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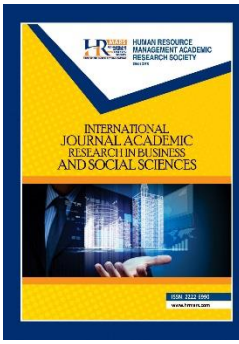
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An Instrument for Measuring Morale of Military Personnel in the Malaysian Army

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Abstract

While there is a myriad of factors contributing to accomplishing a mission, one that has been consistently emphasized by military strategists over the years would be the soldiers' morale. Morale is an intangible and abstract factor. It needs to be translated and verified empirically through systematic and objective observation in order for it to be properly managed. Unfortunately, no valid and reliable instrument for measuring morale has been established. This paper aims to expound the process of developing an instrument for measuring the morale of soldiers in Malaysian Army. Through a literature search, six dimensions of morale were identified and the first draft of the instrument was crafted. Next, two focus group discussions were conducted in which senior military officers from various departments were engaged as subject matter expert and improvements were made on the instrument based on feedback received. The first meeting reviewed the instrument's construct and content validity and the second, with the help of an English Language instructor, focused on the constructs as well as the clarity of the language used. The final instrument incorporated the following six dimensions; 1) Team's task and objective to be accomplished (5 items), 2) Mental/Psychological state (8 items), 3) Selflessness (5 items), 4) Affective state (8 items), 5) Team cohesion (10 items) and 6) Individual's spiritual state (6 items). The instrument was tested on 100 soldiers who were randomly selected from the 5th Battalion Border Regiment of Bukit Kayu Hitam. Analysis of the reliability of the instrument shows that the Cronbach's Alpha values range from 0.80 to 0.98, suggesting an excellent reliability. This instrument would be used in the next phase of the research to evaluate the extent of morale in Malaysian Army.

Keywords: *Instrument Construct, Measuring Morale, Malaysian Army, Instrument Reliability, Content Validation.*

Introduction

Combat power requires both tangible and intangible elements. Firepower and maneuverability make up the intangible elements. In addition, crucial to battle success is the aspect of morale as a combat power multiplier. Morale, whose importance is universally accepted, is included in the principles of war by many. Military commanders should be able to assess the morale of his men by being sensitive to the indicators of good and bad morale so that he will not be misled by his own wishful thinking. If need be, he will have to take the necessary action to set things right. The soldiers' morale has always been the subject of discussion by the top management of the Malaysian Army. Though studies have been conducted on the subject of morale, none were done in an integrative manner. There has yet an accurate and reliable method of measuring morale among the soldiers in the Malaysia Army. With the implementation of the Situational Forces Scoring (SFS) for combat readiness assessment to assist the unit commanders in ascertaining their unit's combat readiness (Hashim Hussein, 1999), the need for a morale measuring instrument is all the more apparent. The SFS model of combat readiness encompasses firepower, manpower, communication, mobility, equipment, and training. Of all the intangible elements affecting combat readiness, morale stands out prominently. The incorporation of the measurement of morale into SFS would, therefore, enhance SFS's measure of combat readiness. An important step to learning about individual morale would be to construct a reliable and valid measure of the concept. Mohd Daud Johari (2014) and Kwong Fook Wen (2015) were only partially successful in developing such an instrument. Although they reported some evidence for the scale's convergent validity, its reliability is low and there are indications of a halo effect in the ratings. Hence this study means to develop an instrument for measuring the soldiers' morale, Malaysian Army's in particular.

Objectives of Paper

In this paper, the main intent is to describe the process of developing a valid and reliable instrument for measuring and evaluating the extent of morale among the soldiers in the Malaysian Army. The specific objectives of this paper are:

1. To describe the process of developing the instrument for measuring morale of soldiers in Malaysian Army.
2. To assess the validity and reliability of morale instrument developed based on dimensions identified.

Materials and Method

The process of developing the instrument for measuring morale was divided into two phases. The first phase was to identify relevant dimensions for measuring morale. The second phase involved a series of focus group discussions focus on the content validity of the instruments. It was a real challenge for the research team to establish the relevant dimension of morale according to the objectives of the research. Since this research is not a replication of any previous studies, the research team has had to develop the instrument from scratch.

