Career Adaptability in Serbia: examining the CAAS model*

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This study examined the psychometric properties of a Serbian translation of the Career Adapt-Abilities Scale (CAAS – Serbian Form). Two different studies involving Serbian employed adults were conducted. In the first study (n = 374), the results of confirmatory factor analyses supported the four-factor structure of the scale and it is shown that the overall CAAS score and sub-dimension scores were highly reliable. The second study (n = 270) demonstrated the external validity of the instrument. Correlations with narcissism, career satisfaction, supervisory support, perceived social support, and burnout were consistent with the theoretical expectations and results of previous studies, suggesting good external validity of the instrument. The configural, metric, scalar, and residual measurement invariance of the CAAS – Serbian Form among two samples were established. It was concluded that the CAAS – Serbian Form has adequate psychometric properties, and hence could be considered as a reliable and valid instrument for measuring career adaptability of employed adults.

**Key words:** Career Adapt-Abilities Scale – CAAS, factor structure, reliability, validity

**Highlights:**

- Evidence for validity and reliability of the CAAS – Serbian Form was provided.
- The configural, metric, scalar, and residual measurement invariance of the CAAS – Serbian Form among two samples were established.

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• Correlations with five external variables supported the external validity of the CAAS – Serbian Form.
• The Serbian translation of the Career-Adapt Abilities Scale is a valid scale that can be used for career counselling and research.

The transition from industrial to computer era was followed by numerous changes at all levels. A modern business environment is characterized by independence and changes which are constant and inevitable (Burke & Bradford, 2005; Suvajdžić & Vujić, 2015). What makes the changes we live in today specific is their speed, comprehensiveness, and intensity, and thus a strong visible influence on all elements of the functioning of social communities, business organizations, and a man as an individual (Vujic, Suvajdzic, & Dostanic, 2014). One of the basic preconditions for survival in the market and achievement of business success is readiness to make organizational changes (Rowden, 2001). Organizational changes promoted by technological progress, doing business without borders, and the latest global economic crisis have contributed to the fact that the security of one’s job depends on his/her openness, readiness and willingness to change (Eby, Adams, Russell, & Gaby, 2000; Van Vianen, Klehe, Koen, & Dries, 2012). Many authors indicate that post-modern society cannot be defined without terms fluid and knowledge society (Bauman, 2007; Bilbao-Osorio, Dutta, & Lanvin, 2013; Guichard, 2015; Masten & Reed, 2002), which show the values this society promotes. Only individuals who are flexible, who can tolerate independence, who are ready for continuous learning and who are aware that during their career they will have to change jobs, organizations, even professions can fit into the value system of global business environment. Such kind of attitude of an individual to his/her job and career is indicated by the construct of career adaptability. Career adaptability implies resources an individual possesses in order to deal with current and expected tasks, transitions and traumas associated with his/her professional roles (Savickas, 1997). These resources include the power of self-regulation or the capacity to resolve unknown, complex, and undefined problems that a person faces during the development of his/her career. Such resources are not placed only within an individual, but can also result from the interactions between individual and his/her environment (Savickas & Porfeli, 2012). Career adaptability also implies a series of behaviours, attitudes, and competencies that people use to find a job that meets their characteristics, and the capacities which allow them to manage the career changes (Tolentini, Garcia, Restubog, Bordia, & Tang, 2013). This construct involves focusing on one’s own career, feeling of control over the professional behaviour, interest in professional future, and the belief in achieving professional aspirations (Savickas, 2002).

An international team of researchers in the field of career development from 13 countries has worked on establishing the theoretical framework and scale for measuring career adaptability (Savickas & Porfeli, 2012). Prior to constructing
the scale, the team had worked on defining general characteristics of career adaptability which are universal, but also on specifying cultural particulars using the N-way approach. In this way, they came up with four linguistic definitions that enabled the operationalization of the construct on the items. Career adaptability has been defined through four conceptual factors: Concern, Control, Curiosity, and Confidence. Concern shows how much a person is able to prepare her/him to future career tasks. Curiosity refers to the research of possibilities and career-related options (Savickas & Porfeli, 2012). Control indicates the degree to which a person is ready to accept accountability for her/his career-related experiences (Ambiel, de Francisco Carvalho, Martins, & Tofoli, 2016), while Confidence implies believing in her/his own self-efficiency to solve problems and successfully deal with stressful situations (Ambiel et al., 2016).

For each of these constructs a team of researchers created 25 items with the aim to select 5 items for each factor. In the United States, three pilot studies have been conducted and provided 44 items, based on the results of the exploratory factor analyses, that best represented the construct of career adaptability. These 44 items presented a draft career adaptability scale (Career Adapt-Abilities Scale – CAAS). The Scale has been translated from English to the languages of the following countries: Belgium, Brazil, China, France, Germany, Iceland, Italy, Republic of Korea, Netherlands, Portugal, Republic of South Africa, Switzerland, and Taiwan. Researchers from each country have checked the translation of scale and then performed pilot studies on small groups of students. All obtained information was collected in a joint database that was used to check the psychometric characteristic of the Career Adapt-Abilities Scale — Research Form (CAAS – Form 1.0). The results showed that CAAS – Form 1.0 measured the same construct in the same way in all countries included, with a note that the reliability of the subscales and the total score of career adaptability varied from acceptable to excellent depending on the country in which the study was performed (Savickas & Porfeli, 2012). On the basis of the obtained results, the researchers shortened the scale from 44 to 24 items that represented construct and its sub-scales in the best way (CAAS – International Form; Savickas & Porfeli, 2012). CAAS has been translated to Croatian and used on Croatian samples as well. The conducted studies have confirmed the factor structure of the scale on the samples of adolescents, whereas the reliability of the individual subscales varied between .74 and .84. (Babarović & Šverko, 2016; Šverko & Babarović, 2016; Šverko & Babarović, 2019).

