

## **Life-wise Language Learning Textbooks: Construction and Validation of an Emotional Abilities Scale through Rasch Modeling**

**Reza Pishghadam**

*Associate Professor of TEFL, Ferdowsi University, Mashhad, Iran*

**Shima Ghahari**

*Ph.D. Candidate of TEFL, Ferdowsi University, Mashhad, Iran*

**Received: February 5<sup>th</sup>, 2012; accepted: May 15<sup>th</sup>, 2012**

### **Abstract**

Underlying the recently developed notions of applied ELT and life syllabus is the idea that language classes should give precedence to learners' life qualities, for instance emotional intelligence (EI), over and above their language skills. By so doing, ELT is ascribed an autonomous status and ELT classes can lavish their full potentials to the learners. With that in mind, this study aimed to design and validate a scale for appraising the current English language learning textbooks with respect to EI competencies. Having used several psychological models of EI, the authors developed a 44-item scale. The scale was then disseminated to in-service EFL teachers at non-profit language institutes in Iran. Rasch rating scale model was utilized to substantiate the construct validity of the scale. Three items, two representing impulse control and one pertaining to adaptability, misfitted the model, requiring to be pruned. The results also showed that the 6-point Likert scale functioned effectively. The scale is therefore a unidimensional and valid instrument with considerable implications for language teachers, syllabus designers, and materials developers.

**Keywords:** life syllabus, life skills education, emotional abilities (EA) scale, Rasch rating scale model, teachers' perceptions, applied ELT.

## INTRODUCTION

Applied ELT, a new paradigm in second language learning/teaching studies, aims to entitle ELT an autonomous status to contribute to rather than be contributed by other disciplines such as psychology and sociology. Although ELT once emerged out of the findings of theoretical linguistics, it is no more legitimate to consider it as a part of linguistics or any other science now (Pishghadam, 2011). Closely related to the notion of applied ELT is a new type of syllabus called *life syllabus*. Whereas the traditional syllabi focus on different linguistic features to be touched on in ELT classes, life syllabus gives the top priority to life issues rather than language (Pishghadam & Zabihi, 2012).

Of all the life qualities including autonomy, creativity, critical thinking, and reasoning skills, the focus of this paper is on emotional abilities. A rapid surfing on the Internet suffices to see emotional intelligence (EI) included in headings like ‘How to feel better through EI’, ‘How to find a job by fostering EI’, ‘How to take advantage of EI to excel peers and colleagues’, ‘How EI determines your success in life’, ‘How to raise EI to fuel positive change at work, at home, and at school’, ‘How to become a better life and work partner thanks to EI’, and ‘Are you a good person: A cursory look at EI’, among others. There is no denying, therefore, that since its conception, EI has been given equal, if not say more important, weight as a determining individual factor and life quality and that it serves a crucial role in individuals’ social life, societal relationships, personal achievements, leadership, management skills, and educational success (Delavarpour, Soltani, & Hosseinchari, 2008; Grunes, 2011; Shin & Kim, 2007).

A body of research in teacher education has examined teachers' beliefs about different aspects and issues of learning and teaching. Teachers' beliefs constitute what Van Patten (1997) regards as the *micro-level* in teaching, which entails the philosophies teachers hold based on their interests, attitudes, judgments, self-control, personality, and degree of training (Cetina, 2009; Tatto & Coupland, 2003). They are important for understanding and improving educational processes and are closely linked to teachers' practices as well as their strategies for coping with challenges in class.

The research reported here sets out to design and validate a checklist for evaluating the current language learning textbooks with respect to EI competencies. That is to say, an EI scale is developed for assessing, based on teachers' perceptions, the extent to which passages, pictures, and exercises embedded in language textbooks can potentially boost language learners' EI. In what follows, we briefly introduce the theory of applied ELT and then provide a synopsis of the EI concept together with some of its well-known models.

## **LITERATURE REVIEW**

### **Applied ELT and Life Syllabus**

The idea of *life skills education* is directly or indirectly suggested by many scholars in different disciplines. Humanistic psychology supports the idea that education should empower individuals to lead a meaningful and purposeful life by fostering their emotions, relationships, attitudes, thinking styles, and values. Similarly, a number of educational philosophers like Dewey (1897), Freire (1998), Krishnamurti (1981), and Walters (1997) have

emphasized on the importance of life issues in education and stipulated that any educational system must address and meet its educators' life challenges, improve some, not to say all, aspects of their lives, and thereby prepare them for a lifelong learning process. For Noddings (2003) for instance, individual's happiness must be the aim of education; Walker (1999) considers self-determination as the primary goal; Matthews (2006) emphasizes on the improvement of emotional abilities; and still others like Hare (1999) and Winch (1999) prioritize critical thinking and individual's autonomy, respectively. Still another stream of evidence for the importance of life issues is human development paradigm (HDP). The basic tenet of HDP is that through creating an environment in which people can enjoy long, healthy, and creative lives based on a decent standard of living, their choices of what they can be and do are enlarged, their capabilities in various spheres of home and social management, economy, and politics are expanded, and thereby their lives will be enriched and flourished (Pishghadam & Zabihi, in press).

Learning life skills is thus a rewarding practice in that it deals with individuals' life challenges and barriers such as stress, demotivation, depression, burnout, and uncertainty avoidance prior to their educational needs. Life skills are the abilities that enable individuals to deal effectively with the demands of everyday life (WHO, 1999), help them live a successful and satisfying life (Hendricks, 1996) and thereby modify the contributions they make to their society (Spence, 2003). WHO therefore introduces ten key life skills including, (a) decision making, (b) problem solving, (c) creative thinking, (d) critical thinking, (e) effective communication, (f) interpersonal relationship skills, (g) self-awareness, (h)

empathy and understanding, (i) coping with emotions and (j) coping with stress. Therefore, schools seem to be the best places for life skills training or what Behura's (2012) terms as 'life skills intervention', considering their educational environment and the overall purposes they pursue.

In fact, ELT is no exception. Inspired by the above educational and psychological schools of thought, Pishghadam (2011) proposed that ELT, just like psychology, neurology, mathematics, and computer sciences can be considered as having two aspects of theoretical and applied. While underscoring the theoretical aspect of ELT, ELT theorizers and practitioners have disregarded its applied part. Traditionally, ELT has been considered as a sub-branch of applied linguistics, which requires its prescriptions and proscriptions to improve its own status. On the other hand, ELT practitioners and teachers have been merely consumers of the findings of disciplines like linguistics (Pishghadam & Naji, 2012). Today, however, the trend has changed: ELT theorizers and practitioners are no more consumptive but autonomous. "Now it is time for them to play a producer role" and for the applied ELT to take "a more contributory role". (Pishghadam, 2011, pp. 9-11).

Applied ELT has been operationalized in some sample studies. Pishghadam (2008) for instance, suggested that literary discussion in ELT classes can enhance the critical thinking abilities of the learners. Similarly, Khazaifar, Pishghadam, and Ziai (2011) indicated that English language reading materials could be designed to improve critical abilities. In another study, Pishghadam and Saboori (2011) showed that those English language teachers in Iran who held positive attitudes towards the American culture and used to act native-like tended to alienate students from their own home

culture. The study, in fact, supported the pivotal role language teachers play in fostering national identity of the learners.

Another significant aspect of applied ELT is that it goes beyond the typical linguistic syllabus considering life issues as against linguistic matters as its first priority. This new syllabus is dubbed as *life syllabus*. Current syllabuses design involves selecting and sequencing linguistic features varying from grammar and vocabulary (i.e. structural syllabus), notions and functions (i.e. notional-functional syllabus), and tasks (i.e. procedural syllabus and task-based method). These approaches, however, have numerously been questioned for failing to address learners' actual communicative needs and to wrongly view second language learning as a linear process (Baleghizadeh, 2008). This new syllabus, however, is more educationally oriented and revolves more around the most significant life issues. Unlike other subjects, ELT classes have an atmosphere in which lots of human abilities can be nurtured in addition to language learning. They are unique since they allow for a) discussion of a large number of social, scientific, and political topics, b) pair-works and group-works, c) cross-comparisons of different cultures, d) teaching words and grammar of another language, e) expression of one's real self through speaking in another language, and f) a funny friendly atmosphere for learning (Pishghadam, 2011; Pishghadam, Zabihi & Norouz Kermanshahi, 2012). These unique features characterize ELT classes as settings wherein language teachers can first reinforce learners' motivation, critical thinking, creativity, intuition, and emotional intelligence, among other life qualities, and then to teach a language.