The first Phase

In the first phase, the available literature on morale was gathered and reviewed. The researchers note that in the past, scholars of different academic schools have developed a number of dimensions for measuring morale. Consequently, for the purpose of measuring morale, the review suggests a number of general, important, and potentially interactive dimensions to be examined in the

Malaysian Army's context: 1) Team's task and objective to be accomplished, 2) Mental/Psychological state, 3) Selflessness, 4) Affective state, 5) Team cohesion and 6) Individual soldier's spiritual state. The task of drafting and structuring the instrument was time-consuming as it involved a series of meetings and discussions among the research team members as well as together with invited military officers who are conversant in the subject matter.

Validity and reliability have been the core principles by which the instrument, whose ultimate objective is measuring morale, was developed. Reliability and validity refer to information produced by a measure or set of measures and report the degree of confidence that can be put into the results or conclusions that can be drawn. The research team is aware that measures and measurement process can be highly reliable (having high internal consistency) and yet the information yielded are irrelevant for the purpose. In another word, a valid measurement of morale is also very important. A measure is said to be valid if it measures what it is intended or supposed to measure by indicating the "degree to which the number obtained by a measurement procedure represent the magnitudes of the attribute to be measured" (Guion, 1980, p 396).

In view of the importance of validity issue; two types of validity suggested by Nunnally and Bernstein (1994) were taken into consideration in drafting the instrument. These two types of validity are 1) content validity and 2) construct validity. Of the two, construct validity is considered the highest level of stability the validity of a measure, whereas content validity is the most basic. To ensure construct validity, so that the measures reflect the theoretical concept it was supposed to measure, the research team heeded the advice from Easterby-Smith, Thorpe, and Lowe (1991), "to borrow items and a portion of questionnaires from other sources especially when a lot of prior questionnaire-based research exists into concepts". Therefore, an eclectic approach to selecting items measuring the established dimension from previous research was adopted. To forms a measure with construct validity, first, the domain of interest (i.e. what is to be measured) was defined; next the instrument is designed to adequately measure the defined domain. The next step involves modifying the instrument through a series of meetings among the research team members to reduce contamination, deficiency, distortion and deals with the accuracy of the measurement. Modifications to the instrument were made based on feedbacks from research team members through a series of workshops, where some items were rephrased, combined or deleted, where appropriate, for the purpose of clarity and accuracy.

Dimension of Morale

As indicated earlier, morale is not a one-dimensional concept. It represents a cluster of interrelated concepts that reflect some underlying morale domain highlighted earlier. After deliberations during the earlier mentioned workshops, the research team decided that the final instrument for measuring morale ought to include six dimensions or constructs as presented in Table 1.

The first dimension of morale is Goal/Mission/Task Accomplishment and it includes the feeling of arousal and excitement (Parkinson (1986), Manning (1991), Hussein (1999), Louis (2005) and Gelooven (2007) among others). The second dimension relates to Group and Cohesion which include enthusiasm for achieving that objective and some measure of cohesion within a group (Motowidlo et al.,1976; Gal, 1986; Manning, 1991; Britt, 1997; Schumm & Bell, 2000; Goyne, 2004; Cartignani, 2004). It entails working as a team, supportive, mutual trust, loyal, patient and cooperative (Baynes (1967), Knorr (1970), Morgenthau (1978), Buzan (1983), Gal and Manning (1987), Siebold (1999);

Shamir et al. (2000), Riley (2002), Murphy & Farley (2002), Abbott (2003) and Britt, Dickinson, Moore, Castro & Adler (2007)).

Table 1: The Dimension of Morale and References Cited.

