Development and Validation of Employee Trust Scale: Factor Structure, Reliability and Validity
Chua Bee Seok, Getrude Cosmas, Jasmine Adela Mutang, Shazia Iqbal Hashmi

Abstract—The aim of this study was to determine the factor structure and psychometric properties (i.e., reliability and convergent validity) of the Employee Trust Scale, a newly created instrument by the researchers. The Employee Trust Scale initially contained 82 items to measure employees’ trust toward their supervisors. A sample of 818 (343 females, 449 males) employees were selected randomly from public and private organization sectors in Kota Kinabalu, Sabah, Malaysia. Their ages ranged from 19 to 67 years old with a mean of 34.55 years old. Their average tenure with their current employer was 11.2 years (s.d. = 7.5 years). The respondents were asked to complete the Employee Trust Scale, as well as a managerial trust questionnaire from Mishra. The exploratory factor analysis on employees’ trust toward their supervisor’s extracted three factors, labeled ‘trustworthiness’ (32 items), ‘position status’ (11 items) and ‘relationship’ (6 items) which accounted for 62.49% of the total variance. Trustworthiness factors were re-categorized into three sub factors: competency (11 items), benevolence (8 items) and integrity (13 items). All factors and sub factors of the scales demonstrated clear reliability with internal consistency of Cronbach’s Alpha above .85. The convergent validity of the Scale was supported by an expected pattern of correlations (positive and significant correlation) between the score of all factors and sub factors of the scale and the score on the managerial trust questionnaire, which measured the same construct. The convergent validity of Employee Trust Scale was further supported by the significant and positive inter-correlation between the factors and sub factors of the scale. The results suggest that the Employee Trust Scale is a reliable and valid measure. However, further studies need to be carried out in other groups of sample as to further validate the Scale.

Keywords—Employees trust scale, position status, psychometric properties, relationship, trustworthiness.

I. INTRODUCTION

Trust towards an organization and head of department is an important element for an organization to keep thriving, building itself up, and achieving success. Trust towards the employer is a critical element that will influence the effectiveness, productivity and performance of an organization [1], [2]. Employees that trust their employers or the company that they work for will continue working for the company; they will work even harder and will be more committed to their company and their employer. On the other hand, if an employee does not trust their company or employer, their trust had a big difference in meanings whether from its’ concept or its’ category or even its relationship with other related concepts [11]-[15]. In a certain culture, the term trust may be understood and practiced in the same way and meaning by its community. This is because there is an agreement of opinions towards what and who should be trusted. However, in another culture, the use and meaning given towards the term might be different. This explains why the understanding, use,
measurement and definition of this concept in indigenous context is important and should be catered.

All this time, several researchers in the field of social sciences including psychologists refer to the theory and concept as well as adapting the framework and research method that was developed by Western psychologists in researching a phenomena or performing a study among their own native community. Therefore, in reality, results of these studies may not be relevant and will not be adequate to understand the mentality and condition of the local Asian specifically Malaysians. Thus, results of these studies will not be able to solve the problems that are being faced by these local communities. Other limitations of the studies conducted by Western psychologists in local context seem to have bias from: selection of items and stimuli in instruments, choosing instruments and procedure, definition for the theoretical concept as well as selecting a research topic. According to [16], and [17], if we wish to understand how our community behaves, how their beliefs systems are formed and how it affect their behavior, it is important to conduct research on these groups in their natural context.

Regarding the importance of the concept of trust in the social lives of people and knowing how important is the influence of context and culture in the understanding and use of the concept of trust, an exploration study on the concept of trust was carried out by members of research group ERGS00007-SS-1/2011 (Title of Project: Exploring the Concept of Trust in the Malaysian Community). The study was an attempt to understand the use and definition of the concept of trust according to the local Malaysian context. Following the results of the research project, a psychometric instrument of employees’ trust that was based on the context of local Malaysian organizations has been developed. The aims of this study were to determine the factor structures and psychometric characteristics (reliability and validity) of the instrument, namely the Employee Trust Scale that was developed by the researchers.