While the CAAS – International Form demonstrated excellent reliability and appropriate cross-national measurement equivalence (Savickas & Porfeli, 2012), its validity for use in Serbia needs to be addressed by further analysis. The goal of the current study was to examine the psychometric properties of the Serbian translation of the CAAS – International Form (CAAS – Serbian Form) by exploring its factor structure, internal consistency, and external validity. In order to do so, we have conducted two studies. The first study served to verify the structure and internal consistency, while the goal of the second one was to
examine scale invariance across two samples and external validity of the CAAS – Serbian Form. Correlation analyses with the Dark Triad personality traits, career satisfaction, supervisory support, perceived social support, and burnout were examined in order to explore the external validity of CAAS – Serbian Form.

Researchers within the domain of organizational psychology have started turning to the analysis of the dark side of personality more frequently (Guanole, 2014; O’Boyle, Forsyth, Banks, & McDaniel, 2012; Spector & Fox, 2010), understanding it as the first relevant milestone in the field after examining The Big Five in the prediction of work behaviour. Withal, the notion of a career in Serbian culture often has a negative connotation (career-oriented people are frequently offensively called careerists). Hence, the career adaptability construct has been analysed in relation to the Dark Triad personality traits (Paulhus & Williams, 2002). The Dark Triad consists of the following traits: Machiavellianism, subclinical narcissism, and subclinical psychopathy, which are characterized by reckless self-promotion, emotional coldness, duplicity, manipulation, and aggression (Paulhus & Williams, 2002). However, these traits are correlated with career adaptability, which is indicated by the research that examined the relationship between the Dark Triad and different career outcomes. Narcissism proved to be a relevant positive predictor of the amount of earnings and career satisfaction (Hirschi & Jaensch, 2015; Spurk, Keller, & Hirschi, 2015). Besides, research shows that the perceived narcissism of the leader has significant effects on earnings and employee development (Volmer, Koch, & Göritz, 2016). Also, studies conducted in Serbia show that narcissism has significant positive effects on career adaptability (Suvajdžić, 2018), commitment to profession and career (Dostanić & Gojković, 2019, in press). Therefore, we expect a positive correlation between narcissism and career adaptability in this research as well. Unlike other studies where Machiavellianism and psychopathy are portrayed as highly negatively associated with different career outcomes (Spurk, Keller, & Hirschi, 2015; Volmer, Koch, & Göritz, 2016), our studies did not provide such correlations (Suvajdžić, 2018; Dostanić & Gojković, 2019, in press). Accordingly, it is expected that a significant correlation of these two constructs with career adaptability will not be established, so they will be involved in the research to imply the discriminant validity of the scale.

Career satisfaction has been viewed as an integral factor in career success and as an important criterion for valuing an individual’s career as a whole (Gattiker & Larwood, 1989). Considering that flexibility, readiness to face challenges, as well as the belief that these challenges may be overcome, represent indispensable factors for each career success, we used the construct of career satisfaction for the external validation of career adaptability in this research. Previous research indicates a significant positive correlation between career adaptability and career satisfaction (Niu & Guo, 2009; Savickas & Porfeli, 2012; Tolentino, Garcia, Restubog, Bordia, & Tang, 2013; Zacher, 2014). For this reason, such a connection is expected in this research, as well.
Most of the employees spend at least eight hours a day at work, although they sometimes spend more if they have an opportunity to learn or acquire new skills. In order to be able to separate this time and to develop a career in the expected direction, it is necessary to receive the support of supervisors and other important people from the individual’s environment. Social support implies resources which an individual perceives to be at her/his disposal or which are really available due to relationships established with other people (Cronkite & Moos, 1995). Numerous studies indicated a positive correlation between career adaptability and social support (Creed, Fallon, & Hood’s, 2009; Hirschi, 2009; Tian & Fan’s, 2014). Therefore, a positive correlation is also expected in this research.

Career orientation, openness to business challenges and continuous learning often cause a lot of stress. If the amount of stress overcomes a person’s coping resources, it can lead to the burnout syndrome. The burnout syndrome represents a prolonged response to chronic emotional and interpersonal stress associated with a person’s business sphere of life (Đedić, 2005). Studies show that burnout at work is negatively associated with the dimensions of career adaptability (Harry & Coetzee, 2013).

Following the form of previous validation studies of the CAAS–International Form (e.g., Babarović & Šverko, 2016; Johnston, et al., 2013a; Johnston, Luciano, Maggiori, Ruch, & Rossier, 2013b; McKenna, Zacher, Ardabili, & Mohebbi, 2016; Savickas & Porfeli, 2012; Šverko & Babarović, 2019; Yucel & Polat, 2015), we wanted to give contribution to the research of career adaptability in Serbia by offering a comparable methodological ground for the researchers who deal with this phenomenon.

**Study 1**

The first study goals were to examine: (a) the hierarchical factor structure of the CAAS – Serbian Form, and (b) the reliability of the CAAS–Serbian Form. Specifically, we expected that: (a) factor structure would be similar to CAAS–International Form (Babarović & Šverko, 2016; Johnston, et al., 2013a; Johnston, Luciano, Maggiori, Ruch, & Rossier, 2013b; McKenna, Zacher, Ardabili, & Mohebbi, 2016; Savickas & Porfeli, 2012; Šverko & Babarović, 2019; Yucel & Polat, 2015), and (b) the internal consistency estimate of the four subscales and the total score would be adequate (i.e., at least .60; Nunnally & Bernstein, 1994).