No	Dimension of Morale	References for Dimension
1	Goal/Mission/Task Accomplishment	Baynes (1967); Morgenthau (1978); Chandar (1979); Buzan (1983); Gal (1986); Gal & Manning (1987); Jomini (1996); Siebold (1999); Schumm & Bell (2000); Shamir et al. (2000); Riley (2002); Murphy & Farley (2002); Louis (2005); Goyne (2004); Catignani (2004); Britt, Dickinson, Moore, Castro & Adler (2007; Gelooven (2007); Bester & Stanz (2007).
2	Group and Cohesion	Ulio (1941); Baynes (1967); Knorr (1970); Morgenthau (1978); Buzan (1983); Gal & Manning (1987); Manning (1991); Siebold (1999); Shamir et al. (2000); Schumm & Bell (2000); Riley (2002); Murphy & Farley (2002); Goyne (2004); Cartignani (2004); Britt & Dickson (2006); Bester & Stanz (2007).
3	Mental State (Mental Quality)	Viteles (1953); Guba (1958); Motowildo & Borman (1977, 1978); Hashim (1999); Evans (1998, 2001); Britt, Dickinson, Moore, Castro & Adler (2007); Gelooven (2007).
4	Selflessness	Creel (1941); Eric (1986); Goyne (2004); Mohd Kenali (2007); Britt, Dickinson, Moore, Castro & Adler (2007); Peterson, Park & Sweeney (2008).
5	Affective State (Emotion: Feeling and Interest)	Abd Aziz (2000); Johnsrud & Rosser, (2000, 2002); Jaafar (2003); Fadzilah Kamsah & Ahmad Naim (2008).
6	Spiritual State	Hocking (1941); Eric (1986); Musa Da' (1987); Manning (1991); Hashim (1999); Ary Ginarja (2003); Goyne (2004); Ismail Lufti (2004); Britt & Dickson (2006); Nurudin (2006); Mohd Kenali (2007) Gelooven (2007).

The third dimension is Mental State (Mental Quality); it is a state of mind in readiness for action, being mentally ready, passionate, firm and confident (Musa Da', 1987; Gelooven, 2007). Mental state is defined as the psychological state shared by the group members where it comprises the general feelings of satisfaction with conditions that have impacted the group and the strong motivation to accomplish group objectives despite obstacles or adversity. The fourth dimension is Affective State (Emotion: Feeling and Interest) which has to do with the objective to be achieved, for the sake of the team's objective and extra effort (Abd Aziz (2000), Johnsrud & Rosser, (2000, 2002), Jaafar (2003) and Fadzilah Kamsah and Ahmad Naim (2008)). Selflessness, the fifth dimension, refers to the willingness to sacrifice oneself, among other things (Eric, 1986; Musa Da', 1987; Goyne, 2004; Mohd Kenali, 2007). It is the fighting spirit for the sake of meeting the objectives set for the individual or the team (Britt, Dickinson, Moore, Castro & Adler, 2007; Peterson, Park & Sweeney, 2008). The sixth dimension is the spiritual state and it indicates values of righteousness and morality held by a person (Hocking (1941); Eric (1986); Manning (1991); Hashim (1999); Ary Ginarja (2003); Goyne (2004); Gelooven (2005) and Mohd Kenali (2007)).

The Second Phase

The First Focus Group Discussion

The second phase in the instrument development saw two series of focus group discussions (FGD). The first FGD's discussion revolved around the instrument's construct validity. In this session, the invited panels were briefed on the objective of the research, as well as their roles as subject matter expert. For the purpose of construct validity, the panels were asked to respond to the appropriateness of the morale dimensions identified. During the discussion, both the panels and the research team were reminded to review each dimension against contamination, deficiency, distortion, and accuracy based on their experience in light of their respective organizational settings. The 10-member panels are senior military officers from the various military departments, namely Infantry Directorate, Department of Malaysian Army HQ, Army Division HQ, and Army Brigade HQ, who are knowledgeable in military culture and military operational.

The Second FGD

The second FGD, together with the research team were 10 panels of subject matter experts from the first FGD, focuses on the content validity of the instruments. This group was again briefed on the purpose of the research and of the FGD. All members of the panel responded collectively to assess the relevancy as well as the sufficiency of the dimensions and items in the morale instrument in the context of Malaysian Army.

The panels were asked to review the items and decide on its suitability in their dimension from the military's perspective. They were also asked if any other items should be included, and to comment on the items related to a specific dimension of morale. In addition, the panels were asked to check each item for clarity, uniformity and content validity. This FGD provided the opportunities to improve on the order of items, the general organization of the instrument, item construction, clarity and appropriateness of wordings, understanding and general outlook.

