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**The empirical analysis the validity of ability based
emotional intelligence model**

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1 Aims¹

1.1 Introduction

Emotional intelligence research is among the most prevailing topics in modern psychology. Behind this special attention one may presume a range of factors, and the following are what we hold the most important of these: (1) the social-political message of emotional intelligence is consistent with contemporary cultural trends(see Mayer, Salovey, Caruso, 2000/a), (2) it is linked to the paradigm shift in intelligence research which made way for various alternative intelligence theories, (3) focusing on the latest findings in affective psychology, it applies the idea that emotions carry lucid meanings that are applicable for the purpose of efficient adaptation.

Presumably, emotional intelligence is a group of information processing abilities that utilizes the function of emotions (either positive or negative) that support adaptation and increase cognitive efficiency. It follows from the adaptive role of emotions and the interaction of cognitive-affective-motivational functions (see Spaulding, 1994) that people who accurately perceive emotions of their own and of others, who gain insight to the relations between emotional and cognitive processes, and are capable of efficiently controlling their emotions, are more likely to acquire some form of positive output adjustment. Individuals differ strongly in how adeptly they can utilize the potential of their own emotional states, and those of others. The people we call „emotionally intelligent” are able to use the potential of their own emotional states, and those of others. They recognize the impact of their emotions and moods on their cognitive processes and interpersonal relationships, and are able to counter the potentially destructive effects of emotions. Instead, their emotions are harnessed to enhance their cognitive and interpersonal functions, and to promote their personal development.

We have several models for emotional intelligence in psychological references. While some researchers (notably Salovey and Mayer, 1990; Mayer and Salovey, 1997; Oláh, 2005/c) define emotional intelligence solely as a set of mental abilities (*ability model*), others (eg. Bar-On, 1997; Bar-On, 2000; Goleman, 1997; Goleman, 2002; Cooper-Sawaf, 2007) describe the construct as an aggregation of mental abilities, personality traits, interpersonal competencies and motivational factors (*mixed models*). This thesis is centered on an empirical analysis of the ability model. Firstly, we are attempting to establish measurement procedures that are psychometrically suitable for measuring emotional intelligence, secondly, we are conducting laboratory research to test the correlation of processes collocating with the relation of emotions and cognitive performance, the precise mapping of which may be the key to understanding the adjustment efficiency guaranteeing role of emotional intelligence.

In their emotional intelligence model composed in 1990, Salovey and Mayer distinguished three main groups of emotional intelligence related mental abilities: (1) the ability of perceiving and expressing emotions, (2) the ability of regulating emotions, (3) using emotions for problem solving. The model was modified in 1997 to include a fourth ability group with a more cognitive leaning, this new component being the ability to understand emotions and to utilize this emotional knowledge.

The ability model of emotional intelligence explicates two theoretic hypotheses: firstly that this concept regards emotional intelligence as an aggregation of information managing abilities which utilizes the way emotions enhance the efficiency of cognitive processes and thereby increase the individual’s capacity for adjustment, secondly by stating that the abilities listed under emotional intelligence comprise an independent form of intelligence clearly

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distinguishable from the IQ (Mayer és Salovey, 1993; Mayer és Mitchell, 1998; Mayer, Caruso és Salovey, 2000; Salovey, Bedell, Detweiler and Mayer, 2000; Kaufman and Kaufman, 2001).

Two fundamentally different methods are prevalent in measuring emotional intelligence based on the ability model: both performance tests and self-report questionnaires were devised to measure the components listed by the model. Both operationalizational experiments elicit arguments for and against. Arguments against questionnaire measuring can be summed up in two points: (1) due to the fact that by definition, mental abilities vary from person to person, which differences become manifest during cognitive problem solving on different levels of difficulty, psychology does not measure them through self-report methods traditionally, (2) significant social desirability bias distortions may occur during questionnaire testing, and (3) a range of empirical data indicates that self-report measurements overlap with personality (eg. Digman, 1990; McCrae and John, 1992; McCrae, 2000; Rooy Viswesvaran, Pluta, 2005; Petrides, Pita and Kokkinaki, 2007). The heaviest criticism of performance testing pertains to their unsuitability for objective evaluation, due to a lack of clear criteria in most cases as to what constitutes a correct answer (Roberts, Zeidner, Matthews, 2001; Zeidner, Matthews and Roberts, 2001). Conversely, there are also arguments to justify both methods of measuring. One argument to back up self-report questionnaires is that in practical terms, how people think of their emotional abilities and what they believe about themselves is just as important as what real abilities they possess. Supporters of self-report questionnaire use also stress that due to feedback, people are conscious of their performance in various fields. One argument to performance testing is that it reflects a true capacity of mental problem solving, as opposed to personal opinions of how one would perform (Perez, Petrides and Furnham, 2005). Another argument is the range of empirical data indicating the consensus that emotional intelligence measured performatively can be evaluated efficiently, and also that emotional intelligence measured as ability shows moderate correspondence to intelligence measuring and no correlation with personality testing (Legree, Pstotka, Tremble and Bourne, 2005; Mayer, Salovey, Caruso and Sitarenios, 2001; Mayer, Salovey and Caruso, 1997; Mayer, Salovey and Caruso, 1999). In connection to measuring emotional intelligence, many researchers have pointed out (eg. Brackett, Rivers, Shiffman, Lerner and Salovey 2006; Brackett and Salovey, 2006; Goldenberg, Matheson and Mantler, 2006), that performative testing and questionnaire measurements of emotional intelligence describe two distinct personal differences. For the purpose of clear differentiation, Petrides and Furnham (2001) introduced the concepts of trait emotional intelligence and ability emotional intelligence. *Trait emotional intelligence* refers to constructs measured with self-report questionnaires, whereas *ability emotional intelligence* to those measured via performance testing.

We believe that the primary problems surrounding emotional intelligence can be summed up in three points: (1) emotional knowledge/emotional adaptivity versus emotional intelligence, (2) is it possible to measure emotional intelligence, (3) do emotion related abilities constitute a distinct form of intelligence.

The issues of „emotional knowledge/emotional adaptivity versus emotional intelligence” were put forward by Izard (2001), who suggested the application of emotional knowledge or emotional adaptivity constructs instead of the term emotional intelligence. According to her definition, "knowledge of the expressions, labels, and functions of emotions, increases the probability that an individual can and will utilize the inherent adaptiveness in emotion arousal and emotion motivation." (p.252). Izard argues that although there evidently are emotional abilities which are rudimentary facets of adaptive behaviour and social competences, these abilities cannot be regarded as a special form of intelligence, instead she suggests that „emotions do not always depend on knowledge or cognitive mediation, and emotions make independent contributions to individual and social functioning" (p.252).

