

VALIDATION OF BASIC PSYCHOLOGICAL NEEDS AT WORK SCALE

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Abstract

This study aimed at investigating whether the Basic Psychological Needs at Work Scale can be used to measure work motivation of teacher educators in Myanmar. Based on self-determination theory, the Basic Psychological Needs at Work Scale had been developed by Deci and Ryan (2000) to assess work motivation. It contains three subscales: autonomy (6 items), competence (7 items) and relatedness (8 items). The importance of the basic psychological needs for autonomy, competence and relatedness are the central concepts in understanding the motivational process going on in the workplace. The purpose of the study was to validate the Basic Psychological Needs at Work Scale in a sample of teacher educators from Education Degree Colleges. A total of 450 teacher educators from Education Degree Colleges participated in this study. The results of the confirmatory factor analysis indicated that the model fits with the three-factor structure model (RMSEA = 0.060., TLI = 0.903, CFI= 0.911, SRMR = 0.057, $p < 0.001$). Moreover, this study confirmed the convergent and discriminant validity of the scale. Furthermore, the internal consistency of scale and subscales were satisfactory results. Therefore, the Basic Psychological Needs at Work Scale is valid and reliable to measure work motivation of teacher educators in Myanmar.

Keywords: Basic Psychological Needs at Work Scale, Work Motivation, Teacher Educators, Education Degree Colleges, Confirmatory Factor Analysis

Introduction

Motivation is essential everywhere to improve human behavior, to guide the behavior and maintain it. Moreover, motivation plays an important role in any organization because it increases the productivity and capability of workers and the goals of the organization can be achieved efficiently and actually. Humans' behaviours and attitudes can be changed by giving motivation in the organization. According to the situation and circumstances, the level of motivation differs within human beings. Lack of motivation among teacher educators occurs in teacher unwillingness to participate in school activities, poor work productivity, less work satisfaction, late responsive behaviours, lack of additional training, uncreative and non-stimulating teaching, lack of interest in their professional development, and negative attitudes in their workplaces.

From a psychological point of view, work is an important resource of human identity, self-esteem and self-confidence. Work makes a sense of fulfillment and satisfaction for an employee by defining one's value to the society. Increasing motivation, commitment and engagement levels are essential in today's work environment. The process of motivation usually starts when someone encounters an unsatisfied need and to handle someone's attitudes and behaviours. Rewards and incentives motivated people to better accomplish the given goals. The social context will also affect the motivation level of someone. This context consists of organizational values and culture but it also includes leadership and management as well as the influence of the group or team in which a person works.

Gorham and Millete (1997) stated that teachers with low levels of motivation tend to perceive their students' motivation levels as low. If the teachers do not have sufficient motivation in schools, they are less competent which directly influences the students and the education system. Moreover, teachers with low motivation are not interested in their

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professional life, reduce their efforts, get more stress and lose their identification in their roles and profession.

In Myanmar, none or previous studies have investigated the validation of Basic Psychological Needs at Work Scale (BPNWS) in order to assess work motivation of teacher educators. To address this gap, this study aimed at investigating the validation of Basic Psychological Needs at Work Scale.

Purposes of the Study

The main purposes of this study were to investigate whether the Basic Psychological Needs at Work Scale (BPNWS) can be used to measure work motivation of teacher educators and to validate the Basic Psychological Needs at Work Scale (BPNWS).

Definition of Key Term

Work motivation. Work motivation is a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behaviour and to determine its form, direction, intensity and duration (Latham & Pinder, 2008).

Autonomy. Autonomy is the need to feel ownership of one's behaviour (Connell & Wellborn, 1991).

Relatedness. Relatedness is the need to feel connected and belongingness with others (Connell & Wellborn, 1991).

Competence. Competence is the need to produce desired outcomes and to experience mastery (Connell & Wellborn, 1991).

Review of Related Literature

Basic Psychological Needs in the Workplace

Work motivation plays an important role only to improve the teaching and learning process in the classroom but to reinforce teachers' behaviours and attitudes in their profession. Generally, motivated teachers help to reinforce their students more in the classroom, implement educational reforms well and give the feelings of satisfaction and fulfillment for their students. Although teacher motivation is fundamental to the teaching and learning process, several teachers are not highly motivated. According to Dai and Sternberg (2004), high levels of job dissatisfaction, stress, and burnout can negatively influence motivation and job performance.

Teachers are the essential professional group for our nation's future. Ford et al.(1992) found that large class size, double-shifting, rural location, high educational attainment and active parental involvement negatively correlated with teacher job satisfaction in these countries. Moreover, her study indicated that the level of communication between teachers and school managers had no statistically significant impact on teacher job satisfaction.