Results

Modifications on the instrument were made based on feedback from the two FGDs as follows: 1) Reduce redundancy, 2) Rephrase sentences for clarity and simplicity, 3) Rearrange items according to dimensions, 3) Combine items with similar meaning, 4) delete irrelevant items, 6) Improve grammar and diction. After final amendments were made, the final instrument is given below.

The Morale Instruments:

Instruction: Please read each item in question 1-9 below and give your rating by circling the appropriate number on the scale of 1 (Very low) to 10 (Very High)		Very Low			Average				Very High		
		1	2	3	4	5	6	7	8	9	10
Clarity of tasks to be implemented and objectives to be achieved (Goal/Mission/Task Accomplishment)											
Items		Very Low							Very High		
b1	I clearly understand the team objectives to be achieved	1	2	3	4	5	6	7	8	9	10
b2	I understand clearly my team roles to be achieved	1	2	3	4	5	6	7	8	9	10
b3	I will complete the tasks for the sake of the team's objective	1	2	3	4	5	6	7	8	9	10
b4	I am determined to complete team's objectives despite obstacles or challenges	1	2	3	4	5	6	7	8	9	10
b5	I will put in extra effort to achieve team's tasks	1	2	3	4	5	6	7	8	9	10
A state of mind in readiness for action (Group and Cohesion)											
Items		Very Low							Very High		
c1	I am mentally ready to carry out any task	1	2	3	4	5	6	7	8	9	10
c2	I am mentally ready to achieve the group mission	1	2	3	4	5	6	7	8	9	10
c3	I am mentally ready to complete any task despite adversities and challenges	1	2	3	4	5	6	7	8	9	10
c4	I am firm in completing any task	1	2	3	4	5	6	7	8	9	10
c5	I am persistence to complete any task	1	2	3	4	5	6	7	8	9	10
c6	I am passionate in completing any task	1	2	3	4	5	6	7	8	9	10
c7	I am confident in completing any task	1	2	3	4	5	6	7	8	9	10
Willingness to sacrifice oneself (Mental State (Mental Quality)											
Items		Very Low							Very High		
d1	I am willing to sacrifice myself for the well-being of my team members	1	2	3	4	5	6	7	8	9	10
d2	I am willing to fight for my team	1	2	3	4	5	6	7	8	9	10
d3	I will expend sufficient time for the sake of my team	1	2	3	4	5	6	7	8	9	10
d4	I will devote any of my resources for the sake of my team	1	2	3	4	5	6	7	8	9	10
d5	I will devote all my energy for the sake of my team	1	2	3	4	5	6	7	8	9	10
Feeling of arousal and excitement (Selflessness)											
Items		Very Low							Very High		

e1	I have the desire to complete any task	1	2	3	4	5	6	7	8	9	10
e2	I am highly motivated to complete any task	1	2	3	4	5	6	7	8	9	10
e3	I have pride in my organization	1	2	3	4	5	6	7	8	9	10
e4	I am keen in getting the tasks completed	1	2	3	4	5	6	7	8	9	10
e5	I am thrilled to complete any task	1	2	3	4	5	6	7	8	9	10
e6	I am happy to complete any task	1	2	3	4	5	6	7	8	9	10
e7	I am aroused to complete any task	1	2	3	4	5	6	7	8	9	10
e8	I have the enthusiasm to complete any task	1	2	3	4	5	6	7	8	9	10
Teamwork and spirit (Affective State (Emotion: Feeling and Interest)											
Items		Very Low							Very High		
f1	My group members work as a team	1	2	3	4	5	6	7	8	9	10
f2	My team members are supportive with one another	1	2	3	4	5	6	7	8	9	10
f3	My team members have mutual trust	1	2	3	4	5	6	7	8	9	10
f4	My team members are patient in any course of action	1	2	3	4	5	6	7	8	9	10
f5	My team members are dependable	1	2	3	4	5	6	7	8	9	10
f6	My team members are cooperative	1	2	3	4	5	6	7	8	9	10
f7	My team members are unified	1	2	3	4	5	6	7	8	9	10
f8	My team members respect each other	1	2	3	4	5	6	7	8	9	10
f9	My team members are loyal in completing any task	1	2	3	4	5	6	7	8	9	10
f10	There is solidarity in my team	1	2	3	4	5	6	7	8	9	10
Righteousness and morality (Spiritual State)											
Items1		Very Low							Very High		
g1	I am doing the tasks with decency	1	2	3	4	5	6	7	8	9	10
g2	I am honest in doing the tasks	1	2	3	4	5	6	7	8	9	10
g3	I am doing the tasks ethically	1	2	3	4	5	6	7	8	9	10
g4	I demonstrate self-discipline in completing any tasks	1	2	3	4	5	6	7	8	9	10
g5	I am sincere in completing any tasks	1	2	3	4	5	6	7	8	9	10
g6	It is my duty (responsibility) in completing any task	1	2	3	4	5	6	7	8	9	10