The second issue in point (is it possible to measure emotional intelligence) has two main focuses, firstly, whether it is possible to compose tasks presenting problems soluble with emotional abilities and having definable correct answers, and secondly, whether the prevalent individual emotional differences are more practically measured using performance testing or questionnaires.

The object of the third problem is whether or not the emotional abilities embodied in the model devised by Salovey and Mayer constitute an independent form of intelligence, namely if the personal differences in emotion processing are consistent with the standard criteria of intelligence. According to Salovey and Mayer (1990), emotional intelligence measured as ability must conform to three criteria in order for observed individual differences to qualify as intelligence attributed:

- The first criterion (or requirement) is to demonstrate that emotion-related abilities are unquestionably definable as performance (a conceptual criterion).

- The criterion of correlation states that intelligence must describe several closely associated abilities, which are distinct from other forms of intelligence. In terms of this second criterion, emotional intelligence measured as ability must show moderate correlation with other intelligence measurement tests, and should not correlate with personality, while abilities grouped to the same construct must show strong correlation.

- The developmental criterion defines how performance in emotional ability measuring tasks must improve as the subjects age.

1.2 Issue proposals and introduction to the studies

The four studies presented in the thesis all relate to the above problem topics. The first topic (emotional knowledge/emotional adaptivity versus emotional intelligence) is researched in the fourth study of the thesis. The second topic (is it possible to measure emotional intelligence) is addressed by the first, second and third studies. The first and second studies also relate to the third problem topic listed above (do emotion related abilities constitute a distinct form of intelligence), performing a correlational test of the developmental and correlational criteria.

The *first study* of this thesis examines a large national sample of school-aged children to determine whether it is possible to compose tasks presenting problems soluble with emotional abilities and having definable correct answers, and whether the tested performance of emotional intelligence improves as the subjects age (developmental criterion): *we assume that older students to give a better overall performance in dealing with emotional intelligence tasks than their younger counterparts*, furthermore we test for sex related differences as well, and *expect girls to give better overall performance in every age group tested*. Relevant research had concordantly shown that a higher emotional intelligence level is prevalent in women (Brackett, Mayer and Warner, 2004; Day and Carroll, 2004; Extremera, Fernandez-Berrocal, Salovey, 2006; Mayer, Caruso and Salovey 1999; Schutte et al, 1998; Van Rooy and Viswesvaran, 2004).

In the *second study* we give an analysis of the relation of emotional intelligence to IQ and personality (correlational criterion) and (4) assume that emotional intelligence will prove to be independent from both intelligence and personality.

The *fourth study* of this thesis tests the adaptability enhancing role of emotional intelligence under laboratory conditions. Our study of the correlation between moods and cognitive performance use both performance testing and self-report questionnaires to measure emotional intelligence, enabling the comparison of trait and ability emotional intelligence validity. During the laboratory experiment we apply film screening to manipulate mood

(positive and negative mood induction) and examine the effect on various performance indicators (verbal fluency, attention span, attention accuracy, reaction time to unexpected stimuli) in relation to emotional intelligence. Using emotional/mood effects to enhance cognitive process efficiency is a key component for any emotional intelligence model. According to these models, people with high emotional intelligence are capable of utilizing both positive and negative emotions/moods to enhance their performance, while people low in emotional intelligence, the destructive aspects of mood effects gain prominence.

One of the measuring materials applied in the fourth study, the Schutte Self-Report Emotional Intelligence Scale (SSREI, Schutte et al, 1998) and its Hungarian adaptation forms part of the work presented in this thesis, the *third study* accounts the factor structure analysis and validating procedures of SSREI-HU. A special feature of SSREI is that it applies a self-report questionnaire to operationalize Salovey and Mayer's ability based emotional intelligence model.

Method

2 Composing the tasks for measuring emotional intelligence, and uncovering its age and sex specific characteristics

In composing the tasks used for measuring emotional intelligence, my basis was a larger body of tasks devised to assess social competence, and composed jointly by Attila Oláh, Kinga G. Tóth and Henriett Nagy (2005/a; 2005/b). The tasks were composed on commission to Sulinova Kht. in order to test the efficiency of a social competence development program. The task sequences were composed based on an investigation of the references on social competence, emotional intelligence and emotional development, as well as experience from the interviews made with children from the study population.

While editing the tasks, we collected a total of 523 images expressing different emotions, mostly photographs that we made ourselves, and a few emotion evoking images we adopted from online databases. The photo sessions were conducted in a school environment, some of them record spontaneous expressions of emotion, while others were taken during ready-scripted sessions when we asked schoolchildren to assume various emotional expressions, then engaged them to help select the best ones, which we finally used when editing the tasks.² The booklet for 6-8 year olds and workbook for 10-15 year olds contained a total of 71 and 64 questions, respectively, based partly on self-report and partly on problem solving. The questions cover the following dimensions: emotional consciousness, emotion handling, social norm analysis, constructive self-perception, responsibility-care-regard toward others, identifying and solving social norms, cooperation, openness to compromise, reactivity, assistance seeking, recipient communication, perspective adaption.

Composing the task sequences for measuring emotional intelligence, my basis was the formerly described task set devised for measuring emotional intelligence. As a first step I selected the tasks that used problem solving to measure emotional intelligence. These fell into three types, and each task was assigned one correct answer worth 1 point, while incorrect answers are worth 0 points.

The first task type consists of an emotion evoking image and five portraits depicting emotions, and the task is to select the portrait that most accurately expresses the emotion the

² We also obtained parental permission to use the photographs.

image evoked (see figure 1). The second task type also consists of an emotion evoking image and five portraits depicting emotions, and the task is to select the child who is actually present in the scene described by the evocative image (see figure 2). When composing these types of tasks, we applied the following procedure: we composed groups of 5 pictures each for every task by selecting 1 portrait photo expressing the same emotion as shown on the evocative image, and 4 portraits displaying other emotions.

The third task type consists of photos showing various nonverbal communicational signals (facial expressions, hand and foot gestures, and different postures). The first three pictures of each sequence express the same emotional state. Based on the perceived emotional state on the first three pictures, the task is to determine which one of a further three pictures expresses that same emotional state. We used full figure shots expressing emotion to start out with, and converted these into pictures highlighting facial expressions, posture, hand and foot gestures, then following through with the logic of this process we selected gestures reflecting identical emotions and distinctly contrasting emotions into a single sequence (see figure 3).



