literature of resume studies will be presented to facilitate understanding of the role of schemas and prototypes in the evaluation of resume information. Third, policy capturing procedures and studies will be discussed. The use of this procedure should demonstrate the extent to which prototypes affect the recruiter's evaluation of personal data sheets of applicants. Finally, information processing will be addressed. This discussion will include how individuals combine information and use heuristics during the processing of information. A model of information processing will also be included. This model, then, along with the literatures on schema theory, resume studies and policy capturing will serve as the framework for the proposed study on the effect of occupational prototypes on the evaluation of the personal data sheets of college seniors.

Schema Theory

Schema theory has changed little since 1932. Historically, the concept of schemas can be traced to Bartlett (1932) who defined a schema as an active organization of past reactions or past experiences that exists as a complex unconscious knowledge structure. Bartlett further proposed that new, incoming information serves to modify appropriate schemas and that no specific episodic representation of the new information is retained in memory. Although this pure reconstructive schema theory of memory is officially adopted by Bartlett, he later found that memory processes can be only partially reconstructive. That is, recall is a joint function of schemas and a specific episodic component. This accounts for the recall of novel detail that is schema-unrelated.

Schemas are defined today as unconscious mental structures and processes that underlie all aspects of human knowledge and skill. Schemas interact with incoming information and this interaction consists of two basic processes: 1) the modification of the generic knowledge or schema, and 2) the construction of a specific instantiated memory representation. A generic schema contains the fixed pre-existing structural knowledge about a person or a category; an instantiated schema is the cognitive structure that results from the interaction of the old information of the generic schema and the new information from the stimulus (Brewer and Nakamura, 1984). An interaction of generic schemas with incoming perceptual input operates unconsciously and allows appropriate behaviors and responses to be generated. In essence, then, these cognitive structures represent organized knowledge about a given person, object, or situation and direct the processing and interpretation of information and actions (Grasser, Woll, Kowalski, & Smith, 1980; Taylor & Crocker, 1981).

Schemas can be classified into four types: a) self schemas (cf. Markus, 1977) which contain knowledge about one's own characteristics, appearances and personality; b) person schemas (cf. Cantor & Mischel, 1979; Foti, Fraser & Lord, 1982; Lord, Foti, & DeVader, 1984) which focus on characteristics and behaviors of specific groups or types of people; c) script schemas (cf. Gioia & Poole, 1984; Schank & Abelson, 1977) which include information about a typical sequence of events in a given situation; and d) person - in - situation schemas (cf. Cantor, Mischel & Schwartz, 1982; Fiske & Taylor, 1984) which contain knowledge about people in specific social situations. Although conceptually different, these four types of schemas all involve the same underlying cognitive processes.

Each type of schema affects the perception and interpretation of incoming information (encoding), storage and memory of that information, and finally, inferences and responses to that information. With respect to personnel selection, the importance of person schemas, prototypes, role schemas and stereotypes will be further discussed to exemplify their influence on information processing.

Person Schemas and Prototypes

Individuals can be sorted and classified into categories and groups according to similarities in traits, behaviors and characteristics. Once a person is matched with a prototype and placed into a category, category consistent information is usually retrieved rather than specific characteristics unique to the particular person. In other words, the person becomes subsumed in the category, thus losing individuality and uniqueness. As a result, information and characteristics recalled tend to be from the category in general, rather than from the person in particular.

Several views of categorization depend on the concept of central tendencies, or prototypes. Prototypes are represented cognitively as an abstract set of features commonly associated with the members of a category (Cantor & Mischel, 1979). Categories are composed of a typical instance, called the prototype, accompanied by a range of peripheral examples. In addition, there can be prototypes for ideal and poor examples of the category. This suggests that employers may have prototypes of ideal applicants for a particular position. This ideal prototype would be represented in detail including sex, qualifications, experience, etc. The employer compares the features and characteristics of an applicant to this ideal prototype of the occupational category; the higher the similarity, the higher the evaluation.

During encoding a perceiver places an individual in a particular category based on the extent to which the individual's features and characteristics match the features and characteristics of the prototype. The more similarity between the new individual and the prototype, the more certain the rater will be in placing that individual in the category (Fiske & Taylor, 1984). Similarly, the more features an individual shares with the category prototype, the more consistently that individual will be identified as a typical category member (McCloskey & Glucksberg, 1978; Rosch, 1978). Thus, categorization is a fuzzy set phenomenon, rather than a fixed, well defined categorization process.

Furthermore, knowing a person's goal can affect encoding as well as bias memory in the direction of goal-consistent information. Zadny and Gerard (1974) told subjects that a particular student's major was either psychology, chemistry or music.

The subjects then watched a skit in which the student dropped a variety of books and papers. Subjects recalled more music-related items that had been dropped when told that the student was a music major. Alternately, subjects recalled more chemistry and psychology items when they were told that the student was a chemistry major and a psychology major, respectively. Knowing the person's major affected the encoding and memory of the stimulus information. The perceiver placed the individual into a category (e.g. psychology, chemistry, or music major), which determined how the stimulus information was perceived. Finally, the information remembered and recalled tended to be from the category in general rather than from the specific stimulus information.

Therefore, schemas seem to affect the encoding as well as the retrieval stages of information processing. For example, Cantor and Mischel (1977) had subjects read a list of words describing an extrovert. On a later recognition test, highly related words such as spirited and outgoing, were misremembered as being part of the original stimuli. Once the perceiver placed a person into a particular category, the perceiver erronously remembered the presence of category consistent but never-seen attributes.

Although schemas apparently affect both encoding and retrieval, empirical evidence can be obtained to determine whether the schematic effects occur at the encoding or retrieval stages of information processing. Wyer, Srull, Gordon, & Hartwick (1982) demonstrated that schemas affect both initial perception (encoding), and later retrieval. Schematic structure, for example a category label, can be provided either before or after subjects view a set of ambiguous stimuli. The authors found that, although memory in both conditions was shaped by the schema, the effects of providing schematic structure beforehand were usually stronger.

Finally, schemas and prototypes affect subsequent inferences and judgements. Prototypes provide people with information about what attributes generally go together in other people's personalities. Thus, people may categorize someone on the basis of a few attributes (e.g. "This man is an engineer"), and infer similarity on other objectively unrelated attributes (e.g. "Therefore, he must like computers") (Fiske and Taylor, 1984). In addition, Semin and Rosch (1981), found that if an individual demonstrated one extroverted attribute such as planning lots of parties, subjects were more likely to infer that the person had other extroverted attributes such as liking to talk. Finally, Cantor and Mischel (1977) demonstrated that once a stimulus person was categorized as an extrovert, other characteristics consistent with extroversion were inferred about the stimulus person.

In summary, prototypes and schemas affect all stages of information processing. Therefore, it is possible that an employer's schema and prototype of an ideal applicant for a particular occupation affects the perception, evaluation, attribution, and inference made about a job applicant. In the following section, studies on the effect of occupational prototypes on judgements and evaluations of applicants will be reviewed.

Occupational prototypes. Cohen (1981), had two groups of subjects watch a videotape of a vignette. One group was told that the target woman was a waitress and the other group was told she was a librarian. The results indicated that subjects were selectively accurate, that is, they were more accurate in recalling more prototype-consistent items than they were in recalling prototype-inconsistent items.

Furthermore, this selective accuracy was found even after 7 days, although the accuracy was somewhat reduced.

A second experiment was conducted by the author to separate the roles of encoding and retrieval in this selective accuracy. She found that subjects who knew the occupation either before or after viewing the videotape demonstrated selective accuracy. Although both encoding and retrieval processes contributed to selective accuracy effects, the encoding effects were stronger. These results suggest that person information is organized around category prototypes.

In a study by Lingle and Ostrom (1979), subjects were asked to play a role of a job placement counselor and to make decisions concerning the suitability of hypothetical individuals for different occupations. An initial occupation was presented, followed by a slide containing 4 traits describing a stimulus person. The initial occupation was again presented and subjects were asked to indicate the suitability of the person for the job. Finally, a second occupation was shown which was either occupationally similar or dissimilar to the first occupation, and the subjects were asked to judge the suitability of the same stimulus person for this second profession without reviewing the stimulus traits. The results indicated that an initial stimulus based judgement made about a person influenced how quickly the subject made a subsequent memory based judgement about the same individual. Because a second decision about a similar occupation was made more quickly than a decision about a dissimilar occupation, it was suggested that the subject's second decision, or judgement, was not based on a review of all of the stimulus information or traits the subject could remember. Rather, the second judgement was based on the subject's memory of the first judgement.

In additional experiments by Lingle and Ostrom (1979), evidence was found that demonstrated the robust nature of the similarity effect. The magnitude of the similarity effect was undiminished by trait-set composition (heterogeneous versus homogeneous), trait-set valence (positive versus negative), and set size (one through seven items of person information). Even when subjects demonstrated perfect recall ability, 75% of them took longer to reach a second dissimilar decision. These results support the judgement-retrieval model which posits that subjects base second decisions on memory for their initial judgement and its associated characteristics.

Lingle, Geva, Ostrom, Leippe, and Baumgardner (1979) conducted a series of experiments to study how people make stimulus based judgements. Two pairs of occupations were used: a) academician and sportsman, and b) comedian and pilot. The person descriptions accompanying the first occupation pair contained 4 traits related to performance as an academician and 4 traits related to performance as a sportsman. The person description accompanying the other occupation pair contained 4 traits related to performance as a comedian and 4 traits related to performance as a pilot. Subjects read descriptions of eight traits from one of the pairs of occupations (e.g. academician and sportsman), and recorded how well they thought the person would performance in one occupation from the pair of occupations (e.g. academician or sportsman). They were also asked to recall as many of the traits as possible and list additional traits that they thought would be characteristic of the person. The results indicated that subjects remembered more judgement relevant traits, and used more judgement relevant characteristics to describe the person. Thus, the initial judgement of occupational suitability thematically organized an impression and affected the retrieval of stimulus information.

In a second experiment, the authors found that subjects were better able to recognize a set of descriptive person traits when they were relevant to the judgements they had made. Second, this relevance effect persisted over time and was present one week after the judgement was made. Third, the initial judgement increased the percentage of intrusion errors from a set of traits that were relevant to the judgement, but not part of the set of traits in the person description. Finally, the authors found that the initial judgement organized an impression and this impression was reflected in subsequent memory based judgements. Thus, subjects based attribute ratings (e.g., the person is intelligent), on memory for an organizational theme or the occupational judgement (e.g., the person is a good physicist).

These studies suggest that an organizational theme or schema is activated by the name of a particular occupation. This schema shapes the impressions formed, judgements made, and increases the availability in memory for impression-related cognitions. Thus, people perceive, organize, and encode information about others within a judgement context, in this case judging occupational suitability. It is likely, then, that these organizing schemas are activated when employers must make employment judgements about an applicant from resume based stimulus information.

In summary, it is suggested that the occupational title activates a schema that affects the perception, evaluation and judgements of an applicant's resume. It is likely that stimulus information provided in a resume is evaluated differently depending on the occupational schema that is used as an organizing theme. In addition to activating a particular occupational schema, resume information can also activate stereotypes associated with characteristics of the applicant. Resumes typically provide information on the applicant's sex, and therefore, may result in biased evaluations due to sex-role stereotypes. For example, a secretary is typically stereotyped as female. Thus, a male applicant may receive lower recommendations than a female for a secretarial job. Therefore, the importance of role schemas, which can be considered one type of person schemas, and stereotypes on the evaluation of resumes will be discussed.

Role Schemas and Stereotypes

Role schemas also play a critical role in intergroup perceptions, and are one way to explain the stereotyping process. A social role is a set of norms and behaviors attached to a social position, thus a role schema is a cognitive structure that organizes one's knowledge about appropriate behaviors (Fiske & Taylor, 1984). Characteristics of an individual acquired by effort determine the individual's achieved roles (e.g. training, experience) and characteristics of an individual acquired at birth determines the individual's ascribed roles (e.g. sex, race, age). Each of these characteristics result in role-based organized schemas of the expectations for appropriate standards and behaviors (Kinder, Peters, Abelson & Fiske, 1980).

The encoding and retrieval processes of role schemas are similar to the processes involved in person schemas. Once a person is encoded and categorized as a male or female, the stereotypic content of the schema is likely to be remembered, and the person becomes just another example of the relevant schema. Categorizing the person slants the perception of what the person does. For example, Taylor, Fiske, Etcoff & Ruderman (1978), found that a sarcastic colleague may be seen as spiteful if female, but cynical if male. Thus, role schema theory suggests that stereotypic interpretations often negatively shape the encoding process.

Memory is also guided by the role schema. For example, subjects may remember that a woman made a certain comment, but not which woman made it (Taylor et al., 1978). Thus, as in person schemas, memory of categorical information is so central that subjects remember the person's category, or role, and remember nothing else about the particular person.

Categorizing others using role schemas leads to exaggerating perceived differences between groups (e.g., male, female), and minimizing perceived differences within each group. Furthermore, any group of outsiders, or out-group (e.g. male nurses) appears less variable than one's own group, or in-group (e.g. female nurses), and these out-groups are defined with less complexity than the in-group. Thus, a female nurse may have a schema of female nurses consisting of a large number of attributes and characteristics, while her schema of male nurses may consist of only a few qualities. Therefore, the schema for male nurses is less complex, and thus, appears less variable. Typically, complexity is defined and measured in terms of the number of independent attributes contained in the schema or stimulus (Linville, 1982).

Recent literature has used the concept of cognitive complexity of individuals to facilitate the understanding of stereotypes (cf. Linville, 1982). The out-group schema is less complex since one knows more about one's own group than about another group. Thus, the out-group polarization effect is caused by a lack of complexity in individual's out-group schema. However, increasing information about the out-group does not necessarily reduce polarization, but may affect the direction of the polarization. For example, white admission committees who encountered a good application from a black student perceived the application as better than the same application comming from a white student. However, a weak application from a black student was considered worse than if the application was from a white student. Thus, good out-group members were seen as better than comparable in-group members; and bad out-group members were seen as worse than comparable in-group members (Linville & Jones, 1980).

Studies by Linville (1982) and Linville et al (1980) demonstrated the importance of complexity in in-group and out-group evaluations. For example, Linville (1982) found that young males demonstrated greater complexity in their descriptions of young males than in their descriptions of old males. Furthermore, young males evaluated old male targets more extremely than young male targets in both a positive and negative direction. Finally, the authors suggested that greater contact with the in-group may result in knowledge of more extreme examples to anchor the scale endpoints in the in-group than in the out-group condition, giving rise to more moderate in-group ratings.

These studies focused on the importance of cognitive complexity in the stereotyping literature. Typically, studies that have reported biases due to gender, race or age have provided subjects with limited information about the target person other than group membership per se. As will be seen below in the literature review on resume studies, judgements based only on group membership (i.e., sex) differ from judgements based on more detailed descriptions (Tosi & Einbender, 1985).

Many studies on stereotyping, then, are limited in their ability to study the cognitive representations and processes underlying stereotyping. By focusing on more complex stimuli and the interaction between prior knowledge structures, or schemas, and the stimulus information, information processing can be more fully understood. Finally, in addition to encoding, retrieval and judgement, schema complexity is also important in understanding schema development, perseverance and change. In the following section, these processes will be discussed particularly as they relate to the perceiver's level of expertise.

Schema Activation, Development and Change

Schema activation. A schema's activation is determined partly by how recently it has been activated in the past. This priming effect was demonstrated in a study by Higgins, Rholes and Jones (1977). Subjects were exposed to either positive or negative traits and then read a seemingly unrelated context about a target person. Subjects who were primed by the positive traits evaluated the target more positively than the subjects who were primed by the negative traits. Thus, recently activated schemas are more accessible for selection when interpretating new information. A particular schema is also more likely to be selected if it has been applied frequently in the past. A frequently used schema is continually primed, thus a frequently activated schema has a higher probability of being activated at any given time (Wyer & Srull, 1980). Finally, observational purposes determine which schema is activated. Such purposes as memorizing a person's behavior, predicting his future behavior, or creating his psychological profile, each activate different schemas (Cohen, 1981).

Schema development and the role of expertise. Well developed schema are more complex, more abstract, more organized, more moderate, and more conservative (Fiske & Taylor, 1984). The more a person encounters schema-relevant examples, the more abstract the schema becomes. For example, a person's first exposure to a college professor might result in a specific schema consisting of particular features and characteristics. After encountering 20 or 30 college professors, the schema will incorporate a more general and abstract range of features and characteristics.

Similarly, the more encounters a person has with college professors, the more complex the schema will be in terms of the number of dimensions used in its composition. Furthermore, the number and structure of links among schematic content will reflect a higher level of organization in mature schemas. The schema of experts, then, contains more elements than the schemas of novices, and are organized with more complexity. For example, Linville (1982) found that young males demonstrated greater complexity in their descriptions of young males than in their descriptions of old males. Thus, a young male's greater exposure to other young males allowed the person to become an 'expert' on young males, resulting in a more complex, well developed schema. Therefore, people can be considered as experts of their own groups and, thus, should have more complex schemas regarding their own group than other groups (Linville & Jones, 1982).

An expert's well-developed schema typically frees processing capacity such that schema-discrepant material can be noticed, recalled and used. However, the more complex one's schema, the more likely exceptions can be assimilated without abandoning the schema. This conservative processing strategy is used more often by experts due to their well-developed schemas, making the schemas resistent to change (Fiske & Taylor, 1984).