## **Emotional Intelligence and its Models**

Emotional quotient (EQ) or EI represents an understanding of one's own and others' emotions, and acting in the most appropriate way based on that understanding (Goleman, 2001; Mayer & Salovey, 1997). Later, Bar-On (2002) furthered the concept by defining it as the ability to understand oneself and others, adapt to and cope with the immediate surroundings to be more successful in dealing with environmental demands. Although IQ tests are good predictors of academic achievement in schools, they do not measure many of the qualities necessary for achievement in the world of work, such as persistence, self-confidence, motivation, and interpersonal skills, and the ability to set priorities and to allocate one's time and effort efficiently. Moreover, whereas IQ is stable and fixed throughout life, EI seems to be dynamic and always to continue to develop as people learn from experience and, therefore, lends itself well to longitudinal training programs (Cherniss, Extein, Goleman & Weissberg, 2006; Grewal & Salovey, 2005).

To date, a good number of research studies on EI have dealt with it in relation to leadership, personality, and alexithymia (i.e. a state of deficiency in understanding, processing, or describing emotions) (e.g. Antonakis, 2003; Collins, 2001; Day & Carroll, 2004; Goleman, Boyatzis & McKee, 2002; Judge, Colbert & Hies, 2004; Rangriz & Mehrabi, 2010; Schulte, Ree & Carretta, 2004). Apart from them, however, a body of research has revealed that EI has a momentous impact on various parts of everyday living (Stys & Brown, 2004). Higher EI has been found to be a predictor of life satisfaction (e.g., Palmer, Donaldson & Stough, 2002), of adaptive defense style and healthy psychological adaptation (e.g., Pellitteri, 2002), of attending to health and appearance and successful work and

kinship relationships (e.g., Brackett, Mayer & Warner, 2004), of parental warmth and attachment style (e.g., Mayer, Caruso & Salovey, 1999), of positive interpersonal relationships among children, adolescents, and adults (e.g., Rice, 1999; Rubin, 1999), of lower tendency to illegal drugs and alcohol, and decreased participation in deviant behavior (e.g., Trinidad & Johnson, 2002).

A set of models including Mayer and Salovey's (1997) Ability Model, Goleman's (1998) Mixed Model, Bar-On's (2002) Mixed Model, the Levels of Emotional Awareness Scale (LEAS) Model, and the Self-Report Emotional Intelligence Test (SREIT) Model have been proposed. And many programs such as Mastering Emotional Intelligence (MEI) and Emotional Competence Training (ECT) have been developed in an effort to highlight and improve the individuals' EI in organizations. These all suggest the momentous function EI serves in people's everyday lives in different settings. A brief overview of the first three models will follow.

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) is an ability-based test guided by three major principles: a) emotions are vital for one's success, b) emotional skills vary in different individuals, and that c) these emotional skills can be objectively measured. The model therefore covers four branches of EI defined by Salovey and Mayer (1990). The first branch is *perceiving emotions*, which is reflected in an individual's ability to perceive one's and others' emotions. The second one is *facilitating thought*, suggesting one's capability to effectively use their emotions in communicating feelings as well as in other cognitive processes. Thirdly is the ability to *understand emotions*, which enables one to understand their emotional information and the way their emotions develop through

relationship transitions. The fourth EI branch is *managing emotions*, which enables an individual to be open to feelings and modulate them so as to promote personal growth (Mayer, Salovey & Caruso, 2002).

Goleman's Emotional Competence Inventory (ECI) was designed to assess the emotional and social competencies of individuals in organizations. The model revolves around four components with a total of 18 competencies. The first EI component is *self-awareness* (i.e. awareness of one's internal states, potentials, and resources) with three competencies of emotional awareness, self-confidence, and accurate self-assessment. The second one is *self-management* (i.e. managing one's impulses and resources) with six competencies of emotional self-control, transparency, adaptability, achievement, initiative, and optimism. Thirdly is social awareness (i.e. awareness of others' needs and feelings and communicating with them accordingly) with three competencies of empathy, organizational awareness, service orientation. Finally, is *relationship management* (i.e. behaving appropriately with others and impressing them in a desirable way) with six subsections of developing others, inspirational leadership, change catalyst, influence, conflict management, as well as teamwork and collaboration (Goleman, 1998; Wolff, 2006).

Bar-On's Emotional Quotient Inventory (EQ-i) is the third model which served as the framework for the present study. The model was the first measure of its kind to be published by a psychological test publisher and the most widely used estimate of emotional-social intelligence to date (Bar-On, 2006). The model is a self-report inventory composed of five meta-factors, each with its own subcomponents (See Appendix A for the constituting components of the model).

## **PURPOSE OF THE STUDY**

Today, there is no doubt that success is far more than a high general intelligence test score and depends largely on a set of emotional and social competencies that builds on emotional intelligence. Individuals need to understand themselves and others, adapt to and cope with the immediate surroundings if they aim to be successful in dealing with environmental demands (Bar-On, 2002). Given the undeniable significance of EI in all aspects of individuals' lives, the present research set out to design an EI scale to assess how much the verbal and nonverbal (i.e. pictorial) contents of the language learning textbooks currently available and taught at language institutes can improve language learners' EI competencies. To this end, the following purposes were pursued:

1. Designing an EI scale for appraising English language learning textbooks, and
2. Assessing if the EI scale is entitled to psychometric properties.

## **METHOD**

### **Participants**

A total of 101 in-service EFL teachers at 18 non-profit language institutes accepted to participate in the main study. They were from four cities in Iran including nine institutes in Kerman, four in Tehran, three in Mashhad, and two in Isfahan. They were initially required to answer demographic questions related to their age, gender, teaching experience, field of study, university degree, and the language textbook they were going to evaluate. The teachers comprised 61 females (60.4%) and 40 males (39.6%) aged

between 19 and 56 (mean = 27.89). Ninety out of 101 participants (89.1%) were studying or majored in English language related fields including English language teaching, translation, and literature and the rest (10.1%) had majored in other fields of study. Sixty six teachers had B.A. (65.3%), 23 had M.A. (22.8%), and 12 of them were Ph.D. holders (11.9%). Their teaching experience ranged from 1 up to 25 years (mean = 5.46). Thirty five teachers evaluated Interchange Series (34.7%), 31 of them Top Notch (30.7%), 11 American English Files (10.9%), 11 Hip Hip Hooray (10.9%), 6 True Colors (5.9%), 3 The New Cutting Edge (3%), 2 Backpack (2%), 1 True to Life (1.0%), and 1 Spectrum Series (1%). The descriptive statistics for the participants is summarized in Table 1 below.

