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False memory for positive and negative life events. The role of mental imagery

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A false memory appears when a person recalls memories of events that did not actually happen to him or her. The present study focused on situational and personal determinants of spontaneous false memories. Specifically, we aimed to investigate the role of emotional valence of an event, as well as the individual differences in mental imagery in evocation false memory. Three videos in which related details were not shown but were presented during a recognition task were used to induce spontaneous false memories. The three videos are different in terms of valence, reflecting positive, negative and neutral events. A scale for measuring mental imagery was also used. A sample of 132 participants completed the study. The results showed that the positive event lead to a higher level of false memory than the negative event. Moreover, the participants differ in their susceptibility to false memories based on the level of imagery, but the interaction between the emotional valence of the event and mental imagery is not significant. The results are discussed from the perspective of their legal and clinical implications.

Keywords: false memory, true memory, emotional valence, imagery

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Introduction

We always want to be confident in our memories, but errors in recalls are not uncommon. Early memory research showed that memory can be both reproductive and reconstructive (Bartlett, 1932; cited in Roediger & McDermott, 1995). While reproductive memory refers to accurately reproducing information from memory, reconstructive memory involves a more active process when people assume, infer, or imagine what happened in order to fill in missing elements. During this process of reconstruction the past, errors are likely to occur. In some situations, these errors go beyond filling in minor gaps, leading to memories for events that we never experienced, but we only imagined or they were suggested to us (e.g. Bransford & Johnson, 1973). These memories are called false memories. Although they can be harmless in many daily life situation, false memories can have detrimental effects when they appear in legal or clinical proceedings. In the legal settings, the reliability of memory recollections is very important because these recollections are often the determining evidence factor in deciding whether a suspect should be convicted (Otgaar, Howe, Peters, Sauerland, & Raymaekers, 2013; Zhu et al., 2010). In clinical settings, many therapists use imagery techniques that can increase the risk of creating false memories (Lindsay & Read,

1994). Therefore, many researchers and professionals are interested in studying the factors that affect the reliability of memories (Brainerd, Reyna, & Ceci, 2008).

Previous studies showed that our memory is influenced by emotional valence of the to-be remembered events (Toffalini, Mirandola, Coli, & Cornoldi, 2015), but there is still considerable debate in the literature regarding whether negative emotional events make false memories more likely than positive events (e.g., Dehon, Bastin, & Larøi, 2008; Gallo, Foster, & Johnson, 2009). Additionally it is apparent that some individual differences, like mental imagery, may increase vulnerability to false memories (Conway & Loveday, 2015). The overall aim of this study is to investigate how the emotional valence of an event and individual differences in terms of mental imagery interact in predicting the susceptibility to false memories.

The role of emotional valence

Several studies have induced different emotions to the participants in order to investigate the occurrence of false memories. Although many studies have shown an enhancing effect of emotional content of the to-be-remembered material on retention accuracy (Nielson & Powless, 2007), evidences for false memories are mixed. Some studies showed that negatively induced moods through materials with a negative valence increase the

propensity toward false memories (e.g., Dehon, Laroi, & Van der Linden, 2011; Howe, Candel, Otgaar, Malone, & Wimmer, 2010). On the contrary, other studies suggest that temporary negative mood reduce the occurrence of memory errors, whereas positive mood have an opposite effect (Monds, Paterson, Kemp, & Bryant, 2013; Otgaar et al., 2013; Storbeck & Clore, 2005). There are also some evidences suggesting that emotional material, both positive and negative, protects against inferential memory errors, compared to a neutral material (Mirandola, Toffalini, Grassano, Cornoldi, & Melinder, 2014).

Some researchers tried to explain the differences between processing consequences of different emotional materials. According to the affect-as-information hypothesis (Toffalini, Mirandola, Drabik, Melinder, & Cornoldi, 2014; for overviews, see Corson & Verrier, 2007; Storbeck & Clore, 2005), negative mood lead to a better encoding, because it is interpreted as a negative feedback on one's own performance (Storbeck & Clore, 2005, 2011). On the contrary, positive mood would promote an increase reliance on stereotypes (Ruder & Bless, 2003). A theoretical framework that explain this hypothesis is socio-emotional selectivity theory (e.g., Carstensen & Mikels, 2005). According to this theory, adults pay a greater attention to the details of negative stimuli because they have higher informational content. Further, studies have shown that a greater attention to the details of experiences reduce false memories (Brainerd & Reyna, 2005; Brainerd et al., 2008). Another explanation for the abovementioned mixed findings is provided by the Paradoxical Negative Emotion (PNE) hypothesis (Porter, Taylor, & ten Brinke, 2008). This paradigm sustain that negative events, compared to neutral or positive events, facilitate accurate recall, but also paradoxically increase the likelihood of false memories. The explanation for this hypothesis is based on the relation between emotions and memory. Negative emotions enhances memory in general but also increases susceptibility to misinformation relative to emotional events. As a consequence, memories for negative emotional events are powerful and fragile. The paradoxical effect consist in the fact that the two memory's characteristics, power and fragility, are presented simultaneously at the same individual, for the same event. The authors also explain this hypothesis by the fact that more processing time to consider whether an event exists in your memory increase the number of both true and false details recalled, particularly for negative events (Porter et al., 2008).

Considering the recent mixed findings concerning wherever different emotional stimuli have different effects on the occurrence of false memories, we consider important to investigate wherever the emotional valence of an event interact with particular individual differences in explaining the tendency to report false memories.

The role of mental imagery

Although not always consistent, previous studies showed that individual differences in terms of personality may have an important role in determining the tendency to report false memories (Zhu et al., 2010). There are some recent evidences suggesting that imagery, for example, is related to the development of false memories (Conway & Loveday, 2015). Mental imagery was defined as the experience of seeing something in the absence of sensory input, with 'the mind's eye' (Kosslyn, Ganis, & Thompson, 2001). The spontaneous use of mental imagery in daily life is sometimes described as a trait

measure of mental imagery use (e.g., McCarthy-Jones, Knowles, & Rowse, 2012; Nelis, Holmes, Griffith, & Raes, 2014; Pearson, Deepröse, Wallace-Hadrill, Burnett Heyes, & Holmes, 2013).

There is an intrinsic relatedness of memory and imagery, due to the reconstructive nature of our memory. Unlike recording media, memory is not only a reproduction of the past experiences (Conway & Loveday, 2015). Mental imagery often intervenes in order to fill gaps of the to-be remembered event or thing. According to this assumption, previous studies confirmed the fact that participants who reported using more imagery were also more likely to report false memories (Wilkinson & Hyman, 1998; Winograd, Peluso, & Glover, 1998). However, some studies showed that imagery manipulation increased the probability of creating a false memory of an event, but also increased the probability of recovering true events (Roberts, 2002), even the one that were previously unable to be recalled (Hyman & Pentland, 1996). Therefore, a high level of mental imagery has both advantages, because imagery ability makes a person better at encoding information in a visual form, and disadvantages, because this ability can create a vulnerability to develop false memories.

Because the link between imagery and memory was not clarified and previous studies report inconsistent result, further work is needed in order to better understand this relation. It has important implication both in legal and in clinical practice, when the veracity of a person's memory is very important. Despite specific practices that can promote false memory, a professional should be aware of the impact of particular individual differences on false memory creation over which he has little control. Individual differences in terms of mental imagery represent the focus of the present study.

The present study

Most of the studies about false memories showed that they occur when the participants are exposed to misleading post-event information (Loftus, 2005). This procedure is called misinformation technique (Morgan, Southwick, Steffian, Hazlett, & Loftus, 2013). In this study, we want to assess the occurrence of false memory in the absence of a misinformation technique. Because suggestive questions and post-event misinformation can lead to false memories, we can prevent their occurrence by avoiding the use of these techniques. However, it remains the question if false memories can occur without being stimulated. In order to study the occurrence of false memories, a paradigm containing video was used. We preferred this method instead of the Deese-Roediger-McDermott (DRM; Roediger & McDermott, 1995) paradigm, that is the traditional and the most common paradigm used in the studies about false memories. It involves participants memorizing sets of semantically related word-lists. When recalling these lists, participants often report a critical lure – a word not originally presented but strongly related to the studied words. Because laboratory studies have a limited ecological validity, we preferred to use stimuli more closed to the real-life situations in which false memories can occur (film clips with real events instead of words). Recently, researchers have also resorted to false memory paradigms based on visual scenes and the studies revealed their effectiveness (Otgaar et al., 2013; Otgaar, Howe, Peters, Smeets, & Moritz 2014; Peters, Engel, Hauschildt, Moritz, Jelinek, & Otgaar, 2012).

Based on previous mixed empirical findings presented above, regarding the role played by emotional valence in recognition, the first aim of the present study is to assess the influence of emotional valence of an event on false memories. Moreover, because individual differences may interfere in the process of recognition and may explain the mixed findings regarding the memory' accuracy for different emotional events, we want to explore the interaction between emotional valence of an event and individual differences in mental imagery in determining the occurrence of false memories. Due to the mixed findings with respect to the effect of emotion on false memory rates, we cannot anticipate a direction of the effect. However, we consider that people who are more likely to spontaneously use imagery are also more susceptible to report false memory and this effect can interact with an event emotional valence.

Method

Participants

Participants were invited to take part in the study in exchange for course credits. In total, 138 participants completed the study. There are no exclusion criteria for participants. Six participants failed to complete the task required by the study and were excluded from the dataset. The final sample of the 132 participants consisted of 83.3 % women and 16.7 % men, aged between 18 and 27 (mean age of 21.49 years, $SD = 3.66$). The participants were students from the Faculty of Psychology and Education Sciences, Alexandru Ioan Cuza University, and received credits for their involvement.

Materials and measures

Video False Memory Paradigm

According to previous studies, we used a video false memory paradigm built around the principles of the DRM paradigm. All the participants were presented with three videos which differs in terms of the emotional valence (negative, neutral, positive). Each video lasted for about 2 minutes (the negative event – 2 minute and 19 seconds, the neutral event – 2 minutes and 22 seconds, positive event – 2 minutes and 10 seconds). According to video false memory paradigm constructed by Peters et al. (2012), the videos were chosen according to the following considerations: (1) themes are universally familiar from human daily-life experience or other sources (e.g., books, movies); (2) easy to identify as theme; (3) detailed dynamic setting; and (4) suitable for the emotional content.

The videos' selection was based on a pilot study. After viewing, in a random order, a series of three negative, three neutral and three positive film clips, 33 students (82.7 % females, $M = 20.15$, $SD = 1.03$) reported their mood using the ten items from the Positive Affect Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) on an 11-point scale ranging from 0 (sad mood) to 10 (happy mood). The middle point (5) represent the neutral position. The participants were instructed to assess the mood created by the video and they completed the scale after each video. We selected the film, about a child anniversary, that best enhanced the participants' positive mood ($M = 9.27$, $SD = 1.50$) and another one, about a flood, that had the strongest negative effect on the participants' affective mood ($M = 2.70$, $SD = 1.79$). The anniversary video presents a party from a child birthday, with many peoples, both children and adults, having fun. The flood is a reportage about the consequences of a flood that followed an earthquake. We

also wanted to select a neutral film, in order to compare the false memories generated by the emotion eliciting situation to false memories generated by a neutral event. Based on the results from the pilot study, we observed that neither of the events was evaluated as neutral. However, we selected a film that had the nearest mean to the middle point of the response scale. This video present scenes about a firefighter training exercise ($M = 7.70$, $SD = 1.49$).

The recognition task was composed of 60 items: 10 presented items for each video (30 in total) with a corresponding contextual cue from the specific video. Furthermore, 10 non-presented items for each video were included (30 in total). Of the latter items, five were unrelated items (e.g., a present from child' grandparents in the anniversary video) and five were critical, related items (e.g., police car in the flood video). These items were presented in a random order.

The Spontaneous Use of Imagery Scale (SUIS; Reisberg, Pearson, & Kosslyn, 2003) was administered to measure to what extent participants spontaneously use imagery in daily life. This questionnaire consists of 12 items (e.g. When I think about visiting a relative, I almost always have a clear mental picture of him/ her. or Before I get dressed to go out, I first visualize what I will look like if I wear different combinations of clothes.), rated on a 5-point scale (1 = never appropriate, 5 = always completely appropriate). The SUIS has high internal consistency and convergent validity (Reisberg et al., 2003; Nelis et al., 2014). A total score was computed because it is recommended given the unidimensional underlying structure (Nelis et al., 2014). The Cronbach Alpha in our sample is .77.

To test whether the participants experienced the videos as emotionally or not, we asked them to provide valence ratings on a three-point Likert scale (1 = negative, 2 = neutral, 3 = positive) after watching each video.

Design and procedure

In this study, we used a 2x2 mixed factorial design with one within subjects factor (emotional valence of the event presented) and a between factor (mental imagery). The main dependent variable was the number of false memories reported for the two events. We also computed a score for true memories for the two events presented.

The research took place in a university in the city of Iasi, Romania. Before starting the study, participants were informed that they will participate in a memory study that involves completing a brief scale, watching three short videos and completing a recognition task. Therefore, they were instructed to pay close attention to the videos because they will be asked to recall the details later. The true purpose of the study was concealed. The participants were also informed that their participation is voluntary and that they could terminate the experiment at any point. Participants signed an informed consent, filled in the SUIS and then the films were shown. The participants were tested in six groups of about 20-25 participants for each group. The order of the videos' presentation was counterbalanced. During the recognition task, the participants were asked to indicate whether they had seen a particular item (detail) in a video. Specifically, they were asked to respond with True, False or I am not sure/ I don't remember at a set of statements (20 for each video, in a random order). There were three types of statements: true statements that were presented in the film; false statements

about things that were not presented in the film; and false statements about things that were presented in the film.

Each item had a code consisting of a letter (that represent the initial of the video name) and a number (the number of the item). The participants were informed that the letter represents the video they should have in mind when responding to the item. For example, the first item was: A1. The child name is Matthew: True/ False/ I am not sure or I don't remember.

Because the false memories are indicated by the number of True answers at items were the correct answer is False, we asked the participants to respond with True or False, only if they were sure about the answer. For this reason, we included a third answer, so the participants to not be forced to choose between True and False, if they are not sure about the answer. Finally, participants were debriefed and the experimenter thanked them for their involvement.

For each participant, four scores were computed: a score for presented items (the total number of True answers for true statements, which represent a good memory for the videos' content) and two scores for new items (a score for unrelated items and a score for critical related items). All the new items were false, and we computed the number of True answer, that represent false memories. Moreover, according to previous studies (Otgaar & Smeets, 2010; Otgaar et al., 2013), we computed a net accuracy score (true recognition/ true + false recognition).

Results

As we expected, all the participants rated the positive event with 3 and the negative event with 1. In agreement with the results from the pilot test, only 30.2% of the participants rated the neutral film as neutral, while 62.5% rated it as positive. Therefore, we decided to not include it in the subsequent analysis.

True Memory

We conducted a 2 (imagination: low, high) \times 2 (valence: negative, positive) mixed ANOVA on the proportion of true recognition. No significant interaction emerged [$F(1,70) = 0.24, p=.625$]. The main effects of imagery and valence were also nonsignificant [$F(1,70) = 0.92, p=.340$, for imagery, respectively $F(1,70) = 0.81, p=.371$, for valence].

False Memory

A paired sample t test was used to compare the false recognition for the positive and negative event. For critical items, the level of false memories for positive event is higher than the level of false memories for negative event [$t(1,131) = 10.85, p<0.001, \eta^2 \text{ partial} = .93$]. For unrelated items, there are not significant differences between the level of false memories for positive and for negative event [$t(1,131) = 0.33, p=0.377$]. The results are shown in Figure 1.

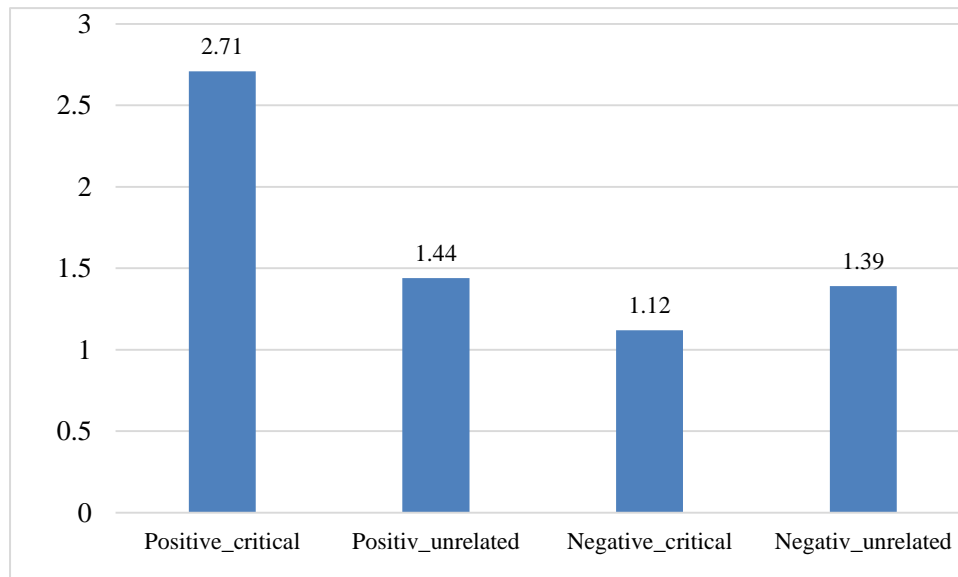


Figure 1: Means for false memories for positive and negative event (N = 132)

A 2 (imagination: low, high) \times 2 (valence: negative, positive) mixed ANOVA on the proportion of false recognition for the critical items yielded the following results. Because dividing subjects into two groups based on the median value can distort data (Sava, 2011) and lead to nonsignificant results, in the current study, we used only the lower and upper 25% of participants based on the mental imagery results, in order to assure a more clear distinction between individuals low and high in mental imagery.