Voluntary Service Overseas (VSO) in the United Kingdom in 2002 noted that one of the main findings was that teachers' motivation was fragile and declining. The report noted that there is a strong link between teachers' motivation and performance, and education quality, but improving teachers' motivation is not uniformly prioritized as a major concern of national and international policy-makers. Motivation and performance are very important factors in terms of organization success and achievements. If changes occur in an external environment, it is necessary for an organization to adopt that change may motivate them to gain a competitive advantage. Thus, the main thing they require is skilled and competent employees (Latt, 2008). To understand the motivational process going on in the workplace, the importance of the basic psychological needs for autonomy, relatedness and competence are the central concepts. First,

the need for autonomy (deCharms, 1968) refers to the feeling of choice and concurrence with one's actions. Second, the need for competence (White, 1959), refers to the feeling of being effective and capable. Third, the need for relatedness (Baumeister & Leary, 1995) refers to the feeling of a connection to, caring for, and being cared for by other individuals and groups. A central underpinning of self-determination theory is the basic psychological needs.

Self-determination Theory

Self-determination theory represents a powerful framework that taps into different questions of human motivation and is used in a wide range of different contexts such as sports, education, health and work. Ryan and Deci (2000) developed the self-determination theory, a framework that illuminates the relationship between extrinsic and intrinsic motivation along a continuum that reflects the level of internalization. In this theory, the fundamental needs are competence, autonomy, and relatedness that really need to motivate the workers. The three fundamental needs interact with the internal (or personal) and external factors. The more a person is satisfied by their needs for competence, autonomy, and relatedness, the more the source of motivation is intrinsic.

Feelings of competence, relatedness, and autonomy at work were found to positively predict job satisfaction and negatively predict emotional exhaustion, which in turn explained variance in the employees' turnover intentions. However, satisfying a single need, such as competence, does not indicate intrinsic motivation without the presence of the other needs, such as autonomy (Ryan & Deci, 2000).

The more autonomous forms of motivation teachers also perceive towards their work are related to more autonomy support for their pupils (Pelletier et al., 2002). Much of the research with self-determination theory has focused on environmental factors (or external factors) that can hinder or undermine self-motivation and researchers have found that these factors can be described as thwarting the three basic needs of competence, autonomy, and relatedness (Ryan & Deci, 2000).

Factors that foster competence, autonomy, and relatedness enhance self-determined motivation and factors that impair these basic needs negatively affect self-determined motivation (Grouzet et al., 2004). Competence is a person's ability to use appropriate means to attain the relevant goal or the desired result (Ford, 1992) and has an effect on a teacher's motivation for professional development. Jesus and Lens (2005) combine multiple theories of motivation in an attempt to develop an integrated model for the study of teacher motivation. Pelletier, Seguin-Levesque, and Legault (2002) found that the more teachers perceive pressure from above (e.g., performance standards, complying with curriculum) and below (e.g., students unmotivated to learn), the less they are self-determined to teach.

Therefore, Vallerand and Ratelle (2002) reported that teachers who took ownership over their learning and decision making during professional development activities had a stronger level of change. Relatedness or the need to feel as if one belongs and connects with others, is important for facilitating internalization (Ryan & Deci, 2000). Relatedness can include teachers belonging or connections to other school staff as well as the mathematics content they teach.

Self-determination theory is that human beings have deeply evolved psychological needs to be competent, autonomous, and related to others, such that in contexts where these needs are satisfied people evidence more volitional, high-quality motivation and greater well-being, and when these psychological needs are thwarted people display various forms of diminished motivation and more symptoms of ill-being. Self-determination theory proposes

that environments supportive of people's needs for competence, autonomy, and relatedness promote better work performance and better adjustment at work. In the present study, the researcher used the basic psychological needs at work scale to measure teacher work motivation in which self-determination theory is the theoretical framework to assess teacher work motivation.

Method

Participants of the Study

Teacher Educators from Education Degree Colleges were selected as the participants of the study. The participants were chosen by using stratified random sampling technique. Firstly, 60% of states and regions in Myanmar (four states: Shan, Mon, Chin and Kayah State, five regions: Yangon, Magway, Ayeyarwaddy, Sagaing and Bago Region) was selected. Therefore, altogether 9 education degree colleges were chosen and then nearly 45 teacher educators from each education degree college were selected. Finally, a total of 450 teacher educators participated in this study. All participants were recruited from Education Degree Colleges by the researcher, given a thorough explanation about the study, and asked if they wished to participate in the questionnaire response voluntarily with informed consent.

