Comparing Computer and Hand Scoring of Emotional Awareness

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Abstract

The Levels of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker, & Zeitlan, 1990) measures depth and breadth of knowledge of emotion words. Emotional Awareness is important for psychological well-being and secure relationships (Novick-Kline, Turk, Mennin, Hoyt, & Gallagher 2005). The LEAS asks respondents to describe how they would feel in each of 20 emotionally evocative situations. Responses are traditionally scored by hand, which is very time-consuming. Program for Open-Ended Scoring (POES; Leaf & Barchard, 2006) is a computer program that can be used to score open-ended tests like the LEAS in a fraction of the time that it takes to score them by hand. Previous research on the LEAS has demonstrated high correlations between POES scores and hand scores (Barchard & Leaf, in prep). The objective of this study is to determine whether scoring the LEAS using POES is as valid as scoring the LEAS by hand.

To compare the validity of POES and hand scoring of the LEAS, total scores from the two scoring methods were correlated with the eight tasks of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, Caruso, & Sitarenios, 2003) for a sample of 388 university students. The correlations for POES scoring and hand scoring were similar. For both scoring methods, all correlations were positive and small to moderate, and seven of the eight correlations were statistically significant. These findings suggest that POES scoring of the LEAS may be as valid as hand scoring. Future research should continue to explore the usefulness of using POES scoring of the LEAS. As well, future research should determine if POES scoring is as valid as hand scoring for other open-ended tests. Given how long it usually takes to score open-ended tests, if computerized scoring was as valid as hand scoring, it could greatly reduce scoring time and increase the feasibility of using open-ended tests in research.

Introduction

"Emotional awareness has been defined as the ability of an individual to recognize and describe emotions in the self and others" (Ciarrochi, Caputi, & Mayer, 2003, p. 1477). Emotional awareness is structured and categorized into five different levels (Ciarrochi, Caputi, & Mayer, 2003). The five levels are awareness of bodily sensations, the body in action, individual feelings, blends of feelings, and blends of blends of feelings.

The theory of Emotional Awareness brought about a new perspective concerning theories of emotion (Livingstone & Day, 2005). Emotional awareness is an important assessment tool in the field of psychology, especially for clinical practitioners in terms of diagnosis and treatment (Lane & Schwartz, 1987). Therapists will be able to see where patients fall short in certain areas of emotional development. Based on those particular findings, therapists can then create structured intervention plans that are built to address the absent or lacking portions of emotional awareness.

The Levels of Emotional Awareness Scale (LEAS) is derived from a five-tier cognitive-developmental model of emotional experience (Lane & Schwartz, 1987). The scale is aimed at measuring emotional awareness. Examination of the LEAS presents evidence for the reliability of scoring emotional awareness (Lane, Quinlan, Schwartz, Walker, & Zeitlan, 1990).

There are two methods of scoring the LEAS. Traditionally, the LEAS is scored by hand (Lane, 1991). Training new scorers is time-consuming, and once scorers have completed their training, the scoring itself takes a long time. The second method of scoring the LEAS is to use a computer program, called Program for Open Ended Scoring (POES; Barchard & Leaf, in prep). The objective of this study is to discover whether scoring the LEAS using POES is as valid as scoring the LEAS by hand. In this study, the LEAS will be both hand scored and scored by

POES. These scores will then be correlated with the scores of the 8 subscales of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, Caruso, & Sitarenios, 2003), which measures the closely related concept of Emotional Intelligence. If hand scoring and POES scoring have similar correlations with the MSCEIT, this will indicate that POES scoring is as valid as hand scoring.

Methods

Participants

A total of 388 students (232 female, 156 male) participated in this study for course credit. Their ages ranged from 18 to 56 with a mean of 20.52 and a standard deviation of 4.99. In terms of ethnicity, 60.2% identified themselves as White, 12.7% as Asian, 10.6% as Hispanic, 6.7% as Black, .8% as Native, and 9.0% as other.

Measures

The Levels of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker, & Zeitlan, 1990; Lane, 1991) is an open-ended test intended to measure Emotional Awareness. It consists of 20 scenarios involving the participant and somebody else. The scenarios are aimed at evoking emotional responses by eliciting four types of emotion (anger, fear, happiness, sadness) over five levels of complexity. Each scenario asks the participant "How would you feel?" and "How would the other person feel?" There is one scenario per page and participants can use as much or as little of that space to describe their emotions.