II. METHOD

A. Design of Study

The design of this study was a psychometric validation study, which aims to determine the factor structure and to establish the psychometric properties (i.e., reliability and construct validity) of the Employee Trust Scale.

B. Respondents

A sample of 818 (343 females, 449 males) employees were selected randomly from public and private organization sectors in Kota Kinabalu, Sabah, Malaysia. Their ages ranged from 19 to 67 years old with a mean of 34.55 years old. Their average tenure with their current employer was 11.2 years (s.d. = 7.5 years).

C. Measures

The study was based on a set of questionnaires that were responded by the sample of employees. Some of the variables included in the questionnaires were demographic information (i.e. gender, age, ethnicity, religion, work experience, job tenure etc.), the Employee Trust Scale and the Managerial Trust Scale.

The Employee Trust Scale is a newly created scale by the researchers based on the findings of their previous study “Exploring the Concept of Trust in Malaysia Society” [18], [19]. The items were written based on the respondents’ verbatim on why they trust or do not trust other individuals and the initial 82-item version of The Employee Trust Scale was developed. A 5-point Likert Scale was used to indicate respondents’ degree of agreement or disagreement with each of the items (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree).

The Managerial Trust Questionnaire was assessed using a 17-item scale [20]. Respondents were asked to respond on a 5-point Likert Scale ranging from “strongly disagree” (1) to “strongly agree” (5) to items about trust in employers or leader of organizations (e.g., “My manager is competent and knowledgeable?” and “My manager does not take advantage of me”). This scale will be analyzed for evidence of convergent validity of the Employee Trust Scale. It is expected that the scores on the managerial trust questionnaire will correlate significantly and positively with the scores on the Employee Trust Scale, which measured the same construct.

D. Data Analysis

Data was analyzed using IBM SPSS Statistics Version 21.0. The exploratory factor analysis was conducted to establish the factor structure of the Employee Trust Scale. The reliability of the scale was assessed by using methods of internal consistency Cronbach’s alpha with a criterion of 0.70, indicating good reliability [21]. Construct validity of the scale was established by assessing convergent validity of the scale where it was expected that scores on the scale will correlate significantly and positively with scores on the Managerial Trust Questionnaire which measure the same construct. The evidence of convergent validity of the scale will be further determined by the inter-correlations among the sub scales of the Employee Trust Scale. The criterion for acceptable convergent validity was indicated by correlation coefficient values between 0.40 and 0.70 [22].

III. RESULTS AND DISCUSSION

A. Exploratory Factor Analysis

Prior to the exploratory factor analysis to determine the structural factor of the Employee Trust Scale, the items were tested of their appropriateness for factor analysis. Two initial analyses: Bartlett’s test of Sphericity and the Kaiser–Meyer–Olkin (KMO) measuring sampling adequacy were conducted. The KMO coefficient of the scale was 0.988 and the Bartlett result was significant ($\chi^2 = 67137.83, p < .001$). The results of these two analyses supported factorability of the dataset [19].

To establish the initial factor structure of the Employee Trust Scale, two criterions were used to decide on the number of factors to extract. First, eigenvalues $\geq 1$, where only factors
with eigenvalues above 1.00 will be considered, the eigenvalue represents the product of the number of items entered into the analysis and the percentage of variability accounted for by the factors [23]. Second, the scree plot, where the “leveling-off-point” on the screen line represents the last factor that should be extracted [24].

Exploratory factor analyses were conducted by using Promax Oblique with Kappa 4 Rotation. All 82 items of the Employee Trust Scale were analyzed for factors. The results showed that the scale comprised of eight factors with eigenvalues greater than 1. However, the scree plot indicated a 2 or 3 factor solution (refer Fig. 1). Given the scree plot results, subsequent factor analyses with Promax Oblique Rotation were conducted again by fixing the number of factors to three factors.

