Affect and its Assessment in Personnel Selection

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ABSTRACT

A sizable amount of literature supports the impact of positive and negative affectivity on organisational effectiveness. Higher positive affectivity is associated with experiencing a preponderance of positive feeling states, while higher levels of negative affectivity are associated with negative feelings. Right person for the right job can be selected if employers consider these emotional dispositions during the selection process. The present study was undertaken with aims to develop a Word Association Test with objective scoring system for assessment of positive and negative affect. A comprehensive list of 120 negative, positive, and neutral words each was prepared after consulting affective lexical resources. Ratings were taken from five SMEs on valence, control and intensity of each word. Two lists of 60 words each were prepared for data collection on 410 male subjects aged 16-18 years. Unanswered or incomprehensible words were deleted, and 45 words were retained. Responses were categorised into positive, negative, neutral categories, and computation of the total number of positive, negative and neutral responses was carried out and objective scoring scheme was prepared. Inter-rater reliability was found to range between 0.46 to 0.85. The concurrent validity was determined against PANAS (-0.273**), and E and N scales of NEO-PI-R (0.20**).

Keywords: Negative affectivity; Positive affectivity; Selection; Word association test

1. INTRODUCTION

Affect seeps in through every process in an organisation. An organisation is the sum of its employees' affective, cognitive and behavioral states. The presence of emotions can be felt in every interdependent relationship at the work place; be it bosses and subordinates co-workers or even project groups and teams.

Affective processes also play a major role in the HR procedures of performance appraisals, promotion interviews, and even the selection process. The need for effective personnel selection process typically lays importance on the recognition of the appropriate affect in the prospective employees. The selection of the right person for the right job is crucial for the smooth functioning of any organisation.

Emotions are innate and arise automatically in response to adaptive crises[1]. Moods are less intense than emotions; they are the affective quality of experience, lack objects, are physiologically diffuse and are longer than emotions. They lack the physiological and expressive markers of emotions. Affect can be ordered on a continuum, ranging from sustained moods to dispositions and emotions. It has also been considered as both positive and negative feelings that are diffused in nature, are lesser in intensity and are more complex than emotions and moods[2].

The concept of positive and negative affect is also fundamental to understanding enduring individual differences.

They refer to a person's tendency toward reacting to events in a patterned and predictable manner. There are two types of views regarding positive and negative affectivity. According to the first set of views, affect refers to personality models that include traits relevant to positive and negative affectivity. The other approach focuses on the structure of emotional experiences.

Watson and Tellegen have proposed two independent bio-behavioural systems: positive and negative affectivity[2,3]. These traits are dispositional versions of positive and negative mood and have strong association with neuroticism and extraversion. Neuroticism is "having a tendency to experience negative affectivity and physiological distress and extraversion is "a tendency to experience positive affectivity". Positive affect has been found to correlate positively with extraversion and negatively with neuroticism. Negative affect is positively correlated with neuroticism and negatively with extraversion[2]. There are two levels of positive and negative affect, one that is momentary in nature and another that is enduring. A healthy personality requires the maximisation of positive affect and minimisation of negative affect.

1.1 Word Association Test: Historical Background

Sir Francis Galton has been regarded as the inventor of Word Association Test. Towards the end of the 19th century, it is refined by Wilhelm Wundt[4]. This study is used initially for examining the subconscious mind. Nowadays it is being used by psycholinguists in mental lexicon, which contains a person's store of words, their meanings and associations[5]. The

word lexicon in Greek means dictionary. Scholars know very little about the mental lexicon[6-8].

Word association tests are later on used by Carl Jung, who recognised the existence of groups of thoughts, feelings, memories and perceptions, organised around a central theme. This discovery is related to his research into word association, a technique whereby words presented to a patient elicit other word responses that reflect related concepts in the patient's psyche and, in turn, give clues to his/her unique psychic make-up.

1.2 Word Association Test: Use

The word association test (WAT) is a psychological test given to identify the feeling-toned complexes of a subject. It has been used to unearth the private world of an individual. The procedure for administration includes presenting a word from the list of words. The subject has to respond with the first word that comes to his mind on seeing that particular word. The associations can be interpreted as including verbal memories, thought processes, emotional states and personalities.