Finally, experts have the skills to process information and execute behaviors automatically (cf. Schneider & Shiffrin, 1977). Although this automatic processing is fast and efficient, it may be inflexible and precludes access to the underlying details and components of the process. Thus, the individual may not see possible alternatives as he makes his interpretations (cf. Langer & Imber, 1979). However, when experts are motivated, they may use controlled processing. For example, when subjects are forced to pay attention, or are required to make a very important decision, processes will be more controlled and judgements will be less influenced by schemas and prototypes (Showers & Cantor, 1985). On the other hand, in a situation where speed, automaticity and low effort are involved, schemas will be influential. This automatic process may occur spontaneously when experts such as personnel recruiters must evaluate hundreds of college resumes or personal data sheets.

Schema perseverance and change. As schemas are developed and cued, they shift from an inactive to an active state, thus changing and growing over time. One particular feature of schemas is the perseverance effect, that is, the persistence of schemas even under conditions suggesting evidence to the contrary. In a study by Ross, Lepper and Hubbard (1975), subjects were told that the results from a personality test indicated that they were socially sensitive. The authors assumed that the subjects would then activate or build a self schema for themselves as socially sensitive and to think of all the reasons why that was true. When the subjects were told that the test was not real, they continued to believe themselves socially sensitive. Over time, subjects found evidence of their own in support of the socially sensitive self-schema. This study demonstrated, then, that changing a schema is difficult once that schema is activated and put in place. Furthermore, people typically ignore exceptions or contrary evidence to the schema, or perversely interpret the exceptions as evidence for the schema.

In addition, once a person has a well-developed schema, the person's judgements become extreme as a function of increased processing. Thinking about the schema enables evidence and justifications to be generated, which makes the schema persevere and polarize. Furthermore, information that fits the polarized judgement is judged more quickly and recalled more easily than moderate information (Judd & Kulik, 1980).

Perseverance can be modified, however, by telling people to think carefully about how they are evaluating the evidence, and to watch their biases as they process the information. Moderating the perseverance effect can also be achieved by having people explain why their theory or schema might be wrong. Thus, mixed or negative evidence does not necessarily undercut the perseverance effect unless people are told to monitor their own judgement processes, or are forced to counterargue their own schemas (Fiske & Taylor, 1984).

People, especially experts, tend to make new information fit into a particular schema. However, when there is only partial fit, the individual may try to resolve or ignore the discrepancies. Alternately, this partial fit can cause the schema itself to change, particularly when the inconsistencies exist within groups rather than within an individual. For example, in a study by Weber and Crocker (1983), subjects were exposed to a set of behaviors, one-third of which were discrepant with an occupational stereotype (librarians or lawyers). The discrepant behaviors were either dispersed across individuals within the occupation or concentrated within single individuals. Stereotypes changed most when discrepant behaviors were dispersed across individuals. These results support the subtyping model which suggests that incongruencies cause the perceiver to form subcategories within the overall schema. If the discrepancies are all in one individual, the exception can be subtyped and forgotten, leaving the schema in place (cf. Taylor, Fiske, Etcoff & Ruderman, 1978). Discrepant information that is unambiguous, considerable, memorable, and stable is most likely to cause schema change. If the discrepant information is moderate or ambiguous, the instance can be assimilated. Finally, if the discrepant information can be attributed to situational causes, the instance will have little affect on the schema.

Summary

In summary then, schemas and prototypes can operate throughout the stages of information processing. A few behaviors or characteristics are observed in a person, and those features matched against various prototypes and schemas. If the features of a stimulus person are consistent with a particular prototype, a match occurs and the person is categorized as belonging to that schema. Thus, memory of the characteristics of that stimulus person is highly dependent on the category in which that stimulus person is placed (cf. Phillips & Lord, 1982; Phillips, 1984).

Alternately, initial knowledge of the category, such as an occupation, affects perception of that stimulus person. Occupational title, for example, serves as one organizing schema, and affects the perception and interpretation of resume or stimulus information of an applicant. Furthermore, it is suggested that prototypes and schemas exist for a wealth of occupations, and these prototypes consist of specific attributes, behaviors and characteristics of what an ideal employee in that occupation should exhibit. Thus, the same stimulus person could be evaluated differently, depending on the occupational category in which the person is placed.

Finally, the variety of information typically found on resumes and job applications should activate a complex knowledge structure, or schema, particularly when evaluated by an 'expert', or actual college recruiter. Thus, less reliance on sex-role stereotyping should occur. Therefore, the evaluations of identically qualified males and females should not be significantly different. Resume studies, then, will be briefly reviewed to understand further the effect of schemas and cognitive complexity on the evaluations of resume information.

Resume Studies

Resume evaluations are considered a necessary first step in the selection process by the vast majority of organizations. Yet, studies consistently demonstrate that subjectivity and biases may occur during this process. These studies examine such factors as race (cf. Haefner, 1977; Wexley & Nemeroff, 1974), sex (cf. Cash, Gillen & Burns, 1977; Dipboye, Arvey & Terpstra, 1977; Muchinsky & Harris, 1977; Rosen & Jerdee, 1974;), and age (cf. Fusilier & Hitt, 1983; Haefner, 1977). Typically, subjects in these studies take the role of a personnel decision maker, evaluate a series of resumes and rate the applicants on their suitability for a job. These ratings serve as the dependent variables.

Cohen and Bunker (1975), found that hiring decisions were not influenced independently by the applicants sex, but rather, were a function of the applicant's sex and the occupation. They found that more females were recommended for hiring in a female-oriented job (editorial assistant), while more males were recommended for hiring in a male-oriented job (personnel technician). Similar results were found by Cash, Gillen and Burns (1977). Males were preferred over females for masculine jobs and females were preferred over males for feminine jobs. In addition, they found that attractive applicants were evaluated more favorably than unattractive applicants.

These studies then, support the stereotyping literature. Specifically, occupations are sex-typed, which lead to higher evaluations of the male applicants for masculine occupations and female applicants for feminine occupations. However, Arvey (1979) suggested that women are evaluated more poorly than men, except when evaluators have information about the qualifications of the candidate. Thus, when judges have limited information, they are more likely to base a decision on sex-role stereotypes, but when applicant information is not limited, there is little reliance on stereotypes.

Dipboye, Arvey and Terpstra (1977) studied the effects of applicant sex and attractiveness. In addition, the interviewer's sex and attractiveness, as well as the applicants qualifications were manipulated. They found that regardless of interviewer sex and attractiveness, highly qualified applicants were preferred over poorly qualified applicants. However, attractive applicants were preferred over equally qualified unattractive applicants and males were preferred over equally qualified female applicants for a managerial job.

The preference for males over equally qualified females was also found in a field study by Zikmund, Hitt and Pickens (1978). Sex of the applicant (female name or initials), and scholastic performance (GPA=3.8 or GPA=2.8) were manipulated in the development of resumes. These resumes were sent to personnel directors of 100 corporations. The dependent variable used was the number of positive or negative replies by the personnel directors. The results indicated that a higher positive response rate resulted for the resumes using only initials and for higher scholastic achievements. Thus, female resumes received more negative evaluations, regardless of the equal scholastic record.

These studies, however, still limit the amount of information given about an applicant to two or three dimensions. Renwick and Tosi (1978), however, manipulated undergraduate major, graduate degree, job applying for, sex and marital status, using a factorial design. Subjects assumed the role of a personnel director and evaluated 10 hypothetical resumes. The results suggested that a job applicant's field of specialization and graduate degree plays a more important role in selection decisions than sex and marital status. Furthermore, the significant interaction of undergraduate major, graduate degree, sex and marital status, suggested that certain background configurations were more attractive than others. For example, the most desirable candidate was a married male with two children, an undergraduate degree in business administration, and an MBA.

Number of years of relevant employment experience, age, race, and sex, were varied in resumes of job applicants for management-training programs and evaluated by business students (Fusilier & Hitt, 1983). Similar to the results obtained by Renwick and Tosi (1978), the results indicate that work experience had the greatest influence on the students evaluations of the job applicants. Although no main effects were found for age, race, and sex, very small 2-way and 3-way interaction effects were found. Although job-irrelevant variables did not play a strong role in the evaluations, these small interactions suggested that complex forms of prejudice may exist among the students. However, it was noted that the subjects were possibly complying with what they perceived to be demand characteristics, or not appearing prejudice.

Finally, Tosi and Einbender (1985) performed a meta-analysis on 21 studies designed to test for sex discrimination in personnel selection. Their analysis suggested that amount and type of information such as marital status, undergraduate degree, graduate degree, and grades, shaped the results of the studies. When two or three items were used, 10 out of 13 studies showed discrimination. However, when 4 or 6 items of information were used, 1 out of 8 studies showed discrimination. Therefore, providing a more detailed description of the stimulus person allowed a more complex schema to be activated, thus decreasing the stereotyping effects. Conversely, a description of only a few items may result in stereotyped judgments based largely on a simple schema of group membership.

Summary

These studies suggest, then, that when judges only have access to limited information about competence and qualifications, biased and stereotyped judgements result. For example with limited information, the rater may assign a woman applicant to a 'female' category which may not contain the attributes of technical skills and abilities that a certain job such as engineer is thought to require. The prototype of engineer may be male along with various qualifications, skills and experiences. Thus, without knowledge of a female applicant's experience and qualifications, the applicant will be placed in the general 'female' category, resulting in low similarity to the occupational prototype of engineer. Thus, lower evaluations for the female applicant will result. With additional items of resume information, however, a more complex knowledge base is activated, and the applicant may now be considered similar to the prototype of an engineer. As more knowledge is provided, complexity increases, and the effect of stereotypes is reduced. The features and characteristics of the stimulus person is now more similar to the prototype of engineer, thus, resulting in higher evaluations. However, these evaluations may not be as quite as high as those for the male, since the prototype for engineer is masculine (Shinar, 1975). Finally, several of these studies required college students to 'role play' a personnel director, rather than using actual 'expert' decision makers. Thus, the novice's simpler schema may have resulted in more stereotyped decisions.

It is suggested then, that unbiased decisions are obtained from studies which contain more complex applicant information, and/or used expert decision makers. This complexity, activated by either the expert's schema or provided by the stimulus information itself, allows more similarity to be perceived between the stimulus person and the prototype.

Thus, it is important to address schemas and prototypes specifically as they impact on resume evaluations. Demonstrating the effects of prototypic representations on this stage of personnel selection with the use of policy capturing procedures may facilitate understanding of the perception, interpretation and appraisal of a potential employee. Therefore, the use of policy capturing in studies on personnel decision making is reviewed below.

Policy Capturing

Within the field of human judgement, researchers have attempted to understand the unique information processing and decision making strategies of individuals with the use of policy capturing. This technique has been applied to a diversity of judgemental tasks including performance appraisal (cf. Donnelly & Bownas, 1984; Taylor & Wilsted, 1974; Zedeck and Kafry, 1977) and employment interviewing (Dougherty, Ebert, & Callender, 1986).

Policy capturing is a statistical strategy which analyzes decisions and provides a mathematical description of the judgement policy that the individual used. This method, then, can provide a framework for examining the unique information processing behaviors of each individual. In addition, the stated or subjective rating policies can be compared with the actual rating policies, and raters can be trained in the consistent use and application of a given policy (Hobson & Gibson, 1983).

The basic methodology used in policy capturing is as follows: a) raters are presented a series of profiles consisting of scores on a number of dimensions or stimulus cues, b) raters review each profile and assign an overall evaluation that best represents or summarizes the information, and c) multiple regression is used to calculate the extent to which the overall ratings are predictable given the scores on each dimension, and to derive the relative importance of each of the individual dimensions in determining the overall ratings. This is their captured rating policy. In addition, subjective rating policies are derived by requiring raters to estimate the importance of each dimension in making their evaluations of the profiles. Researchers index the error in the subjective estimates by comparing the actual or captured policies with the subjective policy estimates (cf. Hobson, Mendel & Gibson, 1981; Stumpf & London, 1981; Zedeck & Kafry, 1977).

The ability of policy capturing to describe individual differences in judgment policies has also led to the development of techniques for grouping or clustering judges in terms of the homogeneity of their equations. Judgement analysis (JAN) (cf. Bottenberg & Christal, 1968; Naylor & Wherry, 1965), and hierachical clustering analysis (cf. Hobson, Mendel & Gibson, 1981) have frequently been used to group rating policies.

Hobson et al (1981) developed 100 hypothetical faculty performance profiles consisting of 14 dimensions such as planning, delivery, knowledge of field, research, professional conduct, and student relations. Three levels of each dimension were used: below average, average, above average. Nineteen faculty members reviewed each of the 100 profiles and rated it in terms of overall performance level on a 9 point scale. In addition they were asked to indicate the importance which they felt should be attached to each dimension, and to indicate the importance which they felt the department head attached to each dimension. This was accomplished by dividing 100 points up among the dimensions for each of the two tasks.

Rater R^2's were significant, indicating high subject consistency in the utilization of the cue information. However, the relative weights of the 14 dimensions showed substantial variation between raters. For example, the relative weights of planning ranged from 0 to 16, and the relative weights for delivery ranged from 3 to 72. Furthermore, raters tended to overestimate the number of dimensions which they stated were influential in making their decisions. Raters subjectively reported that 13 of the dimensions were important in their rating process. In actuality, however, 4 of the 14 dimensions accounted for over 80% of the predictable variance in the overall ratings. In addition, the faculty perceived the department head as using 13 of the 14 dimensions in making overall evaluations. In actuality, however, the department head used only 3 or 4 of the dimensions. Finally, the iterative clustering procedure suggested that a 4-group solution was optimal, indicating that 4 distinct rating policies were used by the subjects.

Other performance appraisal studies have found similar results. Zedeck and Kafry (1977) developed 40 hypothetical nurse profiles based on 9 criterion elements. Results indicated that raters were consistent in their evaluations: all R^2's were significant at the .05 level. Using Judgment Analysis (JAN), two clusters were identified. Finally analyses of the differences between the relative and subjective weights indicated that the weights of 6 of the 9 elements were significantly different. This reveals, in general, that the major dimensions identified by the policy capturing procedure were underestimated by the subjects, while the minor elements identified by the procedure were overestimated by the subjects.

Finally, Permut (1973) instructed subjects to rate 40 hypothetical college instructor's profiles consisting of 10 cues on the overall effectiveness of each instructor. Results indicated that subjects were moderately successful in expressing their actual cue utilization patterns although each subject considered the relative importance of various cues to be different.

The above studies used hypothetical ratees in which the cue profiles have been generated by the experimenter rather than from data available from real people. Taylor & Wilsted (1974), however, used Cadet Peformance Reports from the USAF Academy as profiles. Twenty-five officers rated 25 such profiles; each profile consisted of ratings on 10 dimensions. The results were similar to those studies using hypothetical profiles. The consistently high R^2's indicated that raters were internally consistent in applying their individual policies to cadet ratings. That is, the raters combined and used the cue information in the same manner each time they evaluated a profile. The 10 performance cues received different weights by the individual raters, indicating that different policies were used by the raters. Finally, differences were found between the relative and subjective weights for each rater, suggesting that raters did not correctly identify the rating policy they actually used. These results, then, are similar to those of the other studies, and demonstrate external validity of the policy capturing paradigm.

In addition to the application of policy capturing procedure in general to areas such as performance appraisal, researchers have investigated how the presentation of the cues and profile information affects the cognitive process. For example, Kirsch & Ford (1985) presented profiles of performance containing 3 cues from a subjective source (supervisors ratings) and 3 cues from an objective source (personnel records). A policy capturing analysis indicated that raters relied on subjective information to a greater extent than objective information. Both relative and subjective weights indicated that the three supervisor rating dimensions accounted for more of the variance in the subject's ratings than did the personnel data dimensions.

Anderson (1977) investigated the number of stimulus cues (4, 6, or 8) contained in the performance profiles of hypothetical teachers and whether the cues were presented in verbal statements or numerical values. The subjective weights were obtained by either rank ordering the cues or rating the importance of each cue. The results indicated that ratings were not affected by the change in number of cues, and that verbal profiles were less consistently rated than numerical profiles for all three number of cue conditions. Furthermore, subjects did not necessarily use the same cues for their judgements, but in each condition they used about the same number of cues (4 or less). Finally, the relative weights obtained from the policy capturing analysis provided greater differentiation among cues than the subjective weights, and also provided more information than either the rating or ranking procedure.

It was noted in the schema literature that a richer, more complex description lessens the effects of stereotyping. The policy capturing results suggest that people use approximately 4 cues. Thus, providing a detailed description of a stimulus person does not necessarily mean that all of the attributes will be used in the evaluation. Rather, Anderson (1977) would suggest that regardless of the depth of complexity of the stimulus, only a few cues will be used in determining the evaluative response.

Policy capturing has been applied in a diversity of other contexts. Wiggins & Kohen (1971) addressed the issue of selecting graduate students based on their previous academic achievements. They asked graduate students to evaluate 110 profiles containing 10 cues and forecast 1st year graduate grade point average. Results indicate that the predicted GPA of the profiles were fairly accurate with a mean validity of .34. The relative weights, however, were more accurate than the subjective weights when correlated with the actual criteria.

Dickinson & Wijting (1976) demonstrated that policy capturing can be used as a procedure for synthetic validation by generating J-coefficients as estimates of correlations between job and test performances. Robinson, Wahlstrom, and

Mecham (1974) found results that supported the hypothesis that a policy capturing method using the Position Analysis Questionnaire can be successfully used to empirically select and weight compensable factors indicative of existing compensation rates. Dougherty, Ebert, and Callender (1986), used policy capturing to understand and improve the effect of the employment interview. Finally the acquisition policies of 42 executives were examined by Stahl & Zimmerer (1984). Consistent with other policy capturing studies, decision makers had poor insight into their own decision policies. Decision makers underestimated the importance they reported to give to highly important criteria and overestimated the importance they reported to give to low importance criteria. Additionally, objectively weighted models explained the decisions better than did the subjectively weighted models.