To facilitate data collection, the original instrument was developed in English and then translated to the Bahasa Malaysia by a language expert. However, this instrument was developed to measure morale at the individual level in a work organization rather than measuring morale at troop, company, battalion and Army level.

The Instrument Response Scale

The response scale was decided in the first phase of the instrument development. To break the monotony of 5-point-anchors, it was decided that the instrument use the 10-point version as this multipoint scale yields more data variability. The 10-point scale is preferred due to the wider distribution of scores around the mean which would provide for a more discriminating power. A respondent who routinely receives 90 percent top-two box scores on a five-point scale would only likely enjoy about 85 percent top-two box score on a seven-point scale. On a 10-point scale, the same respondent would expect a score of about 75 percent only. According to Allen and Rao (2000), another reason a seven-point or 10-point scale is preferred is that it involves covariance. In general, it is easier to establish covariance between two variables with greater dispersion (that is, variance) around their means. Furthermore, Motowidlo and Borman (1977) also recommend the use of 10-scale Likert scale for measuring morale. It is this covariance that is so critical to establishing strong multivariate dependence models. Thus, from an instrument development perspective, the 10-point scale is much preferred. In summary, scale with more points is recommended in model development. This is because of the increased variance and better chances of demonstrating covariance among key variables (Allen & Rao, 2000). In simple terms, it is easier for respondents to give a rating in terms of percentages or marks, e.g. 80% or 80 marks. The simplicity of a 10-point scale is preferred compared to the scale of any other number (5, 7, or 9) that may need more explanations. A 10-point would signify perfection and vice-versa for the lower end of the continuum.

Instrument Reliability

A pilot test was conducted when the morale instrument was finalized to assess its reliability, i.e. the degree to which the instrument consistently measures whatever it is supposed to measure. An instrument is said to be reliable if it yields similar results when used repeatedly, regardless of opportunities for variations to occur (Nunnally & Bernstein, 1994). A reliable instrument will produce consistent results when conducted on different subjects/respondents and at different times. This would lead to a reliable instrument developed for one particular purpose which can be applied for other related circumstances.

Table 2: Cronbach's Alpha Reliability Pre-Test Results

No	Construct of Morale	Number of items	Cronbach's Alpha
1	Team's task and Objective to be accomplished	5	0.952
2	Mental/Psychological state	8	0.951
3	Selflessness	10	0.958
4	Affective state	8	0.951
5	Team cohesion	10	0.951
6	Individual's spiritual state	6	0.952

Reliability of an instrument can be assessed by the stability measure, equivalence measure, and internal consistency measure (Emory & Cooper, 1991). An instrument is said to be stable if consistent results can be secured with repeated measurements of the same person with the same instrument. As such, the test-retest method is normally employed to assess the stability by applying the same test to the same group of people after a period of time. Comparisons are then made of the results of both tests; this, unfortunately, could not be done due to time and resources constraint.

The equivalence measure considers how much error may be introduced by different investigators (in observation) or different samples of items being studied (in questioning or scales) (Emory &

Cooper, 1991). Administering alternative or parallel forms of the test to the same group of people simultaneously or shortly thereafter can assess item sample equivalence. The results of both tests are then correlated and evaluated.

The difficulty of applying this method is in constructing two forms of tests that are essentially equivalent (Gay & Diehl, 1992). The internal consistency measure assesses the consistency or homogeneity among items in an instrument (Emory & Cooper, 1991). One method of assessing the internal consistency of an instrument is by using Cronbach's coefficient alpha. It is represented by a value between 0 and 1, with 1 representing the maximum estimate of reliability. A coefficient of over 0.90 would be acceptable to any instrument, Nunnally and Bernstein (1994) emphasized that coefficient alpha should be applied to all new measurement methods even if other estimates of reliability are also necessary.