**Table 1:** Descriptive statistics for the participants

| Sex    | Age | Major        | Degree | Teaching Experience | English Textbooks |       |     |                    |    |                        |     |
|--------|-----|--------------|--------|---------------------|-------------------|-------|-----|--------------------|----|------------------------|-----|
| Male   | 40  | Below Twenty | 2      | ELT                 | 90                | B.A.  | 66  | Less than 2 years  | 26 | Interchange            | 35  |
|        |     | Twenties     | 65     | Others              | 11                | M.A.  | 23  | 3-5 years          | 32 |                        |     |
| Female | 61  | Thirties     | 31     |                     |                   | Ph.D. | 12  | 6-9 years          | 28 | Top Notch              | 31  |
|        |     | Forties      | 2      |                     |                   |       |     | More than 10 years | 13 | American English Files | 11  |
|        |     | Fifties      | 1      |                     |                   |       |     |                    |    | Hip Hip Hooray         | 11  |
|        |     |              |        |                     |                   |       |     |                    |    | True Colors            | 6   |
|        |     |              |        |                     |                   |       |     |                    |    | Cutting Edge           | 3   |
|        |     |              |        |                     |                   |       |     |                    |    | Backpack               | 2   |
|        |     |              |        |                     |                   |       |     |                    |    | True to Life           | 1   |
|        |     |              |        |                     |                   |       |     |                    |    | Spectrum               | 1   |
| Total  | 101 |              | 101    |                     | 101               |       | 101 |                    | 99 |                        | 101 |

## **Instrumentation**

### ***The Original Version***

Three of the most notable EI models, which were briefly elucidated above, were opted to serve as the guideline for the present study. The models include Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), Goleman's Emotional Competence Inventory (ECI), and Bar-On's Emotional Quotient Inventory (EQ-i). Overall, what the three models have in common is a focus on a number of emotional and social competencies including the ability a) to perceive and express oneself, b) to communicate appropriately with others, and c) to adapt to change and solve problems effectively (Bar-On, 2002) (See Appendix A for the building blocks of Bar-On's model as the most widely used measure of EI).

### ***The Modified Version (Construction Phase)***

Based on the EI psychological models discussed above, an Emotional Abilities Scale for English Language Learning Textbooks (EAS-ELLT) was devised for the purpose of the study. The EAS-ELLT construction phase proceeded in six major stages over a period of 10 months from October 2011 to July 2012. In what follows, the steps taken by the researchers to design the scale are outlined: 1) Providing a list of EI constructs and sub-constructs common across the three models, 2) Providing a list of English language textbooks most commonly taught at language institutes in Iran, 3) Determining the competencies in the psychological models which best match those required for language learning, 4) Designing a 67-item scale and employing a 5-point response scale ranging from 'strongly agree' to 'strongly disagree' with 'undecided' as the middle category, 5) Shortening

the test to 44 items in the form of short sentences and using a 6-point Likert scale with a textual response format replacing the 'undecided' category with 'slightly agree' and 'moderately agree' (See Appendix B).

## **Data Collection Procedure (Validation Phase)**

### ***Pilot Study***

The final version of the test was piloted with a sample of EFL teachers. One of the participants had been teaching English language in Iran before she lived to New Zealand and one was at the time an English teacher in Malaysia. The other three teachers resided in Iran. They were all females ranging from 26 to 29 years of age. They all held B.A. in English language and had four up to eight years of teaching experience. Four of them evaluated the Top Notch Series and one the American English Files.

### ***Main Study***

The electronic and print versions of the EAS-ELLT were administered to 101 EFL teachers to do them within 30 minutes. Clear instructions were provided to them as to how to complete the test. The teachers were asked to accurately determine to what extent the passages, exercises, and pictures of the language textbook they were going to evaluate could help improve each of the given capabilities, and then mark the respective item. In order not to arouse teachers' biases, negatively or otherwise, no mention of the word EI was made in the instructions.

## Data Analysis

Andrich's (1978) Rasch model, as implemented in Winsteps version 3.66, was used for data analysis. The entire dataset with 44 items and 101 persons was subjected to Rasch analysis to evaluate the fit of data to the model and assess the unidimensionality of the EAS-ELLT. If these tests are satisfied and the assumptions held, EAS-ELLT is a unidimensional Rasch scale and persons and items can be located on an interval scale.

## RESULTS

In order to substantiate the construct validity of the scale, dimensionality and fit statistics for the items as well as category functioning were studied.

### Dimensionality and Fit Statistics

The analysis of the 44 items yielded an item separation index of 2.46 with an item reliability of 0.86 (Table 2), and a person separation index of 3.20 (Table 3) with a person reliability of 0.89.

**Table 2:** Summary of 44 measured item

|                        | TOTAL<br>SCORE | COUNT   | MEASURE | MODEL<br>ERROR     | INFIT            |      | OUTFIT |      |
|------------------------|----------------|---------|---------|--------------------|------------------|------|--------|------|
|                        |                |         |         |                    | MNSQ             | ZSTD | MNSQ   | ZSTD |
| MEAN                   | 462.0          | 95.8    | .00     | .13                | .99              | -.1  | 1.00   | -.1  |
| S.D.                   | 30.9           | 2.8     | .34     | .01                | .24              | 1.6  | .26    | 1.7  |
| MAX.                   | 507.0          | 100.0   | 1.09    | .14                | 1.80             | 4.5  | 2.02   | 5.5  |
| MIN.                   | 343.0          | 86.0    | -.59    | .11                | .60              | -3.1 | .61    | -3.0 |
| REAL RMSE              | .13            | TRUE SD | .31     | SEPARATION<br>2.35 | ITEM RELIABILITY |      | .85    |      |
| MODEL RMSE             | .13            | TRUE SD | .32     | SEPARATION<br>2.46 | ITEM RELIABILITY |      | .86    |      |
| S.E. OF ITEM MEAN= .05 |                |         |         |                    |                  |      |        |      |

Item measures ranged from -0.59 (i.e. "helping learners hold positive feelings towards a second language/culture") to 1.9 (i.e. " helping learners avoid developing unrealistic thoughts and wishes") logits. The root mean square error (RMSE) is 0.21 for items and is 0.32 for persons, suggesting an accurate measurement. Several items, however, did not fit with model expectations.

**Table 3:** Summary of 101 measured person

|                          | TOTAL<br>SCORE | COUNT   | MEASURE | MODEL<br>ERROR     | INFIT            |      | OUTFIT |      |
|--------------------------|----------------|---------|---------|--------------------|------------------|------|--------|------|
|                          |                |         |         |                    | MNSQ             | ZSTD | MNSQ   | ZSTD |
| MEAN                     | 201.3          | 41.7    | 1.54    | .20                | 1.01             | -.2  | 1.00   | -.2  |
| S.D.                     | 20.6           | 2.4     | .67     | .03                | .47              | 1.9  | .44    | 1.9  |
| MAX.                     | 251.0          | 44.0    | 3.50    | .31                | 3.02             | 5.9  | 2.79   | 5.9  |
| MIN.                     | 127.0          | 31.0    | -.65    | .15                | .20              | -5.8 | .21    | -5.8 |
| REAL RMSE                | .22            | TRUE SD | .64     | SEPARATION<br>2.91 | ITEM RELIABILITY |      | .89    |      |
| MODEL RMSE               | .20            | TRUE SD | .64     | SEPARATION<br>3.20 | ITEM RELIABILITY |      | .91    |      |
| S.E. OF PERSON MEAN= .07 |                |         |         |                    |                  |      |        |      |

As far as item and fit statistics are concerned, three items misfit the model since their fit indices were higher than 1.4 (Appendix C). These items, in descending order of infit mean square (MNSQ) index include items 3, 8, and 5. According to Linacre (2009), misfit items with fit indices smaller than 0.6 prove overfit; they suggest predictability or redundancy, yet, do not contaminate the construct validity of the scale. By contrast, items having infit MNSQ greater than 1.4 deviate from the expected model and degrade the analysis. While the major assumption underlying construct validity is the idea that all the items are operationalization of a single

underlying construct (Pishghadam, Baghaei, Shams & Shamsaee, 2011), such items do not measure a single underlying construct uniformly and therefore contribute to multidimensionality.

The worst fitting item is *Item 3* ("helping learners have their feelings under control") with infit mean square of 1.80. The second item with the worst fit index is *Item 8* ("helping learners avoid developing unrealistic thoughts and wishes") with the fit index of 1.51. *Item 5* ("helping learners get familiar with the ways to reduce or manage stress") with the index of 1.46 is the third worst fitting item. These items are indicators of multidimensionality and therefore the scale is not unidimensional unless the misfitting items are pruned.