Several methodological weaknesses of policy capturing, however, should also be addressed. These issues and limitations will be considered and addressed in the development of the proposed study on the effect of occupational prototypes on evaluations of personal data sheets. First, these studies typically used hypothetical ratee performance profiles. Although using hypothetical profiles allow a large number of ratee profiles to be generated, the evaluation of these profiles does not necessarily correspond to evaluations of actual employees. These profiles are limited in terms of quality of information, specificity, and familiarity when compared to profiles of actual subordinates. Second, these profiles have been presented numerically (Naylor & Wherry, 1965), descriptively (Zedeck & Kafry, 1979), or graphically (Hobson et al, 1981). Anderson's (1977) results, however, indicate that format can influence the way in which raters process the performance information, and influence the content of the captured policies.

Second, Hobson and Gibson (1983) suggested that intercorrelations among ratings of dimensions of performance are often high. Thus, when multicollinearity exists, computed regression coefficients become unstable, and rater R^2's increase. In response to this multicollinearity problem, many researchers create artificially orthogonal dimensions, thus, simplifying the interpretation of regression weights of each dimension. The squared regression weights of orthogonal dimensions represent the percentage of variance in overall ratings accounted for by a given dimension. However, since performance dimensions may be correlated in the actual domain, the external validity of these captured policies can be questioned.

Third, the number of profiles presented to raters relative to the number of dimensions is important. When this ratio is low, a spuriously high R^2 and large sampling error in all computed estimates is obtained. Nunnally (1978) has suggested a ratio of 10:1 to minimize this problem (Hobson & Gibson, 1983).

Summary. Consistently high rater R^2's obtained from regressing overall evaluations on profile dimensions indicate that policy capturing successfully describes rater policies. In addition, these studies indicate that raters posses poor insight into their own rating policies because they underestimate the importance of major dimensions and overestimate the importance of minor ones. Finally, clustering procedures usually result in distinct rater subgroups possessing different rating orientations. Thus, a single rating policy has not described the decision making behavior of all raters. It can be suggested, then, that policy capturing can facilitate understanding of how individuals combine information during decision making. However, to fully understand the complexity of combining, interpreting and evaluating information, the general area of information processing should be directly discussed. Through the use of an information processing model, the effects of prototypes on the stages of information processing can be more easily explained.

Information Processing

Judgements are made on the basis of information which has been processed cognitively. Thus, the human can be considered as an information processing system. Understanding of how information is transformed as it passes through this system has been acquired by research on perception, problem solving, judgemental processes, thinking, memory and concept formation. These studies have found that: 1) people have a limited information processing capacity, and 2) the nature of the judgemental task determines the strategies that are used for dealing with the task. Therefore, to understand judgement and decision making, it is necessary to understand the limitations and possibilities of information processing. Hogarth (1980) summarized these limitations by stating that: 1) humans are selective in the information they perceive, 2) humans process their selected information in a sequential manner, 3) human memory is selective in that not all remembered information is remembered accurately, and 4) humans use heuristics to simplify information processing which can result in errors and bias. Therefore, it seems that the decision process does not involve an exhaustive analysis of the information; rather, heuristics are used to guide perception and processing of information.

In the following discussion, the process of combining information during evaluation and decision making will be addressed since this is a necessary component of the evaluation of resumes. Furthermore, the review of the literature on schema theory noted that prototypes and schemas are used to simplify information processing. Thus, heuristic strategies which reduce the complexity of information processing and correspond to the effects of prototypes during the evaluation of resumes will be discussed. Finally, a model of information processing used in the evaluation of resumes will be presented. Although only two of the five stages of this model will be focused on in the proposed study, the entire model will be described.

Combining Information for Evaluation

Judgements typically involve the combination of several sources of information. Resumes, for example, contain many items of information which must be combined and evaluated during decision making. The most straightforward and comprehensive account of how people combine information during decision making is the linear model (Hogarth, 1980). In this model, it is assumed that each dimension of the decision problem (e.g. work experience, GPA) can be measured on a scale (implicitly or explicitly) and given a weight reflecting its relative importance. The evaluation of each alternative, then, is the sum of the weighted values on the dimensions: value of alternative = sum of (relative weight X scale value) of all dimensions. This linear model, then, corresponds to policy capturing analyses (e.g. Hobson et al, 1981). Policy capturing provides a mathematical description of how the individual combines the items of information during the decision making process. Therefore, policy capturing can successfully be used to understand human judgement during the evaluation of resumes that vary on multiple dimensions.

Algebraically similar to the linear model is the 'ideal point' formulation. It is assumed that the decision maker has an ideal representation of the perfect alternative (e.g. job applicant, faculty candidate). Actual alternatives are evaluated by their distance from the ideal point on the different dimensions. As noted in the previous literature, judgement often works by a process of comparison with prototypes, thus reducing mental effort. For example, given that certain alternatives are close to the ideal on some dimensions, effort only needs to be expended on considering the remaining dimensions (Hogarth, 1980). Comparisons with prototypes, then, can simplify complex decisions such as the evaluation of resumes. Recent work by Tversky and Kahneman (1973) suggests that these types of comparisons, called heuristics, guide the process of decision making and simplify the processing of information.

Heuristics

Heuristics are general principles, or rules of thumb, for reducing complex tasks to simpler judgemental operations. They do not involve a formal or exhaustive analysis of the information at hand. For example, the availability heuristic allows judges to use the ease of accessibility of a category as an indicator of its frequency. The representativeness heuristic, on the other hand, allows judges to use the similarity of a sample to various populations in order to decide category membership. In making judgements or evaluations, then, people rarely attend to all available information; rather, information is selectively processed. The type of information used depends on the type of judgement to be made (e.g. similarity, categorization, inferences), which in turn dictates which heuristic principle will be used. For example, the representativeness heuristic is involved in judgements of similarity and matching sample information to an abstract prototype.

The literature on schema theory suggests that prototypes affect how information is perceived, encoded, and remembered, and thus, serve as a type of heuristic. The heuristics of availability and representativeness apply particularly to schema theory and information processing. Sherman and Corty (1984) posit that the difference between representativeness and availability seems to be in the nature of the judgemental process. They state that the representativeness heuristic involves judgements of the correspondence or similarity between the sample event and some modal representation, or prototype, of the population. These events are characterized by their general abstract and modal properties. Availability, on the other hand, involves the association of the sample with some particular population instance. Thus, availability is used as events are considered in terms of associations with specific occurences and examples. These specific examples are termed 'exemplars' (Sherman & Corty, 1984).

Research on schema theory demonstrates that both prototype matching (representativeness) and exemplar matching (availability) are used in judgements. Cantor and Mischel (1979), for example, found that when a target person is described in extroverted terms, subjects abstracted and organized information around the prototype for extroversion. That is, trait names that were present and consistent with extroversion were remembered, while inconsistent or irrelevant trait names were poorly remembered. Furthermore, traits not seen before but consistent with extroversion were misremembered as having been seen. Because the traits functioned as prototypes, and not as a specific instance, similarity to the protoype was used to make judgements. Therefore, when information is stored in terms of a schematic representation, specific items of information will be lost and representativeness rather than availability of instances will be used in making judgements (Sherman & Corty,1984). Similar interpretations of schematic processing wère made by Lingle and Ostrom (1981). They found that once a global judgement was made, the specific items of information that were used in making the judgement were lost, and subsequent decisions were based solely on the stored global repesentation or judgement.

Individual instances will be used in decision making when these instances are distinctive or memorable in some way. It appears that very expected or schema-filtering exemplars, or very unexpected and distinctive exemplars, are available and thus accessible from memory. For example, subjects may be told to evaluate the following description of an applicant for a secretarial position. The description may call to mind a specific exemplar (e.g. Fawn Hall), thus, judgements will be based on availability through associations with this exemplar. If this specific exemplar was not accessed, the abstract prototype (e.g. secretary) will be accessed and the representativeness heuristic will be used (Sherman & Corty, 1984).

During the evaluation of a personal data sheet, a particular schema or occupational prototype is activated. Thus, the personal data sheet information may be organized and matched to an abstract schema (e.g. ideal job applicant) rather than to a specific instance (e.g. John Smith). Therefore, it is likely that the representativeness heuristic will be used during the evaluation and judgement of personal data sheet information.

Availability, on the other hand, may guide the retrieval of personal data sheet information. Several studies have required subjects to report the number of times, or frequency, that a particular behavior was observed (Murphy, Garcia, Kerkar, Martin & Balzer, 1981). In many of these situations, subjects assess the frequency of an event by the ease with which instances or occurences can be brought to mind (Kahneman, Slovic & Tversky, 1982). Thus, when asked to report how many personal data sheets had a GPA of 3.8, subjects may rely on the availability of specific instances of this particular GPA in order to assess its frequency.

Availability, however, may be dependent on the schema or prototype organizing memory for the personal data sheet information. Rosch (1975) found that more prototypic information is more available in memory. Therefore, recruiters should report a higher frequency of prototypic personal data sheet information than nonprototypic or less prototypic items. The most representative items of a particular prototype, then, are more available in memory, and thus will be remembered as occuring with high frequency. Therefore, frequency measures used to tap the availability of specific instances actually reflect the underlying abstract prototype used to organize, remember, and retrieve personal data sheet information.

In summary, both the representativeness and the availability heuristics can be used in making evaluations and judgements of personal data sheet information, and in retrieving personal data sheet information. The proposed study focuses primarily on the effects of prototypes on information processing. Therefore, reviewing the nature of heuristics, particularly representativeness and availability facilitate understanding of schematic information processing. Furthermore, this review of heuristics and bias provides a necessary framework for understanding models of information processing. Specifically, the model presented below clearly demonstrates the effects of schemas and heuristics during processing of information.

An Information Processing Model

In order to fully understand organizational behavior, it is important to understand how the effects of schemas operate on separate stages of information processing such as perception, memory, inferences and judgements. These issues can be addressed with the use of an information processing model focused specifically on the organizational context which allows perception to be analyzed as a series of information processing steps (Lord, 1985). At each of the five stages in this model, information is filtered or changed by social information processing. The stages are: 1) selective attention, 2) encoding/ comprehension, 3) storage and retention, 4) retrieval, and 5) judgement.

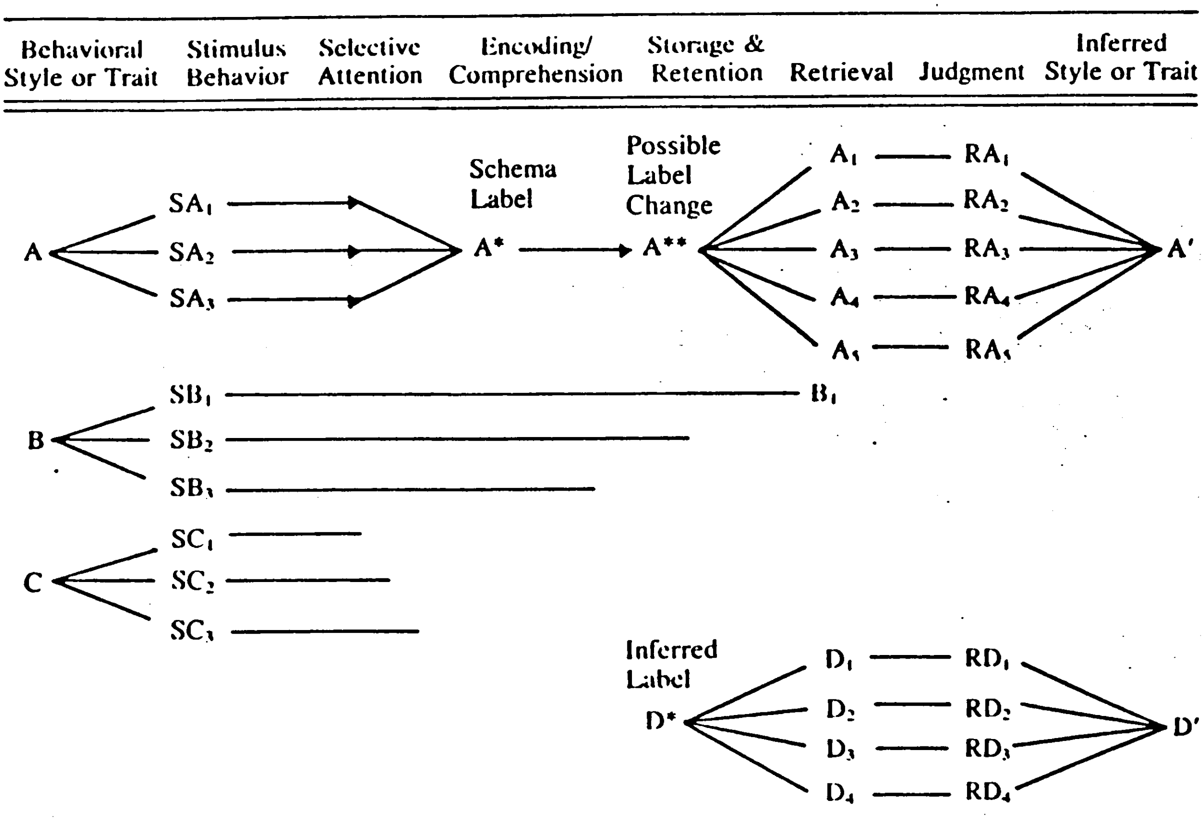

Figure 1. Schema directed IP and behavioral measurement.

Source: Lord,R.G. (1985). An information processing approach to social perceptions, leadership and behavioral measurement in organizations. In Cummings, L.L., and Staw, B.M. (Eds.), Research in Organizational Behavior, 7, 129-170.

The proposed study addresses two of these stages: 1) judgements of the stimulus material, and 2) retrieval of the stimulus material. Based on this model it is proposed that a schema activated before the stimulus material is presented will influence the judgements made and the information remembered and retrieved. Although only two of the stages are specifically addressed, all five stages will be briefly discussed.

Selective attention. Humans have a limited ability to effectively manage attentional demands with conscious awareness. Attention, then, is selective and usually determined without awareness. Furthermore, it has been shown that schemas can control attention without human awareness. For example, Bargh and Pietromonaco (1982) found that priming of a trait category affects subsequent perceptions. This is similar to Wyer and Srull's (1980) model of social information processing where particular schemas can control the encoding of information.

Different types of schemas also can guide attention to different types of information (e.g. Cohen, 1981; Zadny & Gerard, 1974). For example, script schemas will focus attention on actions or situational features that lead to goal attainment, whereas person schemas will direct attention to behaviors or attributes that define particular categories. Thus, the same stimulus material can be perceived differently, depending on which schema is used to guide perception.

Encoding. Encoding is the process by which an external stimulus is translated into an internal symbolic code by the perceiver. When information relevant to an existing salient schema is noticed, the stimulus is encoded as an example of the schema. For example, a person may be labeled (encoded) as an extrovert simply because several other prototypical characteristics of an extrovert were noticed. The set of attributes or characteristics, then, is reduced to a more general summary label (A*) that identifies a generic internal code. Thus, an individual may be identified as an extrovert using the category to represent properties possessed by the stimulus person as well as expected properties that may not have been noticed, or may not accurately describe the stimulus person (A4 and A5).

Storage and retention. Information can be effectively encoded, remaining in short term memory for a very limited amount of time, and never be inputed into long term memory. In the organizational setting it is likely that the input of information and the retrieval of information may be separated by weeks or months. Thus, unintegrated information (SB2) is often lost with the passage of time. On the other hand, information that is integrated around a summary label or schema (A*) may easily result in changes in labels or evaluations of subsequent information (A**). These changes produce distortions in the original stimulus or they make original information less accessible. Fiske and Taylor (1984) noted that discrepant information is likely to cause schema change, particularly when this inconsistent information is considerable, unambiguous, memorable, or undeniable. However, Fiske and Taylor (1984) also noted that well-developed, complex schemas can result in schema persistence or perseverance. That is, individuals with a particular complex schema can ignore exceptions or interpret the exception as evidence for the existing schema. Thus, it seems that schematic changes may depend on the complexity of that existing schema as well as the discrepancy level of the information.

Retrieval. Retrieval of information usually occurs at varying intervals after information is stored in memory. It may involve recognition memory in which raters are asked whether certain behaviors have occured in the past, or it may involve free recall in which subjects describe past situations and behaviors in their own words. In both retrieval situations, performance is highly dependent on the schema with which it was encoded. Although a schema provides a highly efficient retrieval network for accessing interpersonal information, schema directed memory is susceptible to several biases. For example, reconstructive bias, or a false recognition of schema consistent information that was never observed is frequently reported (e.g. Hastie, 1981). These false alarm rates (i.e. the proportion of nonpresent items recognized as having been observed) have also been reported by Grasser et al (1979), Phillips and Lord (1982), Phillips (1984), and Woll and Graesser (1982). Furthermore, for very prototypical items, false alarm rates may be as high as hit rates (i.e. the proportion of present items recognized as having been observed).

If schema consistent information is encoded and represented in memory only by a summary label (A* or A**) then the rater retrieves the generic schema consistent with the remembered label, rather than the specific information or behavior actually observed. Finally, prototypic behaviors are easily accessed and recognized as having been observed, while antiprototypic behaviors are accessed more slowly and are not recognized as frequently.