No significant interaction emerged [$F(1,70) = 0.96, p=0.329$], but we found a significant main effect of the event valence [$F(1,70) = 54.18, p<0.001, \eta^2 \text{ partial} = .44$] and imagery [$F(1,70) = 3.56, p = 0.051, \eta^2 \text{ partial} = .04$]. Additional contrast tests showed that positive event lead to a higher level of false memory than negative event. Moreover, participants differ in their susceptibility to false memories based on the level of imagery. Specifically, the participants with a high level of mental imagery reported more false memories than the participants with a low level

of mental imagery. For unrelated items, no significant interaction emerged [$F(1,70) = 0.03, p=0.863$]. The effect of imagery is also nonsignificant [$F(1,70) = 0.90, p=0.346$]. Positive event lead to a higher level of false memory than negative event [$F(1,70) = 23.63, p<.001, \eta^2 \text{ partial} = .25$].

Net Accuracy

We conducted a repeated-measures ANOVA on the accuracy scores. The analyses revealed a nonsignificant imagery \times valence interaction [$F(1,70) = 0.26, p=0.606$]. Simple effects analyses revealed the following findings.

Table 1. Means for true recognition, false recognition, and net accuracy as a function of imagery and valence

| | Low imagery | | High imagery | |
|-----------------------------|--------------|--------------|--------------|--------------|
| | Positive | Negative | Positive | Negative |
| True recognition | 14.52 (0.37) | 14.02 (0.42) | 13.91 (0.39) | 13.76 (0.44) |
| False recognition critical | 2.21 (0.32) | 0.97 (0.21) | 3.05 (0.34) | 1.44 (0.22) |
| False recognition unrelated | 0.60 (0.15) | 1.23 (0.14) | 0.79 (0.16) | 1.38 (0.14) |
| Net accuracy | 0.75 (0.02) | 0.86 (0.01) | 0.70 (0.03) | 0.82 (0.02) |

Note: SDs in parentheses

Discussion

In the present study, we were interested in the factors influencing different types of spontaneous false memories. Specifically, we investigated if false memories depends on situational (i.e. the emotional valence of an event) and personal factors (i.e. the level of mental imagery). In order to study our aims, we used a video false memory paradigm, because it includes more obvious themes than simple DRM word lists (Otgaar et al., 2013).

The results showed that positive event lead to a higher level of false memory than negative event. Based on this results, the present study sustain the affect-as-information hypothesis (Corson & Verrier, 2007) and contradict the assumption of the paradoxical negative emotion hypothesis (Porter et al., 2008). Previous results also showed that people are not likely to err when they are presented with unpleasant and negative material (Monds et al., 2013; Otgaar et al., 2013; Toffalini et al., 2014). According to the affect-as-information hypothesis and to the previous recent studies, we can explain these findings through the level of attention given to the two films. If the details from negative event drew a greater attention, they were better encoded. As a consequence, the propensity toward false memories was reduces. In our study, there are not significant differences between true memories for positive event and true memories for negative event, therefore these results did not fully sustain that negative stimuli evoke better encoding. However, although our results did not reach the significance level, the tendency of our participants is to report higher true recognition levels for the negative video than for the positive video. Therefore, the negative event is better remembered than the positive event, and it reduce the false memories creation.

The second important result of this study highlight the fact that participants differ in their susceptibility to critical false memories based on their level of mental imagery. This result is partially consistent with our hypothesis. For unrelated false memories, the present result did not reveal individual differences in terms of mental imagery. Moreover, for critical false memories, the effect size is very low. Mental imagery did not interact with the event's emotional valence in influencing false memories. A previous study showed that the difference in false memory rate between high and low imagery participants appear

Net accuracy levels did not differ according to the level of imagery [$F(1,70) = 2.33, p=0.131$], but we found that there was a significant difference between the net accuracy scores for the different emotional events [$F(1,70) = 33.54, p < 0.001, \eta^2 \text{ partial} = 0.32$]. That is, for positive events net accuracy scores is lower than the negative accuracy scores.

The means and standard deviation for the groups we compared are presented in table 1.

only in combination with a high level of state anxiety and stress (Roberts, 2002). This suggest that the impact of imagery may be more pronounced when people try to remember intense negative events that elicits intense negative emotions (e.g. state anxiety), not only a transient negative mood. Another explanation for these results may involve the temporal distance between watching the film and the completing of recognition task. The participants completed this task soon after watching the videos. It is possible that mental imagery to intervene in order to fill gaps when the temporal distance between stimuli exposure and their recognition is longer. Further studies should assesses this hypothesis. Despite these explanations for the inconsistent role of mental imagery, our study provide some evidence for the implication of mental imagery in false memory creation. Subjects who reported using more imagery were more likely to falsely recognize a critical item. Therefore, when a person's memory is important, in clinical or legal field, different techniques based on mental imagery should be used with caution.

This study is not without limitation. First, the sample size may be too small, therefore the analyses might have missed significance due to the limited statistical power. Second, the videos were not similar in terms of perceptual complexity. The positive video (anniversary) contained more colours that the negative video (flood). This is an important video' characteristic that should be taken under consideration in further studies. Using of black and white scenes could be a way of controlling this confounding variable. Third, the generalizability of our results should be limited particularly to young females, because they represent the majority of our sample.

In summary, the present study offer support for the affect-as-information hypothesis, showing that the positive event increase the probability of false memories creation, compared with the negative event. Further studies, addressed to both males and females, should bring new evidences about the role of emotional valence of an event and individual differences in susceptibility to false memories, given their importance in legal and clinical setting. People with a known propensity towards false memories may be less credible eyewitnesses (Zhu et al., 2010). In clinical practice, a therapist should be aware of

particular individual differences that lead to false memories when he try to reconstruct a past event.

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Locus of control, Hardiness, and Emotional Intelligence as Predictors of Waste Prevention Behaviours

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Given that waste generation is an economic and environmental problem for nations and governments, it is necessary that we advance our knowledge on the etiology of waste prevention behaviours. This study aimed to investigate about the relationships between the locus of control, hardiness, emotional intelligence, and waste prevention behaviours. Four hundred and forty participants (226 females and 214 males) from Universiti Putra Malaysia completed a survey questionnaire. Structural Equation Modeling (SEM) estimated that individuals who were high in emotional intelligence and hardiness showed better waste prevention behaviours as well as those individuals with internal locus of control. Also, the results showed that older students tend to have better waste prevention behaviours. These findings reinforce the importance of personality traits and emotional intelligence in waste prevention behaviours.

Keywords: Locus of control, Hardiness, Emotional intelligence, Waste prevention behaviours

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Introduction

Over the past decade, Malaysia has enjoyed tremendous growth in its economy. This resulted in an increase in the amount of waste generated. Currently, an average of 2500 tons of municipal solid waste (MSW) is collected every day for the city of Kuala Lumpur (Johari, Ahmed, Hashim, Alkali, & Ramli, 2012; Kathirvale, Muhd Yunus, Sopian, & Samsuddin, 2004). The Ministry of Housing and Local Government, Malaysia has reported that from an estimated 17,000 tons of solid waste generated, only 1 to 2 percent was recycled sending the rest to landfill and open dumping (Budhiarta, Siwar, & Basri, 2011). The highest amount of waste was generated at the state of Selangor: an estimated 3,923 tons per day (Saheri, Mir, & Basri, 2012). Interestingly, a study showed that the amount of waste productions increased with increasing number of students in the universities (Karbalaei, Abdollahi, Momtaz, & Abu Talib, 2014). University students are of special importance to the future as decision-makers and socially responsible citizens. Hence, a study was conducted using university students.

Waste prevention behaviours include maintaining public cleanliness and preventing environmental pollution.

Apart from public hygiene, waste prevention behaviours contribute to the reduction in greenhouse gases as well. Waste prevention begins at people's purchasing behaviours: for example, one's preference for disposable and reusable items to 'use and throw away' items. Additionally, routine recycling activities among residents reduce the garbage tremendously (Kurusu & Bortoleto, 2011). It is widely acknowledged that, in spite of positive involvement of packaging industry in waste reduction, the role of individual in waste prevention is undeniable (Barr & Gilg, 2007; Vicente & Reis, 2008). Generally, the solution to waste reduction is seen in two aspects: (a) reducing consumption and (b) reusing, reselling or sharing products (Oskamp, 2000). Obviously, individual characteristics play an important role in waste prevention (Kurusu & Bortoleto, 2011). This is in line with Oskamp's request to psychologists to play a more active role in promoting behavioral modifications that contribute to conserve the environment. As a follow up, increasing psychological researches are conducted in order to conserve the environment. There are several psychological factors involved in pro-environmental behaviours. On the one hand, individuals with high self-efficacy are pro-environmental (Barr, 2007) while on the other hand,

egoistic individuals are less likely to be pro-environmental (Stern, Dietz, & Guagnano, 1995). Thus, consumer's intention and subsequent behaviours predict his/her environmental concerns (Carrus, Passafaro, & Bonnes, 2008; Markowitz, Goldberg, Ashton, & Lee, 2012; Swami, Chamorro-premuzic, Snelgar, & Furnham, 2010). For example, Swami et al. (2011) have highlighted the positive association between age and psychological traits such as conscientiousness in household Waste Management. In the same vein, self-efficacy has been identified as an important predictive element in recycling behavior of people (Barr & Gilg, 2005; Kim, Jeong, & Hwang, 2012). Similarly, emotional stability and conscientiousness are positively correlated with waste prevention (Swami et al., 2010). In addition, Karbalaei, Abdollahi, Abu, Nor, & Ismail (2013) found that effective problem-solving skills and internal locus of control predicted waste prevention behaviors among university students. Ojedokun (2011) has identified altruism and internal locus of control as powerful predictors of pro-environmental behaviour among Nigerians.

Barr (2007) points out that situational variables, environmental attitudes and psychological traits are substantial factors in waste prevention behaviour. Situational variables such as contextual, structural, or socio-demographic factors influence pro-environmental decision making. Environmental attitudes are also related to an individual's orientation towards, or concern for the preservation, restoration, or improvement of the environment. The previous study displayed that conservative individuals (that is, a concern for the self vs environment or biospheric concerns) are less likely to be environmentally-friendly (Swami et al., 2011). It is likely that individuals who are more open to change and who are altruistic are more likely to be environmentally-friendly (Barr, 2007). Thus, individuals with environmental concerns are more likely to pursue pro-environmental behavior (Dunlap, Van Liere, Mertig, & Jones, 2000; Swami et al., 2011).

For better or for worse, individual behavior has a considerable impact on waste production. Psychological and personality factors may impact on individuals' likelihood to produce pro-environmentally behaviors. Undoubtedly, with personality being such a core part of what motivates our beliefs, values and attitudes, it seems reasonable to expect that basic differences in personality may influence environmental engagement. Therefore, it is clear that awareness of psychological and personality factors help in shaping positive waste prevention behaviors in individuals. Therefore, it is necessary to identify psychological factors that shape appropriate waste prevention behaviours. In this research, we focused on the links between locus of control, hardiness, emotional intelligence and waste prevention behaviours among Malaysian university students.

Present Study

Although the available literature has identified a few situational and psychological factors on pro-environmental behaviours, in our view, these studies are limited to a confined range of psychological variables such as self-efficacy, subjective norms, consciousness, openness to experience and egoistic behavior. Therefore, we want to test whether emotional intelligence, hardiness, and locus of control contribute in waste prevention. Particularly, we want to examine whether a) a positive relationship exists

between internal locus of control and waste prevention behaviours, b) between hardiness and waste prevention behaviours and c) between emotional intelligence and waste prevention behaviours. We also examined whether gender moderates the relationship between exogenous variables and waste prevention behaviours. Most importantly, this type of study has not been conducted in Malaysia, especially among students.

It is clear that, this list does not exhaustive psychological variables that influence on waste prevention behaviours. However, these variables attempt to more, our understanding of psychological traits and emotional intelligence in the waste prevention behaviours. Below, reasonable grounds for choosing the variables are briefly explained.

Firstly, we examined the association between the locus of control and waste prevention behaviors. The locus of control was introduced by Rotter (1990) from experience in social-learning theory. Rotter (1990) postulated that individuals with an internal locus of control are more likely to believe that they can control events in life. Conversely, individuals with an external locus of control are more likely to believe that external powers, such as destiny, chance and luck influence affairs in their lives (Rotter, 1990). Individuals with an internal locus of control typically show personal responsibility, participatory skills, problem-solving skills, desirable choices, persistence, self-efficacy and altruism (Burroughs & Mick, 2004; Corbett, 2005; Joo, Joung, & Sim, 2011; Ojedokun, 2011). In addition, research findings have shown that individuals with an internal locus of control are more likely to engage in conscious actions to reduce waste (Ojedokun, 2011). When individuals have control over the environment and the self, the environment and the self could be changed to the best condition. Previous studies have reported that an external locus of control may lead to frustration, which may contribute to an environmentally destructive behavior (Mehrabian & Diamond, 1971; Ojedokun, 2011). Thus, the locus of control plays an important role in prevention or generation of waste. It seems conceivable that an internal locus of control would be positively associated with better waste prevention behaviors.

Secondly, we examined the association between hardiness and waste prevention behaviors. Kobasa, Maddi, & Kahn (1982) defined hardiness as an ability with three components (commitment, control, challenge) that help individuals while handling problematic life events (Klag & Bradley, 2004). Hardy individuals are more optimistic than individuals with low hardiness and are more flexible in facing problems (Abdollahi, Abu Talib, Yaacob, & Ismail, 2014; Abbas Abdollahi, Talib, Yaacob, & Ismail, 2015). They use rationally based coping styles rather than emotionally based coping styles (Delahaij, Gaillard, & van Dam, 2010). Other characteristics of "hardiness" include: self-efficacy, self-esteem, self-management, self-discipline, optimism, commitment, personal responsibility, conscientiousness, and positive emotions (Abbas Abdollahi, Talib, Yaacob, & Ismail, 2014; Erbes et al., 2011). Consistent with hardiness theory, hardy-attitude individuals are engaged in more self-care and environmental-care behaviours (Hannah, 1988), that would lead to waste prevention behaviours. Thus, individuals with higher levels of hardiness may have proper environmental concerns. It is conceivable that these individuals apply effective solutions for environmental problems as environmental degradation will ultimately have negative

outcomes for themselves and others (Hannah, 1988). Thus, they positively engaged in waste prevention behaviours. Therefore, we wanted to test whether hardiness has an association with proper waste prevention behaviours.

Thirdly, we examined the association between emotional intelligence and waste prevention behaviours. Mayer & Salovey (1993) defined emotional intelligence as a kind of social intelligence that includes the ability to monitor one's own emotions and other's emotions thereby managing one's own thoughts and actions and regulate emotions in self and others; utilize suitable emotions for solving daily difficulties and obstacles actively and effectively. Several studies have shown that positive associations existed between greater emotional intelligence with altruism, empathy, conscientiousness, optimism, happiness, independence, flexibility, and social responsibility (Abdollahi & Talib, 2015; Bar-On, 2000; Carmeli & Josman, 2006). Individuals with high emotional intelligence show greater respect for the self, others, and environment (Côté, Lopes, Salovey, & Miners, 2010). The goal of this study is to examine whether emotional intelligence has a relationship with waste prevention behaviours. Thus, we wanted to know whether emotional intelligence explains variance in waste prevention behaviours.

Method

Ethical Statement

Universiti Putra Malaysia ethics committee approved the study. Written informed consent was obtained from the participants in this study for their involvement in the research. The participants were informed about this research, particularly, on voluntary participation and anonymity of this study. Students had the freedom to withdraw from this study at any time.