Instrument

Basic Psychological Needs at Work Scale (BPNWS): The Basic Psychological Needs at Work Scale (BPNWS) is an instrument developed by Ryan and Deci (2000) to assess work motivation. The theoretical framework of this instrument is self-determination theory (Deci & Ryan, 2000). It is 21-item instrument and consists of three factors: (1) Autonomy (6 items) - the feeling one has choice and willingly endorsing one's behaviour (Sample Item; "I am free to express my ideas and opinions on the job."), (2) Relatedness (7 items) - the need to feel connected and belongingness with others (Sample item; "People at work are pretty friendly towards me.") and (3) Competence (8 items) - the experience of mastery and being effective in one's activity (Sample item; "I pretty much keep to myself when I am at work."). The items were rated on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree).

Instrumentation

The Basic Psychological Needs at Work Scale (BPNWS) used in this study was adapted to the Myanmar version. After preparing the measuring scale, expert review was conducted for face validity and content validity by 14 experts who have special knowledge and close relationship in the field of educational psychology and educational test and measurement. Next, revisions in item length, the wording of items, and content were made during preliminary administrations of the questionnaire.

Data Collection Procedure

According to the Covid-19 pandemic situation, data were collected via online survey by using a Qualtrics form. Then, to investigate the factor structure of 21-item Basic Psychological Needs at Work Scale (BPNWS), confirmatory factor analysis was undertaken to test the model data fit by using SPSS-AMOS software (version 24). In order to determine the validity and reliability of the scale, reliability and confirmatory factor analysis was conducted.

Result

Result of Confirmatory Factor Analysis

Confirmatory factor analysis was used to establish the three factors of Basic Psychological Needs at Work Scale (BPNWS) to measure work motivation of teachers.

Confirmatory factor analysis is a hypothesis testing method which tests whether the obtained data set is suitable for a model (Schriesheim, Hurley, & Scandura, 1997). Confirmatory factor analysis is a multivariate statistical procedure that is used to test how well the measured variables represent the number of constructs.

With confirmatory factor analysis (CFA), the researchers use a variety of fit indices to determine whether the model fit is acceptable or not. These indices include measures of global fit, or fit of the entire model to the data, such as the Goodness of Fit Index (GFI), chi-square, Tucker-Lewis Index (TLI) which is the same as Non-normed Fit Index (NNFI), Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR) and Comparative Fit Index (CFI). Hu and Bentler (1999) recommended that the maximum cutoff value of 0.8 for RMSEA and the cutoff value of 0.6 for SRMR and the minimum cutoff value of 0.90 for TLI and CFI and a p-value for the Chi-square less than 0.005 can be considered as the model is a good fit. The fit indices for assessing the goodness of fit in CFA are described in Table 1 (Bentler,1990)

Table 1 Fit Indices for Assessing the Goodness of Fit in Confirmatory Factor Analysis (CFA) (Bentler, 1990)

Name	Index	Level of acceptance
Discrepancy chi-square	Chisq	0.000
Root Mean Square of Error of Approximation	RMSEA	<0.08
Standardized Root Mean Square Residual	SRMR	<0.08
Comparative fit index	CFI	>0.09
Tucker-Lewis Index	TLI	>0.09

Model Fit Statistics

The maximum likelihood confirmatory factor analysis was conducted to examine the underlying latent variable structure of 21-item Basic Psychological Needs at Work scale (BPNWS).

Based on the data in Table 2, a confirmatory factor analysis with changes yielded the fit indices as a *p*-value < 0.001, CFI = 0.911, TLI = 0.903, and RMSEA = 0.060, TLI=0.0903 and SRMR= 0.057 showed a relatively good fit. The results indicated that the model fit indices were acceptable and the model fits to the data.

For a model to have acceptable fit, the standardized regression weights (R^2) on each item were greater than 0.4. Moreover, Hooper, Cough and Mullen (2008) expressed that it is good to remove the items with low R^2 values (less than 0.2) from the analysis to remove the better model fit. In this study, the R^2 values of all items were greater than 0.4. Therefore, there were no items to remove.

Table 2 Model Fit Statistics for Basic Psychological Needs at Work Scale (BPNWS)

Model	<i>p</i> -value	RMSEA	CFI	TLI	SRMR
Basic Psychological Needs at Work Scale	0.000	0.060	0.911	0.903	0.057

Convergent Validity of Basic Psychological Needs at Work Scale (BPNWS)

Further assessment of validity involved an assessment of construct validity: convergent and discriminant validity. Convergent validity for the subscales was assessed by estimating the composite reliability (construct reliability) for each subscale and an assessment of the factors' average variance extracted (AVE). Hair, Black, Babin, and Anderson (2009) stated that an item factor loading ≥ 0.5 and $p < .05$, $AVE \geq 0.5$, and $CR \geq 0.6$. AVE is often too strict, and convergent validity can be established through CR alone.