The results of the factor analyses indicated the three-factor solution accounted for 62.53% of the total variance in the items of employee’s trust. Items were selected for each factor based on the factor pattern matrix that use the criteria of a factor loading above .50 or above within one factor and unloaded items within two factors were reserved for further analyses, and the remainders were excluded from the scale [25]. According to these criterions, two items with factor loads of less than 0.50, and an item loaded under two factors, were removed. According to these criterions, 47 items out of the original 82 items were retained. The three factors and their respective items, factor loadings, eigenvalues and percentage of variance are presented in Table I.

![Scree Plot](image)

Fig. 1 Scree Plot for the Employee Trust Scale

The first factor was labeled as ‘trustworthiness’, it was constituted by thirty two (32) items with load values between .600 to .982. The factor accounted for 55.49% of the total variance of the items. Due to the large number of the items loaded in this factor, the 32 items of the factor were re-categorized into three sub-factors according to the content of the items. The first sub-factor was labeled as “competency” and consists of eleven (11) items. The items reflected the extent to which the employer is judged to have skills, knowledge, and competencies in managing the tasks and administering the organization. Example of the items loaded in this sub-factor were ‘My head of department shows confidence in task performance and administration.’, ‘The ability of my head of department is undeniable.’, and “My head of department is able to make quick decisions.”.

The second sub-factor was labeled as “benevolence” and it consists of eight (8) items. Benevolence refers to the extent to which the employer is believed to desire to do positive things for organization and the employees. Example of the items loaded in this sub-factor was ‘My head of department provides guidance and assistance to his/her employees in their tasks’, ‘My head of department is very considerate in his/her management’, and “My head of department is concerned about the welfare of his/her employees”.

The third sub-factor was labeled as “integrity”. It consists of thirteen (13) items. The items of this sub-factor reflected the employer’s adherence to a set of values that the employees’ find acceptable. Example of the items load in this sub-factor was ‘My head of department is a disciplined person in task performance and administration’ and “I like the ethical values of my head of department”. The results of factor one was consistent with the Organizational Trustworthiness Model that suggested by [9]. According to [9], those three features are the basis or reasons for workers to have trust in their head of department [19].

Factor 2 was labeled as ‘position status’, it was constituted by eleven (11) items and accounted for 3.50% of the total variance of the items, with the eigenvalue of 2.87. The item values loaded ranged from .603 to .879. The items of this factor indicated that the employees’ trust toward their head of department is solely due to the person is their leader and it is obligatory to trust a leader because they have an obligation to carry out the tasks entrusted and they are the decision-makers in the organization. Example of the items load in this sub-factor were “My head of department has an obligation to carry out the tasks entrusted”, “I obey to the instructions of my head of department because he/she is the head of department of the organization” and “We need to trust our head of department because he/she is our head of department”.

The last factor was labeled as ‘relationship’, the factor consisted of six (6) items and it accounted for 2.45% of the total variance of the items, with the eigenvalue of 2.01. The item values loaded ranged from .614 to .879. Employer-employee relationships refer to the collaboration and good relationship between employees and their head of department; understanding between the two parties; and both parties have experience and had been working together for a long time. Example of the items load in this sub factor were ‘My head of department has a good knowledge about my background’, “My head of department spends more time with employees compare to his/her/her family” and “I have been in service for a long time with my head of department”.
### TABLE I