Participants

Participants in this study were 226 females, and 214 males studying at Universiti Putra Malaysia (age from 17-46 years, $M \pm SD = 25.53 \pm 5.37$). They belonged to the following races: Malay (43.7%), Chinese (28.2%), Indian (20.3%), and Others (7.8%). Among the participants 55.6% were single, 35.3% were married, and 9.1% were separated or widowed.

Procedure

The survey was conducted during February - April 2013. Permission from Graduate Students Office of Universiti Putra Malaysia was obtained for collecting information from the students. Students from three faculties were considered for this study, namely, science, social science and technical faculties. Then, a faculty was chosen randomly for data collection. After that, two classes from each faculty were randomly selected. From the selected class, data was collected during regular class hours. A package was initially distributed to students. Each package contained an introductory letter explaining the purpose the survey and five questionnaires. A total of 470 packages were distributed, but, only 440 (93%) usable questionnaires were received back from students, and 20 students (4.2%) refused to complete the questionnaires. As a token of appreciation, each participant was given a booklet on waste generation and its impact.

Materials

Waste Prevention Behaviors (Kurusu & Bortoleto, 2011). This is an 18 items that measure waste prevention behaviours. All questions were in 5-point Likert scales from 1 (Never), 2 (Rarely), 3 (Sometimes), 4 (Often), and 5 (Always). A high score indicates greater waste prevention behaviours. The waste prevention behaviours include shopping behaviours that are hard to change including one's preference for purchasing an item without noticing it's reusability and concern for recycling and garbage reduction (Kurusu & Bortoleto, 2011). In the present study, the convergent validity (AVE) of WPB was 0.51, and the construct reliability (CR) of AES was 0.70.3.

Assessing Emotions Scale (Mayer & Salovey, 1993). There are 33 items that measured emotional intelligence in self and others. All questions were in 5-point Likert's scales from 1 (strongly disagree) to 5 (strongly agree). Total scores were calculated by reverse coding items 5, 28 and 33, and then summing all items. The total score was from 33 to 165. The higher score indicates greater ability of emotional intelligence. AES was divided into three sub scales, appraisal of emotions, utilization of emotions and regulation of emotions. Schutte et al. (1998) suggested using the total scores of AES rather than scores of sub scales. The AES had a good internal consistency with α : 0.90, and test-retest reliability was α : 0.87 (Schutte et al., 1998). Several studies have revealed that this questionnaire has powerful convergent and divergent validity (Bastian, Burns, & Nettelbeck, 2005; Brackett & Mayer, 2003). In the present study, the convergent validity (AVE) of AES was 0.60, and the construct reliability (CR) of AES was 0.73.

Personal Views Survey, Third Edition Revised (Maddi et al., 2006). There are 18 items that measured three elements of hardiness: commitment, control and challenge. The sum of three components is hardiness. The range of scores was from 0 to 54. All questions were in the three-point likert scale from 0 (not at all true), 1 (somewhat true), 2 (true), and 3 (very true). Studies have shown the PVS III-R had an acceptable internal consistency (0.70– 0.75 for commitment, 0.61– 0.84 for control, 0.60– 0.71 for challenge, and 0.80–0.88 for total hardiness (Maddi et al., 2006). In addition, the validity of PVS III-R reported α : 0.70 to 0.84 (Okun, Zautra, & Robinson, 1988). The validity of the challenge was α : 0.62, commitment α : 0.59, and control was α : 0.46 (Patton & Goldenberg, 1999). In the present study, the convergent validity (Average Variance Extracted) was 0.60, and the construct reliability (CR) was 0.75.

Locus of Control of Behavior Scale. There were 17 items that measured the locus of control. All questions were in 5-point Likert's scales from 1 (strongly disagree) to 5 (strongly agree). Total scores were calculated by reverse coding items 2, 3, 4, 6, 9, 10, 11, 12, 14, and 17 and then summing all items. The total score was from 0 to 85. So that higher score indicates the external locus of control, and lower score indicates the internal locus of control. The LCB had a good internal consistency from α : 0.75 to 0.79 (Taiwo, Olapegba, & Adejuwon, 2005). In the present study, the convergent validity (Average Variance Extracted) was 0.56, and the construct reliability (CR) was 0.70.

Demographics. A self-report questionnaire was provided to get demographic information, such as gender, age, race, and marital status.

Translation of the Questionnaires

The questionnaires were translated into Bahasa Malay. In order to ensure that the Malay translation properly reflected the meaning of the English version, back-translation was attempted with three experts who are bilingual and necessary adjustments were made based on their evaluation. In order to assess the face validity and content validity, and to ensure its adaptability to the local cultural context, the instrument was reviewed by three members from the Faculty of Human Ecology, Universiti Putra Malaysia.

Pilot Study

A pilot study was conducted on forty university students to determine the reliability of the tools. The Cronbach's Alpha coefficients for the questionnaires in the pilot study were as follows: (1) Waste Prevention Behaviours α : 0.76; (2) Personal Views Survey, Third Edition Revised α : 0.75; (3) Assessing Emotion Scale α : 0.78; and (4) Locus of Control of Behaviour Scale α : 0.78. In addition, after reading a survey letter of consent and completing the questionnaires, the respondents were asked to indicate any difficulties or ambiguities in the questionnaires. In general, the respondents of the pilot study gave positive feedback towards the general structure and presentation of the questionnaire. Those university students who participated in the pilot study were excluded from the main study sample.

Analysis

We employed Structure Equation Modeling (SEM) mainly because it provides a balance of Type I error rates and statistical power when testing the relationships among variables (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Also, Structure Equation Modeling (SEM) makes it possible for researchers to estimate relations among constructs that are corrected for biases attributable to random error and construct-irrelevant variance by providing separate estimates of relations among latent constructs and their manifest indicators (Tomarken &

Waller, 2005). Furthermore, the multi-group (SEM) was used to compare male and female groups (R B Kline, 2005). Convergent Validity includes of Average Variance Extracted (AVE), and Construct Reliability (CR) was performed. Convergent Validity refers to set of indicators (items) that presume to measure a construct (R B Kline, 2005).

Data Preparation

The missing data for parcels and items (range from 0.78% to 3.86%) was addressed with the series mean method in SPSS software. Structural Equation Modeling (SEM) was used for analysis of data and answers the research hypotheses. The data considered to be normal, because the skewness values were from (-0.78 to 0.95), and the kurtosis values were from (-1.25 to 0.88) for all variables. Byrne (2010) stated that, if the skewness value is between -2 to +2, and the kurtosis value is between -7 to +7; data was considered normal. For model fit, the goodness of fit indices, such as the chi square/degree of freedom ratio (CMIN/DF), the comparative-fit index (CFI), the goodness-of-fit index (GFI), and The Tucker-Lewis Index (TLI) was used. The indices have to equal or greater than 0.90 (Kline, 2010). Furthermore, when the root mean squared error of approximation (RMSEA) is between 0.03 and 0.08 (Rex B Kline, 2010), the model has an acceptable goodness of fit. In addition, the group value SEM was used for comparison between Males and females groups. The AMOS 20 software was used for analyzing the data.

Results

Descriptive Statistics

Table no.1 reports the inter-correlations among the waste prevention behaviours, emotional intelligence, locus of control, and hardiness for male and female students, as well as age, standard deviations, and the means.

Table 1. Correlation between study variables for male and female students, and the mean, SD and actual range

| Variables | 1 | 2 | 3 | 4 | 5 |
|--------------------------------|----------------|-----------------|------------------|------------------|--------------|
| (1) Emotional intelligence | | -.241**(-.161*) | .261**(.291**) | .331**(.231**) | .151(.112) |
| (2) Locus of control | | | -.384**(-.434**) | -.263**(-.282**) | .080(.123) |
| (3) Hardiness | | | | .221**(.316**) | .119(.124) |
| (4) Waste prevention behaviors | | | | | .213**(.097) |
| (5) Age | | | | | |
| M | 96.10(92.48) | 52.06(49.01) | 34.95(36.85) | 51.27(41.12) | 25.54(27.11) |
| SD | 9.21(10.11) | 8.18(7.98) | 11.77(10.11) | 9.52(8.89) | 5.36(4.87) |
| Actual range | 40-128(35-125) | 26-61(25-58) | 11-47(10-51) | 21-60(20-61) | 17-46(18-46) |

Note: ** $p < .001$, * $p < .05$. Results for female are presented first, and results for male are presented in a parenthesis.

Goodness of Fit

This model included the waste prevention behaviours, emotional intelligence, locus of control, hardiness as latent variables, and age as an observed variable. The model showed good fit indices: CMIN/DF= 2.46, $p < .01$, CFI= 0.915, GFI= 0.904, TLI= 0.90, RMSEA= 0.078. According to Kline (2010) the model provided acceptable fit for sample.

Structural Equation Model

This model included emotional intelligence, locus of control, hardiness, and age as exogenous variables, and waste prevention behaviours as an endogenous variable. As it can be seen from the Figure 1, emotional intelligence, locus of control, hardiness, and age had the significant effect on waste prevention behaviours.

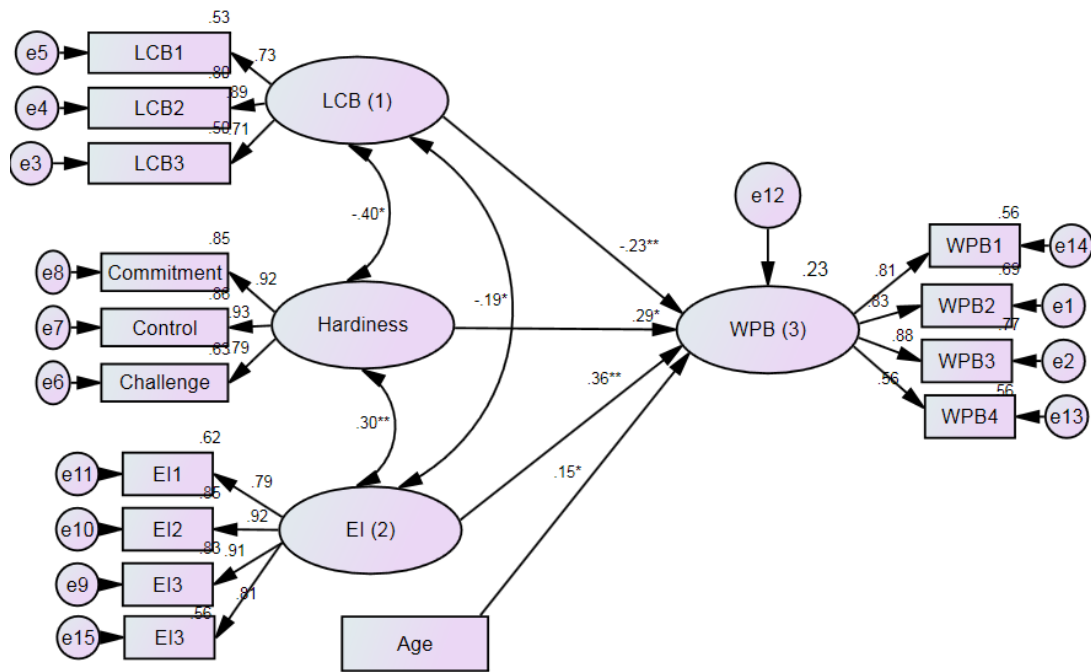


Figure 1. Path analysis of all the study variables
 1: Locus of control behavior, 2: Emotional intelligence, 3: Waste prevention behaviour
 Note: ** P<.001, * P<.05

It can be seen from the data in Figure 1 that, greater emotional intelligence was associated with better waste prevention behaviours, and greater hardiness and internal locus of control were associated with better waste prevention behaviours among university students. These variables explained 23.0% of the variance in waste prevention behaviors. In addition, positive associations existed between emotional intelligence with hardiness (0.30), and a negative association existed between emotional intelligence with external locus of control (-0.19), also a negative association existed between hardiness and external locus of control behavior (-0.40).

Tests of Group Differences (Gender)

Invariance Test of Measurement Model

The comparison between the unconstrained model and the measurement residual's model showed that the unconstrained model with ($\Delta \chi^2 (309.13)$, $df = 166$, $p < 0.01$, $RMSEA = 0.060$, $CFI = 0.903$, $GFI = 0.891$, $NFI = 0.901$), and the measurement residuals model with ($\Delta \chi^2 (368.82)$, $df = 203$, $p < 0.01$, $RMSEA = 0.058$, $CFI = 0.891$, $GFI = 0.863$, $NFI = 0.785$) were significant; however, the unconstrained model was better than the measurement residual's model, because chi-square was smaller (Hair, Black, Babin, Anderson, & Tatham, 2006). According to the measurement residual's model ($\chi^2 = 54681$, $df = 37$, and $p < 0.05$) in "The Assuming Model

Unconstrained to be correct," The findings indicated that the impact of likely differences across gender was significant.

Invariance Test of Structural Model

As it can be seen from the Figure 2, female students showed higher emotional intelligence and waste prevention behaviours, whereas male students showed higher hardiness and internal locus of control. In addition, older females revealed more waste prevention behaviours.

Discussion

We speculate that the associations found between hardiness, locus of control, emotional intelligence, and waste prevention behaviors can be linked to theoretical developments in environmental attitudes. There is a point worth noting before we progress to the discussion of the key findings. The overall variance explained the attitude towards waste prevention behaviors by the locus of control, hardiness, and emotional intelligence was 0.23%, indicating that other variables not assessed in this study (e.g., values, norms, identity issues, situational factors) are also important in explaining the attitude towards waste prevention behaviors.

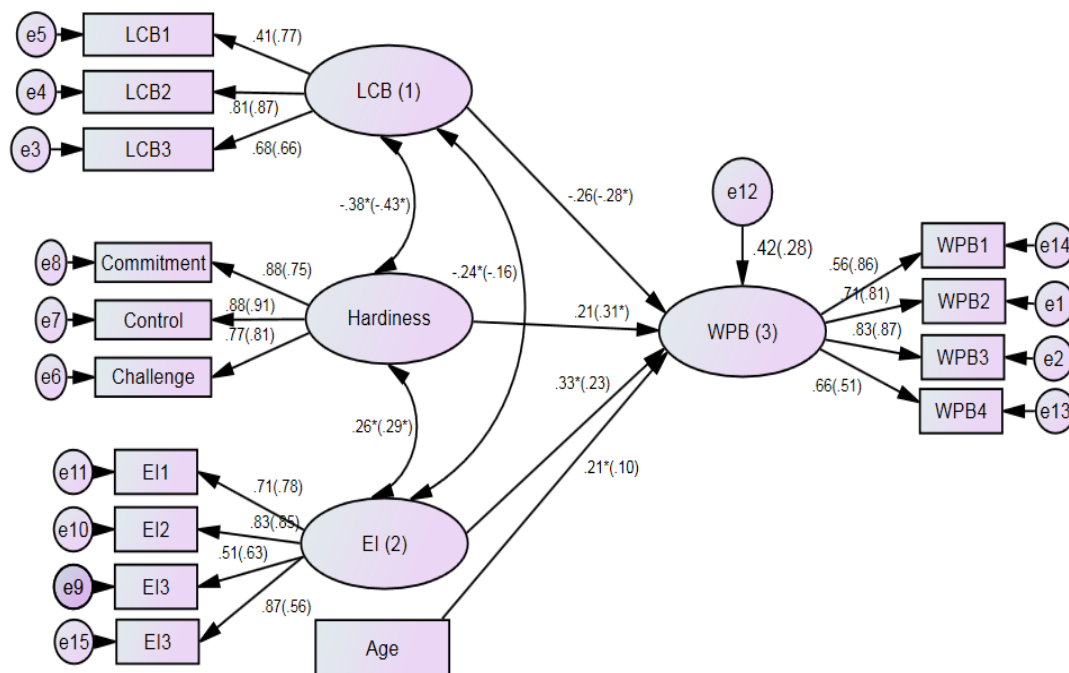


Figure 2. Standardized estimates of multigroup for female, and male.
 Note: * p < .05, without * = not significant; Results for female are reported first, and results for male are in parenthesis.
 1: Locus of control behavior, 2: Emotional intelligence, 3: Waste prevention behaviour

Particularly, our findings demonstrated that greater hardiness, greater emotional intelligence, internal locus of control, and older age significantly predicted better waste prevention behaviours. A deeper inspection of our results underscores a number of noteworthy findings (Barr, 2007). First, hardiness, emotional intelligence, and internal locus of control positively and independently associated with waste prevention behaviours. The positive association between hardiness and waste prevention behaviours may be related to the extreme health concern of hardy individuals. The study showed that the positive link existed between hardiness trait and physical health and mental health via constructive interactions with environment (Taylor, Pietrobon, Taverniers, Leon, & Fern, 2013). Therefore, hardy-attitude individuals may show responsible environmental behaviours than individuals with low in this trait. Similarly, the association between emotional intelligence and waste prevention behaviours may be correlated with altruistic concerns. This moves them to be more pro-environmental with a constructive social behaviour.