The items-persons map in Figure 1 indicates that the construct represented by the items is well covered by the scale. As the figure suggests, items are spread all over the scale which implies that they cover a wide range of the EAS-ELLT constructs. Moreover, the majority of the thresholds have clustered towards the centre of the scale, which indicates that the scale is a precise measurement of the construct and well-targeted for the sample.

### **Category Functioning and Rating Scale Statistics**

Category label refers to the label given to each category (e.g. moderately agree, slightly agree) and *observed count* shows the number of times each category is rated (Pishghadam, Baghaei, & Shayesteh, 2012). As suggested by the rating scale statistics in Table 4, the scale functions properly since the observed averages increase with the category scores.

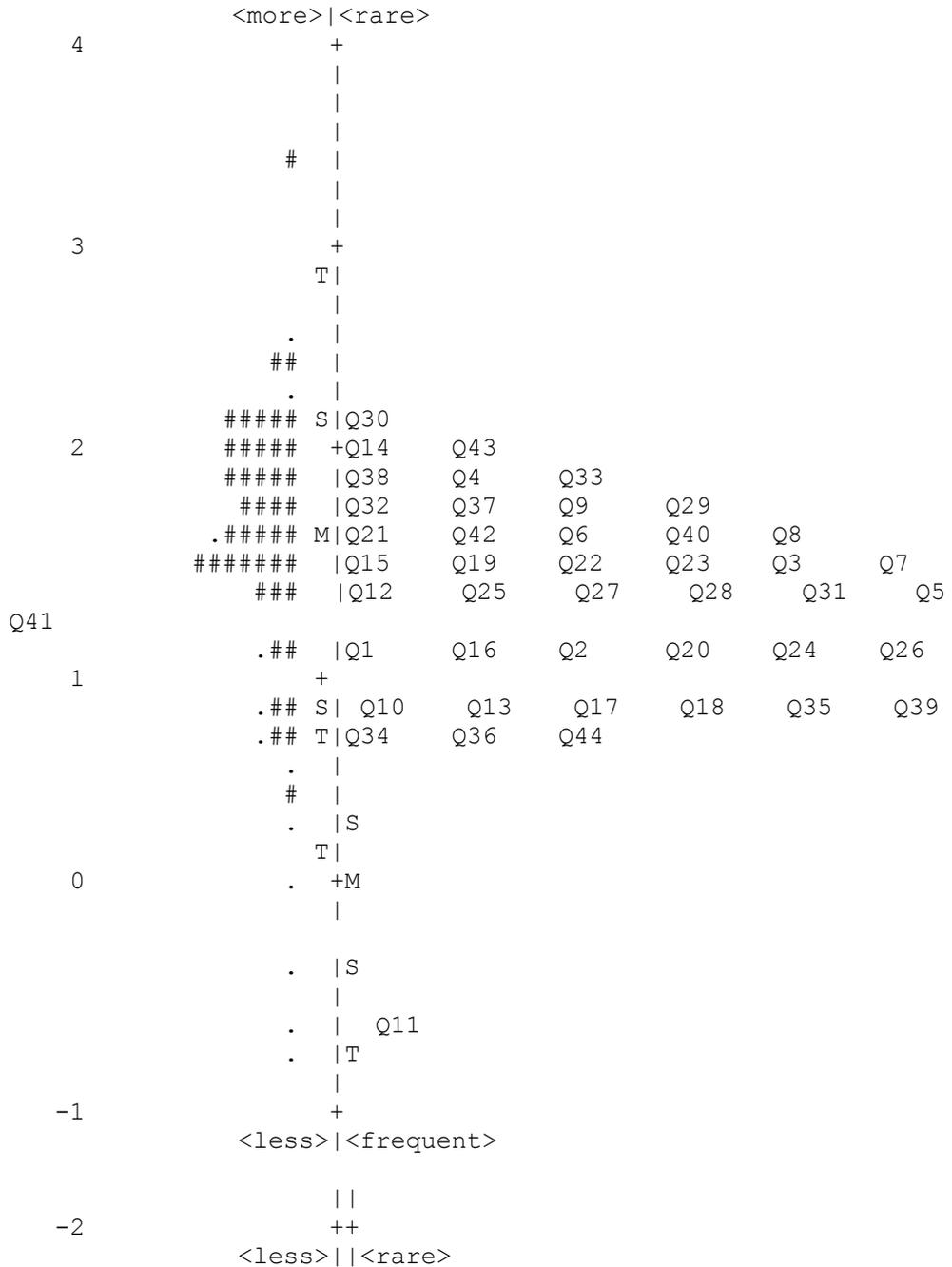


Figure 1: Items-persons map

**Table 4:** Rating scale statistics

| CATEGORY |       | OBSERVED |    | OBSVD<br>AVRGE | SAMPLE<br>EXPECT | INFIT MNSQ | OUTFIT MNSQ | ANDRICH<br>THRESHOLD | CATEGORY<br>MEASURE |   |
|----------|-------|----------|----|----------------|------------------|------------|-------------|----------------------|---------------------|---|
| LABEL    | SCORE | COUNT    | %  |                |                  |            |             |                      |                     |   |
| 1        | 1     | 12       | 0  | .39            | -.46             | 1.78       | 1.95        | NONE                 | (-3.31)             | 1 |
| 2        | 2     | 75       | 2  | .26*           | .09              | 1.17       | 1.33        | -2.01                | -1.76               | 2 |
| 3        | 3     | 269      | 6  | .56            | .72              | .88        | .86         | -.87                 | -.60                | 3 |
| 4        | 4     | 972      | 23 | 1.24           | 1.24             | 1.00       | 1.01        | -.30                 | .38                 | 4 |
| 5        | 5     | 1844     | 44 | 1.63           | 1.63             | .87        | .86         | .80                  | 1.72                | 5 |
| 6        | 6     | 1042     | 25 | 1.99           | 1.98             | 1.02       | 1.01        | 2.38                 | (3.61)              | 6 |
| MISSING  |       | 230      | 5  | 1.60           |                  |            |             |                      |                     |   |

Structure calibration or "Rasch-Andrich" thresholds represent the estimated distinctiveness of each category. They show the adequacy of the number of categories on a Likert scale: The number of categories should be neither too small nor too large; they must be enough both to cover a wide range of options and avoid data loss and to be distinguishable from other categories. According to Linacre (1999), the distance between the thresholds should range from a minimum of 1.4 logits to a maximum of 5 logits. Moreover, in the threshold perspective, positive values suggest that the lower category of the two adjacent categories is more likely to be observed, while negative values assume the higher category to be more probably rated.

On the whole, as can be seen in Figure 2, the rating scale categories are appropriate since category measures and observed averages increase in accord with category values. Furthermore, the thresholds and the MNSQ indices fall into their acceptable range of 1.4 to 5 and 0.6 to 1.4, respectively.