The Cronbach's alpha to measure the constructs for consistency and homogeneity was used to assess if the subsets of items "hang together as a set" (Sekaran, 2000). In order that the coefficient alphas were meaningful, the number of items was more than five for each construct measured (Guy, Edgly, Arafat & Allen, 1987). Reliability analysis by using Cronbach's alpha was carried out on the 41 items of the instrument developed. Five of the items were grouped under the team's task and Objective to be accomplished, eight of items were grouped under the mental/psychological state, ten of the items were grouped under the selflessness, eight items were grouped under the Affective state, ten of the items grouped under the team cohesion, and six of the items were grouped under the individual spiritual state.

The Cronbach's alpha value obtained ranged from 0.951 to 0.958 as shown in Table 2, thus meeting Nunnally and Bernstein (1994) recommendation of 0.7 as the acceptable reliability level and good internal consistency among the items. The overall alpha value was 0.953 (pretest). Kline (1995) is the view that alphas should never drop below 0.7, the minimum for good test. This is because the standard error of measurement of a score increases as the reliability decreases. Thus, it can be seen from the above table that all the alpha values are highly satisfactory and rather impressive. The Cronbach's alpha for the pretest result is shown in Table 2.

Factor Analysis on Dimension of Morale

The 41 items (b1g6) for measuring morale were subjected to HCM reflective-formative type analysis using PLS-SEM (Ringle et al., 2012) (see Figure 1). Prior to performing construct validity and reliability analysis, the suitability of data for factor analysis was assessed. Inspection on the internal consistency reliability revealed the Cronbach Alpha present of many coefficients of 0.70 and above. The Composite Reliability value was 0.967, exceeding the recommended value of more than 0.60 (Bagozzi & Yi, 1988; Chin, 1998b; Hock, Ringle, & Sarstedt, 2010). Convergent validity of Average Variance Extracted (AVE) values (Chin, 2010) and factor loading (Hair et al., 1998) reached statistical significance more than 0.50, supporting the psychometric properties of morale construct.

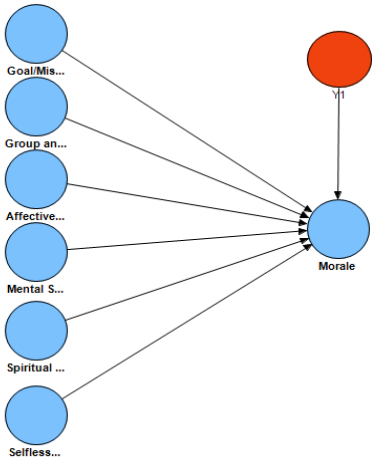

Figure 1: Hierarchical Component Models Reflective-Formative Type. Note: Morale dimension = lower-order component; Morale = higher-order component, Y1 = exogenous latent variable in the structural model (its measurement model is not further specified in this illustration).

Discriminant validity analysis revealed the presence of six components with off-diagonal values and a square root of AVE significantly greater than their respective off-diagonal values. For adequate discriminant validity, the diagonal values should be significantly greater than the off-diagonal values in the corresponding rows and columns (the Fornell-Larcker Criterion approach). At this point, the researcher compares the diagonal values (the square root of AVE) as depicted in Table 3. The values show that they are greater than their respective off-diagonal values. These diagonal values indicated adequate discriminant validity.

Table 3: Fornell-Larcker Criterion Analysis

	1	2	3	4	5	6
Affective State (Emotion: Feeling and Interest) (1)	0.8545					
Goal/Mission/Task Accomplishment (2)	0.5786	0.8558				
Group and Cohesion (3)	0.6708	0.7675	0.8327			
Mental State (Mental Quality) (4)	0.7088	0.5599	0.7054	0.8331		
Selflessness (5)	0.6734	0.6732	0.7409	0.7703	0.7260	
Spiritual State (6)	0.6756	0.7010	0.7340	0.6735	0.6653	0.8817

Diagonal elements = square root of AVE;
Off-diagonal elements = correlation between constructs