In addition, the positive association between internal locus of control and waste prevention behaviours may be linked to the social responsibility (Ojedokun, 2011). Our results show that hardiness significantly and positively predicts waste prevention behaviours. This is because hardiness goes hand in hand with commitment, self-control, and responsible environmental behaviour. Therefore, highly hardy individuals recycle, reuse, and reduce their waste production. In addition, hardy individuals show more self-efficacy, self-esteem, self-management, optimism, commitment, personal responsibility, conscientiousness, and positive emotions (Erbes et al., 2011). In addition, they respect human rights.

Interestingly, our results showed that male's scores were higher on hardiness than females.

Another significant point to note is that emotional intelligence is significantly and positively correlated with waste prevention behaviours. In addition, individuals with greater emotional intelligence may also show self-management, efficient collaborative skills, good judgment, decision-making skills, altruism, empathy, conscientiousness, optimism, happiness, independence, flexibility, and social responsibility (Abdollahi, Yaacob, Talib, & Ismail, 2015; Craig et al., 2009; Pauquet, 2012; Sparrow, 2011; Sunindijo, Hadikusumo, & Ogunlana, 2007; Vermeulen, 2012). The above-mentioned factors are thus related to waste prevention as well. Our results revealed that female scored higher than males on emotional intelligence. This finding is consistent with the observation that females had slightly greater emotional intelligence than males (Katyal & Awasthi, 2005). Finally, the results demonstrated that female and older students are more likely to engage in waste prevention behaviours (Kurusu & Bortoleto, 2011).

Our results showed that a positive association existed between internal locus of control and waste prevention behaviours. Several studies have shown that locus of control is associated with personal responsibility, participatory problem solving, desirable choices, persistence, self-efficacy and altruism (Burroughs & Mick, 2004; Corbett, 2005; Joo et al., 2011; Ojedokun, 2011). In general, waste prevention behaviour is a social responsibility and individuals with internal locus of control show greater respect for fellow humans and fight for societal rights. Thus, individuals with internal locus of control are motivated to engage in waste prevention behaviours (Ojedokun, 2011). Additionally, our results showed that males have better internal locus of control than

females. This is in agreement with Lim, Teo, & Loo, (2003).

Participant's age significantly predicted waste prevention behaviours, with older females having more likelihood on waste prevention behaviours. Interestingly, Barr (2007) indicated in his study that younger individuals were engaged more in waste prevention activities.

Overall, the current results rightly highlighted the personality traits involved in waste prevention behaviour. It is important to point out here that Barr (2007) discounted psychological variables such as hardiness, locus of control, and emotional intelligence in his model while working on environmental protection frameworks. In fact, incorporating psychological variables into pro-environmental behaviour models will improve the efficiency of those models and help to bridge the gap between psychological and behavioural studies (for a discussion, see Barr, 2007).

Implications of this Study

Hardiness, locus of control, and emotional intelligence could significantly predict waste prevention behaviours. This shows that personality traits and emotional intelligence should be considered when environmental theories and models are constructed. This will have positive implications if a program incorporates behavioural modification and intervention targeting a particular group. Thus, psychological training to improve environmental responsibility can be suggested along with behavioural modifications. Therefore, it is implied that psychologists need to be involved in planning waste prevention strategies.

To conclude, the focus on traits of people in predicting waste prevention behaviours is noteworthy, as in our view, waste reduction requires interventions at multiple levels to be effectively addressed. Theoretical models of the behaviour of people as individuals, and the behaviour of aggregate individuals are necessary if we are to attempt to change the behaviour of both individuals and groups of individuals. To maximize change specific behaviour and attitudes, it is necessary to understand the network of more general behavioural tendencies in which the specific behaviours of interest are embedded. This is important because different appeals may work for different people, or for citizens within nations, depending upon differences in personality. By documenting how stable regularities in overall behavioural tendencies (i.e., personality) are related to more specific environmental attitudes and behaviour; we hope to provide important baseline information that may be useful in the ongoing collaborative effort to build models of the psychology underpinning environmental engagement for both individuals and nations.

Limitations and Recommendations

A noteworthy limitation in this kind of studies is that the respondent may overstate to answer the questionnaires for reasons of social desirability. Therefore, future research may attempt to measure behaviours using peer-reports and direct observation methods. Other psychological traits and cognitive abilities need to be studied in order to understand waste prevention behaviours. Personality traits are closely linked with demographic characteristics, which influence the waste prevention behavior. For example, future studies may focus on spiritual intelligence and well-being on waste prevention behaviors. Obviously, the existing pro-

environmental models need improvement incorporating factors mentioned in this paper for better efficacy.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest.

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GENDER-RELATED DIFFERENCES IN SELF-REPORTED COPING MECHANISMS. A STUDY ON ROMANIAN POPULATION

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The Romanian version of the COPE Questionnaire (the version with 60 items and 15 coping strategies) elaborated by Carver, Scheier, Weintraub (1989), was culturally adapted on a convenience sample of 1009 adults by Crașovan and Sava (2013) from general population (non-clinical sample). This study aims to identify gender differences in the usage of coping mechanisms, using a heterogeneous (N = 770) sample composed of different age groups with different social and educational backgrounds. The results show that a number of four coping mechanisms out of the 15 operationalized by COPE are more specific to women, respectively mental disengagement, focus on and venting of emotions, religious coping and use of emotional social support, while only one coping mechanism was identified as more specific to men, namely substance use.

Keywords: coping mechanisms, general population, adjustment, gender differences, COPE.

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This study aims to identify differences determined by gender in coping mechanisms, by using the Romanian version (Crașovan, Sava, 2013) of the COPE questionnaire (Carver, Scheier, Weintraub, 1989) on a general, non-clinical sample. Also, this study is an extension of the existing research as it investigates differences in coping strategies adopted by men and women in different cultural spaces.

In retrospect, the entry of the coping notion in the medical scientific and psychological circuit is much related to stress (Lazarus, Folkman, 1987; Selye, 1976 a, 1976 b) and to the relationship between psychological stress and how to adapt to stress and defense against it, respectively the coping mechanisms. The reaction of the human subject depends on the coping capacities of the subject and on the adaptation to the new situation or stress. Thus stress, defined as any response of the organism consecutive to any request or demand exerted on the organism, is directly related to the process of coping, considered to be the way in which the human subject copes with stressful situations managing to handle it (Selye, 1976 a).

Thus, the interest for coping strategies has registered a continuous growth, thus, from 1990 to 1996 the database of PsycLIT has registered a number of 3392 articles with the coping descriptor (Ionescu, Jacquet, Lhote, 2002). Still, in spite of the enormous number of literature on stress and

coping in the last two decades, a series of questions remained unanswered (Carver, 1997). In this context, a number of authors (Blackman, 2009; Cramer, 1991 a, b, 1998, 2006; Ionescu et al., 2002) showed a growing interest to analyze psychological defense, namely, coping mechanisms.

In this context of gender differences which involves coping mechanisms, previous research (Dakhli & Matta, 2013; Gianakos, 2000; Madhyastha, Latha & Kamath, 2014; Matud, 2004; Rose & Rudolph, 2006; Tamres, Janicki & Helgeson, 2002) shows the existence of some differences between men and women when it comes to the coping mechanisms used to cope with stress, which are subject to the specific characteristics of the studies mentioned.

Therefore, some of the studies mentioned (Dakhli & Matta, 2013; Madhyastha, Latha & Kamath, 2014; Matud, 2004; Tamres, Janicki & Helgeson, 2002) show that females predominantly use coping strategies which include: use of instrumental support seeking (problem-focused), emotional support seeking (emotion-focused), in comparison to males; also, females use strategies that involve verbal expressions in relation to others or to oneself, in order to seek emotional support or ruminate about problems. These differences characterize also girls, who, compared to boys, seek for support, express their

emotions (Rose & Rudolph, 2006) and ruminate about problems. Moreover, in some of these studies, humor has been identified as a coping mechanism specific to males (Madhyastha, Latha & Kamath, 2014), humor being predominantly used also by boys in comparison to girls (Rose & Rudolph, 2006). Throughout their development, boys and girls show differences of coping with stress which are evident in relation to specific types of stress, and some of these differences expand along the development (Rose & Rudolph, 2006).

As mentioned, women have a tendency towards emotional support seeking, verbalizing their emotions and ruminate about problems, while men have a tendency towards active coping strategies and towards using humor. Even more, women were more likely than men to engage in most coping strategies (Tamres, Janicki & Helgeson, 2002).

In the context of gender differences concerning the use of coping mechanisms, gender roles helped significantly to predict the type of coping mechanism used. Therefore, Gianakos (2000) (in a study concerning gender roles and coping with work stress) shows that gender roles are significantly related to the utilization of specific coping mechanisms for dealing with work stress and that feminine individuals reported significantly greater use of direct action coping methods than masculine persons and undifferentiated persons. Moreover, the study shows that feminine and masculine persons, bound by their constraints of traditional roles, did not differ significantly in their help-seeking when compared to either androgynous or undifferentiated persons. In addition, a significant gender difference was found for alcohol use, with males more likely to utilize this method than females.

Despite the gender differences identified between men and women when it comes to the coping mechanisms used to cope with stress which have been reported in various studies, there are a series of characteristics that are predominantly cultural or belong to society and which limit the generalization of the results to cultural spaces or to the type of society involved. Therefore, the previous studies were made in different cultures which makes it possible that the differences observed could have been limited to the variables of that specific cultural space, in other words: norms and social values, the expectations of the society from gender roles, the relationship between collectivism and individualism, the distance people had to power, risk avoidance (see: Copeland & Hess, 1995; Dakhli & Matta, 2013; Ward & Kennedy, 2001), variables which have a huge impact on the perceptions, attitudes, and behaviours of the individuals, and, obviously, on the coping strategies. Intercultural differences can be in favor of some identity dimensions, but they can also determine or activate an unexpected consensus (Gavreliuc, 2006).

Pearlin & Schooler (1978) showed that the effective coping modes are unequally distributed in society. Also, the way we respond to stress is subject to a number of factors such as: self-assessment of our own skills, life events (McCrae, 1984), the type of method used in evaluating the coping process, which includes the self-approaching methods or direct observations (Craşovan, 2014), the time that has passed since stress appeared and the activation of the coping mechanisms, up to the measurement of the coping process (Tamres, Janicki & Helgeson, 2002), previous experiences, gender, motivation,

parenting style, age (McCrae, 1982; Phelps & Jarvis, 1994; Tamres, Janicki & Helgeson, 2002), individual vulnerability and temperament (Compas, Connor-Smith & Jaser, 2004). Moreover, as psychological processes, coping strategies also affect the responses of the endocrine system, of the nervous system, while at the same time having some potential for improvement through learning. The body's reaction at a biological and behavioral level depends, in addition, on the nature of the stress factor, on the duration of the stress and on the efficiency of the coping style used (Craşovan, 2011).

The research conducted on identifying gender differences in the use of coping mechanisms have reported different types of stressors and different age groups, making it difficult to compare results of various researches on stress and coping mechanisms in terms of gender, thus being necessary to use a common list of coping mechanisms. Also, researches report conflicting results regarding gender differences in the use of coping mechanisms for both adults (Endler & Parker, 1990; Leong, Bonz & Zachar, 1997) and for children and teenagers (Byrne, 2000; Compass, Connor-Smith, Saltzman, Thomsen & Wadsworth, 2001; Kausar, Munir, 2004; Patterson & McCubbin, 1987).

Differences determined by gender in using coping mechanisms are still unclear. In a recent study (Galanakis, Stalikas, Kalia, Karagianni, Karela, 2009) on stress at work according to gender, it was found that women have a level of perceived stress higher than men, but when marital status, age and education were taken into account, differences became non-significant. Also, another study by Folkman and Lazarus (1988) does not reveal differences in gender in terms of ways of coping emotionally.

On the other hand, there are a number of studies highlighting the differences between men and women in terms of the coping mechanisms used. Thus, a number of studies (Lam, Scuck, Smith, Farmer, Checkley, 2003; Dekker, Ormel, 1999; Billings, Moos, 1984) reveal differences between the two genders in terms of the type of coping used, women using emotional coping strategies while men use active coping strategies.

The present study

The results of this study may diminish to some extent contradictions between the results of other researches on the identification of gender differences for a coping mechanism by using a tool to analyze coping mechanisms (COPE) translated, validated and adapted to another culture by ITC rules and regulations (Hambleton, 2001). The instrument was applied to two groups (330 men and 440 women), relatively balanced in terms of other demographic variables. Thus, this study goes beyond some of the limitations of previous studies on the identification of gender differences in the use of participants in the study come from all social environments (rural and urban), participants have different levels of education, participants are of different ages, participants are not only students (see: Carver et al., 1989 [a study in which questionnaire COPE was used]) or high-school students (see: Dakhla, Dinkha, Aboul-Hosn & Matta, 2013 [a study in which questionnaire COPE was again used]). In this context, this study has an exploratory nature aiming to identify differences in coping mechanisms between men and

women, using a quota sample drawn from the general population. Thus, this study attempts to overcome some limitations of previous studies.

Method

Participants

The sample used includes 770 adults (330 men [42.86 %], $M_{age} = 31.16$ years, $SD_{age} = 10.81$, age range: 18-66 and the graduated study level is between level 1 and level 7, where 1 corresponds to high school [337 subjects/43.7 %], 2 post-secondary [20 subjects/2.6 %], 3 college – three years [167 subjects/21.7 %], 4 faculty - four, five or six years [175 subjects/22.8 %], 5 master courses [56 subjects/7.3 %], 6 doctoral studies [12 subjects/ 1.6 %] and 7 for other cases - 10 grades or below 10 grades [3 subjects/0.4 %]. The data was collected from August 2010 to September 2011 in the western Romania, and the participation in the study was based on free will and informed consent.

The development of the study assumed the administration of COPE together with another questionnaire, the DSQ 60, discussed elsewhere (Craşovan, Maricuţoiu, 2012) and with a demographic questionnaire to a number of 800 subjects. Out of the total of 800 administered questionnaires, 770 sets of answers were filled in and introduced in subsequent analyses ($N = 770$). Eligibility criteria for inclusion the participants were the absence of mental illness, the absence of any known chronic organic diseases, persons aged between 18 and 66.

Instruments and procedure

Demographic questionnaire used for the recording of demographic data and details of the participants in the research.

COPE Questionnaire. The Romanian version of the COPE Questionnaire (Craşovan, Sava, 2013) is a self-report instrument used for the evaluation of coping strategies based on the last version of the COPE Questionnaire elaborated by Carver et al. (1989). The questionnaire integrates the pattern of stress elaborated by Lazarus (Lazarus, Folkman, 1987), but the authors of the questionnaire think that the separation of the coping forms into two types (focused on emotion or focused on the problem) is too simple. The Questionnaire has 60 items, each of the 15 coping strategies is evaluated through 4 items. The answer can be measured on a scale from 1 to 4, in which: 1 – I usually don't do this; 2 – I rarely do this; 3 – I sometimes do this; 4 – I often do this. Rating is achieved by summing the scores from each of the 4 items corresponding to each of the 15 coping mechanisms. For example, for the coping mechanism positive interpretation and increase, responses to items 1, 29, 38, 59 are summed up, items that match this coping mechanism. By using an exploratory factorial analysis of individual scales of the COPE questionnaire, Carver et al., (1989) have identified four factors: (1) coping focalized on the problem (including the following coping strategies: affective approach, planning and deletion of concurrent activities);

(2) coping focalized on emotions (positive interpretation and growth, abstention, acceptance and religious approach); (3) coping focalized on search for social support (use of the social-instrumental support, the social-emotional support and focalizing on expressing emotions) and (4) avoidance coping, for the problem or the associated emotions (denial, mental and behavioral deactivation). In the original version, performed by Carver, the following coping strategies are not included: substance consumption and humor. Psychometric properties of the original version - the Alfa Cronbach Coefficient for the 15 scales is situated between .21 (mental deactivation) and .93. The average value of the alpha coefficient for the 15 subscale is .74. In the Romanian version of COPE (see: Craşovan, Sava, 2013), the results support a solution with four correlated factors: problem focused coping, emotion focused coping, social support focused coping and avoidant coping. Psychometric properties of the Romanian version - the internal consistency values range between .72 to .84 for the 4-factor solution, and between .48 and .92 for the 15 initial scales.

The items have been used in at least 3 formats. One is a dispositional or trait-like version in which respondents self-report the extent to which they usually do the things listed, when they are stressed. A second is a time-limited version in which respondents indicate the degree to which they actually did have each response during a particular period in the past. The third is a time-limited version in which respondents indicate the degree to which they have been having each response during a period up to the present. The formats differ in their verb forms: the dispositional format is present tense, the situational-past format is past tense, the third format is present tense progressive (I am ...) or present perfect (I have been ...). In this study we used the first format that taps on dispositional aspects.

