

Validity and Reliability of the Tromso Social Intelligence Scale (TSIS): A Study of Malaysian Teachers

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ABSTRACT

The purpose of this research was to investigate the validity and reliability of the Tromso Social Intelligence Scale (TSIS). The survey included 357 secondary school teachers from the state of Pahang. Tromso Social Intelligence Scale has 21 items with three subscales: social awareness, social skills, and social information processing. Factor analysis and Cronbach's Alpha were used to examine validity and reliability. The results of principal component analysis with Promax rotation and scree plot retrieved four factors that contributed 60.37 percent of the total variance and provided loadings ranging from 0.354 to 0.735. However, the 4-factor created by the analysis did not correspond to any of the factors proposed in the prior study, yielding new unknown 4 factors. It was suggested that more research be done to corroborate the study's psychometric features.

Keywords: Tromso Social Intelligence Scale, Social Intelligence, Validity, Reliability.

1. INTRODUCTION

Edward Thorndike (1920) was the first to propose the theory of social intelligence. He defines social intelligence as a person's ability to understand and manage behaviour in human relationships. It refers to a person's ability to comprehend and act on the feelings, thoughts, and behaviours of others. Individuals with social intelligence can sense how other people feel, know what to say in social situations intuitively, and appear self-assured even in large groups.

In a number of studies, it has been discovered that a variety of social competencies such as empathy, social sensitivity, social insight, and sociability are positively associated with group performance and team leadership, presumably as a result of high social intelligence (Bhatti, Kaur, & Battour, 2013; Khuong & Nhu, 2015; Mahsud, Yukl, & Prussia, 2010). In reality, Albrecht (2006)'s definition of social intelligence, defined as the ability to get along with others and encourage them to cooperate with you, is a veritable definition of management in the present globalisation era.

Scales for measuring social intelligence have been developed by some researchers. However, the measurement method of these scales is problematic. First and foremost, the fundamental idea of social intelligence was far too abstract to comprehend fully. In addition, several measuring methods have been identified as an issue due to the fact that they include numerous methodologies such as observation and behavioural assessment.

In order to address these issues, the Tromso Social Intelligence Scale (TSIS) was established (Silvera, Martinussen, & Dahl, 2001). The TSIS has now been translated into other languages and its psychometric qualities have been determined to be acceptable (Dogan & Cetin, 2009; Gini, 2006; Grieve & Mahar, 2013; Park, Yang, & Song, 2019; Rezaie, 2011). It is still regarded new in Malaysia, even though the Tromso Social Intelligence Scales have been established and

acknowledged in western countries for several decades. There is a paucity of literature on the structure and features of scales that are appropriate for the Malaysian sample.

2. LITERATURE REVIEW

In 1926, F.A. Moss developed the George Washington University Test of Social Intelligence, which assesses six aspects of social intelligence include judgement in social situations, memory for names and faces, recognition of mental states from facial expressions, knowledge of people's characteristic behaviour, social information and recognition of people's characteristic behaviour (Thorndike & Stein, 1937; Walker & Foley, 1973).

Candeias (2007), developed the cognitive Test of Social Intelligence which is a pictorial self-report measure of social intelligence that is used to assess the social intelligence of adolescents between the ages of 12 and 17 years. The Emotional and Social Competency Inventory (ESCI) is another major scale of social intelligence that can be used to evaluate ability of people in social situation (Boyatzis & Goleman, 2007). It assesses 12 characteristics, including self-awareness, emotional self-control, flexibility, social awareness, achievement oriented, empathy, optimistic perspective, organisational awareness, inspiring leadership, conflict management influence, coach and mentor, and teamwork.

Developed in Germany, the Magdeburg Test of Social Intelligence (MTSI) is a multimedia-based performance test battery that employs a potential-based notion of social intelligence (Conzelmann, Weis, & Süß, 2013). In its current form, it includes subtests for social understanding, social memory, and social perception, each of which is measured using genuine audio, video-based, graphical, and verbal task material. It adds target scoring to the tasks requiring social awareness.