To establish convergent validity, factor loading of the indicator variables, composite reliability (CR) and average variance extracted (AVE) should be used. AVE and CR values were computed by the formula using Microsoft Excel. The results of AVE and CR of Basic Psychological Needs at Work Scale (BPNWS) (see Table 3).

Table 3 Construct Reliability (CR) and Average Variance Extracted (AVE) of Basic Psychological Needs at Work Scale (BPNWS)

Factor	CR	AVE
Autonomy	0.74	0.35
Relatedness	0.62	0.51
Competence	0.75	0.40

According to Table 3, The AVE values for the model ranged from 0.35 to 0.51. The CR values range from 0.62 to 0.75. According to Hunang et al. (2013), AVE should be above 0.5 and CR should be 0.6 and above 9(as cited in Bentler,1990). According to Table 3, some AVE values were above 0.5 and CR values were above 0.6 so that convergent validity was achieved for this construct. Therefore, Basic Psychological Needs at Work Scale (BPNWS) was assumed to be a valid instrument to measure teachers' work motivation in Myanmar.

Discriminant Validity of Basic Psychological Needs at Work Scale (BPNWS)

Discriminant validity was used to show that the construct is actually different from one another empirically. Discriminant validity was evaluated by the correlation coefficients of the factors and the square root of AVE (see Table 4).

Table 4 Factor Correlation Matrix with Square Root of the AVE on the Diagonal

Factors	Autonomy	Relatedness	Competence
Autonomy	0.625		
Relatedness	0.574	0.714	
Competence	0.558	0.607	0.632

Note. The diagonal numbers in bold letters are the square root of AVE values.

According to Table 4, all the square root of AVE values was greater than 0.5 and these values were greater than all the inter-latent factor correlations for all factors in the relevant rows and columns. According to Fornell and Larcker (2011), the square root of AVE should be above 0.5. Then, according to Hair et al. (2011), the square root of AVE values was greater than the inter-latent factor correlations.

Thus, the results of the discriminant validity of BPNWS were congruent with Fornell and Larcker (2011) and Hair et al. (2011). According to Table 4, discriminant validity can be

accepted for the measurement model and the discriminant model and the discriminant validity between the constructs.

Reliability of Basic Psychological Needs at Work Scale (BPNWS)

One of the most popular estimates of internal consistency is reliability coefficient. Therefore, the internal consistency of the basic psychological needs at work scale (BPNWS) was assessed.

Based on Table 5, reliability coefficients of each subscale ranged from 0.701 to 0.761 and the reliability coefficient of the BPNWS was 0.794. Thus, the BPNWS was reliable to measure teachers' work motivation.

Table 5 Number of Items and Reliability Coefficient for each Subscale of Basic Psychological Needs at Work Scale (BPNWS)

Factors	Number of items	Reliability Coefficient
Autonomy	6	0.701
Relatedness	7	0.761
Competence	8	0.704
BPNWS	21	0.794

Discussion

In this study, the psychometric properties of Basic Psychological Needs at Work Scale (BPNWS) for assessing work motivation of teachers were presented. All the model fit indices (RMSEA = 0.060, CFI = 0.911, TLI = 0.903, SRMR = 0.057 and $p < 0.001$) indicated a good fit between the measurement model tested and the data. The convergent validity of BPNWS was indicated by good composite reliability values and acceptable AVE values. The discriminant validity of the model was also indicated by the AVE values. As the internal consistency reliability, the reliability coefficient for Basic psychological Needs at Work Scale (BPNWS) pointed out the satisfactory results. Therefore, Basic Psychological Needs at Work Scale (BPNWS) can be used to measure teacher educators' work motivation in Myanmar. Based on the results of validation processes, the BPNWS was reliable and valid in measuring work motivation of teacher educators.

This study was mainly a measurement study and the findings demonstrated that the instrument has adequate psychometric properties (valid and reliable). The finding of this study has expanded the existing body of knowledge on the development of a measurement scale to evaluate the work motivation of teacher educators. Hence, the model reported here might be useful in the educational psychology context and may be interested in assessing the teachers' work motivation. In summary, it is expected that there will be a great value for the policy makers and the principals to assess the motivation levels of teachers and reinforce to be more positive behaviours and attitudes in their workplace.

Conclusion

Education is a dynamic field that continuously changes and expands. Therefore, teacher educators must consider themselves as a lifelong learner and engage themselves in the continuing learning process, where they can develop the skills and knowledge essential to meet an ever-evolving and increasingly complex world. Today many challenges and changes are also causing in education. To face these situations, teacher educators need to have strong professional minds and high professional identity and strong work motivation.

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