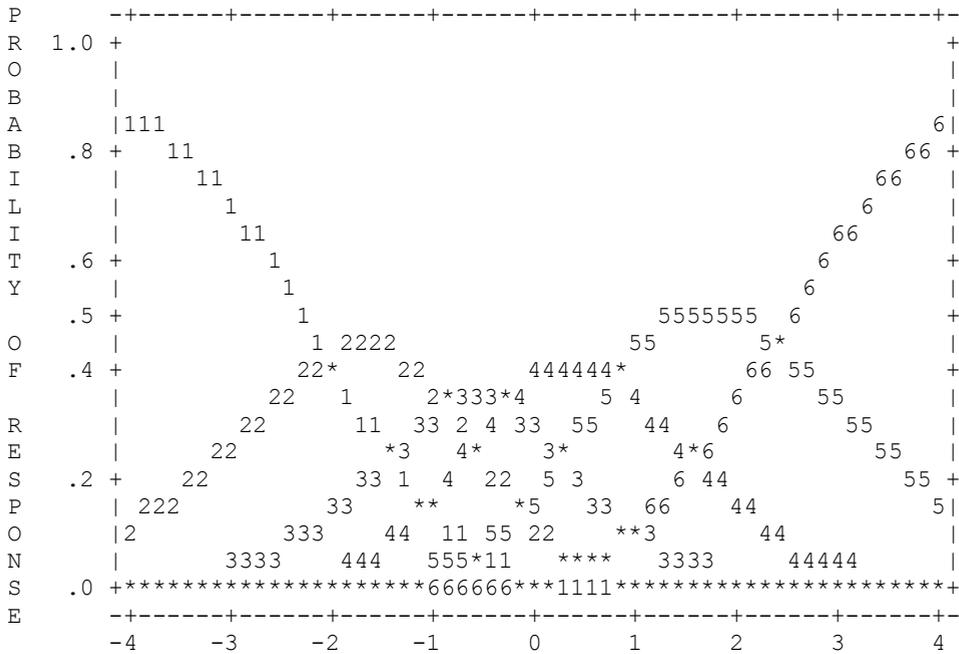


Figure 2: Category curves

## DISCUSSION

The study set out to design and subsequently validate a scale for appraising English language learning textbooks with respect to EFL learners' EI competencies. For the construction module, the most common psychological measures served as the role model based on which a 44-item checklist was designed and piloted. For the validation phase, the data collected from in-service EFL teachers were inputted into and analyzed through Rasch model software.

Rasch analysis suggested that three out of 44 items misfitted the model and contributed to the multidimensionality of the scale. The misfitting items were either irrelevant to the construct or failed to add further information to the scale. They included Item 3 ("helping learners have their feelings under

control"), Item 8 ("helping learners avoid developing unrealistic thoughts and wishes"), and Item 5 ("helping learners get familiar with the ways to reduce or manage stress"). Accordingly, Items 3 and 5 are associated with *stress management*, and Item 8 with *adaptability* meta-factor. The *stress management* meta-factor with its two subcomponents of stress tolerance and impulse control has further been captured in items 4 ("helping learners reduce their stress"), 28 ("helping learners control their anxiety when facing unknown situations"), and 30 ("helping learners develop patience in their social interactions"). Likewise, the *adaptability* meta-factor with its reality testing, flexibility, and problem solving competencies is reflected in items 6 ("helping learners deal with upsetting problems"), 7 ("arousing learners' creativity in the tasks they do"), 14 ("helping learners avoid ego-centeredness"), 15 ("helping learners get familiar with the ways to deal with tough situations"), 19 ("helping learners get familiar with the ways they can solve problems effectively"), 25 ("helping learners adjust to new situations"), 32 ("helping learners change their old habits which are no more working, and develop new ones"), as well as items 40 ("helping learners try new things and new ways of doing things"), 42 ("helping learners plan ahead for the future"), and 43 ("helping learners plan ahead for their future learning"). Consequently, while the Likert scale remains intact, it is suggested that these three misfitting items be eliminated safely in order to both increase the feasibility of the scale and shorten its length.

Though clear-cut distinctions cannot be easily made among the different components of EI, attempt was made to circumspectly cover them all in these items. Apart from the two meta-factors stated above, the *intrapersonal* component with its self-regard, self-actualization,

assertiveness, independence, and self-awareness subcomponents is covered in items 1, 2, 9, 13, 16, 21, 31, 36, and 38. These items, therefore, are commonly associated with the extent to which one can understand their emotions, know their potentialities, and communicate their feelings and needs to others through, for example, behaving assertively or acting independently. Items 10, 12, 18, 24, 26, 29, 37, and 39 represent the *interpersonal* meta-factor with empathy, social responsibility, and interpersonal relationship as its constituents. Thus they elicit information as to how much people can understand others and their feelings and with the extent to which they can establish mutually satisfying relationships in social groups. Finally, items 11, 17, 20, 22, 23, 27, 33, 34, 35, 41, and 44 typify the *general mood* component with two optimism and happiness subsections. The items have in common their concern for how much one can have a positive outlook and feel content with themselves, others and life in general.

To sum up, then, the inventory proves to be unidimensional for estimating the emotional and social load of language textbooks. The six-point Likert scale functioned effectively in that all the categories were roughly equally and appropriately distributed along the scale.

## **CONCLUSION AND IMPLICATIONS**

Our findings support a valid measure of the language textbooks' potential for enhancing emotional abilities of learners. The study was meant to arouse teachers' consciousness of life skills education by pursuing their beliefs and evaluations about the EI competencies load of language textbooks. EI is among the life skills which can serve a momentous function in people's lives in different settings. The line of inquiry, however, must not be limited

to a single skill. Other life issues such as creativity, critical thinking ability, cultural awareness, and thinking ability can be examined in further studies. Furthermore, the study lends itself well to a mixed method research design in that qualitative methods such as face-to-face interviewing can also be incorporated into the study. There is no denying that such a triangulation of techniques can maximize the credibility and validity of the results. But perhaps the most intriguing area of research is to run an Exploratory Factor Analysis (EFA) by means of the Structural Equation Modeling (SEM) in order to unravel the latent factors underlying the scale.

Overall, in the light of what was mentioned above, the present study can have a set of pedagogical implications for language teachers, materials developers, and syllabus designers, which are as follows:

- 1) EI is a leading individualistic quality and has gained much popularity since its advent thanks to the contribution of its constituting competencies to one's everyday life. The scale here can raise teachers' consciousness of the significance of EI in education and draw their attention to the uniqueness of ELT classes which allow for nurturing such a psychological concept,
- 2) Life syllabus is missioned to tackle with the psychological barriers of learners and foster their life qualities via language learning. The study can help language teachers become cognizant of other non-language benefits of their language teaching classes and of the part they can play to emphasize on and improve these aspects within learners,
- 3) Syllabus designers can shift their focal attention from language learning to life issues and use the scale for designing new *life-and-language*

- syllabuses wherein language is at the service of enhancing life skills as opposed to those which are targeted at language learning purposes only,
- 4) Materials developers can also take advantage of the scale to assess and/or improve the quality of language materials and course books with an eye to learners' EI capabilities,
  - 5) Language teachers are encouraged to evaluate and juxtapose the current textbooks and get a clear idea of which of them can contribute more to the emotional and social abilities of their learners, and finally
  - 6) This life-skill training approach in general and the scale in particular are of dramatic movements towards localizing ELT books in Iran.

## Bio-data

**Reza Pishghadam** is associate professor of TEFL in the English faculty of Ferdowsi University of Mashhad, Iran. Over the last five years, he has published more than 120 articles and books in different domains of English language education, and has participated in more than 20 national and international conferences. In 2007, he was selected to become a member of the National Association of Elites of Iran. In 2010, he was classified as the distinguished researcher in humanities in Iran.

**Shima Ghahari** is a Ph.D. candidate of TEFL at Ferdowsi University of Mashhad. Her major research interest is psychology and sociology of language education as well as cultural studies.

## References

- Andrich, D. (1978). Application of a psychometric rating model to ordered categories which are scored with successive integers. *Applied Psychological Measurement*, 2, 581-594.
- Antonakis, J. (2003). Why emotional intelligence does not predict leadership effectiveness: A comment on Prati, Douglas, Ferris, Ammeter, and Buckley. *The International Journal of Organizational Analysis*, 11, 355-361.

