

# INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & MANAGEMENT EXPLORATORY FACTOR ANALYSIS ON SCHUTTE SELF-REPORT EMOTIONAL INTELLIGENCE SCALE (SSREI) WITH REFERENCE TO MYSTERY SHOPPERS

Dr R Angayarkanni\*<sup>1</sup> and Mr Anand Shankar Raja M<sup>2</sup>

\*<sup>1</sup>Research supervisor and Assistant professor, Department of Commerce, Faculty of science & Humanities, SRM University.

<sup>2</sup>Ph.D Research Scholar, Department of Commerce, Faculty of science & Humanities, SRM University.

## ABSTRACT

**Aim:** Exploratory factor analysis (EFA) is used to generate a theory by exploring the factors which account for the variations and interrelationships of the manifested variables used in the study. Shuttle's Emotional Intelligence scale has been widely used by many researchers on various target respondents. "Mystery shoppers" being highlighted in this study are the respondents on whom the scale constructs are used to draw data.

**Background:** Emotional Intelligence and its variables have to be studied in depth among mystery shoppers as the results would help them to be balanced even during the tough time of their profession if taken into consideration. In-order to estimate Emotional Intelligence Shuttle's Self-Report Emotional Intelligence Inventory has been used.

**Method:** The sample consisted of 238 mystery shoppers from every sector as they do mystery shopping assignments in various industries. The data has been collected using convenient sampling method and snowball sampling method. A previously developed and validated questionnaire addressing five variables such as appraisal of own emotions, appraisal of others' emotions, regulation of own emotions, utilization of emotions and regulation of others' emotions are assessed. This is tested on a five point Likert scale.

**Summary:** This study is an analysis of 33 variables associated with various facets of EI. A total of 238 mystery shoppers participated in the study. Utilizing Exploratory Factor Analysis (EFA) techniques, the research examined relationships among the following variables: Components were extracted using Principal Components Analysis (PCA) and orthogonally rotated resulting in three component solution. Appraisal of own emotions is positively correlated as given in Shuttle's EI research but the other variables are not correlated but they exist being positive. Thus it is clear enough that factors such as appraisal, utilization and regulation of self and others emotions is very vital for a mystery shopper to be successful in career and in personal life.

**Keywords:** Exploratory Factor Analysis, Shuttle's EI scale, Emotional Intelligence, Mystery shopping

## I. INTRODUCTION

Emotional intelligence (EI) was originally proposed by Salovey and Mayer (1990)<sup>[1]</sup> as a skill set comprising the awareness, understanding, and regulation of emotions both in one's self and in others. The appeal of EI seems to lie in the assurance that it may be "as important or more important" in life success than intelligence; this view was immortalized in a 1995 stated in the Time magazine cover story says (Gibbs, 1995),<sup>[2]</sup> and the same was encouraged by Goleman's (1995),<sup>[3]</sup> in his book Emotional Intelligence. Efforts to establish the validity of EI as an intelligence have involved various attempts to develop objective, "performance" measures similar to traditional intelligence tests (e.g., the Multifactor Emotional Intelligence Scale; Mayer, Caruso, & Salovey, (1999), and the Mayer-Salovey-Caruso<sup>[4]</sup>. Salovey and Mayer (1990), EI as 'the ability to monitor one's own and others' feelings and emotions. Most studies in organizational commitment that conducted in Asian cities employed the three-component model of Meyer and Allen (1991),<sup>[5]</sup> and this rule applies to mystery shoppers because a well committed mystery shopper works hard for the organisation in which he works.