As regards the administration procedure on non-clinical population, the eligible participants were informed of the purpose of the research and their informed consent was requested, while the following questionnaires were subsequently applied in the presence of a research assistant: Demographic Questionnaire, the COPE Questionnaire (Romanian version [Craşovan, Sava, 2013]) and the DSQ-60, which was not included in the present study.

Data analysis was run using the independent sample t test under the statistic program of data analysis SPSS version 16 (Howitt, Cramer, 2010) and PowerStaTim 1.0 (Sava, Maricuţoiu, 2007). The „t” independent test was run repeatedly for identifying possible differences between men and women for each of the 15 coping mechanisms operationalized by COPE and for the overall score of coping mechanisms in the two groups of participants. PowerStaTim 1.0 (Sava, Maricuţoiu, 2007) program was used to calculate the effect size (Cohen's d) and statistical power.

Table 1. Mean, standard deviation, „t” test, degrees of freedom, probability, effect size and statistical power for the 15 coping mechanisms.

| coping mechanisms | men | | women | | t | df | p | d | stat. power |
|---|---------|-------|---------|-------|-------|-----|-----------------|-----|-------------|
| | N = 330 | | N = 440 | | | | | | |
| | M | SD | M | SD | | | | | |
| 1) Positive reinterpretation and growth | 12.44 | 2.11 | 12.69 | 2.25 | | | | | |
| 2) Mental disengagement* | 9.23 | 2.59 | 9.94 | 2.73 | -3.64 | 768 | .000 (p < .001) | .26 | .81 |
| 3) Focus on and venting of emotions* | 9.23 | 2.61 | 9.94 | 2.76 | -3.54 | 768 | .000 (p < .001) | .26 | .80 |
| 4) Use of instrumental social support | 11.96 | 2.57 | 12.19 | 2.78 | | | | | |
| 5) Active coping | 12.08 | 2.23 | 12.11 | 2.49 | | | | | |
| 6) Denial | 7.87 | 2.55 | 7.71 | 2.57 | | | | | |
| 7) Religious coping* | 11.35 | 3.65 | 12.38 | 3.61 | -3.90 | 768 | .000 (p < .001) | .28 | .87 |
| 8) Humor | 9.34 | 3.45 | 9.17 | 3.63 | | | | | |
| 9) Behavioral disengagement | 7.73 | 2.57 | 7.88 | 2.46 | | | | | |
| 10) Restraint | 10.51 | 2.30 | 10.65 | 2.32 | | | | | |
| 11) Use of emotional social support* | 10.41 | 2.87 | 11.33 | 3.13 | -4.17 | 768 | .000 (p < .001) | .30 | .93 |
| 12) Substance use** | 5.26 | 2.54 | 4.80 | 2.31 | 2.57 | 768 | .010 (p < .05) | .19 | .73 |
| 13) Acceptance | 10.68 | 2.87 | 10.93 | 2.81 | | | | | |
| 14) Suppression of competing activities | 11.17 | 2.52 | 11.05 | 2.50 | | | | | |
| 15) Planning | 12.60 | 2.51 | 12.65 | 2.68 | | | | | |
| COPE global | 152.21 | 18.97 | 155.58 | 18.53 | -2.47 | 768 | .014 (p < .05) | .18 | .68 |

Note: (N = 770). * Coping mechanisms specific to female participants; ** Coping mechanisms specific to male participants.

Results

Table 1 presents a gender comparison in the use of coping mechanisms. Statistically significant differences were found between men and women for the following five coping mechanisms measured with COPE: mental disengagement ($t = -3.64$, $p < .001$, $d = .26$), focus on and venting of emotions ($t = -3.54$, $p < .001$, $d = .26$), religious coping ($t = -3.90$, $p < .001$, $d = .28$), use of emotional social support ($t = -4.17$, $p < .001$, $d = .30$) and substance use ($t = 2.57$, $p < .05$, $d = .19$). The effect size (taking as reference values given by: Popa, 2008; Sava, 2011; Sava, Maricuțoiu, 2007) show the existence of low or middle-low values for the effect's size (see Table 1).

Discussion

Gender differences in terms of use of particular forms of coping mechanisms were found for mental disengagement, focus on and venting of emotions, religious coping, use of emotional social support and substance use. Comparing the means of coping mechanisms on which there are significant differences, there can be observed that 4 of the 5 coping mechanisms (mental disengagement, focus on and venting of emotions, religious coping and use of emotional social support) are more specific to women. Also, substance use appears to be the only coping mechanism which is more specific to men participating in the study. This result is supported also by the results of

other authors (see: Gianakos, 2000; Talbott, Wilkinson, Moore & Usdan, 2014).

Regarding other coping mechanisms for which statistically significant differences are not observed, i.e.: positive reinterpretation and growth, use of instrumental social support, active coping, denial, humor, behavioral disengagement, restraint, acceptance, suppression of competing activities and planning, they are used both by men and women participating in the research without the existence of gender differences.

Of the coping mechanisms identified in this study as more specific to women, only use of instrumental social support is reported in other previous researches in the form of search and use of social supports (see: Chapman & Mullis, 1999; Endler & Parker, 1990; Leong, Bonz & Zachar, 1997).

As shown in this study, adult women use more often the seek for social support (in the form of use of instrumental social support) as a coping mechanism compared to men, an aspect shown also by Endler & Parker (1990), Leong, Bonz & Zachar (1997) and Chapman & Mullis (1999) and also adolescent girls typically reported predominant use of social support as a coping strategy compared to boys (see: Eschenbeck, Kohlmann & Lohaus, 2007; Hamid, Yue & Leung, 2003; Hampel & Petermann, 2005). Also, previous research reported conflicting results regarding gender differences in the use of coping mechanisms for both adults (Endler & Parker, 1990; Leong, Bonz & Zachar, 1997) and for

children and adolescents (see: Byrne, 2000; Compas, Connor-Smith, Saltzman, Thomsen & Wadsworth, 2001; Kausara, Munir, 2004).

In terms of overall COPE score, obtained by summing the scores of the 15 coping mechanisms included in the questionnaire, we can observe a significant difference between women participants and men participants, in the way that there was an intensification of the use of coping mechanisms in female participants. To put it simple, the mean of the overall COPE score for the surveyed women (M women COPE global = 155.58) is higher than the mean of the men participants (M men COPE global = 152.21), a fact also discovered by Galanakis et al. (2009), Matud (2004) and Tamres, Janicki & Helgeson (2002) in terms of the perception of stress in the participants' workplace.

We can assume based on these small to moderate effect sizes in terms of gender differences that cultural factors play a more important role than gender in determining the preference for particular coping mechanisms, a result that is convergent with other results unrelated to coping that stress the importance of cultural factors over gender differences (Baron, Byrne, 1991 in Gavreliuc, 2006). Furthermore, intercultural differences influence the variability of some identity dimensions, such as gender roles or gender stereotypes (Gavreliuc, 2006). This way, gender differences used in coping mechanisms identified in this research can have as a possible explanation "gender roles" based on social norms and therefore. These differences show the Romanian characteristic when it comes to some different coping strategies used by men and women, as in the case of alcohol consumption, because, at least in the Romanian society, the consumption of substances (alcohol, in particular) is more accepted in men rather than in women, since injunctive norms were a significant predictor of drinking after controlling for gender and effects of time (Talbot, Wilkinson, Moore & Usdan, 2014). On the other hand, emotional reactions were accepted more in women rather than in men.

Our results have implications for both research and practice. On the research side, the results obtained in this study show the need for systematic research of coping mechanisms in different cultural contexts and on samples that will highly reflect the characteristics of the reference population. On the practical side, the study brings a number of useful information in psychological counseling and psychotherapy, practitioners being thus aware of the relationship between various coping strategies and gender.

In conclusion, the study shows a number of 4 coping mechanisms of the 15 operationalized by COPE specific to women, which are mental disengagement, focus on and venting of emotions, religious coping, use of emotional social support, and the identification of substance use as the only coping mechanism specific to men.

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Organizational features as situational strength: Engaging the low-conscientious employee

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One of the most robust findings in work psychology is the role that conscientiousness plays in performance; more recently, research indicates that conscientious employees are also the most engaged in their work. The present study examines whether the organization has any role in this relation, and if it is possible for individuals who are low in conscientiousness to also feel high levels of engagement. One hundred forty-one full-time Romanian workers and their peers, representing a variety of industries, were surveyed, revealing that features of the organization can actually attenuate the relation between conscientiousness and engagement. Specifically, when employees perceive that the organization is relatively formalized (i.e., where following rules is important), and in organizations where there is a perception that effort is rewarded, conscientiousness is not as strongly associated with engagement. These organizational features represent situational strength, and when situations are strong, scripts and rules tend to predict behavior, rather than personality. As such, it may be possible for low-conscientiousness individuals to actually become more engaged through organizational change. For those who are low in conscientiousness, for example, a formal work environment likely provides structure and decreases ambiguity, which aids in lower conscientious employees becoming more engaged. Similarly, when it is perceived that the organization rewards effort, those who are low in conscientiousness receive this reinforcement, and likely benefit the most, as their levels of engagement tend to approach those who are higher in conscientiousness.

Keywords: personality, person-situation interaction, situational strength, work engagement

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Introduction

One of the most consistent findings in organizational psychology is that conscientiousness is an extremely desired trait for employees to possess. Conscientiousness is related to myriad positive work-related outcomes, such as organization-oriented citizenship behavior (Ilies, Fulmer, Spitzmuller, & Johnson, 2009), both affective and continuance forms of organizational commitment (Kumar & Bakhshi, 2010), job satisfaction (Bruk-Lee, Khowry, Nixon, Goh, & Spector, 2009), and low turnover (Zimmerman, 2008), in addition to performance (Barrick,

Mount, & Judge, 2001b; Judge, Bono, Ilies, & Gerhardt, 2002; Whetzel, McCloy, Hooper, Russell, & Waters, 2009).

Recently, researchers have also identified a consistent relation between conscientiousness and fulfillment, or engagement (Christian, Garza, & Slaughter, 2011; Kahn, 1990; Kim, Shin, & Swanger, 2008; Mostert & Rothman, 2006; Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roam, & Bakker, 2002; Virga, Zaborila, Sulea, & Maricutoiu, 2009) that the employee feels toward his or her work. Work engagement is an affective-motivational state of fulfillment, tapping into employees' experience of

work, characterized by vigor (the desire to devote time and effort in one's work, and the extent to which one is stimulated and energetic due to his or her work), dedication (referring to a significant and meaningful pursuit); and absorption (whereby one is engulfed and fully concentrating on one's work; Bakker, Albrecht, & Leiter, 2011; Bakker, Schaufeli, Leiter, & Taris, 2008; Schaufeli, Bakker, & Salanova, 2006). Engagement is related to several positive work outcomes, such as low turnover, increased organizational commitment, and even better health (Halbesleben, 2010).

Although many organizations often assess and reward high levels of conscientiousness in a selection context, it is interesting to wonder how individuals who happen to possess lower levels of conscientiousness fare, especially, with respect to engagement. Are those who have lower levels of conscientiousness not able to experience a sense of fulfillment in their jobs, or are there organizational interventions or features that could facilitate engagement for these individuals that would make engagement more likely? The present paper aims to explore this relation further, to examine the extent to which an organization may be able to influence engagement levels among low-conscientious employees by enacting certain interventions or features, such as fostering a more formal environment and by rewarding effort.

Conscientiousness is a stable personality trait that refers to the extent to which an individual is responsible, dependable, persistent, and achievement-oriented (Barrick & Mount, 1991; McCrae & Costa, 1987). Conscientious employees are characterized by their organizational skills, self-discipline, steadiness, and strong sense of professional efficacy, which enables them to drive their energy into their work (Kim et al., 2008). On the other end of the spectrum, Barrick and Mount report that those who possess low levels of conscientiousness tend to be a bit lazy and disorganized. Those who are high in conscientiousness tend to create their own order when faced with obstacles, through perseverance and discipline (Hochwarter, Witt, & Kacmar, 2000).

According to Bakker and Schaufeli (2008), one of the hallmarks of engaged individuals is that they are able to create their own resources, similar to the way conscientious employees create order, as discussed above. Moreover, the Christian et al. (2011) meta-analysis has emphasized the role of conscientiousness, positive affect and proactive personality in predicting work engagement. Therefore, the relation between conscientiousness and work engagement is notable in its reciprocity; not only do organizations benefit from employing conscientious employees, but conscientious employees also receive something of value, in that they are also typically fulfilled by their work. I aim to further examine this relation between conscientiousness and engagement, and also investigate the degree to which organizations may be able to influence engagement for the low-conscientious employee.

Although conscientiousness is a stable trait (Barrick & Mount, 2005), engagement can also be influenced by more dynamic organizational factors, such as working conditions, job demands, and job resources (Prieto, Salanova, Martínez, & Schaufeli, 2008; Salanova, Agut, & Peiro, 2005). I posit that organizations can indeed affect individual employee engagement levels by the contextual cues that they provide.

One such way that organizations offer such contextual cues is through situational strength (Mischel, 1977). In their comprehensive review of the situational strength literature, Meyer, Dalal, and Hermida (2010) define situational strength as "implicit or explicit cues provided by external entities regarding the desirability of potential behaviors" (p. 122). Strong situations, such as rules and regulations, social cues, and policies and procedures also tend to limit the expression that personality has on a given situation by providing cues as to how the individual should behave (e.g., Schneider & Hough, 1995; Tett & Burnett, 2003). In contrast, weak situations amplify the influence of personality in a given situation. Meyer et al. (2010) describe four facets of situational strength: clarity, consistency, constraints, and consequences. Clarity refers to the extent that cues in the workplace are apparent, such as specific rules, or a strong organizational climate. A clear statement that the organization has a "zero-tolerance" policy on employee drug usage, for example, serves as such a clear message. Consistency is the extent to which all of the cues within an organization are compatible with one another. If an organization simply has many policies and rules and procedures, but many of them conflict with one another, confusion is likely to set in, and the situation is weakened. This inconsistency may occur, for example, in a decentralized organization where there are local and global human resources departments, each with its own handbook and policies. Constraints are forces from within the environment that are outside an individual's control that limit his or her freedom of decision or action. For example, micromanaging an employee has this effect, which results in a strong situation for the employee. Finally, consequences refer to features of the situation where the implications of individuals' decisions or actions have high stakes, such as rewards and punishments. Incentive programs and performance improvement plans function in this capacity as consequences that are manifested as strong situations.

Taken together, I posit that organizational features that contain one or more of these four situational strength facets decrease the impact of employee personality in organizational outcomes. Situational strength is often marked by job formality and other characteristics or features of the job that include policies, procedures, and close supervision (Meyer, Dalal, & Bonaccio, 2009). In a meta-analysis using O*Net coding, for example, Meyer et al. found that the conscientious-performance relation is attenuated in occupations where conscientious behavior is encouraged and rewarded, due to either job-related constraints (e.g., for medical transcriptionists) or job-related consequences (e.g., for commercial airline pilots). In reducing the ambiguity in the work by providing contextual cues, direction, and focus as to what is expected and how employees are to behave, the organization should be less susceptible to inefficiency and low productivity, due to low levels of careful and deliberate (i.e., conscientious) behavior among its employees.

Two features of the organization on which I would like to focus in the present paper are formality and effort perception. These two features best exemplify situational strength in the workplace, best illustrated by the Patterson et al. (2005) research on organizational climate. Job formality (referred to as "formalization" in the Patterson et al. paper) describes an organization that is marked by its

rules and procedures. By definition, formality represents the clarity, consistency, and constraint facets of situational strength (Meyer et al., 2010). Specifically, organizations that rely heavily on rules and procedures provide clear direction (clarity), they telegraph what is expected of employees at all times (consistency), and in doing so, these rules also limit the number of possible actions that an employee may take in a given circumstance (constraint). In quite literally expressing to its employees what to do and how to behave, the organization marked by formality leaves little room for ambiguity. As these rules and procedures become more clear, more consistent, and more restrictive, the situation strengthens; according to Meyer et al., research is unclear on whether additional facets function in an additive or multiplicative fashion, but it is certain that the more facets that are present, the stronger the situation. Moreover, Meyer et al. advise that as rules and procedures become more closely aligned, the situation becomes stronger.

Effort perception refers to the Patterson et al. (2005) conception of the degree to which employees believe that their organizational peers work toward achieving goals. This construct is a more of a consequence-oriented type of situational strength than formality, because in organizations where effort perception is high, a lack of effort may lead to negative outcomes, such as disciplinary actions or termination. Nonetheless, effort perception is a form of situational strength, because when an organization demonstrates that it values effort, it likely serves as a signal to the employee as to the amount of effort that is required or expected of someone in a given job. If individuals perceive that their coworkers are working very hard, the perception should serve as a cue that they themselves also need to work hard, which fulfills the situational strength definition of providing a contextual behavioral cue.