Judgement. Judgement usually occurs contiguously with retrieval of information, and thus, is dependent on the retrieval process. These judgements may depend on how easily the information is retrieved. For example, judgements on the frequency of a particular behavior may depend on the heuristic of availability (Tversky & Kahneman, 1973). That is, more available behaviors are judged to have been exhibited more frequently. Availability may be dependent on the schematic organization underlying memory, thus leading to a higher availibility of more prototypic information (Rosch, 1978). Therefore, judgements and ratings reflect the internal structure of the generic categories into which that person has been categorized, rather than the actual behavior or attributes of the individual.

Summary

The proposed study focuses on 1) the evaluation and judgements of personal data sheet information, and 2) the retrieval of personal data sheet information. Furthermore, it is likely that representativeness and availability guide the processing of this information. Specifically, an occupational prototype may be activated when a recruiter evaluates a personal data sheet for a particular job (e.g. engineering position). Subsequently, it is probable that the information evaluated and judged is organized around the general abstract prototype (e.g. job applicant for an engineering position), rather that a specific instance (e.g. John Smith). It would seem, then, that subjects would depend on the representativeness heuristic during this judgement stage of information processing.

Prototypic information is more available in memory and therefore more likely to be retrieved (Rosch, 1975). Thus, the prototype that is used as an organizing theme may determine the ease with which specific instances can be brought to mind. Thus, highly prototypic items should be reported as occuring more often because of their higher availability in memory. As a result, those items that are reported as occuring with higher frequency will be representative of the prototype that was used to organize the information in memory.

Summary and Hypotheses

Prototypes consisting of features, characteristics and attributes have been obtained for a wealth of occupations (e.g. Shinar, 1975). In addition, detailed and complex descriptions of these prototypes have been generated by 'experts' (e.g. Linville, 1982; Linville & Jones, 1982). Thus, individuals, or experts, with a wide range of experience with the particular occupational field should have a well-developed, complex schema of that occupation, and, therefore, provide a detailed description of that prototype. For example, corporate and school district recruiters can be considered experts of the occupation they recruit for. That is, recruiters for an engineering company have been exposed to hundreds of examples of graduating engineering students. Therefore, they have developed a complex schema of that particular occupation. College students, majoring in engineering, for example, have also developed complex schemas based on their exposure to engineering students. College student schemas are not as developed and complex as recruiters, and therefore, they cannot be considered as trully expert within their occupation. However, because college students do have well developed schemas of their major, they can be used to generate descriptions of prototypes within the career field in Part I of the study. Specifically, the prototypes of mechanical engineer and elementary school teacher can be generated by engineering and education majors.

Prototypes and schemas affect all stages of information processing, including judgements (e.g. Lord, 1985), and retrieval (e.g. Cantor & Mischel, 1977; Wyer et al, 1982). Part II and Part III of the study, then, were designed to test these two stages of the information processing model: 1) judgements made of the stimulus information, and 2) retrieval of the stimulus material. Specifically, Hypotheses 1 through 3 were focused on the judgement of information, and are addressed in Part II of the study. Hypothesis 4 focused on the retrieval of information, and is addressed in Part III of the study.

Policy capturing can be used to understand the judgement and decision making strategies of raters. This method can provide understanding of which items of information from a personal data sheet are used in making judgements. This technique has been used in judgement tasks such as performance appraisals (e.g. Donnelly & Bownas, 1984; Hobson et al, 1981; Stumpf & London, 1981; Taylor & Wilsted, 1974; Zedeck & Kafry, 1977), and employment interviews (e.g. Dougherty et al, 1986). Furthermore, when policy capturing is applied to decision making, the raters can be clustered on the basis of how similar their rating policies are. This allows researchers to determine how many different policies exist.

The literature suggests that occupational schemas and prototypes shape the information perceived, organized, and evaluated (e.g. Cohen, 1981; Lingle & Ostrom, 1979; Lingle et al 1979). In addition, Rosenberg & Sedlak (1972) found that the structures of prototypes differ between occupations. It is likely, then, that information provided on a Personal Data Sheet is evaluated and judged differently, depending on the occupational schema that is used as an organizing theme. Therefore, it can be suggested that the occupational prototype will shape the college recruiter's evaluation and judgement of the stimulus information. Based on this literature, the following hypothesis was proposed:

> *Hypothesis 1: If the evaluation and judgement of personal data sheet information is dependent on the occupational prototype initially activated, as suggested by the literature, then the composite policies of the two occupations will be significantly different.*

Stereotyping also can occur during the evaluation and judgement. Resume studies providing limited stimulus information found stereotyping effects (e.g. Arvey, 1979, Dipboye et al, 1977; Zikmund et al, 1978). When detailed information is presented, however, a complex knowledge structure is activated that provides a basis for more complex encoding of information, resulting in little, if any stereotyping effects (e.g. Linville, 1982). Therefore, providing a more detailed description of the stimulus person should allow a more complex schema to be activated, thus decreasing the stereotyping effect. This complex stimulus person can be presented using the personal data sheets typically evaluated by college recruiters as a basis for employment interview recommendations. These sheets are completed by all college seniors and include typical resume information. Thus, they provide a rich source of information for the recruiter to evaluate, but are identical in format across all subjects. Furthermore, external validity of the study can be enhanced since the evaluation of personal data sheets is a common practice at many universities. Therefore, these Personal Data Sheets should activate a complex knowledge structure or schema.

Raters who can be considered experts in their area have more complex schemas because of their greater exposure to schema-relevant examples. It is likely, then, that these experts or recruiters have been exposed to highly similar schema-relevant situations and therefore have similar complex schemas (e.g. Linville & Jones, 1982). These similar schemas should affect evaluations of the personal data sheet information similarly for each recruiter, resulting in similar rating policies for each recruiter. Therefore, the following hypothesis was proposed:

Hypothesis 2: If recruiters have similar schemas and are using similar policies in making their judgements, as suggested by the literature, then one main cluster will be derived for each occupation from the cluster analysis.

Finally, the expert's well-developed schemas allow information to be processed without awareness. This processing is fast, efficient, inflexible, and precludes access to underlying details and components of the process (e.g. Lord, 1985). Because expert's schemas operate without awareness, it is likely that experts may have poor insight into how they combined and used the personal data sheet information (Showers & Cantor, 1985). Thus, the following hypothesis was proposed:

Hypothesis 3: If recruiters are not able to correctly state their rating policy because the personal data sheet information is combined and integrated without awareness, as suggested by the literature, then a significant difference will be found between each recruiter's subjective and objective rating policy weights.

Part III of the study addresses the second stage of the model, or the retrieval of information. It is suggested that schemas and prototypes affect the retrieval stages of information processing. For example, Rosch (1975) found that prototypic information is more available in memory, and therefore, more likely to be retrieved. Once the perceiver places a person in a particular category, the perceiver can erronously report category consistent, but never actually seen attributes (e.g. Cantor & Mischel, 1977; Cohen, 1981; Lingle et al, 1979; Wyer et al, 1982). Therefore, memory for the characteristics of a stimulus person is highly dependent on the category in which that stimulus person is placed (e.g. Phillips, 1984; Phillips & Lord, 1982). Thus, the following hypothesis was proposed:

Hypothesis 4: If prototypes are affecting the storage and retrieval of information, as suggested by the literature, then the recruiters in both occupations will report a significantly higher frequency of occurences for prototypic items than for nonprototypic or less prototypic items.

In summary, it is suggested that the occupational title will activate a schema that affects the perception, evaluation, and judgements of an applicant's personal data sheet. Furthermore, it is likely that the information provided in the personal data sheet is evaluated differently depending on the occupational schema that is used as an organizing schema. Therefore, the effects of occupational prototypes on the encoding, evaluation, and retrieval of personal data sheet information was the focus of this study.

Method

Part I A

Subjects

Forty psychology students from VPI&SU were given extra credit for their participation in the experiment. Twenty engineering majors, and twenty education majors were used as expert judges of their two respective majors.

Materials

The occupations were chosen to maximize variation between schemas. Specifically the occupations of engineer and elementary school teacher were selected. These occupations should result in different prototypes. Two methods were used to assess the prototypes. The order of completion was reversed for half of the subjects in each group to prevent order effects.

Personal data sheet. A personal data sheet was completed by each subject to reflect the ideal graduating college senior within their area. Items on the personal data sheet were typical issues found on resumes such as name, school attended, work experience, GPA, and extracurricular activities.

Free response. Finally, some studies have proposed that free responses are useful in generating schema information (Lord, Foti & DeVader, 1984). Thus, the subjects were instructed to generate a specific description of their ideal graduating college senior who is applying for a job in their own particular area (engineer, elementary school teacher). These descriptions were then content analyzed. Because the subjects were not "structured" in their responses, the information obtained using this method enhanced the prototype data obtained from the personal data sheet.

Procedure

The subjects were given a packet containing the personal data sheet and the free response. The order of presentation was reversed for one half of the subjects. The instructions for the personal data sheet informed the subject that they would be given an occupational title that is similar to their own major. The subject took a few moments to think of the ideal college graduate in that occupation, i.e. their characteristics, school attended, experiences, GPA, etc., and completed the personal data sheet as realistically and in as much specific detail as possible.

When they finished the personal data sheet, they moved on to the free response. They were given a blank sheet of paper and asked to create their ideal college senior who would be applying for a job in that occupation. They were further instructed to be as realistic, complete, and detailed as possible.

These two methods, then, were used to generate prototypic information for each of the occupations. These two methods resulted in essentially the same profile for the occupations in question, indicating a high consensus for that particular prototype.

Part I B

Subjects

The same forty psychology students, 20 engineering majors and 20 education majors, who completed Part I A of the study were used as subjects.

Materials

Three dimensions were manipulated in the Personal Data Sheets used in Part II: extracurricular activities, GPA, and work experience. Two levels of extracurricular activities (prototypically engineer, prototypically elementary school teacher), three levels of GPA (high, medium, low), and three levels of work experience (high, medium, low) were used. This part of the study, then, determined what students consider to be high, medium, and low GPAs and work experiences, and prototypically engineer and prototypically elementary school teacher extracurricular activities. Once these category levels (e.g. high, medium, low) were determined, various instances were chosen to represent GPA, work experience and extracurricular activities within the different levels in the development of the Personal Data Sheets used in Part II.

Questionnaire. Section I of the questionnaire asked subjects to indicate which GPAs could be considered high, medium, and low. They were given a scrambled list of GPAs ranging from 2.0 to 4.0. Beside each GPA, subjects indicated whether the particular GPA was high, medium, or low.

Section II of the questionnaire asked subjects to indicate which work experiences could be considered high, medium, or low. They were given a scrambled list of work experiences in terms of number of employers and number of years part time work experience ranging from 1 year part time with 1 employer to 4 years part time with 4 employers. Beside each example, the subjects indicated whether the work experience was considered high, medium, or low.

It should be noted that these students were asked to indicate, in general, what they considered to be high, medium, and low GPAs and work experiences.

They were not asked to indicate what GPAs and work experiences could be considered prototypically high, medium, and low for students in their major.

Section III of the questionnaire addressed extracurricular activities. The subjects were given a list of extracurricular activities and were asked to judge each item on a 7-point scale of typicality from "atypical" to "typical" for students in their particular major (engineering or education). The midpoint is denoted by "neither/nor" and the 3 points on either side are denoted by "somewhat", "quite" and "highly". These points are numbered from 1 (highly atypical) to 7 (highly typical) and have been shown to be semantically equidistant from each other (Semin & Rosch, 1981).

Procedure

The subjects signed an informed consent and were given the questionnaire and instructions. When they read and understood the instructions, the subjects completed the three sections of the questionnaire.

Part II

Subjects

The companies and school districts who recruit at Virginia Tech were used as subjects. One hundred and twenty-two recruiters for engineering companies, and 115 recruiters for school districts were sent the packet of personal data sheets to evaluate and return as soon as possible. A response rate of 59 engineering recruiters and 48 education recruiters was obtained, which fulfilled the requirements of sample size to predictors ratio of 15:1 (Dawes, 1979). Since 3 predictors were used, at least 45 subjects per occupation were needed.

Materials

Personal data sheets. Three dimensions were used: extracurricular activities (prototypically engineer, prototypically elementary school teacher), GPA (H, M, L), and work experience (H, M, L). Based on these dimensions, a simulated personal data sheet evaluation exercise was constructed. Eighteen personal data sheets were developed for each occupation, each containing different information. That is, within each level (e.g. H, M, L) of each dimension (e.g. GPA), different instances were used. For example, 6 personal data sheets had high GPAs (3.45, 3.50, 3.56, 3.63, 3.85, 3.93), 6 personal data sheets had medium GPAs (2.57, 2.60, 2.67, 2.71, 2.75, 2.87), and 6 personal data sheets had low GPAs (2.02, 2.10, 2.18, 2.25, 2.37, 2.45). This exercise was designed around 2 replications of a full factorial design. A total of 36 personal data sheets [2 (replications) X 2 (extracurricular activities) X 3 (GPA) X 3 (work experience)] resulted. The levels of dimensions were coded and used to calculate the relative, or objective, rating policy.

Hobson and Gibson (1983) suggested that a ratio of profiles to predictor dimensions of approximately 10:1 is needed to minimize sampling error, instability and unreliable estimates of an individual's rating policy. In this study, 18 possible combinations were obtained. Policy capturing requires replication of profiles to check rater consistency. Thus, two replications of the 18 personal data sheets resulted in 36 personal data sheets for each occupation, which is within the acceptable profile to predictor ratio.

Personal data sheet ratings. The subjects were instructed to review each hypothetical personal data sheet and indicate their overall recommendation for interviewing this candidate on a 7 point scale from strongly do not recommend, to strongly recommend an employment interview for this applicant. This information was used to calculate the relative, or objective rating policy of each subject.

Dimension ratings. After reviewing and evaluating the 36 personal data sheets, the subjects were asked to divide 100 points up among the 3 dimensions to reflect the importance which they felt should be attached to them in the evaluation process. This information represented the subjective rating policy of each subject.

Biographical questionnaire. Finally, biographical data was collected by having the subjects complete a questionnaire about their age, sex, job title, academic background, and years of experience. The final 36 Personal Data Sheets can be seen in Appendix A (engineering), and Appendix B (education).

Procedure

Two hundred and thirty-seven college recruiters were sent the packet of instructions, 36 personal data sheets pertaining to their area, and the evaluation form. A self addressed stamped envelope was included for the recruiters to return the completed forms.

Analysis

Within occupation analysis. For each occupational group, a multiple regression analysis was performed on each subject, regressing the subject's overall evaluation of each personal data sheet on the profiles coded for the 3 dimensions across the 36 profiles. Three regression weights, and a squared multiple correlation coefficient (R^2) were obtained for each subject. Subject R^2's, indicative of the consistency of the subjects ratings, was tested for significance.

Hoffman's (1960) formula for relative weights was used to determine the importance of each dimension in the individuals rating policy. Relative weights indicate the percentage of total predictable variance accounted for by each single dimension. Thus, a rating policy was defined in terms of the relative weights on each of the 3 dimensions. The following equation was used to calculate relative weights: $RW_{is} = B_{is} X r_{is}/R^2_s$, where RW_{is} = the relative weight of the ith dimension for the sth rater, B_{is} = Beta weight of the ith dimension, r_{is} = validity coefficient of the ith dimension, and R^2_s = squared multiple correlation coefficient of the sth rater.

The advantage of this transformation is that by normalizing on each decision maker's R^2, the RW_{is} sum to 1.00. Then multiplying by 100, The RW_{is} sum to 100. Thus, direct comparisons were made with the subjective estimates of the raters own policy. A discrepancy index was used to compare the objective and subjective weights by calculating the mean absolute difference between the objective and the subjective weights. Average objective and subjective weights for the three variables (GPA, work experience, extracurricular activities) were obtained for the engineering and education groups. Three matched pairs t-test were performed on each variable's objective and subjective average scores for engineering and education recruiters. This t-test indicated whether subjects significantly overestimated or underestimated the importance of the particular variable.

A hierarchical clustering analysis was used to determine if individual rater policies could be grouped into a smaller number of homogeneous composite policies. If a majority of recruiters are relying essentially on the same cue, then one main cluster would result. Second, the relative weights of the composite policy of the largest cluster would indicate the prototypic attributes used in the evaluations of the personal data sheets.

Hierachical clustering analysis combines individual rating policies to minimize intragroup differences and maximize intergroup differences. For example, 45 rater policies would first be combined into 44 groups, with the two most similar policies combined together into 1 composite policy. This procedure would continue until 1 large group was obtained.

An F test was conducted at each stage in the iterative process, focusing on the reduction in composite R^2 caused by further combining policies. The equation is as follows $F = (R^2{}_s - R^2{}_s + 1)/((1 - R^2{}_s)(P/(N-(k-s)p)))$, where $R^2{}_s$ = composite maximum predictive effeciency at iteration s, $R^2{}_s + 1$ = composite predictive effeciency at iteration s+1, k = total number of raters, s = iteration, N = total number of observations (number of profiles X number of raters), p = number of dimensions, and DF = (p,N-(k-s)p). The F test was used to determine the optimal clustering solution.

After identifying the clusters, a regression analysis was performed on the composite ratings of all subjects within each cluster, regressing the overall ratings on the 3 dimensions. For each cluster, a regression equation, multiple R^2, and relative weights was computed. This resulted in the overall relative rating policy used by that particular cluster.