**Method**

**Sample and Procedure**

The sample included 374 adults (57.5% female), ranging from 21 to 64 (\(M = 39, SD = 11.35\)) years of age. Participants were employees from small and medium-sized enterprises in Serbia. Considering the occupational field they work in, 21% of them were from the banking sector.
sector, 22% from public administration, 21% from information technologies, 15% from production, 10% from insurance, 9% from healthcare and 2% from education. More than half of the respondents (65.9%) work in private organizations. For the educational background, 43% of them completed secondary education, 49.5% of them received a bachelor degree, 6.4% a master degree and 1.1% a doctoral degree. The job tenure ranged from 1 to 40 years ($M = 15.03, SD = 10.50$). There were 46% subordinates and 54% held supervisory positions.

The research was conducted in the period from March to June 2016. Data were collected in organizations during working hours using a paper and pencil format, under the supervision of the researchers. The participants filled out the questionnaire in groups after the researchers explained the purpose of the study. It took the respondents between ten and twenty minutes to complete the CAAS. Participants were informed that the research was anonymous. Participation was voluntary and not compensated in any way.

**Instrument**

The Career Adapt-Abilities Scale International Form (CAAS – International Form; Savickas & Porfeli, 2012). The scale consists of 24 items scale that are combined into a total score indicating career adaptability, and are also divided equally into four subscales that measure the adaptability resources of Concern (e.g., “Concerned about my career”), Control (e.g., “Making decisions by myself”), Curiosity (e.g., “Becoming curious about new opportunities”), and Confidence (e.g., “Performing tasks efficiently”). The participants’ responses to the CAAS are given on a 5-point Likert type scale from 1 (I don’t have the ability to) to 5 (I have a very strong ability to). The authors of the scale claim good reliability of the scale (Cronbach’s alpha coefficient was .92) and of all subscales (Cronbach’s alpha coefficients were .83 for control, .74 for concern, .79 for curiosity, and 85 for confidence) (Savickas & Porfeli, 2012). The scale was translated into Serbian through the committee technique in three iterations (Brislin, Lonner, & Thorndike, 1973) by three independent translators, who were not members of the study team. Two of the translators were lecturers of English language at Faculty of Philology, University of Banja Luka, and one of the translators was a court interpreter.

**Results**

**Structural Validity and Reliability**

The CAAS – Serbian Form item means ($M$) and standard deviations ($SD$), appear in Table 1, suggest that the typical response was in the range of moderate to strong, compared to other countries participating in the CAAS project (Savickas & Porfeli, 2012). Skewness ($Sk$) and Kurtosis ($Ku$) values for the CAAS – Serbian Form items, appear in Table 1, ranged from (-.78. to .07; the standard error of $Sk$ is .13) and (- .84 to .76; the standard error of $Ku$ is .25) respectively, suggesting that the items conform to the assumptions of confirmatory factor analysis for this sample (Bentler, 2004).
Table 1
CAAS – Serbian Form: descriptive statistics and standardized loadings on first-order and second-order CAAS factors for the initial model – Model 1

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item (first-order indicators)</th>
<th>M</th>
<th>SD</th>
<th>Sk</th>
<th>Ku</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern</td>
<td>Caas1</td>
<td>3.63</td>
<td>1.05</td>
<td>-0.40</td>
<td>-0.51</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td>Caas2</td>
<td>3.74</td>
<td>.99</td>
<td>-0.57</td>
<td>-0.11</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td>Caas3</td>
<td>3.51</td>
<td>1.03</td>
<td>-0.27</td>
<td>-0.41</td>
<td>.82</td>
</tr>
<tr>
<td></td>
<td>Caas4</td>
<td>3.58</td>
<td>1.00</td>
<td>-0.33</td>
<td>-0.33</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>Caas5</td>
<td>3.65</td>
<td>.98</td>
<td>-0.42</td>
<td>-0.25</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>Caas6</td>
<td>3.08</td>
<td>1.10</td>
<td>0.07</td>
<td>-0.74</td>
<td>.32</td>
</tr>
<tr>
<td>Control</td>
<td>Caas7</td>
<td>3.75</td>
<td>.93</td>
<td>-0.35</td>
<td>-0.30</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>Caas8</td>
<td>3.86</td>
<td>.95</td>
<td>-0.73</td>
<td>0.32</td>
<td>.69</td>
</tr>
<tr>
<td></td>
<td>Caas9</td>
<td>4.16</td>
<td>.82</td>
<td>-0.59</td>
<td>-0.54</td>
<td>.73</td>
</tr>
<tr>
<td></td>
<td>Caas10</td>
<td>4.01</td>
<td>.84</td>
<td>-0.40</td>
<td>-0.53</td>
<td>.67</td>
</tr>
<tr>
<td></td>
<td>Caas11</td>
<td>4.12</td>
<td>.79</td>
<td>-0.58</td>
<td>0.09</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>Caas12</td>
<td>3.90</td>
<td>.92</td>
<td>-0.59</td>
<td>0.02</td>
<td>.68</td>
</tr>
<tr>
<td>Curiosity</td>
<td>Caas13</td>
<td>3.39</td>
<td>1.01</td>
<td>-0.07</td>
<td>-0.61</td>
<td>.61</td>
</tr>
<tr>
<td></td>
<td>Caas14</td>
<td>3.67</td>
<td>1.00</td>
<td>-0.36</td>
<td>-0.48</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>Caas15</td>
<td>3.77</td>
<td>.92</td>
<td>-0.50</td>
<td>0.06</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>Caas16</td>
<td>3.75</td>
<td>.93</td>
<td>-0.29</td>
<td>-0.45</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td>Caas17</td>
<td>3.61</td>
<td>.92</td>
<td>-0.02</td>
<td>-0.75</td>
<td>.63</td>
</tr>
<tr>
<td></td>
<td>Caas18</td>
<td>3.84</td>
<td>.91</td>
<td>-0.44</td>
<td>-0.38</td>
<td>.68</td>
</tr>
<tr>
<td>Confidence</td>
<td>Caas19</td>
<td>4.01</td>
<td>.81</td>
<td>-0.45</td>
<td>-0.22</td>
<td>.66</td>
</tr>
<tr>
<td></td>
<td>Caas20</td>
<td>4.13</td>
<td>.81</td>
<td>-0.77</td>
<td>0.76</td>
<td>.60</td>
</tr>
<tr>
<td></td>
<td>Caas21</td>
<td>3.93</td>
<td>.96</td>
<td>-0.51</td>
<td>-0.56</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>Caas22</td>
<td>3.99</td>
<td>.91</td>
<td>-0.65</td>
<td>-0.05</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>Caas23</td>
<td>4.00</td>
<td>.80</td>
<td>-0.25</td>
<td>-0.84</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>Caas24</td>
<td>4.04</td>
<td>1.05</td>
<td>-0.78</td>
<td>0.64</td>
<td>.60</td>
</tr>
<tr>
<td>Adaptability</td>
<td>1. Concern</td>
<td>3.53</td>
<td>.76</td>
<td>-0.37</td>
<td>0.04</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>2. Control</td>
<td>3.97</td>
<td>.64</td>
<td>-0.25</td>
<td>-0.52</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>3. Curiosity</td>
<td>3.67</td>
<td>.71</td>
<td>-0.37</td>
<td>-0.16</td>
<td>.70</td>
</tr>
<tr>
<td></td>
<td>4. Confidence</td>
<td>4.02</td>
<td>.65</td>
<td>-0.30</td>
<td>-0.38</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td>CAAS total score</td>
<td>3.08</td>
<td>.57</td>
<td>-0.27</td>
<td>-0.20</td>
<td></td>
</tr>
</tbody>
</table>