Figure 1: The first type of the tasks
 (Instruction: How do you feel when you look at this picture? Which face expresses the best way what you feel?)



Figure 2: The second type of the tasks?
 (Instruction: Which child is sitting opposite him?)



Figure 3: The third type of the tasks

(Instruction: Which picture expresses the same emotion as you see in the pictures with red background?)

EMPIRICAL TESTING

2.1 Participants

The study was conducted with the participation of Regional School and Kindergarten Development Center schools. This national network of centers was originally established to promote competence based teaching and learning programmes. Schools volunteered to participate in our programme, but students were obliged to fill out the tests. This study was conducted on a total of 6138 students, from 260 form in 124 schools. Of these, 2276 were students aged 6-8, 1151 boys and 1112 girls (and 13 cases of unreported sex), 1467 attended first form, and 808 second form at the time of testing (and 1 case of unreported age). Of the 3949 tested students aged 10-15, 3862 tests were eligible with 87 incomplete submissions: 1968 boys and 1893 girls (and 1 fifth form student whose sex is unreported), 1173 attended fifth form, 399 attended seventh form, and 2290 attended ninth form at the time of testing.

2.2 Results and discussion

The foremost aspect of item selection was the discernability of an obvious correct answer. First we conducted frequency analyses, then we omitted those items that proved too difficult (correct replies under 20%) or too easy (over 80% correct answers), or ambiguous (an item was considered ambiguous when one of the alternatives we regarded incorrect was selected as the correct answer by a large proportion of the children, and with this criterion we also relied on verbal feedback from the participant children and teachers). For example, we accepted as a good item the exercise number 1 composed for 6-8 year olds (see figure 1), where the designated correct answer (figure 1) was marked correctly in 55.1% of responses, and none of

the other four alternatives stuck out as a possible „correct second choice”, whereas all alternatives were marked by at least a small group of respondents (picture 1 got 13,9%, picture 2: 7,7%, picture 3: 15,7% and picture 5: 7,6% of all responses). Parallel to item selection based on empirical frequency data, we also conducted item analyses and omitted items with negative residual correlation for items. The selection process resulted in 19 items kept for the 6-8 age group, and 29 items for the 10-15 age group. This was the inception of EIT 6-8 (Picture Emotional Intelligence Test for age group 6-8) and EIT 10-15 (Picture Emotional Intelligence Test for age group 10-15). The proportion of correct answers falls between 23,5% and 74,5% for EIT 6-8, and between 33,5% and 69,1% for EIT 10-15.

In both the 6-8 and 10-15 age group sequences, the Cronbach-alpha indicators for internal consistency being between 0,5 and 0,6 values. Omitting the lower item-total correlation items did not improve the indicator value in either sequence. Considering how emotional intelligence measuring performance tests likewise produced a somewhat weaker than anticipated internal consistency in international surveys too (see Mayer and Geher, 1996; Sullivan, 1999; Mayer and Salovey, 1997; Mayer, Caruso and Salovey, 1999; Freudenthaler and Neubauer, 2003) we consider these reliability indicators as acceptable.

We tested for sex related differences in the field of emotional intelligence exercise performance using independent samples t-testing and one-way Analysis of Variance (ANOVA). In both 6-8 year old and 10-15 year old participant groups, girls performed better than boys. For 6-8 year olds the Cohen's *d* predicts small (0,16) effect size, and a medium (0,49) effect size for 10-15 year olds. These results correspond to results published in international references, which without exception reported a higher emotional intelligence in women (see 1.2).

We also tested for age related differences in the field of emotional intelligence exercise performance using independent samples t-testing and one-way Analysis of Variance (ANOVA). In student participants aged 6-8 ($t=5,94$; $p<0.001$) and 10-15 ($F=35,08$; $p<0.001$) we found significant differences according to age: second form students ($M=8,4$; $SD=3,11$) achieved better performance than first form students ($M=7,6$; $SD=3,00$), and likewise ninth form students ($M=16,6$; $SD=3,73$) performed better than fifth form ($M=15,5$; $SD=3,66$) and seventh form students ($M=15,5$; $SD=3,91$). Between the latter two groups, we found no significant alteration in performance.

These results indicate that exercises registering individual differences in emotional information processing can be composed and do measure comparably to cognitive ability exercises in terms of the developmental criterion. Our results support the notion that individual differences in emotional information processing are ability based.

3. Relation of emotional intelligence test performance to personality and intelligence

3.1 Participants

A total of 102 students aged 6-8 participated in the study: 48 boys and 54 girls. A total of 143 students aged 14-15 participated in the study: 81 boys and 62 girls.

3.2 Materials and procedure

All students aged 6-8 followed instructions from a study director to solve the emotional intelligence tasks first, then the Langer intelligence test³. Langer defines intelligence as the

³ Check Your Children I. Q. Budapest, ELTE Általános Pszichológiai Tanszék, 1981

ability to memorize, recall and use information or knowledge. His intelligence test covers mathematical, spatial and verbal logical abilities, and contains no verbal elements. Data was collected using individual testing, and completing the test battery took up 60 minutes on average.

For the 10-15 year old student sample group, emotional intelligence was measured using the EIT10-15. For personality measuring we applied the BFQ test (Big Five Questionnaire, Carpara, Barbaranelli, Borgogni and Perugini, 1993) that had been adapted to Hungarian by Rózsa, Kő and Oláh (2006). The BFQ contains a scale corresponding to the five main factors of personality (*extraversion, agreeableness, emotional stability, conscientiousness, openness to experience*). Participants were required to use a five grade Likert-scale to rate how each of the 121 assertions applies to them. IQ measurement was conducted applying Cattell's intelligence test for culture-independent fluid intelligence (Test of „g”: Culture Fair, Scale, Form B4). Testing was administered in groups during school periods. Tests were taken voluntarily, although none of the students declined to take the test. Students first completed the emotional intelligence exercises, then the IQ test, and finally the Big Five Questionnaire. We applied a time limit to the first test. Completing the test battery took up 60 minutes in total.

3.3 Results and discussion

In the 6-8 year old participant group, the emotional intelligence exercise sequence's reliability (Cronbach alpha=0,67) and the Langer intelligence test's reliability Cronbach alpha=0,75) were both adequate. Comparison between the sexes showed no significant difference on either scale, though girls showed higher performance on both scales. Between emotional intelligence scores (the sum of correct answers for the 29 tasks) and intelligence test scores (the sum of correct answers for the 55 tasks) the Pearson's correlation coefficient was 0,181 ($p=0,069$). This result supports the presumption that emotional intelligence measured as ability is distinct from intelligence. The result is consistent with findings from earlier research indicating that emotional intelligence shows weak correlation to crystal intelligence, and is independent of fluid intelligence (Ciarrorchi et al, 2000; Mayer et al, 2001; Zeidner et al, 2008).