Therefore, it is likely that, as features of the organization that provide situational strength, formality and effort perception serve to reduce, or even attenuate the importance that personality may play in the workplace. In an environment marked by formality, rules are present to ensure that the “correct” behavior occurs. Similarly, in an environment where effort is rewarded, the cues are present for all employees to remind them that effort is rewarded, and what levels of effort are expected. These cues would likely result in more conscientious behavior from most employees, and perhaps, an ensuing increase in performance. This increase in performance could be slight, or it could even be transitory. However, as performance tends to be related to engagement (Dalal, Baysinger, Brummel, & LeBreton, 2012; Demerouti & Cropanzano, 2010), enacting these organizational features will create a stronger sense of engagement among lower-conscientiousness people; in essence, their organization is scaffolding their conscientious behavior to make up for their trait-based shortcomings. Taken together, in organizations that offer environments that are characterized by formality, and where there is the perception that effort is rewarded, it is likely that the organization provides situational strength, which in turn creates an environment for employee engagement among workers who are low in conscientiousness, but not for those who are high in conscientiousness.

H1: Conscientiousness and organizational formality interact such that in organizations with high degrees of formality, the relation between conscientiousness and work engagement is weakened.

H2: Conscientiousness and effort perception interact such that in organizations where employees are perceived to expend a considerable amount of effort, the relation between conscientiousness and work engagement is weakened.

Method

Participants

I surveyed 141 full-time employees in Romania from a variety of organizations and occupations, in a variety of industries, such as education, finance, and healthcare. The most commonly represented industries were education (n = 21), retail (n = 15), sales (n = 5), and healthcare (n = 5). The surveys did ask participants to identify the organizations at which they were employed, but given the variety of industries sampled, it is unlikely that there were large numbers of participants representing the same organization. The sample was 68% female, and the age of participants ranged from 20 to 58, with a mean and median age of 28 years. Participants had worked for their respective organizations for an average of 3.14 years.

Hogan, Hogan, and Roberts (1996) propose that personality can be experienced from the observer’s perspective (of behavioral manifestations of the trait) and the self-perspective (i.e., cognitive processes that drive behavior). Therefore, I collected personality from both the primary participants and coworkers of the primary participants. The primary participants were instructed to complete the survey and to give a second survey packet to one of their coworkers. The coworker sent the completed packet back to the researcher. Only cases that contained a primary participant and a corresponding coworker survey were eligible for analysis. The characteristics of the coworker sample were remarkably similar to those of the primary participants, with 69% of the sample female, ranging in age from 18 to 59, with a mean of 29.1 and a median of 27. Coworker participants had been with their respective organizations for an average of four years.

Measures

All instruments in the present study were authored in English, so all scales were translated from English into Romanian, and back-translated into English, to ensure that not only word meanings, but that the actual content and context of the language were properly conveyed.

Conscientiousness

Conscientiousness was measured using a 10-item scale from the International Personality Item Pool (IPIP; Goldberg et al., 2006). The IPIP makes available personality scales from the bipolar NEO domains (Costa & McCrae, 1992), with similar internal consistency and criterion-related validity (Goldberg, 1999; Goldberg et al., 1991; Johnson, 2005). The measure employs a Likert-type response format asking participants to report level of agreement, with options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). All items provided to the coworker were identical to the self-report items, but with the primary participant as the referent. The internal

consistency of the scale was $\alpha = .81$ for the self-report measure, and $\alpha = .85$ for the coworker report in the present study. Sample items include “I am always prepared” and “I pay attention to details”.

Work engagement.

Work engagement was measured using the nine-item Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006; $\alpha = .88$), which includes such items as “At my work, I feel that I am bursting with energy” and “When I get up in the morning, I feel like going to work”. The format for this scale is a Likert-type response format asking participants to report frequency and prevalence of various feelings, with options ranging from 0 (Never) to 6 (Always). Although engagement can be an observable characteristic, the measure would be useless for us to interpret, as it would ask the coworker participant to “get inside the head” of the primary participant, and assess his or her cognitive and affective processes, we only obtained self-reports of work engagement.

Organizational features.

Organizational formality and effort perception were measured using the formalization and effort factors of the Organizational Climate Measure (OCM; Patterson et al., 2005), which measures the organizational and psychological climate of various features of an organization. There are three formalization items ($\alpha = .76$ for self-report, $\alpha = .73$ for coworker report) in the Patterson et al. measure: “Everything here has to be done by the

book”; “It is considered extremely important here to follow the rules”; and “It is not necessary to follow procedures to the letter around here” (reverse-coded). The Patterson et al. scale also contains three effort perception items ($\alpha = .72$ for self-report, $\alpha = .60$ for coworker report): “People here are enthusiastic about their work”; “People here are prepared to make a special effort to do a good job”; and “People here don’t put more effort in their work than they have to” (reverse-coded). The measure employs a Likert-type response format asking participants to report level of agreement, with options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Results

Correlations, means, and standard deviations of the variables are displayed in Table 1.

It was important to obtain self- and coworker-reports of our independent variables, for the purposes of minimizing common method bias, and also because the self- and coworker-reports measure different perspectives of the same construct (Hogan et al, 1996). In order to ensure that self- and coworker-reports of personality are indeed conceptually similar, but unique, I first analyzed the relation between self-reports and coworker-reports of conscientiousness ($r = .32, p < .01$). Next, I examined the correlation between self- and coworker-reports of the organizational features in the present study ($r = .55, p < .01$ for formality; $r = .39, p < .01$ for effort perceptions

Table 1. Means, Standard Deviations, and Correlations

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|-------|-------|-------|-------|------|-------|------|---|
| 1. Conscientiousness (self-report) | - | | | | | | | |
| 2. Coworker report of conscientiousness | .32** | - | | | | | | |
| 3. Engagement | .36** | .09 | - | | | | | |
| 4. Formality (self-report) | .25** | .19* | .12 | - | | | | |
| 5. Coworker report of formality | .16 | .36** | .01 | .55** | - | | | |
| 6. Perception of effort (self-report) | .33** | .22** | .40** | .23** | .06 | - | | |
| 7. Coworker perception of effort | .26** | .30** | .18* | .15 | .20* | .39** | - | |
| 8. Gender | .01 | .08 | .13 | .05 | .01 | -.02 | .00 | - |
| <i>M</i> | 3.75 | 3.79 | 3.59 | 3.87 | 3.81 | 3.32 | 3.18 | - |
| <i>SD</i> | 0.57 | 0.60 | 1.31 | 0.77 | 0.80 | 0.78 | 0.72 | |

Note: N = 141. * $p < .05$. ** $p < .01$

Although I do not hypothesize main effects for any of the independent variables on engagement, there is a significant relation between self-reports of conscientiousness and engagement ($r = .36, p < .01$), but not for coworker reports of conscientiousness and engagement ($r = .09, n.s.$). As for the organizational features, there is no significant relation between formality and engagement ($r = .12, n.s.$ for self-reports of formality; $r = .01, n.s.$ for coworker reports); there is a significant relation between

perceptions of effort and engagement ($r = .40, p < .01$ for self-reports of effort perception; $r = .18, p < .05$ for coworker-reports of effort perception).

The chief concern in the present paper is the moderating influence of organizational features (formality and perceptions of effort) on the relation between conscientiousness and work engagement. I conducted moderated regression analyses; for each analysis, centered forms of both conscientiousness and one of the

organizational features were entered into the equation. In Step 2, the interaction term between conscientiousness and the respective organizational feature was entered. I conducted these analyses for both self- and coworker-reports of conscientiousness and organizational features, and across sources (i.e., self-reports of conscientiousness with coworker reports of organizational features, as well as

coworker reports of the primary participant's level of conscientiousness with self-reports of organizational features. Finally, I used a program called Fast Interaction to graph any significant interactions, looking at conscientiousness as a continuous variable.

Table 2
Formality as a Moderator of the Conscientiousness–Engagement Relation (Self-Reports)

| | <i>B</i> | <i>SEB</i> | β |
|-------------------------------|----------|------------|---------|
| Step 1: | | | |
| Conscientiousness | .80** | .19 | .35** |
| Formality | .06 | .14 | .04 |
| R ² | .13 | | |
| Step 2: | | | |
| Conscientiousness | 3.10** | .95 | 1.35** |
| Formality | 2.35 | .93 | 1.38* |
| Conscientiousness x formality | -.60* | .24 | -1.88* |
| R ² | .17* | | |

Note: * $p < .05$. ** $p < .01$.

Hypothesis 1 was supported, in that perceived formality in an organization moderates the relation between conscientiousness and work engagement ($\beta = -1.88$, $p < .01$; please see Table 2 for more detail). It is important to note, however, that this interaction only exists when analyzing self-reports of conscientiousness and formality ($\beta = -.39$, n.s. for coworker reports, as shown in Table 3). When the employee perceives there to be high levels of formality, the relation between conscientiousness and engagement that has been demonstrated in prior literature (Kim et al., 2008; Mostert & Rothman, 2006; Virga et al., 2009) is attenuated. An analysis of simple

slope differences reveals that the two slopes are significantly different ($t=3.89$, $p < .01$), and this interaction is depicted in Figure 1. When analyzing across sources, although the results are not significant, the p-values may be of interest to the reader; specifically, they may indicate that the power of the sample may be weaker than originally anticipated, perhaps resulting in a Type II error. This is the case for both self-reported conscientiousness interacting with coworker perceptions of formality ($\beta = -1.29$, $p = .08$) and for coworker-reported conscientiousness interacting with self-reports of formality ($\beta = -1.31$, $p = .058$).

Table 3.
Formality as a Moderator of the Conscientiousness–Engagement Relation (Coworker-reports)

| | <i>B</i> | <i>SEB</i> | β |
|-------------------------------|----------|------------|---------|
| Step 1: | | | |
| Conscientiousness | .25 | .21 | .11 |
| Formality | -.04 | .15 | -.02 |
| R ² | .01 | | |
| Step 2: | | | |
| Conscientiousness | .49 | .56 | .21 |
| Formality | .21 | .56 | .13 |
| Conscientiousness x formality | -.07 | .14 | -.22 |
| R ² | .01 | | |

Note. * $p < .05$. ** $p < .01$.

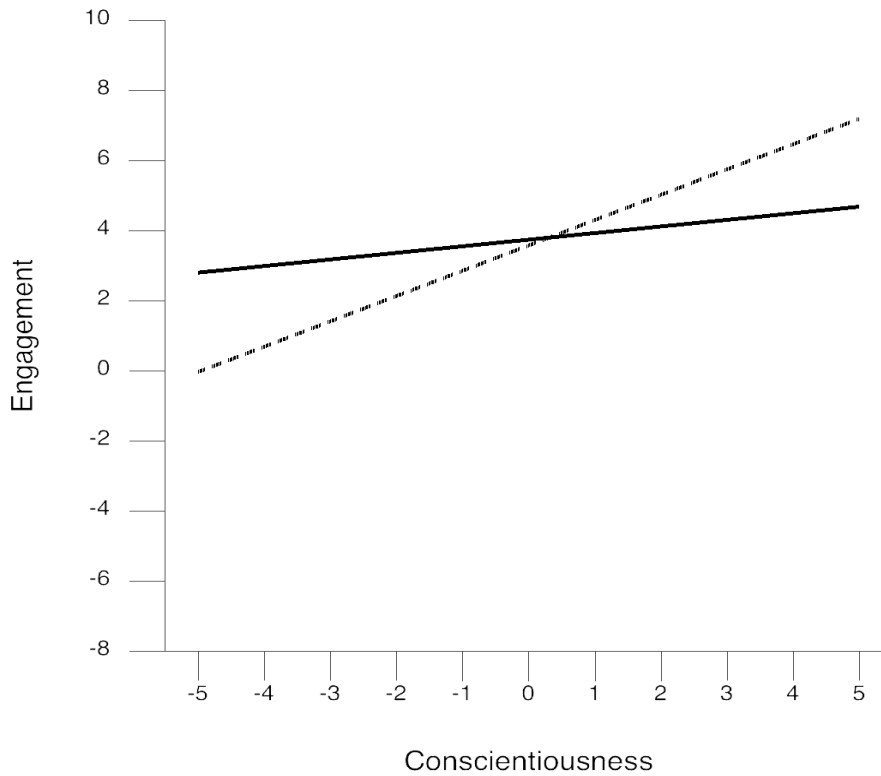


Figure 1. Engagement as a Function of Conscientiousness and Formality. The solid black line indicates +1 SD Formality whereas the dashed black line indicates -1 SD Formality.

Hypothesis 2, which examines perceptions of effort in the organization as a moderator of the conscientiousness-engagement relation, was also supported. As with Hypothesis 1, however, the interaction is significant for self-reports ($\beta = -1.46$, $p < .05$, as illustrated in Table 4), but not for coworker reports ($\beta = -.40$, n.s., please see Table 5 for more detail.). Specifically, when the employee believes that there is a high degree of effort expended by those in the organization, the established relation between conscientiousness and engagement is also attenuated. An

analysis of simple slope differences reveals that the two slopes are significantly different ($t=3.54$, $p < .01$). This interaction is displayed in Figure 2. When analyzing this finding across sources, results are mixed. For self-reported conscientiousness interacting with coworker perceptions of effort, results indicate a possible Type II error ($\beta = -1.21$, $p = .11$), but there is no support when looking at coworker reports of conscientiousness interacting with self-reports of effort ($\beta = -0.01$, n.s.)

Table 4
Effort Perceptions as a Moderator of the Conscientiousness–Engagement Relation (Self-Reports)

| | <i>B</i> | <i>SEB</i> | β |
|----------------------------|----------|------------|---------|
| Step 1: | | | |
| Conscientiousness | .58** | .18 | .25** |
| Effort | .54** | .14 | .32** |
| R ² | .22 | | |
| Step 2: | | | |
| Conscientiousness | 2.14** | .79 | .94** |
| Effort | 2.35* | .90 | 1.40* |
| Conscientiousness x effort | -.49* | .24 | -1.46* |
| R ² | .24* | | |

Note. * $p < .05$; ** $p < .01$.

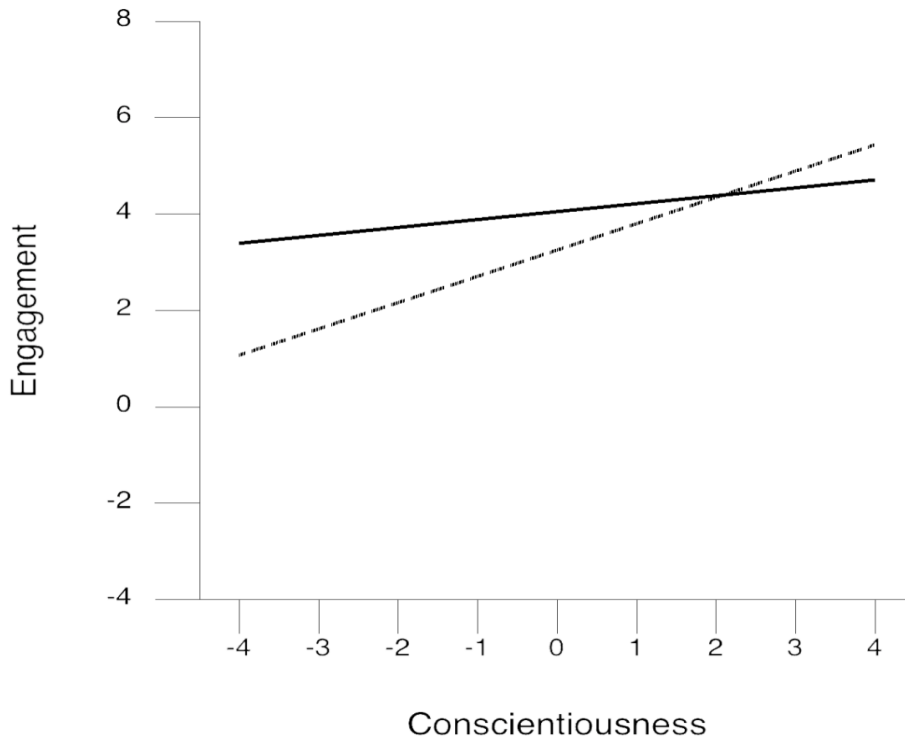


Figure 2. Engagement as a Function of Conscientiousness and Effort. The solid black line indicates +1 SD Effort whereas the dashed black line indicates -1 SD Effort.