- Baleghizadeh, S. (2008). Task-supported structural syllabus. *Journal of Curriculum Studies*, 3, 8-22.
- Bar-On, R. (2002). *Bar-On emotional quotient inventory (EQ-I): Technical manual*. Toronto, Canada: Multi-Health Systems.
- Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema*, 18, 13-25.
- Behura, S. (2012). A review on life skills education in schools. *Elixir Psychology*, 43, 6790-6794.
- Brackett, M. A., Mayer, J. D., & Warner, R. M. (2004). Emotional intelligence and the prediction of everyday behavior. *Personality and Individual Differences*, 36, 1387-1402.
- Cetina, M. N. (2009). Teachers beliefs, types of knowledge, attitudes and motivation as determinant constituents in teacher training. The current state of the art in EFL teaching in México: A case study in Quintana Roo. Proceeding of Memorias del V Foro de Estudios en Lenguas Internacional (pp. 659-673).
- Cherniss, C., Extein, M., Goleman, D., & Weissberg, R. (2006). Emotional intelligence: What does the research really indicate? *Educational Psychologist*, 41, 239-245.
- Collins, V. L. (2001). *Emotional intelligence and leadership success*. Unpublished doctoral dissertation. University of Nebraska: Lincoln, NE.
- Day, A. L., & Carroll, S. A. (2004). Using an ability-based measure of emotional intelligence to predict individual performance, group performance, and group citizenship behaviors. *Personality and Individual Differences*, 36, 1443-1458.
- Delavarpour, M., Soltani, M., & Hosseinchari, M. (2008). Prediction of recovery or relapse from substance abuse based on the emotional intelligence and religious coping. *Iranian Journal of Psychiatry and Clinical Psychology*, 14, 307-315.
- Dewey, J. (1897). My pedagogic creed. *The School Journal*, 54, 77-80.
- Freire, P. (1998). *Pedagogy of freedom: Ethics, democracy, and civic courage*. Lanham, Maryland: Rowman & Littlefield Publishers, Inc.
- Goleman, D. (1998). *Working with emotional intelligence*. London: Bloomsbury Publishing.
- Goleman, D. (2001). Emotional intelligence: Issues in paradigm building. In C. Cherniss & D. Goleman (Eds.), *The emotionally intelligence workplace* (pp. 13-26). San Francisco, CA: Jossey-Bass.

- Goleman, D., Boyatzis, R., & McKee, A. (2002). *Primal leadership: Realizing the power of emotional intelligence*. Boston, MA: Harvard Business School Press.
- Grewal, D., & Salovey, P. (2005). Feeling smart: The science of emotional intelligence. *American Scientist*, 93, 330-340.
- Grunes, P. (2011). *An examination of the relationship between emotional intelligence, leadership style and perceived leadership outcomes in Australian educational institutes*. Unpublished doctoral dissertation. Australia: Queensland University of Technology.
- Hare, W. (1999). Critical thinking as an aim of education. In R. Marples (Ed.), *The aims of education* (pp. 85-98). London: Routledge.
- Hendricks, P. A. (1996). *Developing youth curriculum using the targeting life skills model*. Ames, Iowa: Iowa State University Extension.
- Judge, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: A quantitative review and test of theoretical propositions. *Journal of Applied Psychology*, 89, 542-552.
- Khazaifar, A., Pishghadam, R., & Ziai, S. (2011). Ahamiayte tafakore enteghadi dar khandan [The significance of critical thinking in reading skill]. *Farhangestan Letter*, 12, 19-37.
- Krishnamurti, J. (1981). *Education and the significance of life*. New York, NY: Harper Collins College Publishers.
- Linacre, J. M. (1999). Investigating rating scale category utility. *Journal of Outcome Measurement*, 3, 103-122.
- Linacre, J. M. (2009). *A user's guide to WINSTEPS/MINISTEPS: Rasch-model computer programs*. Chicago, IL: MESA Press.
- Matthews, B. (2006). *Engaging education: Developing emotional literacy, equity, and co-education*. Buckingham, UK: Open University Press.
- Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets standards for traditional intelligence. *Intelligence*, 27, 267-298.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Implications for education* (pp. 3-31). New York, NY: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *Mayer-Salovey-Caruso emotional intelligence test manual*. Toronto, Ontario, Canada: Multi-Health Systems.
- Noddings, N. (2003). *Happiness and education*. Cambridge: Cambridge University Press.

- Palmer, B., Donaldson, C., & Stough, C. (2002). Emotional intelligence and life satisfaction. *Personality and Individual Differences*, 33, 1091-1100.
- Pellitteri, J. (2002). The relationship between emotional intelligence and ego defense mechanism. *Journal of Psychology*, 136, 182-194.
- Pishghadam, R. (2008). Afzayeshe tafakore enteghadi az tarighe mobahesye adabi [Increasing critical thinking via literary discussion]. *Journal of Literature*, 48, 153-167.
- Pishghadam, R. (2011). Introducing applied ELT as a new approach in second/foreign language studies. *Iranian EFL Journal*, 7, 8-14.
- Pishghadam, R., Baghaei, P., Shams, M. A., & Shamsaei, S. (2011). Construction and validation of a narrative intelligence scale with the Rasch rating scale model. *The International Journal of Educational and Psychological Assessment*, 8, 75-90.
- Pishghadam, R., Baghaei, P., & Shayesteh, S. (2012). Construction and validation of an English language teacher creativity scale (ELT-CS). *Journal of American Science*, 8, 497-508.
- Pishghadam, R., & Naji, E. (2012). Applied ELT as a panacea for linguistic imperialism. *Iranian EFL Journal*, 8, 35-52.
- Pishghadam, R., & Saboori, F. (2011). A qualitative analysis of ELT in the language institutes of Iran in the light of the theory of World Englishes. *Journal of Language Teaching and Research*, 2, 569-579.
- Pishghadam, R., & Zabihi, R. (2012). Life syllabus: A new research agenda in English language teaching. *TESOL Arabia Perspectives*, 19, 23-27.
- Pishghadam, R., & Zabihi, R. (in press). Introducing and exemplifying English for life purposes (ELP) as a new concept in English language teaching. *Humanising Language Teaching*.
- Pishghadam, R., Zabihi, R., & Norouz Kermanshahi, P. (2012). Educational language teaching: A new movement beyond reflective/critical teaching. *Life Science Journal*, 9, 892-899.
- Rangriz, H., & Mehrabi, J. (2010). The relationship between emotional intelligence, organizational commitment and employees' performance in Iran. *International Journal of Business and Management*, 5, 50-56.
- Rice, C. L. (1999). *A quantitative study of emotional intelligence and its impact on team performance*. Unpublished master's thesis, Pepperdine University, Malibu, CA, US.

- Rubin, M. M. (1999). *Emotional intelligence and its role in mitigating aggression: A correlational study of the relationship between emotional intelligence and aggression in urban adolescents*. Unpublished doctoral dissertation, Immaculata College, Pennsylvania, US.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9(3), 185-211.
- Schulte, M. J., Ree, M. J., & Carretta, T. R. (2004). Emotional intelligence: Not much more than 'g' and personality. *Personality and Individual Differences*, 37, 1059-1068.
- Shin, J., & Kim, Y. J. (2007). The effects of emotional intelligence and emotion regulation on subjective well-being. Poster presentation at the 19th Annual Convention of the Association for Psychological Science, Washington, USA.
- Spence, S. H. (2003). Social skills training with children and young people: Theory, evidence and practice. *Child and Adolescent Mental Health*, 8, 84-96.
- Stys, Y., & Brown, S. L. (2004). *A review of the emotional intelligence literature and implications for corrections*. West Ottawa, Ontario: Research Branch.
- Tatto, M. T., & Coupland, D. B. (2003). Teacher education and teacher's beliefs: Theoretical and measurement concerns. In J. Raths (Ed.), *Teacher beliefs and classroom performance: The impact of teacher education* (pp. 123-184). Greenwich, CT: Information Age Publishing.
- Trinidad, D. R., & Johnson, C. A. (2002). The association between emotional intelligence and early adolescent tobacco and alcohol use. *Personality and Individual Differences*, 32, 95-105.
- Van Patten, B. (1997). How language teaching is constructed: Introduction to the special issue. *The Modern Language Journal*, 81, 1-5.
- Walker, J. C. (1999). Self-determination as an educational aim. In R. Marples (Ed.), *The aims of education*. London: Routledge.
- Walters, J. D. (1997). *Education for life: Preparing children to meet the challenges*. Nevada, CA: Crystal Clarity Publishers.
- WHO (1999). *Partners in life skills education: Conclusions from a United Nations inter-agency meeting*. Geneva: Department of Mental Health, Social Change and Mental Health Cluster, WHO.
- Winch, C. (1999). Autonomy as an educational aim. In R. Marples (Ed.), *The aims of education* (pp. 74-84). London: Routledge.