### Mystery shopping

The origin of mystery shopping in business scenario popped up during the year 1940 says Douglas & Davis, (2007),<sup>[6]</sup>. The role of mystery shoppers is seen almost in every industry says various researchers. According to them mystery shopping is popularly used in service providing firms such as banks says Calvert (2005),<sup>[7]</sup> It is seen in the airline and travel industry says Eser, Pinar, Birkan, Crouch (2006),<sup>[8]</sup>. Even the health care sector has

witnessed, mystery shopping says **Borfitz (2001)**,<sup>[9]</sup> and **Pullman (2007)**,<sup>[10]</sup>. Mystery shopping though has left a remarkable footprint in various industries; the retail sector is the most witnessed says **Bromage (2000)**.<sup>[11]</sup> Though mystery shopping is used in various industries it has a strong hold in the retail sector to measure customer satisfaction. **Wilson (2002)**,<sup>[12]</sup> found that mystery shopping is commonly used in the retail sector to measure customer satisfaction. **Molly MC Donough (2004)**,<sup>[13]</sup> in her research article has stated that secret shopping helps to bring about a quick resolution to the problems when business owners know what they are missing in their business opportunities. **Xu Ming (2000)**,<sup>[14]</sup> states that mystery shopping is an outstanding market research practice and a cognitive process which can provide exact results and has many advantages over other conventional methods which are traditionally used to measure the quality of services. Mystery shoppers who deal with silent observation and record the observations and convert observed affairs into a written record says **Finn & Kayande (1999)**.<sup>[15]</sup>

### Background of the study

<sup>[16]</sup> **Schutte's Self-Report Emotional Intelligence Inventory Schutte et al (1998)**, generated a pool of 62 items based on the **Salovey and Mayer's (1990)**, theoretical three factors model of EI namely appraisal and expression of emotions, regulation of emotions and utilization of emotions in solving problems. Out of the 62 items, 33 items loaded on a single factor with loadings 0.40 and above. Hence, they designed the scale called **Schutte's Self Report Emotional Intelligence Inventory (SSREI)** with 33 items out of which 3 items are reverse scored. SSREI uses a five point scale.

### Research Justification

Mystery shopping is an important tool in marketing has implications in various fields like economics, human resource management, and psychology. There are a hand count of research thesis and published journals and articles about mystery shoppers. Research concerning the motivations of mystery shoppers exists and the researcher has intended to explore a variable which has already been studied with regard to mystery shopping professionals. This new dimension which intends to learn about mystery shoppers are worth considering.

### Material & method

The sample consisted of 238 mystery shoppers from every sector as they do mystery shopping assignments in various industries. The data has been collected using convenient sampling method and snowball sampling method. A previously developed and validated questionnaire addressing five variables such as appraisal of own emotions, appraisal of others' emotions, regulation of own emotions, utilization of emotions and regulation of others' emotions are assessed. This is tested on a five point Likert's scale and based on the drawn data analysis is done to provide useful suggestion.

### Limitations of the study

First, self-report measures were exclusively relied upon the existing scale which may not exactly suit the mystery shopping profession in a narrowed down view. Future studies conducted in this manner would confirm whether bias and equivalence do indeed exist for the difference of opinion. Another limitation is the size of the sample, specifically the distribution of the questionnaire only for a certain set of mystery shoppers being drawn from one employment providing firm. Future studies could benefit hugely in terms of a stratified random-sample design, which would ensure sufficient and different mystery shoppers being drawn widely.

### Review of literature

<sup>[17]</sup> **Kok-Mun Ng** investigated the factor structure of the *Schutte Self-Report Emotional Intelligence (SSREI)* scale on international students. As a result, this study proposed a new model that also fitted the data. Results further indicate convergent and concurrent criterion-related validities and reliability of the model. The findings support the use of the modified SSREI for international students. <sup>[18]</sup> **Kirk, B. A.**, examined the effect of an expressive-writing paradigm intervention designed to increase emotional self-efficacy in employees. Participants in the intervention condition with lower pre-test self-efficacy scores showed significant increases in self-efficacy. Overall, the results indicate that an expressive-writing intervention may be an effective strategy for increasing positive workplace outcomes. <sup>[19]</sup> **Naeem, N., & Muijtjens, A. (2015)**, investigated the factorial validity and

reliability of a bilingual version of the Schutte Self Report Emotional Intelligence Scale (SSREIS) in an undergraduate Arab medical student population. The results obtained using an undergraduate Arab medical student sample supported a multidimensional; three factor structure of the SSREIS. The three factors are Optimism, Awareness-of-Emotions and Use-of-Emotions. The reliability (Cronbach's alpha) for the three subscales was 0.76, 0.72 and 0.55, respectively. Emotional intelligence is a multifactorial construct (three factors). The bilingual version of the SSREIS is a valid and reliable measure of trait emotional intelligence in an undergraduate Arab medical student population.