Note. All of the loadings are statistically significant at \( p < .01 \).

\(^a\) Standard error of Skewness is .13.

\(^b\) Standard error of Kurtosis is .25.

Confirmatory factor analysis with maximum likelihood method was performed using AMOS version 19 to assess the structural validity of the CAAS Serbian-language form. In order to assess model fit, various goodness-of-fit indices were considered; \( \chi^2 \) per degree of freedom (\( \chi^2/df \)), the goodness of
fit index (GFI), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA; Kline, 2011). The value of $\chi^2/df \leq 3$ is considered to be an indicator of a good fit (Kline, 2011), while the value $\leq 5$ (Marsh & Hocevar, 1985; Wheaton et al., 1977) is acceptable for the samples bigger than $N = 200$. A model is considered to have an acceptable fit if the GFI value is about .85 or above, the CFI and TLI values are about .90 or above and, the RMSEA value is .08 or less, although RMSEA values that are less than .10 can also be acceptable (Kline, 2011). A hierarchical model was considered with four first-order latent constructs (concern, control, confidence, and curiosity) and one second-order factor latent construct: adaptabilities.

Table 2

<table>
<thead>
<tr>
<th>CAAS scale</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p$</th>
<th>$\chi^2/df$</th>
<th>RMSEA</th>
<th>GFI</th>
<th>CFI</th>
<th>TLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1: Hierarchical 4 factor model</td>
<td>904.308</td>
<td>248</td>
<td>.000</td>
<td>3.646</td>
<td>.084</td>
<td>.832</td>
<td>.848</td>
<td>.830</td>
</tr>
<tr>
<td>M2: Model with MI&gt; 20</td>
<td>620.521</td>
<td>241</td>
<td>.000</td>
<td>2.575</td>
<td>.056</td>
<td>.881</td>
<td>.912</td>
<td>.900</td>
</tr>
</tbody>
</table>

Note. MI > 20 = Modification indices greater than 20.

The results (Table 2) indicated a moderate degree of model fit with the GFI value close to .85, CFI and TLI values close to .90, RMSEA below .10, and a $\chi^2/df$ of 3.646. As can be seen in Table 1, the standardized loadings for the items ranged from .32 to .82 ($Mdn = .68$). All the items have factor loadings equal to or greater than .50, except for item 6. Item 6 has loading .32. The standardized loadings for the second-order variables ranged from .70 to .88 ($Mdn = .81$). A second four-factor model considering modification indices (MI) greater than 20 associated with the covariances between the error terms within each dimension was also tested. The shared variance was allowed only between items within a dimension, between seven pairs of similar and somewhat overlapping items and the model can be seen in Figure 1. This resulted in a significant improvement in model fit with $\chi^2/df < 3$, CFI and TLI about .90 and GFI greater than .80. The correlations between error terms were all below .50. The standardized loadings ranged from .31 to .76 ($Mdn = .66$) for the items, and from .70 to .92 ($Mdn = .84$) for the second-order variables (Figure 1). The degree of model fit, as well as the loadings, is comparable to the results of the international validation of the CAAS in 13 countries (Savickas & Porfeli, 2012).
The reliabilities of the CAAS scales (Table 3) are pretty high for this sample relative to the total international sample (Savickas & Porfeli, 2012). The total score for the CAAS–Serbian Form has reported reliability of .92, which is higher than the subscale scores of Concern (.88), Control (.82), Curiosity (.84), and Confidence (.85). Correlations among the CAAS scales (Table 3) are moderate to high (Cohen, 1988). Furthermore, the four subscales correlate from .78 to .84 to the CAAS total score.
Table 3

| Internal consistency and intercorrelation of CAAS scales |
|-----------------|-----------------|-----------------|-----------------|-----------------|
|                  | α               | Intercorrelation |
|                  |                 | 1               | 2               | 3               | 4               |
| 1. Concern       | .83             |                 |                 |                 |                 |
| 2. Control       | .82             | .49**           |                 |                 |                 |
| 3. Curiosity     | .84             | .51**           | .57**           |                 |                 |
| 4. Confidence    | .85             | .49**           | .59**           | .67**           |                 |
| 5. CAAS total score | .92         | .78**           | .80**           | .84**           | .84**           |