Wolff, S. B. (2006). *Emotional competence inventory (ECI) technical manual*. Hay Group: McClelland Center for Research and Innovation.

## Appendix A

### A Sample of Psychological EI Meta-factors and Competencies (Bar-On, 2006)

| EI Meta-factors            | EI Competencies and Skills  |
|----------------------------|---|
| Intrapersonal              | Self-awareness and self-expression:   |
| Self-Regard                | <i>To accurately perceive, understand and accept oneself</i>                      |
| Self-Awareness             | <i>To be aware of and understand one's emotions</i>                               |
| Assertiveness              | <i>To effectively and constructively express one's emotions and oneself</i>       |
| Independence               | <i>To be self-reliant and free of emotional dependency on others</i>              |
| Self-Actualization         | <i>To strive to achieve personal goals and actualize one's potential</i>          |
|                            |   |
| Interpersonal              | Social awareness and interpersonal relationship:                                  |
| Empathy                    | <i>To be aware of and understand how others feel</i>                              |
| Social Responsibility      | <i>To identify with one's social group and cooperate with others</i>              |
| Interpersonal Relationship | <i>To establish mutually satisfying relationships and relate well with others</i> |
|                            |   |
| Stress Management          | Emotional management and regulation:  |
| Stress Tolerance           | <i>To effectively and constructively manage emotions</i>                          |
| Impulse Control            | <i>To effectively and constructively control emotions</i>                         |
|                            |   |
| Adaptability               | Change management:  |
| Reality-Testing            | <i>To objectively validate one's feelings and thinking with external reality</i>  |
| Flexibility                | <i>To adapt and adjust one's feelings and thinking to new situations</i>          |
| Problem-Solving            | <i>To effectively solve problems of a personal and interpersonal nature</i>       |
|                            |   |
| General Mood               | Self-motivation:  |
| Optimism                   | <i>To be positive and look at the brighter side of life</i>                       |
| Happiness                  | <i>To feel content with oneself, others and life in general</i>                   |

## Appendix B

### Emotional Abilities Scale for English Language Learning Textbooks (EAS-ELLT)

Instruction: This questionnaire is developed and administered as a part of our research project. What you only need to do is to assess the current language textbooks (e.g., Topnotch, American English Files, True to Life, Interchange series) with respect to the following items and specify the degree to which their passages, pictures, and exercises can potentially boost learners' following capabilities by marking the respective item.

| No. | Capabilities  | Strongly Disagree | Mostly Disagree | Slightly Agree | Moderately Agree | Mostly Agree | Strongly Agree |
|-----|---|-------------------|-----------------|----------------|------------------|--------------|----------------|
| 1.  | The current textbook helps learners express their needs and wants of language learning.         |                   |                 |                |                  |              |                |
| 2.  | It helps learners understand their deep feelings towards learning a new language.               |                   |                 |                |                  |              |                |
| 3.  | It helps learners have their feelings under control.  |                   |                 |                |                  |              |                |
| 4.  | It helps learners reduce their stress.  |                   |                 |                |                  |              |                |
| 5.  | It helps learners get familiar with the ways to reduce or manage stress.                        |                   |                 |                |                  |              |                |
| 6.  | It helps learners deal with upsetting problems.   |                   |                 |                |                  |              |                |
| 7.  | It arouses learners' creativity in the tasks they do.   |                   |                 |                |                  |              |                |
| 8.  | It helps learners avoid developing unrealistic thoughts and wishes.                             |                   |                 |                |                  |              |                |
| 9.  | It helps learners feel confident about themselves and their capabilities (i.e. self-confident). |                   |                 |                |                  |              |                |
| 10. | It helps learners develop interest in group membership and team works.                          |                   |                 |                |                  |              |                |
| 11. | It helps learners hold positive feelings towards a second language/ culture.                    |                   |                 |                |                  |              |                |
| 12. | It helps learners understand the way other people (e.g., their teammates)                       |                   |                 |                |                  |              |                |

|     |  |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|--|
|     | feel.  |  |  |  |  |  |  |
| 13. | It helps learners express and share their ideas with the group.  |  |  |  |  |  |  |
| 14. | It helps learners avoid ego-centeredness.  |  |  |  |  |  |  |
| 15. | It helps learners get familiar with the ways to deal with tough situations.  |  |  |  |  |  |  |
| 16. | It helps learners know their talents and capabilities.   |  |  |  |  |  |  |
| 17. | It helps learners feel optimistic about leaning a new language.  |  |  |  |  |  |  |
| 18. | It helps learners learn about turn taking techniques in conversation (i.e. where and when to start and stop a conversation). |  |  |  |  |  |  |
| 19. | It helps learners get familiar with the ways they can solve problems effectively.  |  |  |  |  |  |  |
| 20. | It helps learners feel positively about the native speakers of the new language they are learning.                           |  |  |  |  |  |  |
| 21. | It helps learners make decisions on their own.   |  |  |  |  |  |  |
| 22. | It helps learners feel content with what they have (i.e. their capabilities and potentials).                                 |  |  |  |  |  |  |
| 23. | It teaches learners how to get enjoyment from what they do.  |  |  |  |  |  |  |
| 24. | It helps learners communicate well with the others (e.g., their classmates).   |  |  |  |  |  |  |
| 25. | It helps learners adjust to new situations.  |  |  |  |  |  |  |
| 26. | It helps learners be cooperative in team works and group discussions and help others when they need them to.                 |  |  |  |  |  |  |
| 27. | It helps learners be a fun and enjoyable person to be with.  |  |  |  |  |  |  |
| 28. | It helps learners control their anxiety when facing unknown situations.  |  |  |  |  |  |  |
| 29. | It helps learners be a caring team member.   |  |  |  |  |  |  |
| 30. | It helps learners develop patience in their social interactions.   |  |  |  |  |  |  |
| 31. | It helps learners accept themselves and their potentials the way they are.   |  |  |  |  |  |  |

|     |  |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|--|
| 32. | It helps learners change their old habits which are no more working, and develop new ones. |  |  |  |  |  |  |
| 33. | It helps learners overcome depression and negative thoughts.                               |  |  |  |  |  |  |
| 34. | It helps learners feel motivated to learning a new language.                               |  |  |  |  |  |  |
| 35. | It helps learners learn how to develop motivation to learning a new language.              |  |  |  |  |  |  |
| 36. | It helps learners express their comments and opinions openly in class.                     |  |  |  |  |  |  |
| 37. | It helps learners show respect to their classmates or teammates.                           |  |  |  |  |  |  |
| 38. | It helps learners take a leadership role in groups.  |  |  |  |  |  |  |
| 39. | It helps learners be sensitive to the feelings of others (e.g., the group).                |  |  |  |  |  |  |
| 40. | It helps learners try new things and new ways of doing things.                             |  |  |  |  |  |  |
| 41. | It helps learners enjoy learning a new language.   |  |  |  |  |  |  |
| 42. | It helps learners plan ahead for the future.   |  |  |  |  |  |  |
| 43. | It helps learners plan ahead for their future learning.                                    |  |  |  |  |  |  |
| 44. | It helps learners hold a positive attitude towards what they are beginning to do.          |  |  |  |  |  |  |