<sup>[20]</sup> **Qualter, P., Ireland, J., & Gardner, K. (2010)**, explored the factor structure of a commonly used trait EI measure for a sample of adult male offenders, and comments on its usefulness as a measure of emotional functioning for this group. We find that, although the SSREI can be indicated to be multi-dimensional, the exact nature of its factors remains unclear for forensic samples. We conclude by suggesting that the social contexts and encounters that provoke emotion may be different for offenders and non-offenders, and that there is a need to develop a trait EI measure specific to forensic populations. **Kaur, I., Schutte, N. S., & Thorsteinsson, E. B. (2006)**,<sup>[21]</sup> investigated whether lower Emotional Intelligence would be related to less self-efficacy to control gambling and more problem gambling and whether gambling self-efficacy would mediate the relationship between Emotional Intelligence and problem gambling. A total of 117 participants, including 49 women and 68 men, with an average age of 39. 93 (SD = 13. 87), completed an emotional intelligence inventory, a gambling control self-efficacy scale, and a measure of problem gambling. Lower Emotional Intelligence was related to lower gambling self-efficacy and more problem gambling. Gambling control self-efficacy partially mediated the relationship between Emotional Intelligence and problem gambling.<sup>[22]</sup> **Chapman, B. P., & Hayslip, J. B. (2005)** says that after the Schutte Self-Report Inventory of Emotional Intelligence (SSRI; **Schutte et al., 1998**) was found to predict college grade point average, subsequent Emotional Intelligence (EI)-college adjustment research has used inconsistent measures and widely varying criteria, resulting in confusion about the construct's predictive validity. In this study, we assessed the SSRI's incremental validity for a wide range of adjustment criteria, pitting it against a competing trait measure, the NEO Five-Factor Inventory (NEO-FFI; **Costa & McCrae, 1992**), and tests of fluid and crystallized intelligence. At a broad bandwidth, the SSRI total score significantly and uniquely predicted variance beyond NEO-FFI domain scores in the UCLA Loneliness Scale, Revised <sup>[23]</sup> (**Russell, Peplau, & Cutrono, 1980**), scores. The analyses revealed the SSRI Optimism/Mood Regulation factor was both directly and indirectly related to various criteria. We discuss the small magnitude of incremental validity coefficients and the differential incremental validity of SSRI factor and total scores

**Exploratory Factor Analysis for SSREI**

Previous studies have revealed that adequate sample size is partly determined by the nature of the data <sup>[24]</sup> **Fabrigar et al., (1999); MacCallum, Widaman, Zhang, & Hong, (1999).Thompson (2004)**. Says that the objectives of Exploratory Factor Analysis is more concerned with reduction of number of factors (variables) and lies in the assessment of multicollinearity among factors which are correlated unidimensionality of constructs evaluation and detection and hence in the below analysis we expose the data to Exploratory Factor Analysis. With regard to the communalities, if it is “high” with .8 or greater it is well accepted says **Velicer and Fava (1998)**, <sup>[25]</sup> and also suggest that this is unlikely to occur in real data. More common magnitudes in the social sciences are low to moderate communalities of .40 to .70. If an item has a communality of less than .40, it may either a) not be related to the other items, or b) suggest an additional factor that should be explored. The Extraction Sums of Squared Loadings is identical to the Initial Eigenvalues. KMO values greater than 0.8 can be considered well, i.e. an indication that component or factor analysis will be useful for these variables. In this research the KMO value is close to .70 which is satisfactory. According to the K1 - Kaiser’s (**Kaiser 1960**), <sup>[26]</sup> method, only constructs which has the eigenvalues greater than one should be retained for interpretation.