In general, the measures of Social Intelligence can be divided into two categories which are self-report measures and performance-based or situational judgement tests. The conceptualisations of social intelligence employed by each of these tests are highly specific and mutually exclusive, with components such as social competence, social perceptiveness, social memory, and so on defined differently in each case; as a result, studies employing these measures cannot be compared with one another, limiting the scope of future empirical research.

Due to their ease of use, self-report instruments are the only ones that have been widely employed. The Tromso Social Intelligence Scale, developed by Silvera, Martinussen, and Dahl (2001), is one of the most widely used self-report measures for the measuring of Social Intelligence in the workplace.

Silvera, Martinussen, and Dahl (2001) created and evaluated the Tromso Social Intelligence Scale, a scale with 21 items that measures social intelligence in three dimensions. A total of three research were carried out in order to create and validate the TSIS. In order to define the concept of social intelligence, 14 psychology experts from the University of Tromso took part in the discussion. The TSIS preliminary version was produced and tested with 202 students from the University of Tromso, in accordance with the definition and idea agreed upon by the experts. TSIS was administered to a new sample (N=290) in order to assess its psychometric qualities, which were later confirmed.

In accordance with the TSIS, Social Intelligence consists of three main components. In social contexts, social awareness refers to the inclination to notice activities that are taking place around you. Social information processing, which refers to the ability to comprehend and predict the actions and feelings of those around you. The ability to enter and adapt to new social circumstances, as well as behavioural features, are referred to as social skills. With each passing

year, the TSIS has gained greater recognition among scholars all across the world. However, researchers advise against studying Social Intelligence without taking cultural factors into account that influence social behaviour (Goswami, 2019b); and they recommend validating self-report instruments for the specific population being tested. TSIS was validated for use among Malaysian respondents in this study.

3. RESEARCH OBJECTIVE

- a) To examine the reliability of the Tromo Social Intelligence Scale (TSIS) based on Cronbach Alpha coefficients.
- b) To examine the validity of the Tromo Social Intelligence Scale (TSIS) through factor analysis test.

4. METHODOLOGY

4.1 Participants

A total of 380 questionnaires were distributed and 23 samples were excluded due to incomplete questionnaires. A total of 357 teachers in state of Pahang were included in the study on validity and reliability of Tromso Social Intelligence Scale (TSIS).

4.2 Instrument

Silvera *et al.* (2001) developed the TSIS to assess social intelligence. This scale has 21 items with three sub-factors: (a) social information processing, (b) social skill, and (c) social awareness. The ability to understand verbal or nonverbal messages about human relations, that is, both implicit and explicit messages, is measured by social information processing. By assessing the ability to enter a new social situation, social skill emphasises the behavioural aspects of the construct. The ability to behave in accordance with situation, place, and time is measured by social awareness. In Silvera *et al.* (2001) study, the Cronbach's alpha for the 21 items was 0.72 and 0.79 for social information processing, 0.85 for social skills, and 0.72 for social awareness. On a 6-point scale, respondents are asked to score their level of agreement, with 1 indicating strong disagreement and 6 indicating strong agreement; the scale runs from 1 to 6. Table 1 shows how items are classified based on their components.

Table 1 TSIS Item Division

Scale	Components	Positive Item	Negative Item
Tromo Social Intelligence Scale (TSIS)	Social Awareness		2, 5, 8, 11, 13, 16, 21
	Social Skills	7, 10, 18	4, 12, 15, 20
	Social Information Processing	1, 3, 6, 9, 14, 17, 19	

5. RESULTS AND DISCUSSION

In order to address research question 1, the Cronbach's Alpha value was used. To answer research question 2, SPSS version 18 was used to conduct exploratory factor analysis utilising the principal component analysis extraction method with Promax rotation and scree plot.

5.1 Reliability

Internal consistency (Cronbach's α) coefficients were 0.69 to 0.82 at domain level (Table 2) and 0.79 for the whole questionnaire. As shown in Table 2, overall the value of Cronbach's α of this study did not differ much from the study conducted by Silvera, Martinussen, and Dahl (2001), except in social skills domain. Even though all alpha scores were considered acceptable, however, the scores in social skills domains were found to be lower than 0.7.