### Appendix C

#### Item statistics and fit statistics

| ENTRY NUMBER | TOTAL SCORE | TOTAL COUNT | MEASURE | MODEL S.E. | INFIT |      | OUTFIT |      | PT-MEASURE |      | EXACT MATCH |      | ITEM |
|--------------|-------------|-------------|---------|------------|-------|------|--------|------|------------|------|-------------|------|------|
|              |             |             |         |            | MNSQ  | ZSTD | MNSQ   | ZSTD | CORR.      | EXP. | OBS%        | EXP% |      |
| 8            | 343         | 86          | 1.09    | .12        | 1.51  | 3.0  | 1.56   | 3.3  | .37        | .55  | 36.0        | 40.2 | Q8   |
| 30           | 398         | 94          | .90     | .11        | 1.16  | 1.1  | 1.36   | 2.3  | .24        | .54  | 42.6        | 41.6 | Q30  |
| 14           | 386         | 89          | .70     | .12        | 1.13  | .9   | 1.14   | .9   | .38        | .50  | 34.8        | 42.4 | Q14  |
| 38           | 422         | 94          | .52     | .12        | 1.23  | 1.5  | 1.22   | 1.4  | .37        | .51  | 44.7        | 43.9 | Q38  |
| 32           | 438         | 97          | .46     | .12        | 1.01  | .1   | 1.04   | .3   | .55        | .52  | 47.4        | 44.6 | Q32  |
| 37           | 432         | 95          | .41     | .12        | .80   | -    | .82    | -    | .43        | .52  | 48.4        | 45.1 | Q37  |
| 42           | 431         | 93          | .30     | .12        | 1.24  | 1.5  | 1.21   | 1.4  | .49        | .50  | 46.2        | 46.0 | Q42  |
| 21           | 444         | 95          | .24     | .12        | .97   | -.1  | 1.01   | .1   | .51        | .51  | 38.9        | 46.5 | Q21  |
| 6            | 446         | 95          | .20     | .12        | 1.03  | .3   | 1.04   | .3   | .56        | .51  | 44.2        | 46.7 | Q6   |

|      |       |      |      |     |      |     |      |      |     |     |      |      |      |     |
|------|-------|------|------|-----|------|-----|------|------|-----|-----|------|------|------|-----|
| 3    | 469   | 99   | .15  | .12 | 1.80 | 4.5 | 2.02 | 5.5  | .45 | .50 | 42.4 | 47.2 | Q3   |     |
| 19   | 471   | 99   | .12  | .12 | .96  | -.2 | .91  | -.6  | .64 | .50 | 49.5 | 47.2 | Q19  |     |
| 15   | 447   | 94   | .12  | .13 | .87  | -.8 | .85  | 1.0  | .69 | .51 | 54.3 | 47.3 | Q15  |     |
| 22   | 456   | 96   | .12  | .13 | .97  | -.2 | 1.01 | .1   | .51 | .51 | 45.8 | 47.2 | Q22  |     |
| 9    | 467   | 98   | .11  | .12 | .73  | -   | .76  | -    | .53 | .51 | 52.0 | 47.2 | Q9   |     |
| 23   | 473   | 99   | .09  | .12 | .89  | -.7 | .89  | -.7  | .49 | .50 | 46.5 | 47.3 | Q23  |     |
| 40   | 461   | 96   | .08  | .13 | 1.00 | .0  | .96  | -.3  | .56 | .47 | 52.1 | 47.5 | Q40  |     |
| 5    | 450   | 94   | .05  | .13 | 1.46 | 2.7 | 1.43 | 2.6  | .55 | .50 | 36.2 | 47.3 | Q5   |     |
| 25   | 476   | 99   | .05  | .12 | .65  | -   | .65  | -    | .58 | .50 | 57.6 | 47.4 | Q25  |     |
| 7    | 444   | 92   | .01  | .13 | .94  | -.3 | .97  | -.2  | .49 | .51 | 48.9 | 47.3 | Q7   |     |
| 28   | 464   | 96   | .00  | .13 | 1.13 | .9  | 1.11 | .8   | .58 | .50 | 45.8 | 47.4 | Q28  |     |
| 31   | 451   | 93   | -.01 | .13 | 1.07 | .5  | 1.09 | .6   | .63 | .48 | 39.8 | 47.5 | Q31  |     |
| 12   | 477   | 98   | -.05 | .13 | .99  | .0  | .98  | -.1  | .44 | .50 | 52.0 | 47.3 | Q12  |     |
| 27   | 462   | 95   | -.05 | .13 | 60   | -   | 3.1  | -.61 | 3.0 | .68 | 49   | 58.9 | 47.5 | Q27 |
| 16   | 489   | 100  | -.08 | .13 | 86   | -   | 1.0  | .85  | -   | .44 | 49   | 48.0 | 47.3 | Q16 |
| 33   | 491   | 100  | -.10 | .13 | 1.09 | .7  | 1.13 | .9   | .59 | .49 | 41.0 | 47.5 | Q33  |     |
| 1    | 475   | 97   | -.11 | .13 | .93  | -.4 | .94  | -.4  | .51 | .49 | 57.7 | 47.5 | Q1   |     |
| 26   | 471   | 96   | -.12 | .13 | .96  | -.2 | .96  | -.2  | .40 | .49 | 47.9 | 47.3 | Q26  |     |
| 29   | 471   | 96   | -.13 | .13 | .65  | -   | 2.7  | -.67 | 2.5 | .53 | 49   | 60.4 | 47.3 | Q29 |
| 20   | 477   | 97   | -.14 | .13 | .71  | -   | 2.1  | -.67 | 2.5 | .55 | 49   | 57.7 | 47.3 | Q20 |
| 2    | 477   | 97   | -.14 | .13 | .89  | -.7 | .87  | -.8  | .57 | .49 | 47.4 | 47.3 | Q2   |     |
| 4    | 456   | 93   | -.14 | .13 | 1.22 | 1.4 | 1.21 | 1.4  | .51 | .49 | 53.8 | 47.5 | Q4   |     |
| 24   | 480   | 97   | -.18 | .13 | .97  | -.2 | .96  | -.2  | .39 | .49 | 50.5 | 47.3 | Q24  |     |
| 43   | 488   | 98   | -.24 | .13 | 1.28 | 1.8 | 1.19 | 1.3  | .59 | .48 | 43.9 | 47.6 | Q43  |     |
| 39   | 475   | 95   | -.26 | .13 | .94  | -.4 | .99  | .0   | .52 | .47 | 46.3 | 47.6 | Q39  |     |
| 18   | 501   | 100  | -.28 | .13 | .70  | -   | 2.2  | -.69 | 2.3 | .54 | 49   | 56.0 | 47.7 | Q18 |
| 13   | 477   | 95   | -.30 | .14 | 1.05 | .4  | 1.10 | .7   | .38 | .47 | 48.4 | 47.8 | Q13  |     |
| 10   | 491   | 98   | -.30 | .13 | .87  | -.9 | .85  | -    | .35 | .49 | 59.2 | 47.8 | Q10  |     |
| 35   | 472   | 94   | -.30 | .14 | .73  | -   | 1.9  | -.72 | 2.0 | .58 | 46   | 60.6 | 47.9 | Q35 |
| 41   | 482   | 96   | -.31 | .14 | .80  | -   | 1.4  | -.84 | 1.1 | .50 | 49   | 54.2 | 47.6 | Q41 |
| 17   | 462   | 92   | -.32 | .14 | .66  | -   | 2.5  | -.66 | 2.5 | .55 | 49   | 62.0 | 47.8 | Q17 |
| 34   | 485   | 95   | -.46 | .14 | 1.05 | .4  | 1.08 | .6   | .39 | .45 | 46.3 | 47.7 | Q34  |     |
| 36   | 502   | 98   | -.50 | .14 | 1.08 | .6  | 1.10 | .7   | .40 | .47 | 48.0 | 47.9 | Q36  |     |
| 44   | 492   | 96   | -.50 | .14 | .87  | -.8 | .95  | -.3  | .58 | .47 | 54.2 | 47.8 | Q44  |     |
| 11   | 507   | 98   | -.59 | .14 | 1.18 | 1.2 | 1.14 | 1.0  | .30 | .46 | 51.0 | 48.1 | Q11  |     |
| MEAN | 462.0 | 95.8 | .00  | .13 | .99  | -.1 | 1.00 | -.1  |     |     | 49.1 | 46.8 |      |     |
| S.D. | 30.9  | 2.8  | .34  | .01 | .24  | 1.6 | .26  | 1.7  |     |     | 6.8  | 1.7  |      |     |