Table 5.
Effort Perceptions as a Moderator of the Conscientiousness–Engagement Relation (Coworker Reports)

| | <i>B</i> | <i>SEB</i> | β |
|----------------------------|----------|------------|---------|
| Step 1: | | | |
| Conscientiousness | .13 | .20 | .06 |
| Effort | .29 | .16 | .16 |
| R ² | .03 | | |
| Step 2: | | | |
| Conscientiousness | .56 | .59 | .24 |
| Effort | .81 | .71 | .45 |
| Conscientiousness x effort | -.13 | .17 | -.39 |
| R ² | .04 | | |

Note: * $p < .05$; ** $p < .01$.

Discussion

As expected, I found that the conscientiousness–formality interaction is significant, but notably only when looking at self-reported measures. In organizations perceived to not have many rules (low formality), the relation between conscientiousness and engagement is clear and strong. Individuals who are highly conscientious know how to behave in the absence of rules, because they are naturally dependable and responsible (Barrick & Mount, 1991; Barrick et al., 2001a) and likely stand out because of it (Sackett, Gruys, & Ellingson, 1998). These highly-conscientious individuals in turn become engaged in the organization, and because they are more likely to know where to direct their efforts, how to monitor their

progress, and persist until they reach their goals, they are likely to be the top performers (Perry, Hunter, Witt, & Harris, 2010). In instances of high formality, however, this relation is attenuated; that is, those with lower levels of conscientiousness become more engaged. For those who are low in conscientiousness, a formal work environment likely provides structure and decreases ambiguity, which aids in lower conscientious employees becoming more engaged.

In organizations where employees perceive that their coworkers typically exert a lot of effort, which is in turn rewarded, this effort perception appears to represent a consequentially-based strong situation. To illustrate, let us first consider the organization where effort perceptions are low. In organizations where obvious signs of effort are not

the norm, conscientious people, who typically exert more effort (Fong & Tosi, 2007), likely distinguish themselves, and the relation between conscientiousness and engagement is clear and strong. In this scenario, individuals who are highly conscientious understand that even if not obvious, organizations generally value effort, and as a result, conscientious individuals distinguish themselves as star performers. In turn, these conscientious individuals develop feelings of engagement toward the organization, because their hard work is rewarded. In environments where there is an obvious perception that exerting effort is the norm, however, this relation is reduced. In such environments, one's level of conscientiousness does not appear to make any difference, with respect to engagement. The data from the present study indicate that when effort is perceived to be the prevailing norm, (i.e., when it is perceived that everyone in the organization exerts effort) those who are low in conscientiousness benefit the most, as their levels of engagement tend to approach those who are high in conscientiousness.

It is not terribly surprising that coworker reports do not yield significant results. First, as Hogan et al. (1996) assert, the coworker's (i.e., the observer's) report of one's personality is a reputational version of one's behavior, as opposed to the cognitive version that is assessed via self-reports. Similarly, coworker reports of organizational features only capture the coworker's perspective of such features, and not the primary participant's perspective. The phenomena represented in both hypotheses functions as follows: a cognitive version of a personality trait (i.e., conscientiousness) interacts with a perception of organizational features (i.e., formality and effort perception) to yield an attitude (i.e., engagement). It appears that the cognition version that forms one's personality is necessary, as is the cognitive perception of the workplace, in order to form these attitudes, and any outsider's perception is irrelevant and unnecessary in predicting workplace engagement. I obtained this coworker data for the purpose of getting the full picture, and to attempt to guard against common method variance.

It is possible, however, that common method variance is, nevertheless, at work. That is, it may be that the support for the hypotheses may not be due to any actual phenomenon of personality and features of the environment interacting to yield an attitude, but rather, due to the measurement of the data. Podsakoff, MacKenzie, Lee, and Podsakoff (2003) concluded that analyzing data from common sources, as I did in the present study, can produce spurious results (i.e., self-report bias). Podsakoff et al. report that this bias may occur due to the fact that individuals aim to present a consistent presentation of themselves (i.e., consistency motif), that they aim to hold assumptions about relations between established constructs (i.e., implicit theories), the social desirability of items, positive and negative affectivity, or one's mood. Although I recognize that our data only demonstrate support for our hypotheses when examining common sources, I fail to see any of the aforementioned Podsakoff et al. explanations as possibilities here. It is unlikely that respondents were able to somehow "connect the dots" and present common reports of their conscientiousness that would somehow match their levels of formality and effort perceptions, as well as engagement levels. Furthermore, Evans (1985)

found that common method variance tends to attenuate interactions, and does not reveal interactions that are not present. The most likely explanation for the analyses in the present study that were mixed, in addition to the theoretical argument concerning the Hogan et al. (1996) views of personality, is that there were simply too few respondents to be able to demonstrate cross-source uniformity of results. This is indicated by the fact that three of our four cross-source analyses (i.e., all but coworker reports of the primary participants' levels of conscientiousness interacting with self-reports of effort perception) had *p*-values under .11, and in the case of coworker-reported conscientiousness interacting with self-reports of formality, a *p*-value of .058.

With respect to the collection of coworker data, although it is relatively easy to modify personality-based items to a referent other (e.g., "My coworker is always prepared"), it is much more difficult to do so with measures of organizational features (e.g., "My coworker thinks that everything here has to be done by the book"), and even less helpful in measures of engagement (e.g., "When my coworker gets up in the morning, he or she is bursting with energy"). Therefore, I decided to only measure conscientiousness with the coworker as a referent. With respect to organizational features, it is possible that coworkers would report different levels of formality and effort perception from their own if asked specifically about their coworkers' perceptions of such features. It is important to note that the correlation between self- and coworker-reports of formality ($r = .55$) and effort ($r = .39$) indicate that although significant, these "features" are not measures organizational climate, but rather psychological climate (James & Jones, 1974), or simply individual perceptions of workplace features. However, there is a greater possibility that coworker participants would have had difficulty responding to the items, which would have compromised the analyses. There is also value in including other perceptions of organizational features, when analyzing person-environmental interactions, as I have done in the present study.

As for the measure of work engagement, I did not believe that the coworker participants would be able to accurately assess the primary participants' engagement attitudes, and further, I did not think that it would have been helpful, nor relevant to assess the coworkers' own feelings of engagement; therefore, the surveys did not ask coworker participants any questions about work engagement.

The present study is not without other limitations as well. Apart from possible common method variance, addressed above, there are other issues related to the sample that I would like to address. First, the sample consisted of working Romanians, and it is possible that this population is somewhat exceptional, and would not generalize to a larger population. It is always a limitation when one collects data in only one country. However, it is unlikely that there is any cultural reason for the findings; there are, of course social and economic issues unique to Romania, but these issues are not conceptually related to the variables of interest in the present paper. Future studies may nevertheless aim to study the generalizability of these results towards representative or occupation-specific samples, potentially also in other western and non-western societies. Second, the sample size ($n = 141$), may not

provide the power to detect support for the hypotheses. However, the sample is strong in other areas as well; it is an older population (median of 28 years) than a more traditional university sample, and includes participants from a variety of organizations.

It is also somewhat expected that there is the absence of a main effect between formality and engagement. It is likely that the modest variability in conscientiousness is enough to mask any significant relation that formality has with engagement. The findings of the present study indicate that although individuals who are high in conscientiousness tend to have generally higher levels of engagement than those who are low in conscientiousness, low-conscientiousness employees are much more sensitive to levels of formality in inducing any engagement.

The present paper illustrates the importance of situational strength as an important factor in organizational interventions, such as influencing engagement. Although conscientious employees tend to be the ones who are typically the most engaged, organizations may actually be able to increase levels of engagement among employees who are lower on conscientiousness, by enacting rules and rewarding effort. From the organizational perspective, this may be beneficial; if poor selection efforts yield employees who are low on conscientiousness, enacting rules and exemplifying role models may be the most effective way to engage the low-conscientious employee. Performance may be a mechanism that acts to facilitate this engagement in the case of effort perception, but research has not addressed this question. Future research should examine performance as a mediator in the effort-engagement relation. Regardless, because engagement leads to critical positive work outcomes, such as low turnover and increased commitment, engagement is an important attitude for organizations to foster, independent of performance. Furthermore, due to its positive health benefits, it is in an employee's best interests to develop a feeling of engagement toward his or her organization.

This finding is also valuable as a practical contribution to organizations, as it highlights how various motivational and operational strategies are viewed by employees, and that organizations may actually aim to maximize engagement levels throughout the organization, providing vigor and dedication to employees that typically do not experience this level of fulfillment at work. Moreover, the present study should be a starting point in investigating the person-situation interaction on engagement. Organizations probably have less control over employee engagement than they believe, but more control over engagement than much of the personality literature might indicate. It would be interesting to see if other personality variables, such as neuroticism, agreeableness, and extraversion have interactions with other features of organizations, such as autonomy, civility, perceptions of fairness of policies and even pay.

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Developing an Assessment Scale for Character. An exploratory factorial analysis

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Developing a character assessment scale is the more distal goal of the author. In this paper I aim to present a sequence of this psychometric process, namely exploring the factorial structure of a character assessment scale. In order to achieve this aim, we first explored the psychological factors relevant for a moral character. We also explored the moral standards that are valued in the main life contexts of an individual: family, workplace, close relationships and public context. These theoretical endeavors were important for the item writing process, as they provided the content of the scale. Furthermore, the item development phase was empirically supported through some piloting studies, which highlighted the direction of the scale to assess instances of moral character failure, generically recognized as proofs of a bad character. The present paper focuses on the results obtained after performing an exploratory factor analysis on a sample of 300 participants. The results suggest that the 21-item scale best fits a four-factor structures that cumulatively explain 42.45% of the variance. The factors are: evilness, ill-tempered behavior, dishonesty, upstartness. The scale reveals the moral profile of an individual in all four life contexts.

Keywords: character, morality, moral character, assessment scale.

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Introduction

One's character is a sub-system of the personality, an ensemble of attitudes and values which motivate the individual to follow certain norms (Narvaez, 2012). An individual with a moral character is one having a set of principles and who respects the values promoted by the society he/she lives in (Walker & Hennig, 2004).

Shlenker et al. (2001) described character through the following basic features: integrity (sincerity, keeping promises and honesty), personal commitment to development and promoting good (selflessness and concern for others, instead of exclusive focus on oneself) and efficiency (continuous practice of self-control, responsibility, perseverance towards established goals). On the contrary, bad character refers to a disposition towards misconduct, to break social norms and values of the society he/she lives in, to lack a moral character.

Character assessment is an important concern in the research field. Cloninger and his colleagues (1993) developed the Temperament and Character Inventory

based on four temperament dimensions (novelty seeking, harm avoidance, reward dependence, persistence) and three character dimensions (self-directedness, cooperativeness, self-transcendence). The temperament traits are moderately heritable and stable and the character traits refer to a personal system of values and goals. Self-directedness is the ability of an individual to regulate his behavior according to his values and life goals and to adapt to different life situations. Cooperativeness implies the level of acceptance and identification with other people. Self-transcendence reflects spiritual values.

The focus on spirituality as an important value that can direct one's behavior is highlighted by CSI-Spirit instrument (Isaacowitz et al., 2003). Spirituality is defined as the belief in a supernatural force.

The Values In Action Inventory (Seligman, 2002) measures 24 strengths of character that are classified into 6 clusters (defined as virtues): 1) Wisdom and Knowledge (cognitive strengths based on curiosity, creativity, love of learning, judgment, perspective); 2) Courage (strengths that sustain an individual through the process of pursuing his goals, such as honesty, bravery, perseverance, zest); 3)

Humanity and Love (interpersonal strengths as support, kindness, social intelligence, the capacity to love); 4) Justice (strengths based on communal values that can sustain the development of a healthy society: teamwork, leadership, fairness); 5) Temperance (strengths which imply the restraint from improper actions: modesty, self-regulation, forgiveness, prudence); 6) Transcendence (spiritual strengths as religiousness, appreciation of beauty, hope, gratitude, humor).

These instruments focus on values that can direct one's behavior and reactions to different life situations and they highlight the character strengths and virtues (which can imply socially desirable responses) or are based on a single main life value (for example spirituality) that can impact upon an individual's character and behavior. We propose an instrument that takes into consideration the contextual nature of values (different life contexts can trigger different values and character traits) and which reveals a less desirable character profile (bad character traits).

In the introductory section of this paper, first we will briefly summarize the psychological factors that are relevant for the development and / or activation of a moral character (section 1). Next (section 2), we will focus on presenting the previous steps in developing an assessment scale for character, which due to items content and present results can actually be seen as an assessment scale for bad character. The later part is important to understand the content characteristics of the scale before conducting the empirical study to explore its factorial structure.

Psychological factors that trigger the development of a moral character

The moral character is a concept similar to that of morality. Those individuals having a moral character engage in a moral behavior to their own benefit or to the benefit of others (Narvaez, 2012).

Among the basic factors contributing to the development of a moral character one can find social norms, values, life customs, cognitive, emotional and behavioral patterns, and personality structures. Moral style and identity are considered superior accomplishments of moral development.

Social norms

Moral behavior is conditioned by the existence of norms of pro-social conduct, as these norms are responsible for creating behavioral patterns. Actional patterns can be established through repetition or association. Norms might become internal to a certain extent, and the strongly internalized ones are autonomous sources of moral behavior, being at the same time a driver of intrinsic motivation. Internalized norms function as a motivator from the point of view of the internal punishment system created by the infringement of a norm (Kaiser & Byrka, 2011).

Establishing the extent at which a general norm (e.g. "tell the truth") is moral or not requires an analysis of the consequences and the impact over those around. If, by telling the truth, for example, one can harm others around him, this norm will no longer be considered to be under a moral cover (Opp, 2013). But not all norms are necessarily oriented towards the evaluation of consequences. Let us take, as an example, the "Do not kill!" norm (Elster, 1989).

Social and individual values

Character development is directly influenced by the social and individual values' system, as the human being is a social being. The development of human existence within a social environment needs to be in agreement with the principles the individual has committed to. Additionally, the individual has to be in agreement with his own self and with whom he claims to be, otherwise he might be experiencing severe psychological disorders (Schlenker, 2008).

Moral values comprise beliefs about certain action models, as well as the degree of importance of life or world-related aspects. Moral beliefs can be general or specific to certain situations. Values are responsible with orienting the individuals in the human, behavior and situation selection and evaluation (Schwartz, 1994).

There are personal and community-related values. Both categories can include moral behaviors. Those values which involve goals centered on one's own interest are individual values, while those centered on the well-being of the surrounding people are called community values (Dunlop et al., 2013). Values centered on personal goals and interests can become an impediment for moral behavior. They are opposed to the values involving goals centered on the well-being of those around. Values centered on one's own interests explain the relatively reduced frequency of moral behavior (Kohlberg, 1984; Schwartz, 1992). As far as a morally mature person is concerned, values are harmoniously integrated and expressed through his/her behavior (Bergman, 2004; Colby & Damon, 1992; Damon, 1984). When such values stand in opposition within an individual, he/she will have a tendency towards an immoral behavior. In the case in which these values are in agreement, the individual will have a moral behavior (Dunlop et al., 2013).

Values are normative, in direct connection with the behavioral standards (requirements) promoted by the society. They are integrated in the personality structure and influence the correct manner of behaving in particular life circumstances. In a situation of moral conflict, the individual gives priority to certain values to the detriment of others, structuring thus an intra-personal order of values, which can be considered the individual value system (Roccase et al., 2002). An individual's value system is influenced by one's life experiences and the pressure of the socio-cultural environment (Roccase et al., 2002). Personal values are strongly organized through concepts associated by the individual with a personal significance. Among the most valued aspects one can find: relations with family members, close friends, work, healthcare, physical appearance, help given to others, religiousness (Zang & Yu, 2012).

Values direct the individual towards certain life goals and sustain him in the efforts he makes towards achieving the former. The voluntary component of committing to goals supported by moral values creates a moral profile which is then transformed into actions and leads to the development and manifestation of one's potential (Martin, 2007).

Cognitive mechanisms

Ethical ideology stands at the foundation of a moral behavior and implies the existence of a set of values, beliefs, standards and of an image of oneself which helps

create the attitude of an individual regarding what is right or wrong. This leads to the creation of a moral scheme which the individual can use to evaluate his life events (Shlenker, 2008).

People's beliefs on morality can suffer variations from one culture to another, but there are common elements in all cultures. One can refer to an ideal moral profile that people appreciate (Lapsley & Lasky, 2001; Wlaker & Henning, 2004). In this regard, a moral person has a set of principles and respects certain values of his society; he is also considered an honest, trustworthy and kind person, interested in the well-being of those around, at the same time as being respectful, hardworking, altruist and responsible. Adherence to moral principles is not associated with rigidity or conformism, but requires sincere commitment and mental openness (Walker & Henning, 2004).

Self-conscience. The individual is aware of his desires to act in a certain manner, and evaluates them according to his internal norms, which are in agreement, to a certain extent, with the more general social norms. Thus, the individual prepares himself a behavioral set of actions to be applied once encountering a specific situation. The passage from moral concepts and beliefs to moral action is accomplished at the same time as the evaluation of one's moral beliefs.