FACTOR, ITEMS, FACTOR LOADINGS, EIGENVALUES AND PERCENTAGE OF VARIANCE FOR EMPLOYEE TRUST SCALE

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
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<tbody>
<tr>
<td><strong>Factor 1: Trustworthiness (32 items)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Factor 1: Competency (11 items)</strong></td>
<td></td>
</tr>
<tr>
<td>B68 My head of department shows confidence in task performance and administration.</td>
<td>.943</td>
</tr>
<tr>
<td>B65 The ability of my head of department is undeniable.</td>
<td>.888</td>
</tr>
<tr>
<td>B60 My head of department has a vision and mission.</td>
<td>.879</td>
</tr>
<tr>
<td>B63 My head of department brings development to the department.</td>
<td>.856</td>
</tr>
<tr>
<td>B59 I have confidence with the ability of my head of department.</td>
<td>.840</td>
</tr>
<tr>
<td>B75 My head of department is my source of reference.</td>
<td>.750</td>
</tr>
<tr>
<td>B56 My head of department able to make quick decision.</td>
<td>.711</td>
</tr>
<tr>
<td>B48 My head of department is good in administration.</td>
<td>.705</td>
</tr>
<tr>
<td>B46 My head of department has a convincing appearance.</td>
<td>.637</td>
</tr>
<tr>
<td>B43 My head of department has great experience in performing his/her/her task.</td>
<td>.610</td>
</tr>
<tr>
<td>B50 My head of department is capable in delegating tasks to his/her/her employees.</td>
<td>.602</td>
</tr>
<tr>
<td><strong>Sub Factor 2: Benevolence (8 items)</strong></td>
<td></td>
</tr>
<tr>
<td>B72 The charisma of my head of department in management is admired by employees.</td>
<td>.921</td>
</tr>
<tr>
<td>B67 My head of department provides guidance and assistance to his/her employees in their tasks.</td>
<td>.877</td>
</tr>
<tr>
<td>B82 My head of department is very considerate in his/her management.</td>
<td>.805</td>
</tr>
<tr>
<td>B57 My head of department consider every decision taken accordingly.</td>
<td>.691</td>
</tr>
<tr>
<td>B81 My head of department is very caring about his/her employees’ work.</td>
<td>.652</td>
</tr>
<tr>
<td>B51 My head of department always encourages and supports his/her/her employees in their work.</td>
<td>.603</td>
</tr>
<tr>
<td>B47 My head of department gives advices to his/her/her employees to improve quality of service.</td>
<td>.600</td>
</tr>
<tr>
<td><strong>Sub Factor 3: Integrity (13 items)</strong></td>
<td></td>
</tr>
<tr>
<td>B69 My head of department is very sincere in performing tasks and in making decisions for the department.</td>
<td>.884</td>
</tr>
<tr>
<td>B71 My head of department is a discipline person in task performance and administration.</td>
<td>.881</td>
</tr>
<tr>
<td>B64 I like the ethic values of my head of department.</td>
<td>.867</td>
</tr>
<tr>
<td>B62 My head of department generates significant output.</td>
<td>.861</td>
</tr>
<tr>
<td>B58 My head of department has high integrity.</td>
<td>.852</td>
</tr>
<tr>
<td>B79 My head of department always shows a good example to his/her employees.</td>
<td>.851</td>
</tr>
<tr>
<td>B78 My head of department is professional in his/her management.</td>
<td>.828</td>
</tr>
<tr>
<td>B54 My head of department is a person with high principles.</td>
<td>.767</td>
</tr>
<tr>
<td>B55 My head of department always give constructive opinion in organizational decision making.</td>
<td>.756</td>
</tr>
<tr>
<td>B70 The management of my head of department is honest and truthful.</td>
<td>.614</td>