1.3 Principle on which the WAT is Based

The associations in response to a word are based on the principle of contiguity which states that objects that are once experienced together tend to become associated in imagination, so that when any of them is thought of, the others are likely to be thought of also. Participants are provided with a limited time to respond to stimulus terms; the rationale for this is that participants would write down the first response terms that come to their mind. The response terms thus reflect immediate connections to the stimulus terms. Most word association tests have been used for assessing the personality of test subjects. These tests are based on the principle of projection which states that people project their own personalities when they respond to test stimuli[9-11].

Word Association tests have been used to construct lexical tools, ontologies, taxonomies and thesauri[12], to construct an ontology of geographic categories[13]. Nielsen used the word association test in thesaurus construction[14].

1.4 WAT in Armed Forces

The WAT is one of the test used at Service Selection Boards for selection of candidates for officer cadre of the Indian Armed Forces.

2. METHODOLOGY

The need for a new WAT is felt, owing to the great amount of subjectivity in the interpretation and scoring of the test. The new WAT aims to bring about greater objectivity in the assessment of affect, and also aims to minimise the element of subjectivity in the interpretation.

3. AIMS AND OBJECTIVES
- To develop a WAT with objective scoring system for assessment of positive and negative affect
- To validate the newly developed testing procedure with objective tests of similar kind.

4. SAMPLE

Data are collected on 410 candidates aged 16 yrs to 18 yrs.

5. TOOLS

A comprehensive list of 360 words is prepared with 120 negative, 120 positive and 120 neutral words after consulting affective lexical resources, such as:
- Affective Norms for English Words (ANEW)[15]: contains a large number of English words and their emotional ratings on pleasure, arousal and dominance.
- English Lexicon Project[16]: Contains 40, 481 words and 40,481 non-words with their respective standardised behavioural and descriptive dataset.
- General Inquirer[17]: The General Inquirer is basically a mapping tool that maps text files with counts on categories supplied by the dictionary.
- Word Net Affect[18]: Word Net is an online lexical reference system based on psycholinguistic theories of human lexical memory. Contains nouns, verbs, adjectives and adverbs in english language that are organised into sets, which represent a lexical concept.

6. PROCEDURE

The inclusion and exclusion criteria followed for the selection of words are as follows.
Inclusion criteria:
- Inclusion of matched words on arousal, valence, familiarity, number of letters, syllables, morphemes
- Related words are included but they are spaced
- Verbs and Adjectives are included
- Words arousing average level of positivity and negativity are included.

Exclusion criteria :
- Context-specific words are excluded
- Adverbs are excluded
- Seemingly looking positive and negative words are excluded.

Once the comprehensive list is prepared, ratings are taken from SMEs (subject matter experts) on valence (happy *vs* sad), control (dominant *vs* in control) and intensity (excited *vs* calm) of each word. The difficulty level for the words is decided to be kept as 6th standard level spoken and written english. Thereafter, two lists of 60 words each are prepared, along with an example word, for data-collection. Once the data are collected, the responses are scored and the words not eliciting the responses are deleted from the lists. Hereby, two lists containing 45 words each are finalised.

7. DEVELOPMENT OF SCORING SCHEME

Data collected on the above response patterns are analysed for development of objective scoring scheme as follows.
- Responses are categorised into positive, negative, neutral and nil category
- Scoring of first, second and third response of each candidate is carried out as follows :
Positive response = 1, Neutral response = 2, Negative Response = 3, Nil Response = 0.

The scoring of the responses is done in two parts. First, the words are scored manually according to the prescribed guidelines as mentioned Table 1. Then, these scores are fed into the computer to obtain a total score of the candidate on positive and negative affectivity. This total score is then converted to Grade (ranging from 1 to 5).

case of neutral word, if the response is positive, it is assigned a weightage of 3, if the response is neutral, it is assigned a weightage of 2 and if the response is negative, it is assigned a weightage of 1. If the word shown is negative and the response is positive, it is assigned a weightage of 4, in case of a neutral response, it is assigned a weightage of 3 and in case of the