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, Caruso, & Sitarenios, 2003) includes four branches of Emotional Intelligence. Each branch is measured by two tasks. The first branch is the Perceiving Emotions Branch, which is measured with the Faces and Pictures Tasks. The second is the Facilitating Thought Branch, which is measured with the Sensations and Facilitation Tasks. The third is the Understanding Emotions Branch, which is measured with the Blends and Changes Tasks. Last is the Managing Emotions Branch which is measured with the Emotion Management and Emotional Relationships Task (Mayer, Salovey, Caruso, & Sitarenios, 2003).The MSCEIT is the most commonly used scale for measuring the four branches of Emotional Intelligence (MacCann, Roberts, Matthews, & Zeidner, 2004).

Hand Scoring

Hand scoring is one of two methods utilized to score the LEAS. When hand scoring the LEAS, item scores are calculated in three stages (Lane, 1991). In the first stage, emotionally derived words are scored individually, using the LEAS Glossary. Non-emotion words receive a score of 0. Physiological sensations receive a score of 1. Words which indicate emotions but also have non-emotional meaning receive a score of 2. Words that indicate discrete emotions receive a score of 3. In the second stage, the scorer calculates the self and other scores by determining which emotion words are attributed to the self and other. The scorer also has to determine whether there are synonymous emotion words in the response. If there are no level three words, then a score of zero, one, or two is given depending on the response. If all of the level three words are synonymous, then a score of 3 is received. If there are at least two level three words that are non-synonymous, then a score of 4 is received. In the last stage, the scorer determines the total score. The total score is equal to the highest score for self for other. If both the self and other receive a score of four due to different evocation of feelings, then the total becomes a score of five.

POES Scoring

      The Program for Open Ended Scoring (POES; Leaf & Barchard, 2006) is a computer program that is used to score open-ended tests, such as the LEAS. POES has four scoring methods. We used the 334 method. The 334 method scores data based on three distinct steps, which are analogous to the steps used in hand scoring. First, POES scans the response for emotion words, and puts these words in the Valuables List for that response. Second, POES assigns a numeric value for each emotional word in the Valuables List. Lastly, POES calculates the total score for the item. POES assigns a total score of 4 to responses that include two non-identical level 3 words or phrases. Otherwise, the total score for an item is equal to the maximum word score.

Procedures

      Participants completed the LEAS and the MSCEIT as part of a larger study.

Results

      To examine the validity of POES scoring, total scores from both scoring methods were correlated with the eight tasks of the MSCEIT. Seven out of the eight correlations were statistically significant for both scoring methods. All correlations were positive and small to moderate. Therefore, correlations with the MSCEIT were similar for the two scoring methods (see Table 1).

Table 1

Correlations of hand scoring and POES scoring with MSCEIT Tasks

Tasks	LEAS Total	POES
Faces	16**	16**
Facilitation	17**	18**
Changes	28**	26**
Emotional	20**	12*
Pictures	09	08
Sensations	20**	22**
Blends	29**	22**
Emotional	26**	19**

* *p* < .05. ** *p* < .01.

Conclusions

      Often researchers have time constraints which make research difficult. Therefore, any means to make research less time consuming is considered useful. Scoring the LEAS by hand, is very time consuming. Using a computerized scoring program, like POES, could greatly reduce the amount of time scoring takes. However, such time-saving measures should not be used unless the new scores are as reliable and valid as the traditional hand scoring method.

      The purpose of this study was to examine the correlations of hand scoring and POES scoring with the MSCEIT. We found that the correlations with the eight subtests of the MSCEIT were very similar, across the two scoring methods. For both scoring methods, seven out of eight of the correlations are statistically significant, and all correlations were positive and small to moderate. These findings suggest that POES scoring of the LEAS may be as valid as hand scoring. We therefore recommend that POES be POES be utilized in future LEAS research because shorter training and scoring time can mean more participants take part in the study.

      Future research should explore two directions. First, future research should examine the validity of other POES scoring methods. POES has four scoring methods: All-Sum, Highest-4, 334, and 3345. Our research used the 334 method, which is conceptually closer to hand scoring than the All-Sum and Highest-4 methods are. The 3345 method is even more similar to hand-scoring. Our research could not use the 3345 POES scoring method, because it requires the data collection method to distinguish between emotions attributed to self and other. This has sometimes been done by leaving a space after the first question "How would you feel?", so that participants can answer this question before answering the question "How would the other

person feel?" Future research should collect data in this way and then use the 3345 scoring method, which could lead to even more similarity in the validity coefficients for POES scoring 0and hand scoring.

Second, given our promising results for scoring the LEAS using POES, future research should examine the usefulness of POES Scoring for other open-ended tests. The four POES scoring methods can be applied to any open-ended test in which the scorer is assigning scores based upon the presence of specific words or phrases.

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