Table 1.0 KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.647
Bartlett's Test of Sphericity	Approx. Chi-Square	6228.439
	Df	528
	Sig.	.000

	Initial	Extraction
(E1) I know when to speak about my personal problems to others	1.000	.855
(E2) When I am faced with obstacles, I remember times I faced similar obstacles and overcame it	1.000	.782
(E3) I expect that I will do well on most things I try	1.000	.846
(E4) Other people find it easy to confide in me	1.000	.793
(E5) I find it hard to understand the nonverbal messages of other people	1.000	.788
(E6) Some of the major events of my life have led me to re-evaluate what is important and not important	1.000	.756
(E7) When my atmosphere changes, I see new possibilities	1.000	.708
(E8) Passion are some of the things that makes my life worth living	1.000	.763
(E9) I am aware of my emotions as I experience them	1.000	.657
(E10) I expect good things to happen	1.000	.654
(E11) I like to share my emotions with others	1.000	.845
(E12) When I experience a positive emotion, I know how to make it last	1.000	.765
(E13) I arrange events others enjoy	1.000	.786
(E14) I seek out activities that make me happy	1.000	.854
(E15) I am aware of the nonverbal messages I send to others	1.000	.870
(E16) I present myself in a way that makes a good impression on others	1.000	.686
(E17) By looking at their facial expressions, I recognize the emotions people are experiencing	1.000	.783
(E18) I know why my emotions change	1.000	.785
(E19) When I am in a positive mood, I am able to come up with new ideas	1.000	.873
(E20) I have control over my emotions	1.000	.758
(E21) I easily recognize my emotions as I experience them	1.000	.790
(E22) I motivate myself by imagining a good outcome of the tasks I take on	1.000	.775
(E23) I compliment others when they have done something well	1.000	.793
(E24) I am aware of the nonverbal messages other people send	1.000	.765
(E25) When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.	1.000	.778
(E26) When I feel a change in emotions, I tend to come up with new ideas	1.000	.710
(E27) When I am faced with a challenge, I give up because I believe I will fail	1.000	.745
(E28) I know what other people are feeling just by looking at them	1.000	.626
(E29) I help other people feel better when they are down	1.000	.842
(E30) I use good humour to help myself keep trying in the face of obstacles	1.000	.545
(E31) I can tell how people are feeling by listening to the tone of their voice	1.000	.790
(E32) It is difficult for me to understand why people feel the way they do	1.000	.785
(E33) When i am in positive mood solving problems is easy for me	1.000	.554

Extraction Method: Principal Component Analysis.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.477	22.658	22.658	7.477	22.658	22.658
2	4.398	13.327	35.985	4.398	13.327	35.985
3	4.148	12.568	48.554	4.148	12.568	48.554
4	2.274	6.889	55.443	2.274	6.889	55.443
5	1.703	5.160	60.603	1.703	5.160	60.603
6	1.594	4.829	65.432	1.594	4.829	65.432
7	1.311	3.972	69.404	1.311	3.972	69.404

8	1.145	3.471	72.875	1.145	3.471	72.875
9	1.056	3.199	76.074	1.056	3.199	76.074
10	.964	2.921	78.995			
11	.819	2.482	81.477			
12	.708	2.144	83.622			
13	.640	1.940	85.562			
14	.590	1.789	87.351			
15	.527	1.598	88.949			
16	.495	1.500	90.449			
17	.400	1.212	91.661			
18	.393	1.192	92.853			
19	.310	.941	93.794			
20	.305	.923	94.717			
21	.272	.823	95.540			
22	.255	.771	96.312			
23	.220	.668	96.980			
24	.185	.559	97.539			
25	.163	.495	98.034			
26	.147	.446	98.480			
27	.136	.412	98.892			
28	.108	.328	99.220			
29	.089	.270	99.490			
30	.070	.211	99.701			
31	.054	.165	99.866			
32	.024	.074	99.940			
33	.020	.060	100.000			

Extraction Method: Principal Component Analysis.

	Component								
	1	2	3	4	5	6	7	8	9
(E19)	.859								
(E15)	.827								
(E25)	.809								
I(E13)	.803								
(E23)	.751								
(E22)	.711								
(E18)	.709								
(E20)	-.620								
(E14)	.590		.514						
(E24)	.571		.532						
(E17)	.521	.480		.420					
(E8)	-.460				.404				
(E33)	.456		.431						
(E5)		.646							
(E29)		.637		-.447					
(E6)		.566			.432				
(E10)	-.439	.555							
(E16)		.554							
(E28)		.539							
(E7)		.518							
(E30)		-.429							

(E2)			.652						
(E27)			-.651			.422			
(E9)			.637						
(E4)			.634						
(E11)	.469	-.439	-.619						
(E26)			-.596					.424	
(E12)			-.521						.454
(E3)			.488			.423			
(E31)		.533		-.596					
(E21) ]	.443	.437		.489					
(E1)						.656			
(E32)						-.593	.452		
Extraction Method: Principal Component Analysis.									
a. 9 components extracted.									