A behavioral pattern can be also established with the help of repetitive imaginative scenarios. The subject might be confronted with an imaginary situation, and is likely to have an action pattern as response. Changes in the ways of thinking, feeling and dealing with a situation are associated with different behavioral patterns. It would be ideal to react in a spontaneous manner, in agreement with certain moral principles in specific life situations. After the individual has developed certain ethical action plans, he/she will experience spontaneous feelings in agreement with moral principles. The critical pondering on one's ways of thinking, feeling and acting is a very important pattern, which should be developed for the continuous perfecting of moral character (Massecar, 2014).

Moral reasoning is itself a base for moral behavior, as the society allowed the formation of more and more sophisticated reasoning on oneself and the others. While people age, their capacity to reason develops more. According to the approach of cognitive development, moral reasoning plays a decisive role in moral behavior (Kohlberg, 1984). More recent approaches focus on internalizing moral goals and features, and integrating them in one's self-image (Hoffman, 2000). Combining the approaches is the optimal explanatory solution. The more complex cognitive capacity becomes, pro-social behavior tends to develop in two directions. Firstly, the individual becomes more capable to understand one's wishes and desires; thus, he can feel and act from a larger perspective and not only by referring to himself. Secondly, he becomes more self-aware, being capable to internalize pro-social ideals and value them consciously, in day to day life (Hoffman, 2000).

Moral choices. Choices made when confronted with a moral dilemma contribute to the forming of character virtues or of a virtuous character. Upon choosing action in agreement with a certain moral value, one often suppresses, in most cases, an action in agreement with

another moral value. Let us take the example of a moral dilemma between being generous with someone or being honest with another one. There are situations when one cannot act in agreement with both moral values, and will have to suppress one of them. Becoming a virtuous person does not imply an equal development of all virtues in one human being and giving equal importance to each of them.

The well-being state

People are used to experiencing a state of well-being when what they do is correct and moral. The well-being state is associated with moral values (Fisher, 2012).

The practical efficiency of a moral norm is measured in social results and is subjectively evaluated, leading thus to a certain (measurable) level of an individual's well-being state. If the internalization of a moral norm leads to a significant degree of distress and affects his well-being state, then its social utility is questionable. If the individual accepts and internalizes certain moral demands, he is likely to build his life based on those. Consequently, society's moral demands need to take into consideration the individual's psychological needs (Sin, 2012).

The immediate satisfaction of desires and instincts (the hedonistic orientation of the well-being state) leads to a state of wellness, which is however and most often, an ephemeral one. The satisfaction of needs in agreement with certain moral goals and values leads to a more long lasting state of well-being which is associated with a higher level of self-awareness (Jason, 2010)

The personality

Temper, social roles and an individual's job contribute to a large extent to the formation of the moral style (Chen, 2013). An authentic person (here authenticity should be seen as a virtue) and in agreement with herself (as far as goal pursuit is concerned) will be able to develop easily a moral character in agreement with its valuable principles.

Moral behavior is influenced by personality traits and is likely to become a relatively stable personality feature (Clary, Snyder, 1991). There are several factors which influence it and lead to its variations among individuals. Among the personality factors which influence moral behavior one can find: trust, a secure attachment style, empathy, guilt, shame, self-regulation capabilities (Eisenberg and others, 1992; Mlčák, Zášková, 2008), the degree of moral development, the locus of control, neuroticism, agreeability, self-consciousness and self-evaluation (Flynn et al., 2006).

Mlčák and Zášková (2008) defined pro-social tendency through an internal motivational training intended for a pro-social action. This tendency has a great stability in the long term and leads to a high frequency of pro-social behavior.

Pro-social individuals are pre-disposed to cooperating with those around them and are more selfless in their actions, compared to those individuals who do not act in a pro-social manner. A moral behavior requires, on the one hand, the desire to become a better person, and, on the other, an adherence to moral norms. Moral norms are the most important predictor of moral behavior and can be found in the individual's attitude towards the social dilemmas he is confronted with (Kaiser & Byrka, 2011).

An individual's life ideology can lead to the development of integrity. This virtue is accurately perceived by those people close to one, and is expressed through his beliefs about himself and his social judgements. Integrity acts as a predictor of moral behavior, the well-being state, stress adapting and efficient social functioning. Integrity is one of the most socially desirable features (Dumas et al., 2002; Hampson et al., 1987). It is also proof of the concern shown towards other people's well-being – the individual engages in a moral action by thinking of the effects it will have over the others (McCabe et al., 2001).

Integrity is associated with a positive image of oneself, the public image that one has and the relations he/she has with the people surrounding him/her. Those who perceive themselves as incorruptible self-evaluate their behavior and see themselves as accomplishing more in the field of integrity. This evaluation is confirmed through hetero-evaluation by the people being closer to them. Integrity and authenticity are associated with moral activities such as helping those in need (Shlenker, 2008).

Spirituality is a factor which influences the structure of the value system and one's moral life. Spirituality can be defined as a life experience – a situation in which one lives according to his inner truth, relating to life in a positive manner and establishing positive social relations.

Definitions of spirituality focus on life's ultimate goal – the experience of a transcendental dimension which gives meaning to one's existence. Those whose main life value is spirituality are more compliant with the society's moral norms. Spirituality is an important factor of the psychological well-being. Spiritual traditions based on doctrines of wisdom are associated with the adherence to the society's moral norms, a fact which is known to enhance one's well-being state (Van Dierendonck, 2012).

Table 1. Socially valued moral conduct standards

| Life context | Moral conduct standards |
|------------------------------|---|
| The family environment | 1.Support |
| | 2.Family care |
| | 3.Flexibility |
| | 4.Respect |
| The work environment | 1.Support |
| | 2.Correctness |
| | 3.Power-sharing |
| | 4.Honesty |
| The friendship environment | 1.Support |
| | 2.Respect |
| | 3.Trust |
| | 4.Consolidation of the relationship in time |
| The public space environment | 1.Civic attitude |
| | 2.Respect |
| | 3.Politeness |
| | 4.Corectness |

The moral style

The choices made when confronted with moral dilemmas contribute to the appearance of moral styles. A moral choice is accompanied by moral judgements which later consolidate certain action patterns. Individuals have different moral character types and are virtuous in different manners (Carr, 2003). It is impossible for people to act at

the same time in agreement with all virtues (Watson, 1984).

An interesting question refers to why some people give priority to some specific virtues and not to others when confronted with moral dilemmas? This adherence to some or others of the moral values can be explained through one's life style, the life he /she desires and which he/she has built up to present (Watson, 1984).

Moral identity

By forming a moral identity, the individual evaluates his own ethical character. The existence of ethical life principles involves a strong personal commitment towards the moral identity which also facilitated positive interaction with the ones around and a pro-social behavior. The moral identity has an important role in self-regulation, by tying moral attitudes to behavior. When the individual shows commitment to a series of behavioral norms, these norms are likely to become the main schemes of an event interpretation and of oneself's evaluation. These behavioral norms reflect the values that the individual embraces. Commitment is an important factor of regulating one's own behavior in agreement with one's own values (Shlenker, 2008).

Previous steps in the scale development

Any scale that measures one of the contents briefly discussed above (e.g. empathy, guilt, shame, moral identity, self-consciousness etc.) can be seen as an indirect measure of moral character as these traits are predictors of this behavior. However, in the design of this original scale, we selected to focus on moral standards applied in various life contexts as a more direct measure of moral character.

The first step in the scale development was to design an open-ended survey that was completed by 150 participants. The aim of this step was to explore the moral conduct standards valued socially in four life contexts: within the family, at the workplace, in one's relations with close friends and within the public space. Participants in the survey have been asked to provide examples of desirable and undesirable behaviors for each moral standard. The author has analyzed the frequency of appearance of socially-valued moral standards and classified in some clusters or general categories based on their content (see Table 1).

This table presents, in a decreasing order of their social importance, the main moral behavioral standards valued socially in the four life contexts, as shown by the quantitative study. The author has used these examples to highlight the main character traits socially valued, and as a referencing point for developing the items to be included in a character evaluation scale. Based on this approach, an initial pool consisting of 92 items was developed.

These items were next included in a pilot study in order to assess the psychometric properties of the items based on classical item analysis. Only 21 items were selected based on their item analysis properties and on their relevance for the various life contexts. However, please note that all these 21 items provides examples of socially undesirable acts, therefore the scale might be better labeled to assess the bad character or instances of failure to involve in a moral character. However, for practical reasons, we decided to keep its name as original, as a scale to measure the moral character.

Aim of the research

The aim of the research is to focus on the next sequence of the scale development, namely on exploring the factorial structure of the 21-item scale to assess the moral character. Such a scale, when completely validated, might be a useful tool both for the clinical psychologists, as well as people working in work and organizational psychology.

Method

Participants.

The 21-item version of the scale was applied to a sample of 300 participants, as a part of a non-probabilistic convenience sample, aged between 18 and 70 years old ($M=24.79$; $SD=9.98$), of which 70.4% were women and 29.6% were men. As it can be noticed, the sample was heavily skewed toward including young people.

Instruments.

The 21-item Character Assessment Scale is a self-report instrument. Participants' answers are provided on a 5-point Likert scale, from 1 to 5, where 1 means the item fits the description of the participant's behavior to a very small extent, while 5 means the item fits the description to a very large extent.

Procedure

All participants in the research have voluntarily agreed to participate in this research. The questionnaire was given in a paper and pencil form, in collective settings. Individuals have been asked to provide their names, while being reassured the confidentiality principle will be applied.

Results

The quantitative data have been analyzed by using the exploratory factor analysis. The extraction method was Principal Components Analysis and the rotation method was direct oblimin, resulting thus in the structuring of a scale with 21 items and 4 factors. The 4 factors explain 48.45% of the variance, while the KMO indicator shows an appropriate sample to generate the factorial structure ($KMO = .863$).

The four resulting factors are the following:

Factor no. 1: Evilness (7 items, Cronbach alpha: .75) – a tendency to look for means to morally harm those around, to form coalitions with a vindictive role against someone or to eliminate potential adversaries through any means.

Factor no. 2: An ill-tempered behavior (5 items, Cronbach alpha: .77) – a tendency towards a refractory behavior which does not take into account the rights that people around have, lack of politeness and imposing to others by force.

Factor no. 3: Dishonesty (4 items, Cronbach alpha: .64) – a tendency to hide the truth, a manipulative behavior and double-dealing in interpersonal relations.

Factor no. 4: Upstartness (5 items, Cronbach alpha: .71) – a predisposition towards engaging in relations with influential people, searching for opportunities to advance one's career despite merit, easily accepting compromise in order to achieve goals.

Tables 2 and 3 present the results of the exploratory factor analysis, while Table 4 presents the correlations of each dimension with the total score of the scale and the correlations between the scale's four dimensions. The results emphasize moderate positive correlations among the four factors (in the range between .30 and .40), suggesting a second-order higher factor that is common to all items, that can be also noticed from moderate and high communalities obtained for the four-factor solution

Table 2. The factors and the saturation of items within the factors as provided by pattern matrix

| Factors and items | F1 | F2 | F3 | F4 |
|--|-----------|-----------|-----------|-----------|
| Factor no. 1: Evilness | | | | |
| When someone upsets me I look for allies against the respective person. | .60 | | | |
| I can put someone in a bad position if he/she upsets me. | .40 | | | |
| Provided I could, I would not hesitate to fire those colleagues I dislike. | .75 | | | |
| I would be bothered if others had opinions about my ideas. | .65 | | | |
| I look for the weak spots of others in the event of competition occurring. | .49 | | | |
| I try to break the relations of those who plot against me or speak ill of me. | .45 | | | |
| I would not be capable of shutting a door in someone's face. | .31 | | | |
| Factors and items | F1 | F2 | F3 | F4 |
| Factor no. 2: Ill-tempered behavior | | | | |
| If someone raises his voice at me, then I will raise it as well. | | .75 | | |
| It happens that I get sucked in arguments with others. | | .65 | | |
| It happens that I raise my voice if someone does something that I do not approve of. | | .74 | | |
| Should an unknown person ill-address me on the phone, I would reply in the same manner. | | .63 | | |
| I will easily become ill-tempered if someone irritates me. | | .75 | | |
| Factor no. 3: Dishonesty | | | | |
| I hardly admit to having made a mistake, and only if it is on the brink of being discovered. | | | .66 | |
| In order to solve something urgent, I would promise more than I could actually offer at the beginning/on the spot. | | | .33 | |
| I find it hard to admit that my point of view was wrong. | | | .83 | |
| It is an effort to be constantly polite. | | | .47 | |
| Factor no. 4: Upstartness | | | | |
| I seek to establish the best relations with those who seem to be climbing up the ladder. | | | | .61 |
| In most situations I try to impose my point of view. | | | | .63 |
| I support the idea of looking and having relations with persons with a good social standing and money. | | | | .52 |
| If I were to take part in an inheritance I would be extremely careful to achieve maximum gains. | | | | .54 |
| I prefer those relatives who have material achievements. | | | | .67 |

Note: The total variance explained by the 4 factors is of 42.45%; KMO= .863; Bartlett Test of Sphericity: Chi-Square = 1.707, df = 210; p<.000

Table 3. Items' communalities (presented in their order in the scale)

| Items | Communalities |
|--|----------------------|
| 01. If someone raises his voice at me, then I will raise it as well. | .57 |
| 02. When someone upsets me I look for allies against the respective person. | .51 |
| 03. It happens to get sucked in arguments with others. | .46 |
| 04. If I were to take part in an inheritance I would be extremely careful to achieve maximum gains. | .39 |
| 05. I prefer those relatives who have material achievements. | .47 |
| 06. I hardly admit to having made a mistake, and only if it is on the brink of being discovered. | .61 |
| 07. I can put someone in a bad position if he/she upsets me. | .39 |
| 08. It happens that I raise my voice if someone does something that I do not approve of. | .57 |
| 09. Should an unknown person ill-address me on the phone, I would reply in the same manner. | .46 |
| 10. Provided I could, I would not hesitate to fire those colleagues I dislike. | .56 |
| 11. I would be bothered if others had opinions about my ideas. | .42 |
| 12. I seek to establish the best relations with those who seem to be climbing up the ladder. | .52 |
| 13. I look for the weak spots of others in the event of competition occurring. | .39 |
| 14. In order to solve something urgent, I would promise more than I could actually offer at the beginning/on the spot. | .33 |
| 15. I try to break the relations of those who plot against me or speak ill of me. | .38 |
| 16. In most situations I try to impose my point of view | .53 |
| 17. I would not be capable to shut a door in someone's face. | .34 |
| 18. I support the idea of looking and having relations with persons with a good social standing and money. | .52 |
| 19. I find it hard to admit that my point of view was wrong. | .70 |
| 20. It is an effort to be constantly polite. | .42 |
| 21. I will easily become ill-tempered if someone irritates me. | .63 |

Table 4. Correlations between the factors and with the total score of the scale

| Dimensions | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------|-------|-------|-------|-------|-------|
| 1. Correlation with the total score | – | .90** | .88** | .84** | .77** |
| 2. Factor no. 1 | .90** | – | .31** | .36** | .35** |
| 3. Factor no. 2 | .88** | .31** | – | .38** | .33* |
| 4. Factor no. 3 | .84** | .36** | .38** | – | .32* |
| 5. Factor no. 4 | .77** | .35** | .33* | .32* | – |

Note: *p < .05 bi-lateral, **p < .01 bi-lateral;

Discussion

The study highlighted a factorial structure comprising 4 factors of the Character Evaluation Scale. Developing a moral character is associated with a psychological well-being state (Fisher, 2012). Thus, knowing the personnel's character can help orient interventions on a group and organization level, as well as for the evaluation of the employee character. The scale can also be applied in the clinical area, through the identification of one's dysfunctional moral tendencies, which can serve to the projection of a therapeutic intervention.

Before reaching its mature status to allow using the scale in such relevant applied contexts several validation steps will be required. First, a confirmatory factor analysis would be required, particularly on a sample with different socio-demographic features that would be more balanced in terms of age, gender, and educational status. In this way, several limitations of this study related to sample will be addressed. Second, correlations with other relevant scales are necessary in order to establish a pattern of convergence and divergence with appropriate selected constructs (e.g. self-conscious, social conformism etc.). Third, criterion validation studies on some contrast group populations (i.e. people with or without a criminal record) would be required. Fourth, as in the case of any self-report measures that tap on these sensitive constructs, its association with social desirability scales should be investigated.

In conclusion, more steps are required to validate this new instrument as a measure of (bad) character. However, the results from this exploratory factor analysis are very promising, showing a well-defined correlated four-factor structure, suggesting a second order factor that directly measures instances of failure to behave in a morally character manner.

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