Note. ** p < .01

Study 2

The second study aimed to: (a) verify the CAAS – Serbian Form scale measurement invariance across two samples, from Study 1 and Study 2, and (b) to examine the external validity of the scale. Specifically, we expected that: (a) measurement invariance of the hierarchical structure of CAAS – Serbian Form between the two samples, from the Study 1 and Study 2, and (b) career adaptability would be positively and weakly associated with narcissism (Hirschi & Jaensch, 2015; Spurk, Keller, & Hirschi, 2015; Suvajdžić, 2018; Volmer, Koch, & Göritz, 2016), career satisfaction (Niu & Guo, 2009; Savickas & Porfeli, 2012; Tolentino et al., 2013; Zacher, 2014), supervisory support (Cronkite & Moos, 1995), perceived social support (Creed, Fallon, & Hood’s, 2009; Hirschi, 2009; Tian & Fan’s, 2014), and negatively and weakly associated with burnout (Harry & Coetzee, 2013).

Method

Sample and Procedure

The sample was composed of 270 adults (54.8% female), of age range from 20 to 65 years ($M = 40, SD = 10.77$). The participants were employees from small and medium-sized enterprises in Serbia. For the job professional field, 23% of them were from the banking sector, 21% from public administration, 20% from information technologies, 17% from production, 8% from insurance, 7% from healthcare and 4% from education. Slightly more than half of the respondents (58.1%) work in private organizations. For the educational background, 23.3% of them completed secondary education, 53% of them obtained a bachelor degree, 18.9% a master degree and 4.83% a doctoral degree. The job tenure ranged from 1 to 40 years ($M = 15.19, SD = 10.58$). There were 71.9% subordinates and 28.1% held supervisory positions.

The research was conducted in the period from April to June 2018. The application of the questionnaires was similar to Study 1. Data were collected in organizations using a paper-and-pencil format, under the supervision of the researchers. The participants filled out the questionnaires in groups. It took the respondents about 30 minutes to complete them. Participation was anonymous and voluntary.

Instruments

Beside the CAAS–Serbian Form described in Study 1 (Cronbach’s alpha coefficients for CASS, on the sample in this study, were .85 for control, .84 for concern, .86 for curiosity, .89 for confidence and .93 for the total score), the following questionnaires were also administered.
Short Dark Triad scale (SD3; Jones & Paulhus, 2014). The scale consists of 27 items that measure Machiavellianism, psychopathy, and narcissism. The participants’ responses to the SD3 are given on a 5-point Likert type scale from 1 (strongly disagree) to 5 (strongly agree). For this study, the Cronbach’s alpha were .75 for Machiavellianism, .75 for Psychopathy, and .69 for Narcissism.

Career Satisfaction Scale (CSS; Greenhaus, Parasuraman, & Wormley, 1990). The CSS measure career satisfaction as the evaluation of an individual’s progress toward meeting different career-related goals (e.g., income, advancement, development, and overall career goals) and global career-related successes. The scale consists of 5 items and the participant uses a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) to express the degree of agreement with each of them. For this study, Cronbach’s alpha was .90.

Supervisory Support Scale (SSS; Greenhaus, Parasuraman, & Wormley, 1990). The SSS assesses employee perceptions of the extent to which they receive supervisory support (e.g., career guidance, performance feedback, work opportunities that promote employee development and visibility, and challenging work assignment) in their job. The scale consists of 6 items and the participant uses a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) to express the degree of agreement with each of them. For this study, Cronbach’s alpha was .93.

Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dalhem, Zimet, & Farley, 1988). The scale consists of 12 items that measure perceived social support from family, friends, and significant others. The participants’ responses to the MSPSS are given on a 7-point Likert type scale from 1 (very strongly disagree) to 5 (very strongly agree). For this study, Cronbach’s alpha was .88.

Copenhagen Burnout Inventory (CBI; Kristensen, Borritz, Villadsen, & Christensen, 2005). The inventory consists of 19 items that measure personal burnout, work-related burnout, and client-related burnout. The participants’ responses to the CBI are given on a 5-point Likert type scale from 1 (never) to 5 (always). For this study, Cronbach’s alpha was .91.

Data Analysis

In order to analyze the Serbian version of CAAS scale measurement invariance, the sample of 270 employees from Study 2 was added on the previous sample of 374 respondents from Study 1. Using the AMOS version 19, the configural, metric, scalar and residual invariance were examined on both, initial model (M1) and model with seven error covariances (M2) that have been defined in Study 1. Invariance is tested for Model 2 (M2) in order to examine if shared error variance between the seven pairs of items is something specific for the sample of Study 1 or there is a general tendency. Since the CAAS scale assumes four first-order and one second-order factor, the hierarchical CFA model invariance tests were performed. Seven models for initial CFA without (M1.1 to M1.7) and seven models for CFA with allowed error covariances (M2.1 to M2.7) were tested. Models M1.1 and M2.1 are unconstrained and refer to the configural invariance. The second (M1.2 and M2.2) and third (M1.3 and M2.3) models consider metric invariance. In the models, M1.2 and M2.2 the first-order factor loadings were constrained to be equal, and then in the M1.3 and M2.3 constraints on the second-order factor loadings were added. The scalar invariance was examined foremost on the first-order level through models M1.4 and M2.4 and then on the second-level (M1.5 and M2.5), where the intercepts of first-order factors together with those of measured variables were constrained to be equal. In order to examine residual invariance, the disturbances of first-order factors were also constrained to be equal in models M1.6 and M2.6 and within models M1.7 and M2.7 the equivalent residual variances of measured variables were added. The hierarchical sequences were performed as Chen, Sousa, and West (2005) have suggested and each more restricted
model was nested within a less constrained one. To compare a fit of two nested models, the chi-square difference test is used (Bentler & Bonett, 1980) and ΔCFI and ΔRMSEA were examined. The non-significant chi-square difference, ΔCFI < .01 and ΔRMSEA < .015 were used as indicators of nested models’ invariance (Cheung & Rensvold, 2002).