Since the instrument for measuring morale was constructed using six related components, the researcher decided to retain six components for further confirmatory factor analysis (CFA). To aid in the interpretation of these six components, loading and cross loading analysis was performed because the researchers assume that six underlying constructs are related to each other (correlated) as suggested by Hair et al. (2010). The loading and cross loading solution with a cut-off value of items loaded 0.5 and above as significant (Hair, et al., 2010). As such, if any items which have a loading of higher than 0.5 on two or more factors then they will be deemed to be having significant cross-loadings. The results of the CFA (present in Table 4) revealed the presence of simple structure (Thurstone, 1947), with six components indicate high loadings, and all variables loading substantially

on only one component. The six constructs explained the final revised measurement model for all the constructs have adequate discriminant validity. As depicted in Table 4, the first component which was labeled Goal/Mission/Task Accomplishment exhibited high loading for all the five items (b1b5). The second component named mental/psychology state exhibited high loading for all the eight items (c1c8). The third component named selflessness exhibited high loading for all the ten items (d1d10). The fourth component named affective state exhibited high loading for all the eight items (e1e8). The fifth component named team cohesion exhibited high loading for all the ten items (f1f10). And the sixth component named individual spiritual state exhibited high loading for all the six items (c1c7). From Table 4, all the items for Goal/Mission/Task Accomplishment, Mental/Psychology State, Selflessness, Affective State, Team Cohesion and Individual Spiritual State were loaded highly on that construct and loaded lower on the other constructs thus conforming construct validity. It is differentiated by the researcher for items that were in bold. Construct validity tells how well the results obtained from the use of measure; fit the theories around which the test is designed (Sekaran & Bougie, 2010).

Table 4: Loadings and Cross Loadings for 47 items for measuring morale

	Component					
	1	2	3	4	5	6
b1	**0.8528**	0.5389	0.4659	0.6613	0.5208	0.6300
b2	**0.8568**	0.6112	0.4785	0.6803	0.5094	0.6220
b3	**0.8577**	0.6663	0.4048	0.6442	0.3934	0.5479
b4	**0.8384**	0.6961	0.5570	0.7175	0.4931	0.5597
b5	**0.8731**	0.7574	0.4809	0.7447	0.5497	0.6372
c1	0.6539	**0.7839**	0.4977	0.7064	0.5738	0.5817
c2	0.6587	**0.8672**	0.5846	0.7401	0.5386	0.5833
c3	0.5995	**0.8825**	0.6326	0.7582	0.5997	0.5965
c4	0.6806	**0.8705**	0.6002	0.7783	0.5815	0.6545
c5	0.7507	**0.8668**	0.6328	0.8030	0.5933	0.6766
c6	0.4617	**0.7204**	0.5289	0.6438	0.5594	0.4615
c7	0.6432	**0.8250**	0.6245	0.7448	0.4668	0.7031
d1	0.1501	0.1469	**0.6632**	0.1306	0.0819	0.1646
d2	0.4434	0.6034	**0.9001**	0.7505	0.6688	0.5920
d3	0.5340	0.6660	**0.9359**	0.7847	0.6544	0.6132
d4	0.4848	0.6711	**0.9513**	0.7896	0.6577	0.6336
d5	0.6001	0.6698	**0.9235**	0.8139	0.6562	0.6499
e1	0.6090	0.6126	0.6524	**0.7094**	0.5413	0.4982
e2	0.1370	0.1610	0.1434	**0.6113**	0.2258	0.1295
e3	0.4785	0.5529	0.5589	**0.6370**	0.4964	0.4514
e4	0.5353	0.5872	0.6686	**0.7029**	0.5526	0.5147
e5	0.3924	0.4723	0.5251	**0.5756**	0.4234	0.4513
e6	0.6103	0.6814	0.7490	**0.8063**	0.6222	0.6398
e7	0.6602	0.7309	0.6644	**0.8208**	0.6577	0.6949
e8	0.2123	0.1508	0.0775	**0.7348**	0.0722	0.1924
f1	0.6073	0.6870	0.7228	0.8360	**0.8307**	0.6855
f2	0.5708	0.6721	0.7074	0.8242	**0.8582**	0.6612