Reliability indicators for measuring procedures used on participant students aged 10-15 complied to the 0.7 criterion in general use, except for the emotional intelligence scale (Cronbach alpha=0.55). We had to consider possible effects of the low consistency indicator during the results' discussion. Comparing the two sexes we found girls achieved significantly higher scores than boys: (1) EIT 10-15 ($t=1,56$; $p=0,035$; boys: $M=10,1$; $SD=3,48$; girls: $M=11,1$; $SD=2,75$); (2) BFQ Agreeableness scale ($t=3,19$, $p=0,002$; boys: $M=77,5$; $SD=9,98$; girls: $M=82,72$; $SD=8,97$), (3) BFQ Emotional stability scale ($t=2,70$, $p=0,008$; boys: $M=73,0$, $SD=11,96$; girls: $M=78,6$; $SD=12,68$). In the case of emotional intelligence, sex had a minor effect (Cohen- $d=0,37$), while in the case of personality factors (*agreeableness, emotional stability*) it had a medium effect (Cohen- $d=0,50$). The result is consistent with findings from research quoted earlier indicating that ability-emotional intelligence performance is higher in women (see Ciarrorchi, Chan and Caputi, 2000; Mayer, Salovey, Caruso and Sitarenios, 2001; Zeidner, Roberts and Matthews, 2008).

Correlational analysis between IQ and both emotional intelligence and big five factors indicate that performance in emotional intelligence taska is independent of intelligence and personality. One interesting result is that when we analyse the sub-group of participant girls for the relation of emotional intelligence and personality with the *energy (extraversion)*

⁴ Test developed by: Institute for Personality and Ability Testing, Coronado Drive, Champaign, IL, USA

personality factor, as well as the performance on the emotional intelligence test, we discover a weak positive correlation ($r=0,3$; $p=0,018$). This same correlation couldn't be observed with the sub-group of participant boys, but in their case, a higher emotional intelligence performance and the personality factor of *conscientiousness* show a weak positive correlation ($r=0,22$; $p=0,048$).

The results of the second study are consistent with the findings of earlier studies (Ciarrochi, Chan and Caputi, 2000; Mayer, Salovey, Caruso and Sitarenios, 2001; Zeidner, Roberts and Matthews, 2008) that unanimously support the correlational criterion, thereby contributing to the ability-emotional intelligence concept's validation.

4 Adaptation of the SSREI (Schutte Self-report Emotional Intelligence Scale, Schutte et al, 1998)

Schutte et al devised the questionnaire for emotional intelligence measuring in 1998. Based on the original emotional intelligence model by Salovey and Mayer (1990), they composed the test with 62 items, then conducted an exploratory factor analysis with 346 participants, which led to the composition of a 33 item scale (the 33 items were weighted on one factor, representing all elements of the theoretic model). Several studies have used SSREI since its publication (see eg. Ciarrochi, Chan, and Bajgar, 2001; Petrides and Furnham, 2000; Saklofske, Austin and Minski, 2003; Schutte et al, 2001). Most data pertaining to the questionnaire support the reliability and validity of the scale (Ciarrochi, Chan and Bajgar 2001; Saklofske et al, 2003; Schutte et al, 2001), and different studies have produced Cronbach alpha values of between 0,84 and 0,9 for the total scale. Conversely, there have also been several criticisms of this measuring procedure, and most of those studies questioned the scale's factor structure (see eg. Petrides and Furnham, 2000). Schutte et al had originally argued in favor of the scale's one-dimensional structure, several independent studies however suggested a 4 scale solution with one overriding emotional intelligence factor (Ciarrochi, Deane and Anderson, 2001; Petrides and Furnham, 2000; Saklofske et al, 2003). Gignac, Palmer, Manocha and Stough (2005) used qualitative analysis on the questionnaire to find the six categories described in the theoretic model (appraisal of emotions in the self, appraisal of emotions in others, emotional expression, emotional regulation of the self, emotional regulation of others, utilization of emotions in problem solving) then went on to test this structure with confirmatory factor analysis⁵. Their results show that two of the six models in the Salovey and Mayer (1990) emotional intelligence model (namely, emotional expression and emotional regulation of others) were not distinctly identifiable in the questionnaire. At the same time, the researchers report that the six-factor model produced better fit indexes than either the one-or four-factor solutions that were earlier suggested.

4.1 Factorial structure of SSREI-HU

4.1.1 Participants and procedure

In order to validate the internal structure of SSREI-HU, we conducted a confirmatory factor analysis on a sample group of 165 participants (56 men and 109 women). The youngest participant was aged 18, the eldest 43, and mean age was 22,2 years ($SD=3,39$). Of the participants, 106 were not students of psychology (rather of economy, information technology, pedagogy, andragogy), and 59 were university students of psychology. The sampling was conducted on the basis of availability and comfort.

⁵ Two dimensions were assigned only two items, while 5 items remained unclassifiable into any of the six theoretic dimensions.

4.1.2 Material

Following the material's translation and re-translation, we developed the questionnaire's Hungarian version by resolving its inconsistencies. The English language original contained 33 items, but in compliance to a suggestion by Gignac et al (2005) we omitted from the Hungarian version those items unclassifiable to any factor of the Salovey and Mayer (1990) emotional intelligence model. The SSREI-HU contains 28 assertions which participants are required to grade on a 5-point scale, the value 1 being a total rejection („completely does not describe me”), and 5 being a total affirmation („completely describes me”).

4.1.3 Results and discussion

The analysis was conducted using an AMOS 4 programme package, and we tested both the six-factor solution suggested by Gignac et al, and also the single factor solution suggested by Shutte et al. Their different fit indexes are compared in table 1.