Between occupation analysis. When clusters were derived for each of the three occupations, a MANOVA was performed to test the equality of weights for all of the clusters across occupations. It was predicted that only one main cluster would result for each occupation. Thus, a 3-way MANOVA was performed with cluster membership treated as the independent variable, and the relative weights treated as the dependent variables. A series of univariate F-tests on each of the three dimensions revealed which of the dimensions of the clusters differed significantly. Post hoc comparisons were used on all dimensions that were significantly different to identify the nature of the differences. This procedure indicated which of the cluster weights differed significantly from the others for that dimension.

Part III

Subjects

The 59 engineering and 48 education recruiters who returned the personal data sheets from Part II of the study were used as subjects. A final response rate of 49 engineering and 40 education recruiters was obtained for this part of the study.

Materials

Rating scale. The recruiters were given a questionnaire with a list of the four GPA categories (2.0-2.45, 2.5-2.95, 3.0-3.45, 3.5-4.0), four work experience categories (4 years, 3 years, 2 years, 1 year), four extracurricular activities categories (community service, honor society, sports, art) and sex (male, female). They were asked to indicate how often each response category was represented in the 36 personal data sheets they evaluated earlier. For example, one question might ask: "How often did a GPA between 3.5 and 4.0 (high GPA) occur in the 36 personal data sheets you evaluated earlier?". Rather than reporting the exact number of times a GPA between 3.5 and 4.0 was observed in the 36 personal data sheets, recruiters used a scale ranging from "never" (1) to "always" (7) to rate frequency of the items (e.g. Murphy, Garcia, Kerkar, Martin & Balzer, 1982) (see Appendix C).

Procedure

When a packet of completed personal data sheets was received by the experimenter, a second packet was immediately sent to the recruiter. The time lapse, then, between completing Part II and Part III of the study should have been approximately one week. The recruiter was asked to complete the questionnaire and return the material in the enclosed self addressed stamped envelope.

Analysis

If the occupational prototype increased the availability of prototypic items in memory (e.g. Lord, 1985), then the prototypic items would be recalled as occuring with higher frequency than the nonprototypic or less prototypic items. Thus, a prototypic and a nonprototypic score was derived for each subject. Prototypic and nonprototypic attributes were identified in Part I of the study. For example, a GPA of 3.5 was identified as prototypic of engineers, thus, the response category of 3.5-4.0 was considered the protoypic category. The subject's response to this category was considered to be their prototypic score. The responses to the other three categories (2.0-2.45, 2.5-2.95, 3.0-3.45) were averaged together. The mean of these three categories was considered to be their nonprototypic score. Therefore, two scores for each subject in each of the four categories (GPA, work experience, extracurricular activities, sex) were obtained.

Results

Part I

Twenty education majors and twenty engineering majors from VPI&SU were used as expert judges of the occupations of elementary school teacher and mechanial engineer. The subjects were asked to complete a Personal Data Sheet and a Free Response sheet. These tasks were completed in such a way as to reflect the attributes, skills, grades, etc., of the ideal graduating senior in the occupation (mechanical engineering, elementary school teacher) relating to the subject's particular major (engineering, education).

Items completed on the Personal Data Sheet included typical resume information such as work experience, GPA, and extracurricular activities. This information was collapsed across subjects and frequency scores obtained for the categories in each dimension (GPA, work experience, extracurricular activities). For example, the extracurricular activities dimension was broken into such categories as: 1) Deans list, honor society, etc., 2) art, photography, music, etc., and 3) volunteer work, RAFT crisis hotline, etc. GPA was categorized into: 2.0-2.45, 2.5-2.95, 3.0-3.45, 3.5-4.0. Work experience was divided into number of employers (1-4) and number of total years of part time work experience (1-4). The category within each dimension receiving the highest frequency of responses was considered prototypic for that particular occupation.

The Free Response task, on the other hand, required subjects to generate a specific description of the ideal graduation college senior. These descriptions were content analyzed for specific information regarding extracurricular activities, work experience and grades. This information was collapsed across subjects for each occupation and a frequency count taken for items within the same categories of the dimensions of extracurricular activities, work experience, and GPA, defined above. The most frequently listed items were considered prototypic of the particular occupation. The results can be seen in Table 1.

Insert Table 1 here

Engineering

GPA: The results indicated that the ideal graduating mechanical engineer would have a GPA of 3.542 in their major and a 3.45 overall. The most frequent category was 3.5-4.0, for both the major and overall GPA.

Honors/ activities: The engineer is interested in computers, problem solving and design (70% PDS, 30% FR). Sixty-six percent (PDS) and 37% (FR) of the subjects stated that the engineer would have academic honors or be on the Dean's list. Fifty-three percent (PDS) and 40% (FR) of the respondents claimed that sports such as tennis and racquetball would be characteristic of the engineer. Thirty-seven percent (PDS) and 26% (FR) reported that they would be involved in student government, RHF, RA or other leadership oriented activities. Other honors and activities were listed by less than 30% of the subjects.

Work experience: Free Response results indicated that the engineers would participate in a co-op (33%), and the Personal Data Sheet responses indicated that ideal work experience would consist of 1 employer with a total of 3 years part time experience (40%).

Education

GPA: The results indicated that education majors have a GPA of 3.172 in their major, and a 2.942 overall. The most frequent category was 3.0-3.45 for GPA in the major, and 2.5-2.95 for the overall GPA.

Honors/ activities: Eighty-nine percent (FR) and 78% (PDS) of the respondents indicated that the ideal education major would be involved in community work such ad RAFT or Day Care. Sixty-eight percent (PDS) and 36% (FR) stated that likely hobbies included art, music, piano and photography. Other honors and activities were listed by less than 30% of the subjects.

Work experience: The ideal education major would have student teaching experience (PDS, 100%). Fifty-seven percent (PDS) stated that education majors would also have 2 employers with a total of 3 years part time work experience.

Part I B

The twenty education and twenty engineering majors also completed three questionnaires. This part of the study was used to determine what students consider high, medium, and low GPAs and work experience, and prototypic engineering and prototypic education extracurricular activities. Once these category levels were established, various instances were selected to represent the 3 different levels of GPA and work experience, and the 2 different levels of extracurricular activities. The first questionnaire contained a scrambled list of GPAs ranging from 2.0 to 4.0. The subjects indicated which GPAs could be considered high, medium, or low. The second questionnaire contained a list of work experiences in terms of number of employers and numbers of years of part time work, ranging from 1 employer with 1 year part time work to 4 employers with 4 years part time work. Again, the subjects indicated whether each work experience could be considered high, medium, or low. For both of these tasks, "high" was coded as "3", "medium" was coded as "2", and "low" was coded a "1". The scores for GPA and work experience were then collapsed across subjects within each occupation for each item and an average score obtained. The scores for each GPA and work experience, then, could range from 1 to 3. This range was divided into 3 approximately equal clusters (1.0-1.75=low, 1.76-2.25=medium, 2.26-3.0=high). Thus, depending on the item's average score, each GPA and work experience was assigned to a high, medium, or low category. For example, a GPA of 3.9, with an average score of 3.0 would be considered high because in falls into the category 2.26-3.0.

Finally, the subjects were given a list of extracurricular activities and indicated whether the items were atypical or typical for students in their particular major on a 1 (atypical) to 7 (typical) scale. Items with averages above 5 were considered prototypic. These items, along with the activities with the highest frequencies in Part I A were used to determine the prototypic extracurricular activities for each occupation.

GPA: Engineering and education majors rated GPAs as high, medium or low. The results show that engineering students considered that high GPAs were between 3.0 and 4.0; medium GPAs were between 2.5 and 3.0; and low GPAs were between 2.0 and 2.5. Education majors considered that high GPAs were between 2.9 and 4.0; medium GPAs were between 2.5 and 2.85; and low GPAs were between 2.0 and 2.5.

Work experience: Engineering and education majors rated a list of possible work experiences consisting of combinations of number of employers and number of years part time work experience. Both education and engineering majors reported that, regardless of number of employers, a total of 3-4 years part time work experience was considered high, 2 years was considered medium, and 1 year was considered low.

Extracurricular Activities: Engineering extracurricular activites with averages above 5.0 included: Mortor Board (5.4); Gamma Beta Phi (5.4); Society for Women Engineers (5.83); microcomputer club (6.0); and engineering council (6.26).

Results of the extracurricular activities for the education majors rating questionnaire indicated that activities with averages above 5.0 included: Silhoutte Literary Magazine (5.0); Students Against Drunk Driving (SADD) (5.315); Association for Student Development (5.473); and Student Education Association (6.368).

Part I A and B, Summary

Development of Personal Data Sheets

Three dimensions were used in the development of the 36 Personal Data Sheets: GPA (high, medium, low), work experience (high, medium, low), and extracurricular activities (prototypic engineering, prototypic education). Eighteen possible combinations of the levels of these dimensions resulted. Thus, 18 Personal Data Sheets were developed for each occupation, each containing different information. That is, each level (e.g. high, medium, low) of each dimension (e.g GPA) contained different information. Therefore, 6 different GPAs represented the high levels, 6 different GPAs repersented the medium level, and 6 different GPAs represented the low level. To satisfy the profile to predictor ratio of 10:1, and the policy capturing requirement of a full replication of the profiles to check rater consistency, 36 Personal Data Sheets resulted.

From the results of Part I A and B, the following information was used in the 36 Personal Data Sheets evaluated by the college recruiters. Eighteen extracurricular activities (9 engineering, 9 education), 18 GPAs (6 high, 6 medium, 6 low), and 18 work experiences (6 high, 6 medium, and 6 low) were developed. The final 36 Personal Data Sheets for both engineers and elementary school teachers can be seen in Appendix A (engineering), and Appendix B (education).

Honors/ activities: One of the following sets of extracurricular activities were used to exemplify the prototypical engineer: 1) programming instructor for the computer club; member of tennis team, captain senior year; member of Residence Hall Federation; 2) member of computer club, vice president senior year; member of tennis and ski team; member of student government association senior year; 3) member of computer club; actively involved in intramural sports; residence Hall Federation member junior and senior years; 4) microcomputer association, president senior year; enjoy all outdoor activities and team sports; Residence Hall Federation junior and senior years; 5) activities coordinator of computer club; swim team and involved in intramural sports; residence hall advisor senior year; 6) member of microcomputer club; actively involved in tennis and swimming; residence advisor junior year; 7) software reviewer and member of computer club; member of ski team, co-captain junior and senior years; residence hall advisor junior and senior years; 8) programming consultant for computer association; member of ski team and enjoy all outdoor sports; student government association member junior and senior years; 9) microcomputer club, member 4 years; member of racquetball club, instructor part time; student government association member senior year.

The prototypical elementary school teacher was exemplified by one of the following 9 sets of extracurricular activities: 1) volunteer for Blacksburg day camp for pre-schoolers; active member of association for student development; write poetry and fiction for Silhouette Literary Magazine; 2) volunteer work for area special olympics; active member of Students Against Drunk Driving; enjoy all arts and crafts, especially piano; 3) volunteer at summer day camp for children; RAFT crisis hotline volunteer; member of Silhouette Literary Magazine; 4) volunteer for Blacksburg community day care center; volunteer for Circle K service organization; enjoy writing short stories for Silhouette Literary Magazine; 5) volunteer for Blacksburg special olympics; Students Against Drunk Driving; study piano and violin; 6) volunteer for pre-school center of Blacksburg; volunteer for RAFT crisis hotline; study fine arts; 7) Volunteer at childrens day care center; volunteer for RAFT crisis hotline; enjoy piano and all musical instruments; 8) volunteer work with community underprivileged children; member of association for student development; study photography and film; 9) volunteer work with underprivileged children; member of Circle K service organization; involved in photography, won local awards.

GPA: For both education and engineering Personal Data Sheets, high GPAs were represented by either 3.45, 3.50, 3.56, 3.63, 3.85, or 3.93. Medium GPAs were represented by either 2.57, 2.60, 2.67, 2.71, 2.75, or 2.87. Low GPAs were represented by 2.02, 2.10, 2.18, 2.25, 2.37, or 2.45.

Work experience: For both education and engineering Personal Data Sheets, low work experience was represented by 1 employer and 1 year total part time work experience; medium work experience was represented by 2 employers and 2 years total part time work experience, and high work experience was represented by 2 employers and 3 years total part time work experience.

Part II

One hundred twenty-two engineering companies and 115 school districts who recruit at Virginia Tech and are familiar with Personal Data Sheets were selected from the placement manual published by Virginia Tech. The recruiters of these organizations were sent the packet of the 36 personal Data Sheets, a cover letter, and instructions. Fifty-nine engineering (48% response rate) and 48 education (41% response rate) recruiters returned the evaluated Personal Data Sheets. This response rate fulfilled the sample size to predictor ratio of 15:1 (Dawes, 1979). Since 3 predictors were used, 45 subjects were needed for each occupaion.

The recruiters reviewed each Personal Data Sheet and indicated their overall recommendation for interviewing this candidate on a 1 (strongly do not recommend) to 7 (strongly recommend) scale. These ratings were used to calculate the relative, or objective, rating policy. After reviewing and evaluating the 36 Personal Data Sheets, the subjects were asked to divided 100 points up among the 3 dimensions (GPA, work experience, extracurricular activities) to reflect the importance they felt they attached to them in the evaluation process. This information represented the subjective rating policy. Finally, Biographical data was collected by asking the recruiters to complete a short questionnaire about their age, sex, job title, academic background, and years of experience.

Rater Policy

Each subjects' overall evaluation of each personal data sheet was regressed on the profiles coded for the 3 dimensions. These individual rater policies, defined in terms of R^2s and relative weights can be seen in Table 2 for the engineering recruiters, and in Table 3 for the education recruiters. The R^2s, indicative of the subjects' rating consistency, ranged in value from .19 to .95 for the engineering recruiters, and from .01 to .95 for the education recruiters. Ninety-eight percent of the engineering recruiters' R^2s were signficant ($p < .05$), and 95% of the education recruiters' R^2s were significant ($p < .05$). These significant R^2s indicated a high degree of subject consistency in the utilization of cue information.

The results of the objectively derived rating policies indicated that both education and engineering recruiters focused almost exclusively on GPA during the rating process. Relative weights in the 80's and 90's for GPA were obtained for the majority of recruiters, indicating that GPA was relied on extensively. The other two dimensions, work experience and extracurricular activities, produced relative weights generally between 00 and 20, indicating very little use during the rating of the Personal Data Sheets.

Insert Table 2 here

Insert Table 3 here

Rater Insight

Hypothesis III predicted that a difference would be found between each subjects' objective and subjective rating policy. To test this hypothesis, a discrepancy index (DI) was computed which represents the mean absolute difference between the objective statistical weights, and the estimated subjective weights. The DI values ranged from 6.0 to 45.3 for the engineering recruiters (see Table 4), and from 4.6 to 53.3 for the education recruiters (see Table 5).

Insert Table 4 here

Insert Table 5 here

The objective relative weights and the subjective weights can be directly compared since they both have a underlying 100 point base (Zedeck and Kafry, 1977). Means and standard deviations for relative and subjective weights, along with a matched pairs t-test can be seen in Table 6. The difference between these weights, an indication of self insight, showed that GPA and work experience were significantly different for the engineering recruiters, and GPA, work experience and extracurricular activities were significantly different for the education recruiters. In general, both engineering and education recruiters subjectively underestimated the importance of GPA, and subjectively overestimated the importance of work experience and extracurricular activities. These results support Hypothesis III.

Insert Table 6 here

Rater Policy Clusters

Hypotheses II predicted the emergence of one cluster for each occupation from the cluster analyses. A hierarchical cluster procedure was used to determine if individual rating policies could be reduced into a smaller number of homogeneous groups. These individual rating policies were iteratively combined such that intergroup differences were maximized and intragroup differences were minimized. For each of the two groups of subjects (N=59 for engineers; N=48 for education), the 2 most similar raters were combined together into 1 composite policy group. This continued until all individual policies were combined into 1 large group.

This hierarchical cluster procedure computed a composite R^2 value at each iteration which provided information about the drop in predictive efficiency caused by further combining rater policies. Using a modified F-test (Bottenberg & Christal, 1968), the reductions in composite R^2 were tested at each iteration in the cluster procedure. These composite R^2 values, computed F values, and degrees of freedom can be seen in Table 7 for the engineering occupation. The largest single drop in composite R^2 occured between the second and first clusters for both occupations, indicating that a 2 group solution for both occupations is optimal. For the engineering group, 50 subjects comprised one cluster, while 9 subjects comprised the second cluster. Likewise, for the education group, 41 subjects were combined in one cluster, while 7 were combined in the second cluster (see Table 8). Although these results indicated the emergence of primarily one cluster for each occupation, the hypothesis, which predicted only one cluster per occupation, cannot be supported.

Insert Table 7 here

Insert Table 8 here

To investigate whether these clusters could be described differently based on biodata, the following information was obtained: age, sex, job title, years of experience, and academic background. The summary biographical data can be seen in Table 9 for the engineering recruiters, and in Table 10 for the education recruiters.

Insert Table 9 here

Insert Table 10 here

Engineering cluster 1 was comprised of 50 recruiters with an average age of 40.16. Seventy-four percent of these recruiters were male. Approximately an equal number of recruiters were in positions of manager, director or supervisor (N=21), and in positions of recruiting or college relations (N=22). The average years in this position was 4.72. Finally 60% of these recruiters had a graduate school education.