While the value of Cronbach's α for the social skills domain is acceptable, it is somewhat lower than TSIS value and those found in previous research (Gini, 2006; Grieve & Mahar, 2013).

Table 2 Internal Consistency

The TSIS	Number of Item	Mean	Sd	Skewness	Kurtosis	Cronbach's Alpha	
						Malaysia	TSIS
Social Awareness	7	3.716	0.6248	0.160	0.727	0.75	0.72
Social Skills	7	3.841	0.5357	0.588	1.023	0.69	0.85
Social Information Processing	7	3.868	0.5562	0.640	1.392	0.82	0.79

5.2 Validity

The Tromso Social Intelligence scales' factors were determined using the principal component analysis factor extraction method with Promax rotation and scree plot. The inter-item correlation matrix revealed a predominance of correlations greater than 0.3 among the items, indicating their suitability for factor analysis. The Kaiser-Meyer-Olkin Measure of sampling adequacy was 0.852, which met Kline's (2014) requirements for factor analysis. Bartlett's sphericity test was highly significant (Chi-square = 2831.89, $df = 210$, $p < 0.0005$), indicating that a significant number of factors could be extracted. Exploratory factor analysis was performed using the eigenvalue-one procedure and maximum likelihood extraction with varimax rotation, because maximum likelihood extraction does not suffer from the problem of overestimation of the first factor seen in principal components analysis, and there was no assumption that extracted factors would be independent.

Table 3 also revealed that during the analysis, four unidentified factors contributed to 60.37 percent of the variance. All of the items from the original factors were mixed and spread across the other factors, with loads ranging from 0.354 to 0.735. The majority of the items were loaded on factor 1, which had ten items, followed by factor 2, which had eight items, factor 3, which had two items, and factor 4, which had only one item.

Table 3 Factor Analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.852

Total variance cumulative = 60.37%

Pattern Matrix					
Item	Factor 1	Factor 2	Factor 3	Factor 4	No of Items
SI19_P	0.735				10
SI9_P	0.728				
SI18_S	0.684				
SI6_P	0.680				
SI7_S	0.676				

SI1_P	0.671				
SI10_S	0.649				
SI3_P	0.598				
SI17_P	0.589				
SI14_P	0.583				
SI12_S		0.762			8
SI11_A		0.690			
SI21_A		0.687			
SI8_A		0.678			
SI20_S		0.646			
SI13_A		0.637			
SI15_S		0.593			
SI16_A		0.587			
SI2_S			0.654		2
SI4_P			0.538		
SI5_S				0.354	1

Note of abbreviation: P – Social Information Processing, S – Social Skills, A – Social Awareness

6. CONCLUSION

The purpose of this study is to investigate the factor structure of the Tromso Social Intelligence Scale (TSIS) utilising a sample of Malaysian teachers as the subject of this investigation. To put it another way, the goal is to determine whether the three variables of the original scale will be supported when tested on the study population. As a result of this research, it was discovered that the factor analysis conducted on the 21-item version of the Tromso Social Intelligence scale resulted in an unknown 4 components when compared to the original 3-factor scales and with 21 items. The study conducted by Goswami (2019a) also found 4 component of TSIS in Indian context.

This result demonstrated that the structure of 3-factor scales could be influenced by different samples and cultures; the findings of this study were also supported by studies conducted by Dogan and Cetin (2009), Gini (2006), Goswami (2019a), Grieve and Mahar (2013), and Park et al. (2019) . In conclusion, we can ratify that the TSIS has adequate psychometric properties that can be used to assess general social intelligence in Malaysia population. However, future research should be conducted to test this TSIS using Confirmatory Factors Analysis (CFA). It is aimed to find more detailed factors for each sub-scale of the instrument using a structured analytical methodology.

Social intelligence is vital in the workplace, and this has been shown. However, empirical evidence of its influence can only be obtained through self-report questionnaires employed in educational and managerial research. This paper contributes significantly by confirming the popular TSIS inventory for the Malaysian population. Because social intelligence cannot be assumed to be independent of cultural context, verifying social intelligence in various cultural and national contexts is necessary.

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