	Chi-square	df	sign.	CMIN/df	NFI	IFI	CFI	RMSEA	RMSEA Conf.int 90%
1. model	671.1	344	<0,001	1.951	0.957	0.978	0.978	0.076	0.068-0.085
2. model	845.83	350	<0,001	2.417	0.945	0.967	0.967	0.093	0.085-0.101

df: degree of freedom, CMIN/df: minimum chi-square and degree of freedom quotient; NFI: normed fit index, IFI: incremental fit index;
CFI: relative fit index, RMSEA: root mean squared error average

1. table: The SSREI six factor (1. model, Gignac et al, 2005) and the single factor (2. model, Schutte et al, 1998) fit indexes

We started by testing the questionnaire's six factor structure. Though the traditional chi-square goodness fit index (671,1; df=344 p<0,001) proved significant, but the value between chi square and degree of freedom of (1,951) proved acceptable, as this value is optimally less than 3 (Tabachnick and Fidell, 1996). The other fit indexes (NFI=0,957; IFI=0,978; CFI=0,978; RMSEA=0,076) also support the theoretic model's acceptability. The NFI fit index also regards the sample size, and its value exceeds 0,95 to indicate a favorable fit. Besides the sample size, IFI also regards degree of freedom, and a value exceeding 0,95 indicates a favorable fit. The CFI value is optimally greater than 0,9, and the RMSEA confidence interval top value optimally does not exceed 0,08 (Browne and Cudeck, 1993). The next step was our testing of the single factor solution's fit, and we found that the fit indexes had declined compared to the six factor solution (Chi-square: 845,83, df:350, p<0,001; CMIN/df: 2,417; NFI=0,945; IFI=0,967; CFI=0,967; RMSEA=0,093), that is the results tend to converge more with the six factor structure.

The results indicate that for two scales (emotional expression and emotional regulation of others) the Cronbach-alpha values predicted insufficient internal consistency, therefore we did not consider these scales in further analyses. This result is consistent with international research findings (Gignac et al, 2005), which also show that two of the six factors in the Salovey and Mayer emotional intelligence model (emotional expression and emotional regulation of others) aren't distinctly discernable from the questionnaire. These scales need to be improved in the future, to benefit reliable measuring of trait-emotional intelligence. In case of the four identified factors and the superordinate secondary factor however, internal consistency indicators proved adequate (for subscales Cronbach-alpha=0,61-0,77, for the full scale Cronbach-alpha=0,84).

The result for the statistical tests analysing sex differences was that women produced higher values in the field of trait-emotional intelligence than men (women: $M=3,9$; $SD=0,38$; men: $M=3,7$; $SD=0,39$; $t[163]=2.582$, $p=0,011$), and considering the Cohen-d (0,52) value, sex has a medium strength impact on trait-emotional intelligence. Earlier research (Schutte et al, 1998; Schutte et al, 2001; Ciarrochi, Chan and Bajgar 2001; Saklofske et al, 2003) also had shown that in regard to total SSREI scores, women produce higher scores than men.

Analyses of scale correlations show that questionnaire subscales are without exception positively correlated ($r=0,15-0,54$). The strongest correlation is between the *appraisal of emotions in others* (AEO) and *appraisal of emotions in the self* (AES) scales, while the weakest is between appraisal of emotions in the self (AES) and utilization of emotions in problem solving (UEPS) scales.

4.2 Testing the discriminative validity of SSREI-HU

We proceeded testing the validity of the SSREI-HU scale applying constructs that should in theory differ from the attribute being measured. According to the theoretic consideration of the trait-emotional intelligence models and earlier empirical data, we expected SSREI-HU scale-measured trait-emotional intelligence to be independent from intelligence, showing minor correlation with the big five factors.

4.2.1 Participants

In order to test the discriminative validity of SSREI-HU, we conducted correlational analyses on a 124 participant sample group (63 boys and 61 girls). Of the original 128 participants, 4 were excluded on account of submitting incomplete tests. The youngest participant was 18 years old, the eldest 27, and mean age was 21,0 years ($SD=1,77$). Of the participants, 109 were not students of psychology, 8 were university students of psychology, and in 7 cases we have no data available. University students were majors of a total of 25 non-psychology subjects. The sampling was conducted on the basis of availability and comfort. Students completed the tests individually following the instructions of a study director: first the trait-emotional intelligence questionnaire, then the personality measuring questionnaire, and finally, the intelligence test. During the testing procedure we also queried the participant's sex, age, and university department. Completing the test battery took up a total of 45 minutes.

4.2.2 Materials

We applied SSREI-HU for measuring trait-emotional intelligence. For personality measurement we used the Big Five Questionnaire (BFQ). Intelligence was measured using VNT IQ. The test measuring three IQ fields (verbal, spacial localization, and numeric exercises) was developed in 1997 by Russel and Carter, Hungarian adaptation was carried out by Mária Nábrády and Attila Oláh in 1997. Participants were given 30 minutes to answer 40 questions.

4.2.3 Results

First we examined the Cronbach alpha indicators that assess the material's reliability and the internal consistency of scale specific items. With three exceptions (AES: 0,642; UEPS: 0,658; ERS: 0,661) SSREI-HU subscales comply to the 0.7 criterion in general use. In a comparison of the sexes, women scored significantly higher than men on the following scales: SSREI score total: ($t=2,047$; $p=0,043$; women: $M=3,5$; $SD=0,35$; men: $M=3,3$; $SD=0,35$); BFQ Emotional stability: ($t=5,441$; $p<0,001$; women: $M=82,8$; $SD=8,64$; men: $M=80,7$;

SD=10,71). In case of trait-emotional intelligence, sex had a medium effect (Cohen- $d=0,58$); in case of BFQ emotional stability scales, sex proved to have a strong effect (Cohen- $d=0,99$). These results are consistent with international research findings that indicate higher performance in women for trait-emotional intelligence (Schutte et al, 1998; Schutte et al, 2001; Ciarrochi, Chan and Bajgar 2001; Saklofske et al, 2003). Summarily we may say that trait-emotional intelligence shows positive correlation with all big five factors (except for openness trait), but that correlation strength ranged from low to moderate ($r=0,18-0,45$), therefore two constructs are distinguishable. We believe these correlations between trait-emotional intelligence scales and the personality factors describing positive functions of the personality may be results of applying a self-report method. However, moderate strength correlation point toward the distinction of SSREI-HU measured trait-emotional intelligence from big five factors.

5 Effects of mood manipulation on performance in terms of emotional intelligence

The fourth study of this thesis tests the adaptability enhancing role of emotional intelligence under laboratory conditions. The few earlier studies which tested emotional intelligence validity under laboratory conditions (Matthews et al, 2006; Lam and Kirby, 2002; Day and Carroll, 2004; Lyons and Schneider, 2005) led to very contradictory results, we therefore believe that further studies in this field may be of key importance to understanding the adaptability enhancing role of emotional intelligence.

Our study of the correlation between moods and cognitive performance measures emotional intelligence using both performance testing and self-report questionnaire, thereby making it possible to compare the validities of ability-emotional intelligence and trait-emotional intelligence in this study.