To examine the external validity of the CAAS scale the IBM SPSS version 19 software was used and a bivariate correlation with the Dark Triad personality traits, career satisfaction, supervisory support, perceived social support and burnout were performed. These analyses were conducted on the sample from Study 2.

Results

Measurement Invariance across the two Studies

As has been explained in the Data analysis section, the sequence of seven invariance tests for the initial model and for a model that took into account MI (> 20) was performed and indicators of fit and their changes in nested models are presented in Table 4. For model identification, the marker variable strategy was used. Since there wasn’t a theoretical or empirical basis for choosing a marker variable, the first indicator of each construct was arbitrarily designated as the marker. However, as has been suggested (Reise, Widaman, & Pugh, 1993), the use of alternative marker variables was examined and no material differences across solutions were found.

When it comes to the initial CFA for CAAS scale, without error covariances, the unconstrained model (M1.1) shows a considerable degree of fit with \( \chi^2/df \) of 3.35, CFI close to .90 and RMSEA less than .08. The fit is even a little better than in Study 1 (Table 2), so it can be concluded that the Serbian version of the CAAS scale has satisfying configural invariance across two samples of employees, one from Study 1 and second from Study 2. As it can be seen in Table 4, all tested models demonstrate almost the same fit indicators, even with modest improvement, where the \( \chi^2/df \) has been slightly decreasing in almost each nested model. No significant changes in \( \chi^2 \) were revealed in models M1.2 and M1.3 and differences of CFI or RMSEA are less than .01, so the scale has been proved to be metric invariant. Within models M1.4 and M1.5 where intercepts of measured variables and first-order factors of two samples were constrained to be equal, changes in fit indicators were non-significant. Accordingly, the scalar invariance of the scale model without error covariances is adequate. The indicators of fit of model 1.6 where disturbances of first-order factors have been constrained weren’t significantly different compared to the previous model. However, since the \( \chi^2 \) of the model when residual variances of measured variables were added was significantly different than in model M1.6, a partial residual invariance test was performed. Residuals of five items where the differences between the two studies’ samples were the largest were free in model M1.7a. Those items are 14, 19, 20, 23 and 24, and after they have been unconstrained the fit indicators of model M1.7a were no more significantly different (\( \Delta \chi^2=24.64, p = .173 \)) from those in residual first-order factors invariance model M1.6. Hence, it can be said that the Serbian version of the CASS scale demonstrated partial residual invariance among the two studies.
Table 4
Results of Invariance Tests of a Second-Order Factor Model of CAAS scale

<table>
<thead>
<tr>
<th>Model invariances</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2$/df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>$\Delta\chi^2$ (\Delta df)</th>
<th>$\Delta$CFI</th>
<th>$\Delta$RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1 – Initial model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1.1 Configural</td>
<td>1663.30</td>
<td>497</td>
<td>3.35</td>
<td>.851</td>
<td>.060</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1.2 First-order metric</td>
<td>1683.85</td>
<td>517</td>
<td>3.26</td>
<td>.851</td>
<td>.059</td>
<td>20.55 (20)</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>M1.3 First- and second-order metric</td>
<td>1688.83</td>
<td>520</td>
<td>3.25</td>
<td>.850</td>
<td>.059</td>
<td>4.97 (3)</td>
<td>.001</td>
<td>.000</td>
</tr>
<tr>
<td>M1.4 First-order scalar</td>
<td>1689.78</td>
<td>540</td>
<td>3.13</td>
<td>.853</td>
<td>.058</td>
<td>.95 (20)</td>
<td>.003</td>
<td>.001</td>
</tr>
<tr>
<td>M1.5 First- and second-order scalar</td>
<td>1689.86</td>
<td>543</td>
<td>3.11</td>
<td>.851</td>
<td>.057</td>
<td>.95 (3)</td>
<td>.002</td>
<td>.001</td>
</tr>
<tr>
<td>M1.6 Residual first-order factors</td>
<td>1691.43</td>
<td>547</td>
<td>3.09</td>
<td>.853</td>
<td>.057</td>
<td>1.558 (4)</td>
<td>.002</td>
<td>.000</td>
</tr>
<tr>
<td>M1.7 Full residual first-order factors and measured variables</td>
<td>1734.25</td>
<td>571</td>
<td>3.04</td>
<td>.851</td>
<td>.056</td>
<td>42.82 (24)*</td>
<td>.002</td>
<td>.001</td>
</tr>
<tr>
<td>M1.7a Partial residual first-order factors and measured variables b</td>
<td>1716.07</td>
<td>566</td>
<td>3.03</td>
<td>.853</td>
<td>.056</td>
<td>24.64 (19)</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>M2 – Model with M1 &gt; 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2.1 Configural</td>
<td>1185.28</td>
<td>483</td>
<td>2.45</td>
<td>.910</td>
<td>.048</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2.2 First-order metric</td>
<td>1208.19</td>
<td>503</td>
<td>2.40</td>
<td>.910</td>
<td>.047</td>
<td>22.91 (20)</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>M2.3 First- and second-order metric</td>
<td>1211.22</td>
<td>506</td>
<td>2.39</td>
<td>.910</td>
<td>.047</td>
<td>3.03 (3)</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>M2.4 First-order scalar</td>
<td>1212.17</td>
<td>526</td>
<td>2.31</td>
<td>.912</td>
<td>.045</td>
<td>.95 (20)</td>
<td>.002</td>
<td>.002</td>
</tr>
<tr>
<td>M2.5 First- and second-order scalar</td>
<td>1212.24</td>
<td>529</td>
<td>2.29</td>
<td>.913</td>
<td>.045</td>
<td>.072 (3)</td>
<td>.001</td>
<td>.000</td>
</tr>
<tr>
<td>M2.6 Residual first-order factors</td>
<td>1213.87</td>
<td>533</td>
<td>2.28</td>
<td>.913</td>
<td>.045</td>
<td>1.629 (4)</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>M2.7 Residual first-order factors and measured variables</td>
<td>1247.72</td>
<td>557</td>
<td>2.24</td>
<td>.912</td>
<td>.044</td>
<td>33.85 (24)</td>
<td>.001</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note. M1 > 20 = Modification indices greater than 20.