Engineering cluster 2 consisted of 9 recruiters with an average age of 47.7. Seventy-seven percent of these recruiters were male and 55% were employed as managers or supervisors. These recruiters held their positions for an average of 7.66 years, and had either graduate school, college, or some college background.

Education cluster 1 consisted of 41 recruiters with an average age of 46.87. They tended to be male (N=32), and were employed as either a superintendent or principal (N=18), or coordinator of personnel or personnel administrator (N=14). Most of these recruiters had graduate school backgrounds (N=35), and had spent an average of 6.31 years in their position.

Education cluster 2 consisted of 7 recruiters with an average age of 51.6. Five of these recruiters were male and were either directors of curriculum and instruction (N=3), or personnel administrators (N=2). They were employed in their position an average of 5.71 years and had graduate school educational backgrounds (N=6).

Interestingly, these cluster discriptions indicate that the smaller clusters of both education and engineering recruiters contained older recruiters. Thus, younger recruiters seem to be using primarily the same rating policy, which focuses primarily on GPA, while older recruiters seem to have developed more idiosyncratic rating policies.

Finally, Hypothesis I predicted a significant difference between the composite rating policies of the occupational clusters. A MANOVA using all 4 clusters was performed to look at differences between occupations. Cluster membership was treated as the independent variable and the mean relative weights for each of the 3 dimensions (GPA, work experience, extracurricular activities) as the dependent variables. Wilks Lambda (approximate) was significant ($F(6,204) = 38.32$, $p < .0001$). The 3 univariate F tests were also significant: GPA ($F(3,103) = 116.47$, $p < .0001$); extracurricular activities ($F(3,103) = 11.30$, $P < .0001$); work experience ($F(3,103) = 50.30$, $p < .0001$). Tukey post hoc comparisons were used to analyze the nature of these differences. This procedure revealed which of the cluster weights differed significantly from the others for each dimension. These results indicated that across all three dimensions, clusters 1 and 3, and clusters 2 and 4 do not significantly differ from one another. That is, the main cluster (CL 1) of the engineering group (N=50), and the main cluster (CL 3) of the education group

(N=41), are essentially the same for all 3 dimensions. Likewise, the small cluster (CL 2) of the engineering group (N=9), and the small cluster (CL 4) of the education group (N=7) do not differ significantly on any of the 3 dimensions. However, for all 3 dimensions, cluster 1 differs from clusters 2 and 4; cluster 2 differs from clusters 1 and 3; cluster 3 differs from clusters 2 and 4; and cluster 4 differs from clusters 1 and 3. The descriptive statistics of the cluster policies can be seen in Table 11, and the cluster policies expressed in terms of relative weights can be seen in Table 12.

Insert Table 11 here

Insert Table 12 here

A MANOVA was performed on just the two engineering groups using Wilks Lambda (approximate) $F(2,56) = 175.63$, $p < .0001$. The univariate F tests on each of the 3 dimensions revealed which of the dimensions significantly differed. Significant differences were found for all 3 dimensions: GPA ($F(1,57) = 295.61$, $p < .0001$); Extracurricular activities ($F(1,57) = 9.81$, $P < .0027$); work experience ($F(1,57) = 173.09$, $p < .0001$). That is, the main cluster (CL 1) had a higher relative weight (rw) mean score for GPA ($\underline{M} = 92.62$) than the secondary cluster (CL 2) ($\underline{M} = 16.44$). However, the secondary cluster had higher rw mean scores than the main cluster for both extracurricular activities (CL 1, $\underline{M} = 3.42$; CL 2, $\underline{M} = 19.66$), and work experience (CL 1, $\underline{M} = 3.96$; CL 2, $\underline{M} = 63.88$).

The MANOVA for the two clusters of education recruiters was also significant (Wilks Lambda approximate $F(2,45) = 62.29$, $p < .0001$). The univariate

F tests resulted in significant differences for all 3 dimensions: GPA ($F(1,46) = 93.29$, $p < .0001$); Extracurricular activities ($F(1,46) = 34.07$, $p < .0001$); work experience ($F(1,46) = 25.68$, $p < .0001$). The main cluster of education recruiters (CL 3) had a higher rw mean score for GPA ($M = 91.54$) than for the secondary cluster (CL 4) ($M = 29.71$). However, the secondary cluster had higher rw mean scores than the main cluster for both extracurricular activities (CL 3, $M = 2.78$; CL 4, $M = 26.28$), and work experience (CL 3, $M = 5.68$; CL 4, $M = 44.00$).

These results of the MANOVA for all 4 clusters suggest that Hypothesis I cannot be supported. The two primary clusters (CL 1 and CL 3) of the two occupations were not significantly different. Likewise, even the two minor clusters (CL 2 and CL 4) did not differ in rating policies.

Part III

Rater Memory

Hypothesis IV predicted that subjects would report a higher frequency of occurences for prototypic items than for nonprototypic or less prototypic items. This hypothesis was tested by requiring the recruiter to complete a second questionnaire about the 36 Personal Data Sheets approximately 1 week after evaluating and returning the Personal Data Sheet rating task. The 59 engineering and 48 education recruiters who returned the Personal Data Sheet evaluation packet were sent a second questionnaire containing the four categories of GPA (2.0-2.45, 2.5-2.95, 3.0-3.45, 3.5-4.0), work experience (4 years, 3 years, 2 years, 1 year), extracurricular activities (community service, sports, honor society, art), and sex (male, female). They were asked to indicate how often each of the response categories was represented in the 36 Personal Data Sheets they evaluated earlier on a 1 (never) to

7 (always) scale (see Appendix C). Because of difference in the promptness of completing and returning these second questionnaires, anywhere from 6 to 52 days lapsed between the completion of the Personal Data Sheets, and the completion of the memory task questionnaire. Thus, the results were analyzed in terms of 3 time periods: 1) less than 10 days; 2) 11-20 days; 3) and over 21 days. A response rate of 49 engineering and 40 education recruiters was obtained. This information was used to indicate whether subjects reported a higher frequency of occurences for categories containing prototypic items than for categories containing nonprototypic items.

Furthermore, prototypic and nonprototypic scores were derived for each subject. Prototypic attributes were identified in Part I of the study. Thus, the recruiter's response to the category (GPA between 3.5 and 4.0) containing the protoype (GPA of 3.5 for engineers), was considered to be their prototypic score. The responses to the other three categories (2.0-2.45, 2.5-2.95, 3.0-3.45) were averaged together. The mean of these three categories was considered to be their nonprototypic score. Therefore, two scores were obtained for each subject for each of the four categories contained on the memory questionnaire.

A 2 (prototypic, nonprototypic) X 3 (time 1, time 2, time 3) ANOVA was performed for each of the four categories for both of the engineering and education recruiters. The cell descriptive statistics for the two occupations can be seen in Tables 13 (engineering) and 14 (education). The results of the ANOVAs for the engineering recruiters can be seen in Tables 15 (GPA, extracurricular activities) and 16 (work experience, sex), and the ANOVAs for the education recruiters can be seen in Tables 17 (GPA, extracurricular activities) and 18 (work experience, sex).

For the engineering recruiters, significant differences were found for GPA, work experience, extracurricular activities and sex for the prototypic factor. On the other hand, GPA and sex were found to be significant, work experience was not significant, and extracurricular activities was marginally significant for the education recruiters for the prototypic factor. The time factor was not significant for either the engineering or the education recruiters.

Insert Table 13 here

Insert Table 14 here

Insert Table 15 here

Insert Table 16 here

Insert Table 17 here

Insert Table 18 here

These results suggest that Hypothesis IV can be partially supported. From Part I of the study, the prototypical engineer was described as having a GPA (overall) between 3.5-4.0, 3 years work experience, involved in sports and student governement, etc., and male. The prototypical elementary school teacher was described as having a GPA (overall) between 2.5-2.95, 3 years work experience, involved in the arts and volunteer work, etc., and female. The results of Part III indicated that the engineers remembered more prototypical extracurricular activities and sex of the applicant, and nonprototypic GPAs and work experience. These results did not change significantly over time. The education recruiters remembered significantly more prototypical GPAs and applicant sex, and nonprototypic extracurricular activities and work experience. These results did not change significantly over time.

Discussion

This study investigated the effect of occupational prototypes on the evaluation and retrieval of Personal Data Sheet information of college students. Prototypes for two different occupations, engineers and elementary school teachers were generated in Part I of the study. Part II of the study addressed the evaluation and judgement of Personal Data Sheet information using policy capturing procedures. The Personal Data Sheets used in this part of the study were developed from the prototypes obtained in Part I, and rated by corporate and school district recruiters. These results demonstrated how recruiters combined and used information when making recommendations for employment interviews, and the extent to which prototypes affected this process. Part III of the study addressed the retrieval of information and demonstrated the effect of prototypes on this stage of information processing. Specifically, it was proposed that prototypic information would be recalled as having occured more often than nonprototypic information in the 36 Personal Data Sheets the recruiters previously evaluated.

Part I

The first part of the study focused on the generation of prototypes for mechanical engineers and elementary school teachers. These prototypes were then used to develop the Personal Data Sheets rated by the recruiters in Part II of the study. College students majoring in education and engineering were used to generate these prototypes because the literature suggests that individuals with extensive experience with a particular occupation have a complex, well developed schema of that occupation (e.g. Linville, 1982). Furthermore, these individuals can provide detailed comprehensive descriptions of occupational prototypes (e.g.

Linville, 1982; Linville & Jones, 1982). Thus, college students were used to develop the prototypes within their fields.

These results indicated that the education prototype reflected involvement in such sports and fitness activities and gymnastics, tennis, swimming, aerobics, and horseback riding. School teachers were also described as liking art, writing, music, piano and photography. These individuals are likely to be day care volunteers, counselors, and be involved with community service. Their GPAs tend to be around 3.0 with 3 years total work experience.

Engineers, on the other hand, were described as interested in computers and holding academic honors. They were also described as being active in racquetball, basketball, lacrosse, and track. These individuals are also involved in student government or other leadership activities. The ideal engineer has a GPA of 3.5 and 3 years total work experience. These results demonstrated that prototypes of the ideal college applicant differed structurally between occupations, which supports the results obtained by Rosenberg and Sedlak (1972).

Part II

Policy capturing has been used in research to facilitate undertanding of the judgement and decision making stratigies of raters (e.g. Hobson et al., 1981; Dougherty et al., 1986). In this study, the prototypes generated in Part I were used to develop the 36 Personal Data Sheets varying on the 3 dimensions (GPA, extracurricular activities, work experience). By requiring each recruiter to rate each Personal Data Sheet, and regressing the rating of each Personal Data Sheet on the coded variables, the unique information processing strategy of each recruiter could be described. Thus, the relative importance of each dimension in determining each recruiter's ratings can be objectively assessed. This policy capturing method, then, was used in this study to provide insight into which dimensions were used by the raters when making judgements about the Personal Data Sheets, and if the use of these dimensions differed between occupations.

Hypothesis I: The results of Part I of the study, as well as empirical literature (e.g. Rosenberg & Sedlak, 1972) indicated that the structure of prototypes differ between occupations. Furthermore, the literature suggests that occupational schemas and prototypes shape the information perceived, organized and evaluated (e.g. Futoran & Wyer, 1986; Lingle et al., 1979). For example, individuals remember that a person is intelligent based on the occupational theme that the person is a physicist (Lingle et al., 1979). The Personal Data Sheets, then, should be evaluated and judged differently, depending on the occupational schema used as an organizing theme. Therefore, it was hypothesized that composite rating policies of the two occupations should be significantly different.

This hypothesis, however, was not supported. The main cluster of the engineering raters and the main cluster of the education raters did not significantly differ on any of the 3 dimensions. Both occupational groups focused primarily on GPA, while giving extracurricular activities and work experience relatively little consideration. However, the results of Part I demonstrated that structural differences occured between the occupational prototypes. Although the structure of the dimensions differed between occupations (e.g. the prototypic GPAs differed for the two occupations), the weights of the dimensions obtained from the objective rating policies did not differ between the occupations (e.g. the weighting of GPA was essentially the same for recruiters in both occupations). Thus, it would seem that these prototypes did not affect how the Personal Data Sheet information was evaluated and judged.

Two possible explanations for these results can be offered. First, the task itself may not have adequately tapped the effect of occupational prototypes. The recruiters may not have approached the task as seriously as they would have an actual applicant. It is possible that GPA was used extensively and exclusively simply because it was the easiest and quickest item on the Personal Data Sheets to process. Reading the work experience and extracurricular activities would have required more time and effort than simply glancing at the GPA. Thus, if these recruiters evaluated actual applicants, the effect of the particular occupational prototype may have been much more apparent. However, the majority of recruiters used the same rating policy, exemplified by the emergence of one main cluster in each of the two occupations. It seems unlikely, then, that all of these recruiters reacted the same way to this task and used GPA as the main criteria for their decisions.

Second, and more likely, is the possibility that each dimension of the prototype was not given equal weight when making judgements. Furthermore, the recruiter's prototype, which may differ from the student's prototype, may emphasize the importance of GPA during this particular task of evaluating Personal Data Sheets. Thus, GPA may be weighted so extensively, that little consideration was given to work experience and extracurricular activities when initially screening applicants. Thus, while the occupational prototypes may be structurally different, only one dimension may actually be used during this particular evaluation process. Furthermore, this dimension, GPA, may be common to both occupational prototypes. Thus, if both occupations used GPA exclusively during the evaluation process, then the resulting rating policies of the two occupations would appear to be the same.

Finally, it should be noted that these judgements are affected by heuristics. Heuristics are general principles, or rules of thumb, for reducing complex tasks to simpler judgement operations. For example, the representativeness heuristic allows judges to use the similarity of a sample to various populations in order to decide category membership. Furthermore, these judgements do not involve an exhaustive analysis of all information, rather, information is selectively processed. The results of this study indicate that not all of the available information on the Personal Data Sheet was used in making judgements. GPA was relied on almost exclusively. Thus, it seems that heuristics are affecting the recruiters judgement by reducing the information attended to and processed.

Sherman and Corty (1984) suggest that the representativeness heuristic involves judgements of similarity between the sample event and some modal representation, or prototype, of the population. During the evaluation of a Personal Data Sheet, a particular occupational prototype is activated. It is likely, then, that the Personal Data Sheet information is organized and matched to the prototype (e.g. ideal job applicant). This prototype may include, and emphasize, high GPA. Thus, the applicant with high GPA will be more similar to the prototype and, therefore, receive a higher evaluation. Therefore, it is likely that these recruiters are using heursitics when rating Personal Data Sheets.

It is possible, then, that schemas and prototypes are guiding the information processing through the use of heuristics. That is, recruiters could be 1) selectively attending to GPA to reduce the information processing demands, and 2) matching the similarity of each Personal Data Sheet to their prototype. The higher the similarity between the applicant and the prototype, the higher the evaluation.

Hypothesis II: These recruiters within each occupation should have been exposed to highly similar schema relevant situations, and therefore, have similar complex schemas (Linville & Jones, 1982). These similar schemas should affect the evaluation of the Personal Data Sheet information similarly for each recruiter, resulting in similar rating policies for each recruiter. Thus, Hypothesis II predicted the emergence of one cluster for each occupation.

Although two clusters were obtained for each occupation, one primary cluster emerged for each occupation. Fifty out of 59 engineering recruiters were clustered in one group, with the remaining 9 in a second group. Forty-one out of 48 education recruiters were clustered together in one group, with the remaining 7 in a second group. Thus, essentially one cluster was derived for each occupation. It is likely, then, that these recruiters have similar schemas and are using similar policies in making their judgements. The results demonstrated that the majority of recruiters have similar rating policies: high weights for GPA with little consideration for work experience and extracurricular activities. Both of the small clusters consisted of a composite policy where the 3 dimensions received approximately equal weighting. A further look at the data in these 2 smaller groups demonstrates apparently idiosyncratic rating policies. That is, one subject highly weighted work experience, with little attention given to GPA and extracurricular activities (engineering subject 253), while another subject weighted extracurricular activities more importantly than GPA or work experience (engineering subject 302). The eclectic nature of these rating policies precludes the identification of any one consistently used policy. Overall, the emergence of one main cluster for each occupation suggests that schematic organization is affecting the rating process.

Hypothesis III: These recruiters, or experts, should have well-developed schemas which allow information to be processed without awareness. Because this processing is fast, efficient, and prevents access to underlying details, it is likely that these recruiters have poor insight into how they combined and used the Personal Data Sheet information (e.g. Lord, 1985). Hypothesis III, then, predicted that a difference would be found between each recruiters subjective and objective rating policy.

The results showed that differences were found between subjective and objective weights for every recruiter, thus suggesting that the processing of the Personal Data Sheet information occured without awareness. These results, which support the hypothesis, suggest that schemas are operating during the processing and judgement stage of information processing. Therefore, the emergence of one main cluster for each occupation combined with the findings that recruiters could not identify their rating policy indicates that prototypes are affecting the ratings of Personal Data Sheet information.

Part III

Part III of the study addressed the retrieval stage of the information processing model. A questionnaire was sent to the recruiters after they evaluated and returned the 36 Personal Data Sheets. The questionnaire asked the recruiters to recall how often certain information occured in the 36 Personal Data Sheets they evaluated earlier.

Hypothesis IV: Rosch (1975) found that prototypic information is more available in memory, and therefore, more likely to be retrieved. Furthermore, once a person is placed in a particular occupational category, the perciever can erronously report category consistent, but never seen attributes (e.g. Cohen, 1981; Lingle et al, 1979). Thus, memory for the characteristics of a stimulus person is highly dependent on the category in which that stimulus person is placed (e.g. Phillips & Lord, 1982). Hypothesis IV, then, predicted that recruiters should report a higher frequency of occurences for prototypic items than for nonprototypic or less prototypic items.