</tr>
<tr>
<td>B61 My head of department respects his/her employees.</td>
<td>.666</td>
</tr>
<tr>
<td>B77 My head of department always strives to ensure that the organizational goals are achieved.</td>
<td>.870</td>
</tr>
<tr>
<td>B66 My head of department is a dedicated person.</td>
<td>.982</td>
</tr>
<tr>
<td><strong>Factor 2: Position Status (11 items)</strong></td>
<td></td>
</tr>
<tr>
<td>B60 My head of department has a vision and mission.</td>
<td>.879</td>
</tr>
<tr>
<td>B63 My head of department brings development to the department.</td>
<td>.856</td>
</tr>
<tr>
<td>B6 My head of department has an obligation to carry out the tasks entrusted.</td>
<td>.841</td>
</tr>
<tr>
<td>B10 I obey the instructions of my head of department because he/she is the head of department of the organization.</td>
<td>.804</td>
</tr>
<tr>
<td>B5 We need to trust our head of department because he/she is our head of department.</td>
<td>.797</td>
</tr>
<tr>
<td>B17 I have to obey and carry out the tasks entrusted by my head of department.</td>
<td>.750</td>
</tr>
<tr>
<td>B19 Work environment will not be harmonious if the head of department does not show good values.</td>
<td>.729</td>
</tr>
<tr>
<td>B8 My head of department has the right to make decisions in the organization.</td>
<td>.707</td>
</tr>
<tr>
<td>B9 I have to fully trust my head of department because he/she is the head of department of the organization.</td>
<td>.687</td>
</tr>
<tr>
<td>B4 My head of department is responsible for the advancement and development of the organization.</td>
<td>.677</td>
</tr>
<tr>
<td>B7 I’m ready to follow the instructions given by my head of department without question.</td>
<td>.661</td>
</tr>
<tr>
<td>B22 My head of department is the determining factor in the administration of the organization.</td>
<td>.603</td>
</tr>
<tr>
<td><strong>Factor 3: Relationship (6 items)</strong></td>
<td></td>
</tr>
<tr>
<td>B26 My head of department has a good knowledge about my background.</td>
<td>.750</td>
</tr>
<tr>
<td>B38 My head of department spends more time with employees’ compare to his/her family.</td>
<td>.732</td>
</tr>
<tr>
<td>B36 My head of department spends time with his/her employees.</td>
<td>.722</td>
</tr>
<tr>
<td>B35 I have been in service for a long time with my head of department.</td>
<td>.710</td>
</tr>
<tr>
<td>B32 My head of department understands me well.</td>
<td>.710</td>
</tr>
<tr>
<td>B49 My head of department always discusses issues related to work with his/her employees.</td>
<td>.614</td>
</tr>
</tbody>
</table>
In comparison to the findings of Mayer et al. Model [9], the results of factor 2 and 3 were the two additional aspects that have been identified in this study, which also contributed to the employees’ trust toward their head of department. These findings could probably be explained by the differences in culture practiced by certain societies. To the Western people (individualistic culture), a head of department can only be trusted if the person possesses capability, is able to look after the workers’ welfare, and has to be a person with integrity. But for Asians who are taught from a young age to respect a much older person and a leader (collectivist culture) have reported that besides competency, benevolence and integrity of the leader, position status of the leader and the relationship between the employer and employees are also important components of employees’ trust development towards their leader.