*a All $\chi^2$ are significant.

b M1.7a = partial residual invariance model with free errors on items 14, 19, 20, 23 and 24. The model is compared with model M1.6.

* $\Delta\chi^2$ is significant.

The same procedure sequence of invariance testing has been performed within the model defined in Study 1 where seven error covariances were allowed. Indicators of fit and change parameters are given in Table 4. The results indicate a good fit of the unconstrained model with $\chi^2$/df < 3, CFI greater than .90 and RMSEA lower than .05. Adding the sample from Study 2 improved model fit and configural invariance was established. In each of the following models (M2.2 to M2.7), no significant differences in indicators of a fit were found. Therefore, it can be concluded that the model with allowed seven error covariances has shown adequate configural, metric, scalar, and...
residual invariance. In contrast to the previous, this model showed full residual invariance across two samples.

**External Validity**

External validity was examined by calculating the correlations of Serbian CAAS scores with the Dark Triad personality traits, career satisfaction, supervisory support, perceived social support, and burnout. These correlations are presented in Table 5.

<table>
<thead>
<tr>
<th>Concern</th>
<th>Control</th>
<th>Curiosity</th>
<th>Confidence</th>
<th>CAAS total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machiavellianism</td>
<td>.02</td>
<td>.01</td>
<td>.01</td>
<td>-.04</td>
</tr>
<tr>
<td>Psychopathy</td>
<td>.02</td>
<td>-.06</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>Narcissism</td>
<td>.09</td>
<td>.16**</td>
<td>.12</td>
<td>.11</td>
</tr>
<tr>
<td>Career satisfaction</td>
<td>.04</td>
<td>.18**</td>
<td>.20**</td>
<td>.22**</td>
</tr>
<tr>
<td>Supervisory support</td>
<td>.22**</td>
<td>.14**</td>
<td>.13**</td>
<td>.22**</td>
</tr>
<tr>
<td>Perceived social support</td>
<td>.23**</td>
<td>.24**</td>
<td>.22**</td>
<td>.21**</td>
</tr>
<tr>
<td>Burnout</td>
<td>-.06</td>
<td>-.14’</td>
<td>-.14’</td>
<td>-.14’</td>
</tr>
</tbody>
</table>

*Note. *p < .05, **p < .01

As can be seen in Table 5, the correlations between burnout and the CAAS scales are negative and of low intensity (Cohen, 1988), while correlations between the narcissism, career satisfaction, supervisory support, perceived social support and the CAAS scales are positive and of low intensity. The obtained results are fully supportive of the external validity of CAAS-Serbian form.

**General Discussion**

The aim of this study was to examine the psychometric properties of the Serbian translation of the CAAS – International Form by exploring its factor structure, internal consistency, and external validity. Two studies were conducted accordingly. In the following section, the key findings in the context of relevant theory and previous empirical research are summarized and discussed.

In the first study, it has been shown that data for the CAAS – Serbian Form fit the theoretical model moderately well. The fit is slightly lower than for the CAAS-International model (Savickas & Porfeli, 2012), but it is consistent with that in German (Johnston et al., 2013b) and the Philippines (Tolentino et al., 2013) validation studies. However, the model with allowed error covariances demonstrated a much better fit. Those fit parameters are in accordance with those gained by Johnston et al. (2013b) for a model with considered modifications indices greater than 20 associated with the covariances between the error terms. Seven pairs of error covariances were allowed between similar items, for example: “Thinking about what my future will be like” and “Realizing that today’s choices shape my future”, which both consider imagination of and orientation toward
future; or “Learning new skills” and “Working up to my ability”, which are both referring to the development of competencies and participants might have not been able to discern a subtle difference between skills and abilities.

Furthermore, the results of confirmatory factor analysis have indicated a low factor loading of .32 for item 6 (Concerned about my career). Some of the previous international validation studies showed similar results. For instance, Porfeli and Savickas (2012) found that item 6 had the lowest factor loading (.43) of all 24 CAAS items in a sample from the United States. Consistently, Duarte et al. (2012) and McKenna et al. (2016) found factor loadings of .34 and .21 for item 6 in samples from Portugal and Iran respectively. A possible explanation for the low loading of item 6 may be that our participants interpreted the word “concerned” in a negative (i.e., worried) instead of a positive emotional way (i.e., interested, involved; cf. Savickas & Porfeli, 2012). Related to this issue, Vignoli’s (2015) research has shown that feelings of general and career-related anxiety may relate positively to career exploration.

The total scale and four subscales each demonstrated good internal consistency estimates. The total score for the CAAS – Serbian Form has a reliability of .92, which is higher than for the subscale scores of Concern (.88), Control (.82), Curiosity (.84) and Confidence (.85). The reliabilities are generally similar for the Serbian sample relative to the total international sample (Savickas & Porfeli, 2012).