Ability-based models of emotional intelligence regard emotional intelligence as an aggregate of information processing abilities that utilize the adaptivity and cognitive efficiency enhancing function of emotions, therefore (1) we assume individuals with high emotional intelligence are capable of utilizing the adaptivity enhancing function (better fault recognition, more precise and contrastive functioning) of emotions, as well as (2) to successfully utilize the thought and action repertoire broadening (association enriching) support of positive emotions. Positive mood is known to have a general effect of increasing creativity and attention span, actually through thought and action repertoire broadening, at the same time we are aware that positive mood results in a deterioration of attention accuracy (becoming unmindful) and may result in a slowing of response time to unexpected stimuli. Conversely, negative mood may enhance attention accuracy and response time to unexpected stimuli, while negative effects would include a narrowed attention span and impairment of creative thinking (Fredrickson and Branigan, 2005; Storbeck and Clore, 2005; Fredrickson, 2002; Fredrickson, Mancuso, Branigan and Tugade, 2000; Isen, Daubman and Nowicki, 1987, Isen, 1987; Bless, Clore, Golisano, Rabel and Schwarz, 1996; Palfai and Salovey, 1993). According to the premise of an ability-based emotional intelligence model, emotional intelligence anticipates the extent to which a person may be capable of utilizing the positive (cognitive function enhancing) effects of various mood states, and capable of avoiding the destructive consequences of negative stimuli.

The general aim of the study described below is testing the emotional intelligence construct's validity under laboratory conditions. During the study we recorded the effects that positive and negative mood induction had on various performance indicators, and tested whether individual differences in emotional intelligence have influence over the effects of positive/negative mood induction on performance. Several performance indicators are recorded during the procedure: (1) verbal fluency (one indicator of creativity), (2) attention

span, (3) attention accuracy, (4) reaction time to unexpected stimuli. We expected participants with high emotional intelligence to possess the ability to increase their verbal fluency performance in response to positive mood induction, as well as their attention span. We also expected that these participants will be able to enhance their attention accuracy in response to negative mood induction, and that negative mood induction would boost their reaction time to unexpected stimuli. For participants with low emotional intelligence we expected positive mood induction will undermine the accuracy of their attention processes and slow their reaction time to unexpected stimuli, while negative mood induction would impede their verbal fluency performance and diminish their attention span (Salovey and Mayer, 1990).

In a brief overview we test those further hypotheses that may follow from the study arrangement, but fall out of the scope of its primary aims. These secondary hypotheses are related to the following issues: (a) relation of performance and self-report test measurements to emotional intelligence, (b) sex related differences in ability and trait emotional intelligence, (c) professional specialization's relation to ability and trait emotional intelligence, and (d) correlations of ability and trait emotional intelligence and mood indicators.

5.1 Participants

Study participants were selected from Budapest university students (psychology, pedagogy, andrology, economics, information technology majors). Participants volunteered to advertisements placed in various forums (university posters, university classes, university webpages) for the study. The sole criterion for selection was the university student status. A total of 93 people, 24 boys (25,8%) and 69 girls (74,2%) participated in the study. Of these, 62 were psychology students (66,7%) and 31 non-psychology students, 5 people filled out none of the emotional intelligence test (they were omitted from the analyses) and 1 person completed the online tests only partially (and was omitted only from certain analyses). Thus we had a total of 88 participants, and in certain calculations we could only analyse data from 87 participants: 23 boys (26,1%), and 65 girls (73,9%), 59 psychology students, and 29 non-psychology students. Of the participating non-psychology students 12 were boys and 17 girls, of psychology students 11 boys and 48 girls. The youngest participant was aged 18 and the eldest, 43 years, the mean age was 22,4 years ($SD=4,20$). We assigned 28 participants to the control group: 7 boys and 21 girls, 17 non-psychology students and 11 psychology students. 27 participants were assigned to the negative mood induction group: 5 boys and 22 girls, 2 non-psychology students and 25 psychology students, and finally to the positive mood induction group 11 boys and 22 girls, 10 non-psychology students and 23 psychology students. The youngest participant in the control group was aged 18 and the eldest, 39 years, the mean age was 22,2 years ($SD=3,87$). The youngest participant in the negative group was aged 19 and the eldest, 40 years, the mean age was 22,6 years ($SD=4,40$). The youngest participant in the positive group was aged 19 and the eldest, 43 years, the mean age was 22,3 years ($SD=4,40$). We distributed the study volunteers randomly into either of the two treatment groups (positive mood induction, negative mood induction) or into the control group. Data was collected through individual testing, with 50 minutes available per participant. Emotional intelligence tests were filled out online by the participants.

5.2 Materials

Mood induction: For positive mood induction we used a 10 minute excerpt from the movie Ice Age, and for negative mood induction another 10 minute excerpt from an interview conducted with a young African AIDS victim. The documentary shows a young boy talking about his illness, suffering and pain, despair and the futility of his situation. The film's closing sequence

reports the boy's death. The control group participants were shown an excerpt from a documentary about the construction of the London Underground. During the film screenings, participants were asked to slowly pedal on an exercise bicycle, a circumstance incorporated into the study for two reasons: firstly, it created an opportunity to word exercise instructions without highlighting the film (and the mood effects), and secondly– based on Schachter's (1971) emotion theory – we expected increased physiological arousal to intensify mood induction.

Measuring verbal fluency: In a pre-mood inductional stage of the verbal fluency exercise, participants were asked to list Hungarian words containing the (relatively infrequent) short „ö” vowel, as many words as they could. In the post-mood inductional stage of the verbal fluency exercise, participants were asked to list Hungarian words containing the (relatively infrequent) short „ü” vowel, with the same requirement. Prior to the study, we conducted a preliminary investigation determining that there is no difference in the quantity of words containing the letters „ö” or „ü” listed within a three minute time frame. We accepted as performance the number of words listed that met the criteria.

Measuring attention indicators: We applied a simple paper and pencil task to investigate attention. Capital letters were printed without spaces on a standard A/4 sheet of paper, 53 letters to each line. The task was to find and underline the letters E, P and K. Participants were given 3 minutes to solve the task, starting from the top of the page and scanning from left to right, in order to locate the letters mentioned above. Several indicators can be determined using the results. Attention span shows how many characters the participant evaluated during the three minutes. Errors fell into two groups: omissions, when a participant would fail to underline a designated letter; and false alarms, when a participant underlined letters not specified in the instructions. The total of error instances indicates attention accuracy.

Measuring reaction time: Reaction time was measured using the pebl-exp.0.09 (reakcioido.pbl) psychologic program. Participants were required to press the key „A” as soon as they see the stimulus „X” appear on the screen. With each trial, the program forecast which side (right or left) the next „X” is likely to appear on. In 80% of cases (24 trials) the prediction is accurate, while in 20% of cases (8 trials) it is misleading. The mean reaction time to the unexpected stimuli indicates performance.