The findings were supported by Hofstede’s [26] taxonomy (i.e., power distance and individualism-collectivism). Hofstede claimed that employees’ trust in the supervisor may vary depending on the kind of power distance relationship which refers to the culture that endorses status privileges and a society that tolerates to the power differences and to which people have pride and loyalty in their families, close friends, and in the organization in which they work [27]. These findings are also consistent with the survey done by [28], in which the interpersonal relationship between the supervisor and subordinate was directly related to subordinates’ trust in their supervisors. Han, Peng and Zhu [29] also claimed that supervisor–subordinate guanxi (relationship) is a reliable predictor for trust in supervisors in Chinese firms with different types of ownership. Chua et al. [19], [30] also found that leader’s status privileges, roles as a head of department, and relationship between workers and head of department are two important aspects that have been identified which have also contributed to the workers’ basis of trust development in their head of department.

B. Reliability of the Employees Trust Scale

The reliability of the Employee Trust Scale was assessed using the method of internal consistency Cronbach’s alpha with a criterion of 0.70, indicating good reliability [22]. The Cronbach’s alpha value for the total 47 items of the Employee Trust Scale was alpha = .983, indicating good internal consistency. The results indicated high level of reliability for all the three factors: trustworthiness (alpha = .984), position status (alpha = .906) and relationship status (alpha = .863). The results also indicated high level of reliability for the three sub-factors of trustworthiness: competency (alpha = .955), benevolence (alpha = .938) and integrity (alpha = .965). Internal consistency Cronbach’s Alpha for the Employee Trust Scale showed in Table II.

C. Validity of the Employees Trust Scale

Construct validity of the Employee Trust Scale was established by assessing the correlations (correlated significantly and positively) between scores on the factors and sub-factors of the Employee Trust Scale and the score on the managerial trust measure by Mishra [20] which measure the same construct. As expected, the results showed that all the factors of Employee Trust Scale correlated significantly and positively with scores on the managerial trust measure and the correlation coefficient values ranging from \( r = .662 \) to \( r = .897 \). The strongest relationship was between integrity scores and the score on the managerial trust measure (\( r = .897 \)), followed by benevolence scores (\( r = .888 \)), competency score (\( r = .862 \)), relationship score (\( r = .746 \)) and lastly, position status score (\( r = .662 \)). The results supported the convergent validity of the Employee Trust Scale (refer Table III).

The convergent validity of the Employee Trust Scale was further assessed by calculating the correlation coefficients between the factors’ and the sub-factors’ scores on the scale. As shown in Table III, all the factors’ and the sub-factors’ scores of the scale correlated significantly and positively. The relationship between the integrity score and competency score showed the highest coefficient (\( r = .939 \)), followed by the correlation between the integrity score and benevolence score (\( r = .931 \)), the correlation between the benevolence score and competency score (\( r = .918 \)) and the relationship between the relationship score and position status score showed the lowest coefficient (\( r = .598 \)). These results further confirmed the convergent validity of this measure.

| TABLE II | INTERNAL CONSISTENCY CRONBACH’S ALPHA FOR THE EMPLOYEES TRUST SCALE |
|---------------------------------|------------------|-------------------------------|------------------|
| Scale | Item | Number of Items | Cronbach’s Coefficients |
| Trustworthiness | 32 | .984 |
| Competency | 68, 65, 59, 75, 56, 48, 46, 43, 50, 60, 63 | 11 | .955 |
| Benevolence | 67, 74, 82, 57, 81, 51, 72, 47 | 8 | .938 |
| Integrity | 69, 71, 64, 62, 58, 79, 78, 54, 55, 70, 61, 77, 66 | 13 | .965 |
| Position Status | 6, 10, 5, 17, 19, 8, 4, 7, 22 | 9 | .966 |
| Relationship | 49, 26, 38, 36, 35, 32 | 6 | .863 |

The aims of this study was to determine the factor structure and psychometric properties of the Employee Trust Scale, a newly instrument created by the researchers. An exploratory factor analysis provided evidence for a three-factor and sub-factor solution for the 47 items of the scale. Findings of the...
study suggested that the psychometric properties of the 47-item of the measure of employees’ trust toward their head of department were acceptable for research purposes, with all the factors and sub-factors of the scale found to have good internal consistency reliability and good convergent validity. In summary, the Employee Trust Scale appears to have good psychometric properties in terms of factor structure, reliability and validity. The development of the Employee Trust Scale had provided an important contribution to the development and application of the Malaysian local instrument. However, findings of this study should be considered as an initial and preliminary study. There are several limitations regarding the development of this scale that should be taken into consideration when using this scale. The respondents in this study were employees from government and private sector in Kota Kinabalu, Sabah, Malaysia. Employees’ trust toward leader may differ for government sectors and private sectors. Besides, the limited size of the sample may affect the results. Thus, these findings cannot be generalized to other samples. Further studies should be carried out in other states in Malaysia based on different organization sectors, ethnic groups, different socio-economic levels and age groups.

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