f3	0.4530	0.5617	0.6251	0.7533	**0.8990**	0.5566
f4	0.5178	0.5672	0.6052	0.7498	**0.8850**	0.5542
f5	0.4810	0.5495	0.5575	0.7150	**0.8237**	0.5422
f6	0.5432	0.5334	0.5708	0.7344	**0.8765**	0.5539
f7	0.4995	0.5651	0.5977	0.7650	**0.9280**	0.5649
f8	0.3425	0.5042	0.5290	0.6607	**0.8332**	0.5087
f9	0.4351	0.5072	0.5231	0.6644	**0.7584**	0.5092
f10	0.4490	0.5452	0.5735	0.7162	**0.8409**	0.6016
g1	0.5731	0.6193	0.6291	0.7325	0.5433	**0.8507**
g2	0.6076	0.6761	0.6081	0.7641	0.5815	**0.9009**
g3	0.6322	0.6489	0.6429	0.7755	0.5846	**0.9193**
g4	0.6202	0.6345	0.4895	0.7379	0.6535	**0.8369**
g5	0.6674	0.6870	0.5927	0.8031	0.6564	**0.9067**
g6	0.6045	0.6141	0.5996	0.7358	0.5517	**0.8729**

Table 5: Results Summary

Latent Variable	Indicators	Loadings	Indicators Reliability	Composite Reliability	AVE	Discriminant Validity?
Affective State	b1	0.8528	0.7298	0.9643	0.7302	Yes
	b2	0.8568	0.7354			
	b3	0.8577	0.7352			
	b4	0.8384	0.6988			
	b5	0.8731	0.7619			
Goal/Mission/Task Accomplishment	c1	0.7839	0.6144	0.9319	0.7324	Yes
	c2	0.8672	0.7514			
	c3	0.8825	0.7772			
	c4	0.8705	0.7505			
	c5	0.8668	0.5177			
	c6	0.7204	0.6807			
	c7	0.8250	0.7308			
Group and Cohesion	d1	0.7632	0.8067	0.9403	0.6934	Yes
	d2	0.9001	0.8669			
	d3	0.9359	0.9016			
	d4	0.9513	0.8498			
	d5	0.9235	0.6700			
Mental State	e1	0.7094	0.0602	0.9075	0.6941	Yes
	e2	0.7113	0.6340			
	e3	0.6370	0.6819			
	e4	0.7029	0.5765			
	e5	0.5756	0.8439			
	e6	0.8063	0.7282			
	e7	0.8208	0.7174			
	e8	0.7348	0.6869			

Selflessness	f1	0.8307	0.7087	0.8796	0.5271	Yes
	f2	0.8582	0.7335			
	f3	0.8990	0.8052			
	f4	0.8850	0.7813			
	f5	0.8237	0.6775			
	f6	0.8765	0.7655			
	f7	0.9280	0.8589			
	f8	0.8332	0.6976			
	f9	0.7584	0.5769			
	f10	0.8409	0.7206			
Spiritual State	g1	0.8507	0.8079	0.9544	0.7774	Yes
	g2	0.9009	0.8466			
	g3	0.9193	0.6981			
	g4	0.8369	0.8220			
	g5	0.9067	0.7626			
	g6	0.8729	0.8029			

In general, the results confirm the presence of the six components for measuring morale. Thus, the results of this analysis support the use of six components to be used for measuring the soldiers' morale.

Conclusion

Two specific objectives of this paper have been addressed as follows 1) to describe the process of developing an instrument for measuring a soldier's morale, 2) to assess the validity and reliability of morale instrument developed based on dimensions identified. Through intensive review of the literature, six dimensions with 41 items were identified for measuring the morale. To measure the morale, a 10-Likert scale item was used. The construct and content validity have been assessed through FGDs with invited subject matter experts. High reliability was obtained with the Cronbach's alpha value ranges from 0.80 to 0.90 exceeding Nunnally and Bernstein (1994) recommended a threshold of 0.70 and overall results of measurement models as shown in Table 5. The interpretation of the six components is consistent with six components used for measuring morale in the instrument. Thus, the measurement model analysis supports the use of six components for measuring the soldiers' morale in Malaysian Army. The personnel morale measure developed in this research project can be used to assess unit morale and as a research tool to gain a better understanding of the antecedents and consequences of this most important concepts.

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