The results partially supported this hypothesis. The engineering recruiters remembered more prototypic extracurricular activities and applicant sex, and nonprototoypic GPA's and work experience. That is, engineering recruiters remembered more sports activities, and male applicants (prototypic), but remembered lower GPA's and lower number of years work experience (nonprototoypic). The education recruiters remembered significantly more prototypical GPAs (2.5-2.95), and sex of the applicant, but remembered nonprototoypic work experience, and extracurricular activities.

Engineering recruiters tended to remember lower GPAs and work experiences than prototypic. It should be noted, however, that the GPAs on the 36 Personal Data Sheets ranged from 2.0 to 4.0, resulting in an average across Personal Data Sheets of around 3.0. Likewise, the work experience range from 1 to 3 years, with an average across Personal Data Sheets of about 2 years. Thus, it may be possible that these recruiters tended to remember the average GPA and work experience rather than the prototypic GPA and work experience.

On the other hand, these results also suggest that recruiters may have slightly different prototypes than students. Students and recruiters have had different experiences with, and exposure to schema relevant examples. That is, engineering recruiters have been exposed to hundreds of engineering applicants, while engineering students have been exposed to other engineering students. Thus, it is likely that the students' schema is not as developed or complex as the recruiters' schema. Therefore, the engineering recruiters protoype may include GPA of around 3.0 rather than 3.5 based on their exposure to hundreds of 'real' applicants and college graduates. Similarly, the engineering recruiters' prototype may have work experience of 1 year, which may reflect a 1 year co-op. The education recruiters prototypes with 1 year work experience may reflect the 1 year of student teaching experience. In essence then, the recruiters prototype may be considered a more 'realistic' prototype of the ideal applicant due to their exposure to real job applicants. Therefore, even though these results do not necessarily reflect the prototypes obtained in Part I, they still may reflect to prototypes of the recruiter. Finally, it is possible that more distinctive results would have been obtained if a more detailed questionnaire had been used. Asking more specific questions could have generated richer information and understanding of the effect of prototypes on retrieval.

Suggestions for Future Research

Several suggestions for further research can be made based on these results. First, it was noted that recruiter's prototypes may differ structurally from student's prototypes. Prototypes, then, should be generated from the recruiters as well as from students. Thus, a comparison could be made between the structure of prototypes of different groups of experts. Furthermore, a more accurate prediction of recruiters rating policies can be made based on the recruiter's own prototypes. Likewise, the Personal Data Sheet rating task could be completed by student engineering and education majors. Both of these suggestions would result in more consistency between the three parts of the study. Requiring both recruiters and students to complete the three step process would lead to stronger results and conclusions about the effects of prototypes on information processing.

Second, the results indicated that one large and one small cluster emerged in each occupation. The small clusters tended to be comprised of a variety of different, or idiosyncratic, rating policies. Hauenstein and Alexander (1988) found that idiosyncratic raters are less accurate and reliable than normative raters. Thus, it would be interesting to note if the recruiters comprising the smaller clusters are indeed idiosyncratic in their rating policies and if the recruiters comprising the main clusters are normative. Identifying these individual differences in rater behavior using sensitivity and threshold analysis (Jackson, 1972) could enhance understanding of how rater characteristics can affect the evaluation of resumes.

Third, it was noted that the recruiters rating policies of the two occupations were essentially the same. That is, GPA was relied on exclusively for both occupational recruiters. Thus, while prototypes may indeed differ, GPA may be considered of primary importance by both groups of recruiters. Subjects could be asked, then, how important certain dimensions are during the resume evaluation process when they generate prototypes in Part I of the study. Realizing that certain aspects of the prototype (GPA) are considered highly important when evaluating applicants will facilitate understanding of the judgement process in Part II of the study. Although the two occupational prototypes are structurally different, if GPA is considered extremely important for both occupations, then obtaining similar rating policies in both occupational would not be surprising. That is, GPA would be weighted highly and exclusively for both occupations, giving the appearance that occupational prototypes do not affect the rating process.

Finally, fourth, the memory task, or part III of the study, could be more sensitive. That is, more specific questions about the Personal Data Sheets could be asked. This would result in a richer, more detailed understanding of the effects of prototypes on the retrieval of information.

Conclusions and Implications

Conclusions

Based on these results, the following conclusions can be proposed. First, it is likely that students and recruiters have slightly different prototypes of the ideal applicant because of the differences between the prototypic descriptions generated by students in Part I and what was remembered by recruiters in Part III. This is a reasonable conclusion since students and recruiters, although both highly familiar with their field, have been exposed to qualitatively different experiences. Furthermore, it is apparent that prototypes differ structurally between occupations based on the differences obtained between the engineering and education groups in both Part I and Part III of the study.

Second, it is likely that not all aspects of a prototype are weighted equally during information processing. It is possible that one dimension, such as GPA, is given much more consideration than work experience or extracurricular activities when evaluating a resume. This is a reasonable conclusion since the objective weight of GPA was much higher than the weights of the other 2 dimensions for the majority of recruiters. These results suggest that schemas are affecting the judgement process through the use of heuristics. That is, it is possible that only one dimension was focused on in order to simplify information processing demands,

Third, the emergence of one main cluster for both occupations suggests that schematic organization is affecting the recruiters rating process. Eighty-five percent of the engineering recruiters and 87% of the education recruiters used the same rating policy. Furthermore, differences were found between the subjective and objective weights for the majority of recruiters. Because recruiters could not identify their rating policy, further support is obtained for the conclusion that schematic organization and prototypes are affecting the rating process.

Fourth, the lack of differences between occupations in rating policy and essentially the lack of any consideration given to extracurricular activities and work experience seems perplexing given the above conclusion that schematic organization is affecting the rating process. These results suggest two possibilities. First, the effect of prototypes on the judgement of Personal Data Sheet information may not have been fully captured by the policy capturing design. It is feasible that these recruiters, faced with busy workloads did not put the time and effort into the task. Glancing at the GPA, without reading all of the information, greatly simplified the task of rating the 36 Personal Data Sheets. However, this possibility seems unreasonable since the vast majority of recruiters used the same rating policy. It is unlikely that so many recruiters would react to the artificial nature of the task in the same way and rely exclusively on GPA.

More realistic is the suggestion that the recruiter's prototypes may heavily weight GPA for the purpose of applicant evaluation. Thus, while the prototypes may differ structurally between occupations, the emphasis on GPA by both groups of recruiters results in the equivalent rating policies of both engineering and education recruiters.

Finally, it is likely that these occupational prototypes are guiding the judgement and evaluation of Personal Data Sheets through the use of heuristics. Recruiters selectively attended to GPA and matched the similarity of each Personal Data Sheet to their prototype of the ideal college graduate. A high recommendation for an employment interview resulted when the applicant and the prototype were highly similar.

In conclusion, it is suggested that prototypes do affect the judgement stage, through the use of heuristics, as well as the retrieval stage of information processing. It is apparent that prototypes differ structurally between occupations and serve as organizing themes for the rating and retrieval of Personal Data Sheet information. Further research is needed, however, to identify whether these findings are an accurate reflection of recruiter behavior or whether the results are due to the artificial nature of the task.

Implications

Schema Theory: Fiske and Taylor (1984) noted that schema theory and social cognition has traditionally been studied in the laboratory setting. Under these conditions, much has been learned about the affect of schemas on encoding, judgement, and retrieval. However, few studies have attempted to study schema theory and social cognition in the applied setting. Consequently, the authors suggest that research must be extended in to the field in order to 1) fully understand the affect of schemas on informatin processing, and 2) increase generalizability and external validity of the research.

This research, then, attemped to facilitate this understanding of schemas and prototypes through the use of a field study. The results suggest that schemas do affect information processing in applied settings, particularly when recruiters were asked to retrieve information from the Personal Data Sheets they evaluated. During the judgement stage of personnel selection, it seems that schemas affect the rating process through the use of heuristics.

Field studies are needed, then, to facilitate understanding and expand knowledge of the role of schemas in informaiton processing. In addition, field studies are critical for the generalizability and external validity of results. That is, the rating processes of students in a laboratory setting are not necessarily reflective of actual recruiters rating processes in an organizaiton.

External Validity: The characteristics of the subject sample should be carefully appraised before statements about external validity are made. For example, managers were found to be more accurate subjects when the purpose was to generalize to managerial behavior in organizations (Barr & Hitt, 1986). This study, then, used college recruiters rather than college students in order to maximize external validity and generalizability to recruiter behavior. Although the results of this study are more externally valid than a typical laboratory study using undergraduate college students, complete realism may not have been achieved due to the artificial nature of the policy capturing design. The results, then, may be highly similar, but not a perfect reflection of recruiter behavior. It should be emphasized that the ability of a researcher to control environmental factors and constraints outside of a laboratory setting is limited at best. These limitations, then, should be considered when weighing the internal and external validity of any field experiment.

Policy capturing and clustering, however, can still be useful frameworks for describing and understanding the rating process of recruiters. If these results are even somewhat indicitive of recruiter behavior, then it is likely that certain criteria are weighted more heavily than others when evaluating resumes, and that this policy is common among the majority of recruiters. Furthermore, the recruiters believe that they are weighting these criteria differently that they actually are. The implications of these results for personnel selection in general and resume evaluation in particular should be addressed.

Resumes: Resume evaluations are considered a necessary first step in the selection process by many organizations. Yet, the literature suggests that these evaluations are often biased and subjective (e.g. Dipboye et al, 1977). However, Tosi and Einbender (1985) suggest that providing detailed applicant descriptions will reduce these biases because more information about the applicant is available for evaluation. In addition, many resume studies used students to evaluate applicant information, thus limiting the generalizability of the results. The present study, then, incorporated both detailed Personal Data Sheets, and actual college recruiters.

The results of this study suggest that recruiters do not attend to, and use, all available information provided in an applicant's resume. Thus, providing detailed information did not necessarily ensure the use of all of the information. It seems, then, that schemas and prototypes guide the encoding and processing of the information through the use of heursitics. It is likely that recruiters use heuristics during resume evaluation to simplify the processing of hundreds of resumes. Thus, the recruiters selectively attend to, and use, primarily GPA to reduce processing requirements.

Historically, grades and test scores (e.g. SAT, GRE) have been considered to be highly predictive of future success. Interestingly, Howard (1986) reviewed two longitudinal studies at AT&T and found that high undergraduate grades were indicative of greater intellectual ability and greater work involvement. Grades were also related to range of interests and low need for supervisor approval. Finally, grades were also significantly correlated with ratings of overall potential and later advancement. It is not surprising, then, that recruiters would tend to focus on grades during this evaluation process.

It is possible, then, that GPA and other test scores are used as the initial cut off. For example, many colleges and universities require a minimum SAT or GRE score before further consideration of that applicant is made. It is likely, then, that GPA may be used to initially reduce the number of applicants to be interviewed. After this phase of selection, work experience and extracurricular activities might be addressed and weighted more importantly in the second, or interview phase of personnel selection. Therefore, it is plausible that GPA is being used primarily in the resume evaluation stage of personnel selection, resulting in little impact of all aspects of the prototype. However, it may be during the interview phase, where more consideration is given to other factors of the applicant, that the effect of other aspects of the prototype may be fully seen.

Training: This emphasis on GPA raises the issue of recruiter training and the recruitment process in general. That is, are these recruiters told specifically to rely on grades, or are they focusing on grades because of their own personal experiences and subjectivity? It was noted, however, that these recruiters believed and/or said that they also used extracurricular activities and work experience in their evaluations of the Personal Data Sheets. Thus, it would seem that the recruiters were not explicitly trained to focus on GPAs. Therefore, the recruitment process, especially recruiter training, should be investigated.

Lindquist and Endicott (1986) reported that approximately half of all professionals with less than 3 years work experience are hired through the recruitment process. Furthermore, 230 organizations in their 1985 sample recruited 37,000 individuals through the recruitment method alone. Additionally, college recruitment was found to be a large investment. Miner (1979), for example, reported a median cost of $1,300 per college hire. However, as important and expensive as college recruitment is to the organization, Rynes and Boudreau (1986) noted that most campus recruiters receive little or no training. Less than half of the organizations in their study offered standardized training programs, and of those, less than half required recruiter training. It is apparent, then, that more objective and accurate applicant evaluations could be obtained with comprehensive recruiter training. Thus, while it may be possible that organizations actually are using GPAs as initial cut offs and as indicator of future success, it is also likely that using GPAs exclusively is the result of inadequate recruiter training.

In conclusion, policy capturing can be used successfully for describing and understanding the rating process of recruiters. While the results may not be a perfect reflection of recruiter behavior, it is likely that the results are highly similar. Furthermore, the recruiters emphases on GPA was also noted. While it may be likely that recruiters explicitly use GPA during applicant screening, it is also likely that the reliance on GPA is the result of inadequate recruiter training. Therefore, future research is needed to identify if organizations explicitly emphasize and train recruiters to focus on grades based on the empirical research that grades are indicative of future success, or alternately, whether the reliance on grades is a function of the recruiter's own subjectivity, personal experience and insufficient training. In either case, the importance of empirical research on the relationship between college grades and later success, and the need for the establishment of comprehensive recruiter training programs cannot be ignored.

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TABLE 1

Mechanical Engineer and Elementary School Teacher Prototypes Obtained from the Personal Data Sheet Task (PDS) and from the Free Response Task (FR)

	Elementary School Teacher[a]		Mechanical Engineer[b]	
	PDS	FR	PDS	FR
Deans list, honor society, academic honors etc.	4%	7%	66%	37%
Art, photography, music, crafts etc.	68%	36%	0%	0%
Volunteer work, RAFT, community service etc.	89%	78%	10%	0%
Horseback riding, dancing, aerobics, jogging, biking, etc.	21%	15%	30%	10%
Swimming, tennis, gymnastics, racquetball, etc.	15%	21%	53%	40%
Football, basketball, lacrosse, soccer, track, etc.	5%	0%	30%	20%
Student government, Residence Hall Federation, RA, etc.	26%	0%	37%	26%
Education ass., Engineering ass., etc.	15%	0%	60%	10%
Computers, problem solving, design, etc.	0%	0%	70%	30%

[a] N = 20
[b] N = 20

TABLE 1 (continued)

Mechanical Engineer and Elementary School Teacher Prototypes Collapsed Across the Personal Data Sheet Task (PDS) and the Free Response Task (FR)

	Elementary School Teacher[a]		Mechanical Engineer[b]	
	major	overall	major	overall
GPA				
2.0-2.45	00%	00%	00%	00%
2.5-2.95	21%	42%	06%	03%
3.0-3.45	42%	15%	26%	30%
3.5-4.00	36%	26%	66%	56%

	Elementary School Teacher		Mechanical Engineer	
Work Exp.	years	employers	years	employers
1	15%	26%	16%	43%
2	26%	52%	20%	30%
3	31%	05%	40%	13%
4	21%	10%	23%	13%

[a] N = 20
[b] N = 20

TABLE 2

Engineering Recruiter Individual Rating Policies and R^{2a}

		Dimension		
Subject[c]	GPA	Extracurricular Activities	Work Experience	R^{2b}
202	98	01	01	.77
215	100	00	00	.90
219	99	00	01	.87
222	96	04	00	.42
271	93	07	00	.72
255	96	01	03	.90
318	98	00	02	.85
204	98	00	02	.77
205	98	00	02	.77
206	99	01	00	.75
208	98	00	02	.77
262	98	01	01	.88
264	18	00	82	.50
265	95	02	03	.87
276	99	00	01	.90
281	96	02	02	.62
282	28	04	68	.51
283	31	64	05	.29
223	83	03	14	.75
225	98	01	01	.65
227	98	00	02	.94
232	98	00	02	.83
234	97	01	02	.78
235	99	00	01	.78
243	70	00	30	.74
245	82	00	18	.73
246	91	01	08	.74
251	98	01	01	.90
252	93	03	04	.62

[a] Rater policies expressed in terms of relative weights ($RW_{is} = B_{is}r_{is}/R^2_s$)

[b] All subjects R^2 significant at the .05 level

[c] N = 59

TABLE 2 (continued)

Engineering Recruiter Individual Rating Policies and R^2 [a]

		Dimension		
Subject[c]	GPA	Extracurricular Activities	Work Experience	R^{2}[b]
253	01	05	94	.52
285	98	00	02	.67
288	99	01	00	.95
291	90	01	01	.90
292	96	02	02	.81
293	92	02	06	.88
296	92	00	08	.75
297	92	00	08	.75
302	08	79	13	.33
303	70	28	02	.75
310	99	01	00	.80
313	97	00	03	.80
315	92	02	06	.90
319	99	01	00	.80
321	03	01	96	.81
327	82	07	11	.71
238	95	04	01	.83
289	97	03	00	.80
275	26	12	62	.19
220	97	00	03	.52
224	01	16	83	.45
249	80	20	00	.51
284	99	01	00	.80
311	97	01	02	.89
314	71	00	29	.69
201	98	01	01	.88
212	95	03	02	.83
221	97	00	03	.89
226	46	00	54	.50
233	17	60	23	.70

[a] Rater policies expressed in terms of relative weights ($RW_{is} = B_{is} r_{is} / R^2_s$)
[b] All subjects R^2 except #275 significant at the .05 level
[c] N = 59