Measuring emotional intelligence: Emotional intelligence was measured using the Revised Reading the Mind in the Eyes Test (SOT, Baron-Cohen et al, 1997), as well as the Schutte Self-report Emotional Intelligence Scale (SSREI-HU).

The Revised Reading the Mind in the Eyes Test: This test was originally intended for use in researching autism and theory of mind. The test had in its original form 25 pictures showing pairs of eyes, and for each picture there is a choice of two words to best describe the emotions or thoughts of the pictured person. In order to find the right solution, test participants must be able to assume the other person's mental state, and therefore must possess the ability of mentalization or mind reading. We believe this ability is a basic component of any emotional intelligence model. The original test lacked the appropriate psychometric indicators, which is the reason Baron-Cohen, Wheelwright and Hill revised the test in 2001 to produce a second version („Reading the Mind in the Eyes” Test Revised Version). To enhance differentiation, the new test features 36 items with four solution choices. The ratio of male and female eyes were modified to half and half, and test answers were reconceptualized from several aspects (eg. To avoid directly contradicting answers, so finding the right answer would be more challenging for adult participants). This version is suitable for differentiated measuring of emotional intelligence in non-autistic people. The second version of the test was published in 2006, in Baron-Cohen's Hungarian language book „Elemi különbség” [Elementary difference]. The test shows participants a total of 36

photographs depicting emotional facial expressions, with visibility restricted to a narrow band around the eyes. The participant is required to select one of the four words in the four corners of the picture, that best describe the emotions or thoughts of the pictured person.⁶ Validation of the revised test is still in progress, in cooperation with Baron Cohen's team at ELTE-PPK Department of Personality and Health Psychology. Analyses so far (involving 42 participants, 15 men and 27 women, mean age: 44,0 years; SD=16,08) indicate that the scale is moderately reliable (Cronbach-alpha=0,534), and shows positive correlation with the Empathy subscale in Baron's Emotional Intelligence Test, as well as negative correlation with alexithymia measured on the Alexithymia Scale.

Mood assessment questionnaires: We applied several materials for measuring current mood. The first was *Faces Scale* (Andrews and Withey, 1976) to reflect the general level of mood state. The second material was a *Brief Mood Introspection Questionnaire* that we composed for measuring current mood, and contains positive and negative mood assertions in equal proportion.

5.3 Procedure

- (1) Information regarding the study, declarations of consent
- (2) Participants completed the two mood questionnaires
- (3) Participants solved two 3-minute paper and pencil tasks: the verbal fluency test followed by the attention test
- (4) Participants solved the computerized reaction time exercise
- (5) Participants were asked to pedal slowly on exercise bikes for 10 minutes, while a film excerpt was projected for their viewing, in accordance with their grouping (*positive, negative, neutral mood induction*)
- (6) Participants completed the two mood questionnaires
- (7) Participants solved two 3-minute paper and pencil tasks: the verbal fluency test followed by the attention test
- (8) The following day, participants were consulted through their submitted e-mail addresses, and given a link to the online emotional intelligence tests, which we asked to be filled out using a given password

5.4 Results and discussion

We observed moderate reliability indicators (Cronbach-alpha:0,57) for ability-based emotional intelligence measuring, and excellent reliability indicators (Cronbach-alpha:0,84) for questionnaire measuring. Both results are consistent with earlier research findings that reported moderate reliability indicators for ability-based emotional intelligence measuring (eg. Mayer and Geher, 1996; Mayer et al, 1997, Sullivan, 1999; Freudenthaler and Neubauer, 2003), and excellent reliability indicators for questionnaire measuring (eg. Ciarrochi, Chan and Bajgar 2001; Schutte et al, 2001; Saklofske et al, 2003).

Regarding the interrelations of the emotional intelligence tests, we expected ability-based emotional intelligence test scores to show weak correlation with questionnaire measured emotional intelligence scores. In our sample, SOT measured emotional intelligence and SSREI-HU measured trait-emotional intelligence total scores produced a statistically reliable ($p < 0,001$) weak correlation ($r = 0,345$). This result is consistent with international data indicating moderate correlation between the two measuring procedures (eg. Brackett et al, 2006; Brackett and Salovey, 2006; Goldenberg et al, 2006; Rooy et al, 2005).

⁶ The photo series featured in the test was revised by Kinga G. Tóth.

We found no significant sex differences related to emotional intelligence, this result is not consistent with our earlier results nor with international findings quoted earlier. However, we must bear in mind that our sample composition was definitely unbalanced in terms of sex (with only 23 male participants), and though no significant differences occur, women had achieved higher mean scores than men in both measurements, therefore the result does not contradict earlier data.

Our analyses concerning to professional specialization and emotional intelligence indicated no ability-emotional intelligence difference between psychology and non-psychology university students. However, we did find significant difference in trait-emotional intelligence ($t=2,28$; $p=0,025$) of the two groups: psychology students reported more advanced emotional abilities (psychology students: $M=4,0$; $SD=0,32$; non-psychology students: $M=3,8$; $SD=0,38$) than non- psychology students. Professional specialization's effect on trait-emotional intelligence proved medium (Cohen- $d=0,59$). This result is consistent with the findings of Caruso et al (2002), who found a relation between trait-emotional intelligence and career preference.

Positive mood induction generated mood changes' relation to individual differences were measured using Mann–Whitney U-tests, and we discovered significant differences between high ($N=14$) and low ($N=19$) „emotional regulation of the self” value groups ($Z=-2,202$; $p=0,028$): we observed a stronger positive mood induction generated decrease in self reported negative emotions in the high groups. According to our results, the high ($N=16$) and low ($N=17$) ability-emotional intelligence groups produced no significant difference in their mood changes generated by positive mood induction.

Negative mood induction generated mood changes in high ($N=16$) and low ($N=17$) ability-emotional intelligence groups were also measured using Mann–Whitney U-tests. The only mood indicator showing a tendency strength ($Z=-1,745$; $p=0,081$) difference between the groups was a stronger negative mood induction generated decrease in positive emotions observable in the higher ability-emotional intelligence group.

In our analyses of correlation between negative mood induction generated mood changes and trait-emotional intelligence observed in SSREI-HU subscales, we discovered tendency strength differences related to general mood indicator changes ($Z=-1,769$; $p=0,077$) between high ($N=16$) and low ($N=11$) „emotional regulation of the self” value groups: the low group produced a stronger negative mood induction generated decrease in general mood indicators.