The second study has revealed that the both; initial and model with error covariances, are invariant across two different samples of employees collected in 2016 and 2018. The configural, metric, scalar and residual invariance were established. However, in order to achieve a residual invariance, some errors of measurement variables in the initial model had to be unconstrained. Four of five unconstrained errors were on items that constitute the Confidence dimension and on items where the error covariances are allowed in the model (Model 2) with accepted modification indices. Those items are at the end of the scale and most of them were unconstrained also in examining residual measurement equivalence within Savickas and Porfeli (2012) international validation study. The established invariance of the model that took into account modification indices (Model 2) shows that the error covariance between concrete items of CAAS – Serbian Form is not something only sample–specific. Hence, that result implies that there is another systematic source of shared variance between those items, which is probably due to the use of similar terms in items’ formulation.

Also, the second study has shown that all correlations between the Serbian CAAS scores and narcissism, career satisfaction, supervisory support, perceived social support and burnout have corresponded to previous findings on the relations between these constructs. Positive correlations between career satisfaction and the CAAS scores are in accordance with the results of previous studies (Chan & Mai, 2015; Zacher, 2014; Zacher, 2016). According to career construction theory, when workers perceive themselves as effective in their work and success in their careers, it is expected they will evaluate their career achievements positively (Savickas, 2013; Zacher, 2016). The positive correlation
obtained between narcissism and career adaptability matches the results of previous studies which indicated that narcissism is positively associated with different career outcomes (Dostanić & Gojković, in press; Hirsch & Jaensch, 2015; Spurk, Keller, & Hirschi, 2015; Suvajdžić, 2018; Volmer, Koch, & Göriltz, 2016). Nonsignificant correlations with psychopathy and Machiavellianism are in line with results of previous studies in Serbia (Dostanić & Gojković, in press; Suvajdžić, 2018). On the one hand, people with high scores on psychopathy and Machiavellianism have a tendency to be successful and to have great career (Jonason, Li, Webster, & Schmitt, 2009; Jonason, Wee, Li, & Jackson, 2014), but on the other hand they might have a lack of flexibility, they are rigid and non persistent (O’Boyle, Forsyth, Banks, Story, & White, 2013; Paulhus & Williams, 2002) which can make them less willing to continuously invest in their careers for entire work life. Perceived social support significantly correlated with the total score of career adaptability, and all its dimensions, which is in accordance with the other studies that examined these relations (Guan et al., 2016; Tian & Fan, 2014). The correlation between the support of a supervisor and career adaptability obtained in the previous studies (Ito & Brotheridge, 2005), has been confirmed by this research as well. When it comes to the relation between CAAS and burnout, it is negative, as it was expected based on previous studies (Harry & Coetzee, 2013) and on those where CAAS was linked to constructs close to burnout: positively with professional (Maggiori, Johnston, Krings, Massoudi, & Rossier, 2013) and subjective well-being (Ramos & Lopez, 2018), and negatively with work-related stress (Fiori, Bollmann, & Rossier, 2015).

Overall, consistent with other validation studies (Savickas & Porfeli, 2012), the findings showed that the CAAS – Serbian Form has good psychometric properties. The CAAS – Serbian Form appears to be ready for use by researchers and practitioners in Serbia. Researchers and practitioners can use the reliable and validated Serbian translation of the CAAS to assess the extent to which their clients are preparing for future career tasks, take responsibility for their career development, explore possible future selves and career opportunities, and believe in their ability to solve problems and to succeed in their careers (Savickas & Porfeli, 2012).

Limitations

This study was limited in a number of ways. Firstly, our sampling strategies focused on highly educated workers from Serbia; the majority of participants held a university degree or more. Thus, future research is needed to demonstrate the generalizability of our findings to less educated groups of workers. Secondly, convergent validity has not been addressed. Further research should investigate the instrument’s convergent validity. Finally, the fact that this measure is based on self-reported information should not be underestimated. It could be interesting to develop a proxy evaluation form of the CAAS to obtain a supervisor and career counsellors’ point of view about a person’s career adaptability and detect similarities and differences.
Conclusion

Based on the results reported in the present study, we conclude that the CAAS – Serbian Form has good psychometric properties. Specifically, the total scale and four subscales each demonstrated excellent internal consistency estimates and a coherent multidimensional, hierarchical structure that fits the theoretical model of career adaptability resources and that is measurement invariant across two samples. The obtained results also support the external validity of CAAS – Serbian Form, examined by calculating correlations with a number of external variables. Obtained correlations were negative with burnout and positive with narcissism, career satisfaction, supervisory support and perceived social, which is all in accordance with the results of previous studies, thus supporting the external validity of the scale in the Serbian context. Based on these findings, the CAAS – Serbian Form appears to be ready for use by researchers and practitioners who wish to measure adaptability resources among employed adults. Further research will examine its validity for use with students.

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Karijerna adaptabilnost u Srbiji: istraživanje modela Skale karijerne adaptabilnosti (CAAS)

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U ovom istraživanju su ispitana psihometrijska svojstva srpskog prevoda Skale karijerne adaptabilnosti (eng. Career Adapt-Abilities Scale – CAAS). Sprovedene su dve studije na uzorku zaposlenih iz Srbije. U prvoj studiji (n = 374), rezultati konfirmativne faktorske analize su potvrdili četrerofaktorsku strukturu skale, a utvrđena je i visoka pouzdanost skale i njenih subskala. Druga studija (n = 270) je pokazala eksternu valjanost instrumenta. Korelacije sa narcizmom, zadovoljstvom karijerom, podrškom nadređenog, percipiranom socijalnom podrškom i sagorevanjem su u skladu sa teorijskim očekivanjima i rezultatima ranijih studija, što ukazuje na dobru eksternu validnost instrumenta. Utvrđena je konfiguralna, metrička, skalarna i rezidualna merna invarijantnost skale na dva uzorka. Sveukupno, srpska jezička forma CAAS ima adekvatna psihometrijska svojstva i može se smatrati pouzdanim i valjanim instrumentom za merenje adaptabilnosti karijere zaposlenih odraslih.

Ključne reči: Skala za merenje karijerne adaptabilnosti, faktorska struktura, pouzdanost, valjanost

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