Table I. Guidelines for scoring of responses

Response	Positive response	Neutral response	Negative response	Nil response
Score	1	2	3	0
Guidelines for scoring	Positive emotion evoking responses	Antonyms, synonyms, or properties of the target word	Negative emotion evoking responses	
	Responses connoting a good outcome	Clichéd associations	Responses connoting a negative outcome	
	Solution to the target word	Generic positive and negative words like 'good, bad, positive, negative'	Responses appearing against societal norms	
	Positive qualities of the target word			

The principles underlying the computerised scoring are as under. In the Table 2, if the word shown is positive and response is positive, a weightage of 3 is assigned. If the response is neutral, it is assigned a weight of 2 and if the response is negative, it is assigned a weight of 1. If the word shown is neutral and the response is positive, it is assigned a weight of 4, if the response is neutral, it is assigned a weightage of 3, and if the response is negative, it is assigned a weightage of 2. If the word shown is negative and the response is positive, it is assigned a weightage of 5, if the response is neutral, it is assigned a weightage of 4 and if the response is negative, it is assigned a weightage of 3.

response being negative, it is assigned a weightage of 2.

Thereafter, a candidate's total number of positive, total number of negative, and total number of neutral responses are calculated by the computer, and a total positive, a total negative, and a total final score for each candidate is obtained. The candidates are then assigned Grades (from 1 to 5) based on the table of norms.

Table 3. Weightage of second response

Word type		(+)	(Neutral)	(-)	0
	Positive	2.5	1.5	0.5	
	Neutral	3.5	2.5	1.5	
	Negative	4.5	3.5	2.5	

Table 2. Weightage for first response

Word type		(+)	(Neutral)	(-)	0
	Positive	3	2	1	
	Neutral	4	3	2	
	Negative	5	4	3	

In the Table 3, if the word shown is positive and the response of the candidate is positive, it is assigned a weightage of 2.5. When the word is positive and the response is neutral, they are given a weight of 1.5 and if the word is positive and the response is negative, it is assigned a weightage of 0.5. Similarly, if the word shown is neutral and the response is positive, it is assigned a weightage of 3.5. If the response is neutral in response to a neutral word, it is assigned a weightage of 2.5 and if the response is negative, it is assigned a weight of 1.5. If the word shown is negative and the response is positive, it is assigned a weightage of 4.5. If the response is neutral, it is assigned a weightage of 3.5 and if the response is negative, it is assigned a weight of 2.5.

In the Table 4, if the word shown is positive and the response is positive, it is assigned a weightage of 2, in case of response being neutral, it is assigned a weightage of 1 and if the response is negative, it is assigned a weightage of 0. In

Table 4. Weightage of third response

Word type		(+)	(Neutral)	(-)	0
	Positive	2	1	0	
	Neutral	3	2	1	
	Negative	4	3	2	

8. RELIABILITY

Inter-rater agreement (Kappa) for interpretation of responses for two lists of 45 words each for 100 candidates ranged from 0.46 to 0.85

9. VALIDITY
9.1 Concurrent Validity is Determined against PANAS

Total negative affectivity score of List 1 WAT is significantly positively correlated with negative affect scale of PANAS (0.20*)

In the list 2 WAT, significant negative correlations is obtained between positive affectivity and negative affect scale

of PANAS (-.306**)

Total WAT score is inversely related with negative affectivity scale of PANAS (-.273**)

9.2 E and N scales of NEO PI- (R)

Negative affectivity score of WAT is significantly positively correlated with neuroticism (0.20**).

10. NORMS

The norms are prepared on the basis of data collected form 339 subjects, aged 16-18 years by normalising the scores, and thereafter, calculating the percentiles.

Score Range

Grade	Positive affectivity	Negative affectivity
1	35 and below	63 and above
2	36-44	54-62
3	45-50	47-53
4	51-57	43-46
5	58 and above	42 and below

11. CONCLUSIONS

Thus this is a novel attempt to assess affect in personnel selection by means of Word Association Test. There are some future additions that need to be carried out to make the test more efficient by including the recording of Reaction time of each subject in response to each word. The scoring can also be made fully computerised after obtaining first three responses of subjects for each word on a considerable large sample. A word bank can be developed after obtaining an exhaustive list of words. From the bank the word lists can be generated by the computer randomly.

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She has guided the research on every step, giving it the required direction including employment of appropriate research methods.