The combined effects of mood induction (positive, negative) and differing (high and low group) emotional intelligence on the change in verbal fluency (performance before and after film screening) was first tested using a two-way ANOVA. The data confirmed the primary effect of the mood condition: performance changes registered under positive and control conditions proved significantly different. The only positive change in verbal fluency indicators was observed for the positive condition. This result supports Fredrickson's theory of positive emotions, whereas positive emotions expand the current personal thought and action repertoire (eg. Fredrickson and Branigan, 2005; Fredrickson, 2002; Fredrickson, Mancuso, Branigan and Tugade, 2000). The indicators for ability-emotional intelligence and trait-emotional intelligence (except for the emotional regulation of the self trait) unanimously indicated that while the high emotional intelligence group produced increased performance under the positive condition, and produced decreased performance under the negative and control condition, the low emotional intelligence group was observed to produce decreased performance under positive, negative and control conditions. The only emotional intelligence indicator to produce significant difference in high and low group performance change was appraisal of emotions in the self (AES): under the positive condition, low AES participants performance decreased while high AES participants performance increased, producing a

significant difference. *Participants with high trait-emotional intelligence (appraisal of emotions in others) were those who successfully utilized the potential benefit of positive mood.* According to the results of nonlinear regression analysis, trait-emotional intelligence had a significant effect on verbal fluency change in the positive mood induction group: smooth nonlinear regression related nonlinear correlational coefficient: 0,406; $p=0,036$; and a regression related variance proportion of 0,165. With the negative mood condition, trait-emotional intelligence had a tendency level effect on verbal fluency change: smooth nonlinear regression related nonlinear correlational coefficient: 0,427, $p=0,051$; regression related variance proportion 0,182. Considering the SSREI-HU scales under negative mood induction conditions, appraisal of emotions in the self trait had a significant effect on verbal fluency change: smooth nonlinear regression related nonlinear correlational coefficient: 0,472; $p=0,024$; regression related variance proportion 0,222. Comparison of the group correlational matrices pair by pair showed a tendency level alteration ($p<0,10$) under positive and negative conditions in the appraisal of emotions in the self trait and verbal fluency change, correlation in the positive group: $r=0,22$; in the negative group: $r=-0,26$. These results lead to the conclusion that the appraisal of emotions in the self trait has a role in efficiently utilizing the creativity enhancing effect of positive mood.

For the field of attention span, two-way ANOVA confirmed the primary effect of mood condition: difference in performance change between negative and control groups proved significant. In both cases, the smallest improvement in attention span was observed with the negative condition. This result supports the idea that as a result of negative emotional stimuli, consciousness and several cognitive functions are narrowed (eg. Storbeck and Clore, 2005; Palfai and Salovey, 1993). Though both high and low (ability and trait based) emotional intelligence participants produced increased performance under all three conditions, there was also a tendency level difference between the performance change of the two groups with different ability-emotional intelligence: participants with higher ability-emotional intelligence showed a greater increase in performance. *These results lead to the conclusion that participants with higher emotional intelligence have more capability to successfully evade the destructive effects of negative mood.*

In relation to the changes in attention accuracy, the two-way ANOVA indicated a significant interactional effect between the emotional regulation of the self trait and mood conditions, as well as a tendency level interactional effect between trait-emotional intelligence and mood conditions. This means that there is a difference in the relation of mood condition and attention accuracy between groups characterized by high and low trait-emotional intelligence/emotional regulation of the self trait. Participants with high trait-emotional intelligence produced decreased performance under the negative condition, while those with low trait-emotional intelligence produced increased performance, but the two groups did not differ in performance change under positive or control conditions. Nonlinear regression analyses showed that in the positive mood induction group, trait-emotional intelligence had a significant on attention accuracy change: smooth nonlinear regression related nonlinear correlational coefficient: 0,552; $p=0,001$, regression related variance proportion 0,305. Between trait-emotional intelligence level and accuracy change we discovered a negative correlation ($R_{pb}=-0,127$). In case of negative mood induction, trait-emotional intelligence has a tendency level effect on attention accuracy change: smooth nonlinear regression related nonlinear correlational coefficient: 0,427, $p=0,051$, regression related variance proportion: 0,182. Between trait-emotional intelligence level and accuracy change again we discovered a negative correlation ($R_{pb}=-0,133$). Comparison of the group correlational matrices pair by pair showed significant alteration ($p<0,05$) under positive and negative conditions between *appraisal of emotions in the self* trait and attention accuracy, correlation for the negative group is $r=0,09$; and $r=-0,44$ for the positive group, as well as a tendency level alteration

($p < 0,10$) in *emotional regulation of the self* trait and attention accuracy change between control and negative groups, correlation for the control group: $r = 0,10$; and for the negative group: $r = -0,36$. These results indicate that while participants with a high emotional regulation of the self trait were able to enhance their attention accuracy under negative mood conditions, while the low group was incapable of utilizing this effect, in their case the negative condition effected a decrease in attention accuracy performance. *This result clearly supports the validity of the trait-emotional intelligence concept.*

For *change in reaction time to unexpected stimuli*, our results indicate the primary effect of mood condition: the negative condition produces greater performance improvement than the control condition. In this case, neither emotional intelligence indicator had effect on the results.

When interpreting the results, it is important to consider the limitations of the study. The first and foremost limitation is that because the study is time-consuming, there was a relatively low number of participators for multi-dimensional statistical analysis. The numerous statistical tests conducted during the analyses results in an increased type I error rate. As we applied no form of correction, these results must be handled with caution. Another possible critique would be the fact that all participants were university students, and that the method of measuring ability-emotional intelligence had only a moderate reliability indicator.

6 Discussion

The studies described in this thesis illuminate the major problems arising during the measuring of emotional intelligence: (1) objective measurements of emotional intelligence have low reliability indicators, (2) questionnaire measurements show significant relation to certain personality traits, and (3) the measurement data does not cover the whole scope of the emotional intelligence construct. For a reliable measurement of emotional intelligence, further efforts are required in the future. However, several of our results give cause for optimism regarding the future of the emotional intelligence concept. On one hand, we discovered some connection between emotional intelligence and the utilization of mood, and our results show that people with high emotional intelligence are capable of utilizing the potential positive effects of positive mood, and also to evade the possible destructive effects of negative mood. The thesis' first study demonstrated that it is possible to compose exercises for registering individual differences in emotional intelligence, which measure similarly in terms of developmental criterion to exercises measuring cognitive abilities, furthermore performance in these exercises is independent of both intelligence and personality.

7 Irodalom

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