**II. RESULT & DISCUSSION**

The nine components with eigenvalues greater than 1.0 were rotated using Varimax software to generate an orthogonal solution shown in Table 1.2. Varimax software is the most highly utilized method to produce an orthogonally rotated matrix (Comrey & Lee, 1992; Stevens, 2009; Tabachnick & Fidell, 2001).<sup>[27]</sup> It is generally accepted that loadings should be .30 or greater to provide any interpretive value says (Comrey & Lee, 1992). A loading is simply the Pearson correlation between the variable and the extracted component (Stevens, 2009).<sup>[28]</sup> The greater the loading, the more the variable is a pure measure of the component and this was told by (Tabachnick & Fidell, 2001).<sup>[29]</sup> The component rotated matrix reveals an interpretable, simple solution. Each component has a number of variables with high loadings and also a number of very low loadings. There are few significant overlapping variables. Termed cross loading by Costello and Osborne (2005),<sup>[30]</sup> variables that load at .32 or higher on two or more components warrant additional questioning by the researcher relative to the appropriateness of the variable in contributing to meaningful factorial solution. As mentioned by the previous researcher, there are a few cross loadings and a few overlapping variables.

**III. CONCLUSION**

Hypothesis testing is not applicable to an exploratory factor analysis (EFA). Factor analysis is a methodology designed to examine a set of variables thought to be related to the domain or domains under study. Both statistical and heuristic methods are used in an EFA. The goal of EFA is to discover covariant relationships among a set of variables that can be reduced into distinct, meaningful factors or components for future analysis. A primary measure of an EFA’s validity is the emergence of a simple, interpretable structure. Shuttle’s Emotional Intelligence scale is widely used by many researchers, to assess the level of Emotional Intelligence among various groups of people. In this research work, “mystery shoppers” being the target respondents are being exposed to the Shuttle’s EI scale which consists 33 item scale constructs representing various factors such as appraisal of own emotions , appraisal of others’ emotions , regulation of own emotions , regulation of others’ emotions, utilization of emotions . After running the EFA for this scale for mystery shopping the results clearly states that, appraisal of own emotions have a very strong association as it has been grouped component matrix and hence it is clear that this variable suits mystery shoppers. Mystery shopper shaves to appraise their own emotions to determine the pros and cons and must take initiatives to balance them in a positive way. The other scale constructs are positive as given in the Shuttle’s EI scale , but are not correlated with each other, Thus it can be concluded that regulation of own emotions and other’s emotions will help the shopper to take precautions measures and to make one self happy and to keep other happy for a better career and life. On the other view utilization of emotions will help the mystery shoppers to think and come out with innovative ideas which are very essential in a mystery shopping profession. Edmund J. Boyle, Henry R. Schwarzbach, Elizabeth A. Cooper<sup>[31]</sup> says that understanding the relative importance of the various EI traits can lead to better screening of new hires and more focused EI training. This paper finds that all EI traits have some relevance for auditors across firm size and management/staff levels, however certain traits are considered much more important than others. This concept relates to mystery shoppers as they are called the spy auditors. On the other hand mystery shoppers determine the level of satisfaction. Adding to this, Joelle F. Majdalani, Bassem E. Maama<sup>[32]</sup> over the past two decades, says that a lot of interest has been given to

the notion of emotional intelligence and its outcome in general, and more specifically, in the academic field. Many studies are linking it to customer satisfaction which is also becoming a prior concern of marketers. **Lyn Murphy**<sup>[33]</sup> says that combined emotional intelligence of team members will influence team task performance and that emotional intelligence can be increased with training. Thus for this profession various factors influence has to be taken care by mystery shoppers.

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