TABLE 3

Education Recruiters Individual Rating Policies and R^{2a}

		Dimension		
Subject[c]	GPA	Extracurricular Activities	Work Experience	R^{2b}
37	96	00	04	.77
82	84	08	08	.54
83	77	03	20	.69
104	90	09	01	.84
86	94	02	04	.75
5	95	04	01	.74
80	99	00	01	.80
105	100	00	00	.87
93	94	03	03	.84
63	99	00	01	.80
60	95	03	02	.85
49	85	03	12	.66
45	88	03	09	.18
41	95	01	04	.89
38	97	00	03	.53
22	16	03	81	.01
16	90	08	02	.76
92	27	59	14	.82
87	97	00	03	.78
99	99	00	01	.52
107	96	02	02	.86
31	91	02	07	.93
40	94	05	01	.77
54	98	02	00	.94
67	00	00	100	.90

[a] Rater policies expressed in terms of relative weights ($RW_{is} = B_{is} r_{is} / R^2_s$)

[b] All subjects R^2 significant at the .05 level except for #22 and #45

[c] N = 48

TABLE 3 (continued)

Education Recruiters Individual Rating Policies and R^{2a}

		Dimension		
Subject[c]	GPA	Extracurricular Activities	Work Experience	R^{2b}
71	98	00	02	.94
61	89	00	11	.55
76	96	01	03	.86
101	33	01	66	.39
70	98	02	00	.39
52	22	02	76	.66
100	99	01	00	.44
106	90	08	02	.73
34	99	01	00	.95
48	95	00	05	.91
102	87	12	01	.77
103	02	54	44	.50
89	87	10	03	.09
81	72	02	26	.74
84	100	00	00	.72
39	100	00	00	.87
51	98	02	00	.81
44	69	25	06	.54
12	55	43	02	.61
75	91	09	00	.91
66	97	03	00	.80
9	95	02	03	.46

[a] Rater policies expressed in terms of relative weights ($RW_{is} = B_{is} r_{is} / R^2_s$)

[b] All subjects R^2 significant at the .05 level

[c] N = 48

TABLE 4

Engineering Recruiter Individual Estimates of Own Rating Policy and Discrepancy Index

	Dimension			
Subject[b]	GPA	Extracurricular Activities	Work Experience	DI[a]
202	50	35	15	32.0
215	65	25	10	23.3
219	60	20	20	78.0
222	40	40	20	37.3
271	50	20	30	28.6
255	35	55	10	40.6
318	70	25	05	18.6
204	55	35	10	28.6
205	50	30	20	32.0
206	50	40	10	32.6
208	30	55	15	45.3
262	60	30	10	25.3
264	20	60	20	41.3
265	50	49	01	31.3
276	60	25	15	26.0
281	60	35	05	24.0
282	50	25	25	28.6
283	35	55	10	6.0
223	40	40	20	28.6
225	30	40	30	45.3
227	40	40	20	38.6
232	60	30	10	25.3
234	60	20	20	24.6
235	35	35	30	42.6
243	40	40	20	26.6
245	35	45	10	17.6
246	35	45	20	40.6
251	70	20	10	18.6
252	60	30	10	14.6

[a] The absolute value of the difference between the estimated importance of a dimension and the actual relative weight for that dimension (see Table 2), summed across the 3 dimensions.

[b] N = 59

TABLE 4 (continued)

Engineering Recruiter Individual Estimates
of Own Rating Policy and Discrepancy Index

		Dimension		
Subject[b]	GPA	Extracurricular Activities	Work Experience	DI[a]
253	25	65	10	56.0
285	50	35	15	32.0
288	50	25	25	32.6
291	40	40	20	38.6
292	40	50	10	37.3
293	70	20	10	14.6
296	50	30	20	28.0
297	35	40	25	38.0
302	25	32	43	31.3
303	50	15	35	22.0
310	60	20	20	26.0
313	70	20	10	18.0
315	50	40	10	28.0
319	85	10	05	9.3
321	10	70	20	29.6
327	35	45	20	31.3
238	45	40	15	33.3
289	50	30	20	31.3
275	15	75	10	42.0
220	50	30	20	31.3
224	31	40	29	36.0
249	50	25	25	20.0
284	50	25	25	32.6
311	50	35	15	31.3
314	32	43	25	28.6
201	30	50	20	45.3
212	40	30	30	36.6
221	50	40	10	31.3
226	20	50	30	33.3
233	10	45	45	14.6

[a] The absolute value of the difference between the estimated importance of a dimensions and the actual relative weight for that dimensions (see Table 2), summed across the 3 dimensions.

[b] N = 59

TABLE 5

Education Recruiters Individual Estimates of Own Rating Policies and Discrepancy Index

	Dimension			
Subject[b]	GPA	Extracurricular Activities	Work Experience	DI[a]
37	65	15	20	20.6
82	30	35	35	36.0
78	60	30	10	22.0
83	65	15	20	8.0
104	50	30	20	24.0
86	70	20	10	16.0
5	40	50	10	36.6
20	90	05	05	6.0
105	60	20	20	26.6
93	40	40	20	24.0
63	50	30	20	32.6
60	60	20	20	23.3
49	35	30	30	33.3
45	25	50	25	42.0
41	90	05	05	3.3
38	50	30	20	31.3
22	50	25	25	31.3
16	40	30	30	33.3
92	30	35	35	16.0
87	50	30	20	31.3
99	25	50	25	49.3
107	33	33	34	42.0
31	60	15	25	20.6
40	50	20	30	29.3
54	60	20	20	25.3
67	20	60	20	53.3

[a] The absolute value of the difference between the estimated importance of a dimension and the actual relative weight for that dimension (see Table 3), summed across the 3 dimensions.

[b] N = 48

TABLE 5 (continued)

Education Recruiters Individual Estimates of Own Rating Policies and Discrepancy Index

	Dimension			
Subject[b]	GPA	Extracurricular Activities	Work Experience	DI[a]
71	60	20	20	25.3
61	25	50	25	42.6
76	70	20	10	17.3
101	25	45	30	29.3
70	40	20	20	38.6
52	20	50	30	32.0
100	40	30	30	39.3
106	65	20	15	20.0
34	60	20	20	26.0
48	90	07	03	4.6
102	35	32	33	34.6
103	10	60	30	12.0
89	34	33	33	35.3
81	50	30	20	21.3
84	50	25	25	33.3
39	50	25	25	31.0
51	50	25	25	32.0
44	40	20	40	22.6
12	25	40	35	22.0
75	60	30	10	20.6
66	85	10	05	16.0
9	50	30	20	30.0

[a] The absolute value of the difference between the estimated importance of a dimension and the actual relative weight for that dimension (see Table 3), summed across the 3 dimensions.

[b] N = 48

TABLE 6

Relative and Subjective Weights for Each Variable for Engineering and Education Recruiters

	Relative Weights		Subjective Weights		
Variable	Mean	SD	Mean	SD	t
Engineering[a]					
GPA	81.00	30.17	45.14	15.61	-11.83*
Work Experience	5.89	15.38	36.60	13.48	12.04*
Extracurricular Activities	13.39	25.01	18.10	9.08	1.42
Education[b]					
GPA	82.52	26.94	48.58	19.08	-10.08*
Work Experience	6.20	12.85	29.37	13.33	10.20*
Extracurricular Activities	11.27	22.83	22.04	8.98	3.24*

* $p < .01$

[a] N = 59

[b] N = 48

TABLE 7

Reduction in Composite R^2 for Engineering Recruiters[a]

Iteration	Number of Clusters	R^2	$R^2_i - R^2_{i-1}$	df	F
1	58	.9999			
2	57	.9999	.0000	3, 1950	0.00
.	.	.	.	.	.
.	.	.	.	.	.
49	10	.9027	.0132	3, 2091	109.52
50	9	.8884	.0143	3, 2094	102.56
51	8	.8707	.0177	3, 2097	110.86
52	7	.8515	.0192	3, 2100	103.90
53	6	.8227	.0288	3, 2103	135.95
54	5	.7854	.0373	3, 2106	147.68
55	4	.7049	.0805	3, 2109	263.70
56	3	.6196	.0853	3, 2112	203.49
57	2	.5296	.0900	3, 2115	166.82
58	1	.0000	.5296	3, 2118	794.96[b]

[a] N = 59

[b] Largest decrease in composite R^2

TABLE 8

Reduction in Composite R^2 for Education Recruiters[a]

Iteration	Number of Clusters	R^2	$R^2_i - R^2_{i-1}$	df	F
1	47	.9999			
2	46	.9999	.0000	3, 1587	0.00
.	.	.	.	.	.
.	.	.	.	.	.
38	10	.8926	.0149	3, 1698	91.71
39	9	.8765	.0161	3, 1701	85.05
40	8	.8591	.0174	3, 1704	80.02
41	7	.8269	.0322	3, 1707	130.03
42	6	.7920	.0349	3, 1710	114.98
43	5	.7339	.0581	3, 1713	159.49
44	4	.6716	.0623	3, 1716	133.91
45	3	.5479	.1237	3, 1719	215.83
46	2	.3953	.1526	3, 1722	193.78
47	1	.0000	.3953	3, 1725	375.90[b]

[a] N = 48

[b] Largest decrease in composite R^2

TABLE 9

Cluster Descriptions for Engineering Recruiters

	Cluster 1	Cluster 2
Size	50	9
Average age	40.16	47.7
Sex		
Male	37	7
Female	13	2
Job title		
Manager, supervisor	21	5
Recruiting, college relations	22	3
Personnel	7	1
Average years in position	4.72	7.66
Educational background		
graduate school	30	3
college	18	2
some college	2	4
other	0	0

TABLE 10

Cluster Descriptions for Education Recruiters

	Cluster 1	Cluster 2
Size	41	7
Average age	46.87	51.6
Sex		
Male	32	5
Female	9	2
Job title		
Superintendent, Principal	18	1
Curriculum and Instruction	4	3
Recruiting, employee Relations	4	1
Personnel administrator	14	2
Secretary	1	0
Average years in position	6.31	5.71
Educational background		
graduate school	35	6
college	3	0
some college	1	0
other	2	1

TABLE 11

Descriptive Statistics for Cluster Policies[a]

	Cluster[b] (CL)			
Dimension	1	2	3	4
GPA				
M	92.62	16.44	91.54	29.71
SD	11.69	15.12	13.56	25.53
N	50	9	41	7
Extracurricular Activities				
M	3.42	19.66	2.78	26.28
SD	9.99	29.16	3.24	25.94
N	50	9	41	7
Work Experience				
M	3.96	63.88	5.68	44.00
SD	6.40	29.60	13.20	38.19
N	50	9	41	7

[a] Cluster policies expressed in terms of relative weights ($RW_{is} = B_{is} r_{is} / R^2_s$)

[b] CL1 = Engineering main cluster (N=50)
CL2 = Engineering secondary cluster (N=9)
CL3 = Education main cluster (N=41)
CL4 = Education secondary cluster (N=7)

TABLE 12

Cluster Policies[a]

	Cluster[e] (CL)				
Dimension[c]	1	2	3	4	Tukey[b]
GPA	100	15	99	29	1=3>2=4
Extracurricular Activities	0	13	01	25	1=3<2=4
Work Experience	0	72	00	46	1=3<2=4
R^{2d}	.58	.32	.49	.33	

[a] Cluster policies expressed in terms of relative weights ($RW_{is} = B_{is}r_{is}/R^2_s$) and R^2
[b] Tukey post hoc analysis
[c] All dimensions identified as signficant through univariate F tests
[d] All computed R^2s significant at the .05 level
[e] CL1 = Engineering main cluster (N=50)
CL2 = Engineering secondary cluster (N=9)
CL3 = Education main cluster (N=41)
CL4 = Education secondary cluster (N=7)

TABLE 13

Cell Descriptive Statistics for Engineering Recruiters

	Time 1		Time 2		Time 3[a]	
	A	B	A	B	A	B[b]
GPA						
M	3.07	3.52	3.00	3.23	2.30	3.28
SD	1.14	0.76	1.15	0.76	0.67	0.54
N	14	14	25	25	10	10
Extracurricular Activities						
M	4.28	3.85	4.12	4.00	3.65	3.20
SD	0.91	1.09	0.85	0.92	0.62	0.85
N	14	14	25	25	10	10
Work Experience						
M	2.57	3.55	2.28	3.26	2.30	3.34
SD	1.09	0.67	1.30	0.92	1.76	1.49
N	14	14	25	25	10	10
Sex						
M	4.30	3.61	4.40	2.85	3.80	3.30
SD	0.48	0.50	1.50	1.13	1.13	0.94
N	13	13	20	20	10	10

[a] Time 1 = 0-10 days between completion of the two tasks
Time 2 = 11-20 days between completion of the two tasks
Time 3 = more than 21 days between completion of the two tasks

[b] A = Prototypic response category
B = Mean of other, nonprototypic, response categories

TABLE 14

Cell Descriptive Statistics for Education Recruiters

	Time 1		Time 2		Time 3[a]	
	A	B	A	B	A	B[b]
GPA						
M	4.40	3.51	3.98	3.48	4.00	3.30
SD	1.26	0.61	0.92	0.77	0.70	0.46
N	10	10	21	21	9	9
Extracurricular Activities						
M	3.70	3.70	3.69	4.07	3.72	4.05
SD	1.05	0.71	0.64	0.74	0.90	0.80
N	10	10	21	21	9	9
Work Experience						
M	3.50	3.28	3.23	3.73	3.44	3.45
SD	1.58	0.98	1.09	0.83	1.50	0.66
N	10	10	21	21	9	9
Sex						
M	4.75	3.37	4.85	2.90	5.14	3.14
SD	0.88	0.91	1.52	1.37	0.69	1.06
N	8	8	21	21	7	7

[a] Time 1 = 0-10 days between completion of the two tasks
Time 2 = 11-20 days between completion of the two tasks
Time 3 = more than 21 days between completion of the two tasks

[b] A = Prototypic response category
B = Mean of other, nonprototypic, response categories

TABLE 15

Summary of ANOVA for Engineering GPA
and Extracurricular Activities

GPA

Source	DF	SS	F	eta^2
TIME	2	3.01	1.25	.05
ERROR(TIME)	46	55.66		
GPA	1	6.53	13.92*	.28
GPA X TIME	2	1.99	2.13	.07
ERROR(GPA)	46	21.59		

Extracurricular Activities

Source	DF	SS	F	eta^2
TIME	2	6.50	3.25	.10
ERROR(TIME)	46	60.68		
ACTIVITIES	1	2.35	7.67*	.16
ACT X TIME	2	0.61	1.01	.04
ERROR(ACT)	46	14.15		

* $p < .01$

TABLE 16

Summary of ANOVA for Engineering
Work Experience and Sex

	Work Experience			
Source	DF	SS	F	eta^2
TIME	2	1.56	0.37	.01
ERROR(TIME)	46	97.67		
WORK EXP	1	21.26	29.33*	.64
WORK X TIME	2	0.01	0.01	.00
ERROR(WORK)	46	33.35		

	Sex			
Source	DF	SS	F	eta^2
TIME	2	2.44	0.96	.04
ERROR(TIME)	40	50.78		
SEX	1	16.57	15.74*	.35
SEX X TIME	2	4.84	2.30	.08
ERROR(SEX)	40	42.11		

* $p < .01$

TABLE 17

Summary of ANOVA for Education GPA and Extracurricular Activities

	GPA			
Source	DF	SS	F	eta^2
TIME	2	1.09	0.97	.05
ERROR(TIME)	37	20.84		
GPA	1	7.98	9.76*	.26
GPA X TIME	2	0.72	.44	.02
ERROR(GPA)	37	30.27		

	Extracurricular Activities			
Source	DF	SS	F	eta^2
TIME	2	0.50	0.28	.01
ERROR(TIME)	37	33.38		
ACTIVITIES	1	0.99	2.92	.08
ACT X TIME	2	0.51	0.76	.04
ERROR(ACT)	37	12.47		

* $p < .01$

TABLE 18

Summary of ANOVA for Education
Work Experience and Sex

Work Experience

Source	DF	SS	F	eta^2
TIME	2	0.13	0.05	.00
ERROR(TIME)	37	50.28		
WORK EXP	1	0.16	0.15	.00
WORK X TIME	2	1.98	0.91	.05
ERROR(WORK)	37	40.31		

Sex

Source	DF	SS	F	eta^2
TIME	2	0.88	0.49	.03
ERROR(TIME)	33	30.05		
SEX	1	44.98	19.68*	.59
SEX X TIME	2	1.08	0.24	.00
ERROR(SEX)	33	75.41		

* $p < .01$

Appendix A

Personal Data Sheets for Mechanical Engineers

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Appendix B

Personal Data Sheets for Elementary School Teachers

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Appendix C

Memory Questionnaire

Questionnaire for Part II

Name: ____________________

Date this questionnaire was completed: ____________________

For the following questions, please use this scale:

1 never	2	3	4	5	6	7 always

---

1. How often did the 36 personal data sheets contain a GPA between:

   3.40 - 4.00? ________ 2.50 - 2.95? ________

   3.00 - 3.35? ________ 2.00 - 2.45? ________

2. How often did the 36 personal data sheets have relevant part time work experience consisting of:

   4 years? ________ 2 years? ________

   3 years? ________ 1 year? ________

3. How often did the 36 personal data sheets include extracurricular activities such as:

   racquetball, basketball, intramural sports, etc.? ________

   residence advisor, student government association, etc.? ________

   art, music, photography, etc.? ________

   volunteer work, community service, etc.? ________

4. How often did the 36 personal data sheets contain:

   male applicants? ________

   female applicants? ________

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