Croatian Journal of Education
Vol.19; No.1/2017, pages: 147-173
Preliminary communication
Paper submitted: 2nd February 2016
Paper accepted: 6th May 2016
https://doi.org/10.15516/cje.v19i1.2194

Validation of the Study-Related Flow Inventory (WOLF-S)

Arnold Bakker[1,2], Tajana Ljubin Golub[3,4] and Majda Rijavec[3]
[1]Department of Work & Organizational Psychology
Erasmus University Rotterdam
[2]Department of Industrial Psychology and People Management
University of Johannesburg
[3]Faculty of Teacher Education University of Zagreb
[4]Catholic University of Zagreb

Abstract

Flow is a highly enjoyable state people feel when they are completely absorbed in an activity. The present study investigated the psychometric adequacy of WOLF inventory (developed to measure flow in a work setting), adapted for measuring the flow experience in an educational setting, i.e. study-related flow (WOLF-S). A sample of 394 university students completed several paper-and-pencil measures of flow and related constructs. The WOLF-S demonstrated the hypothesised three-factor structure, adequate internal consistency reliability, along with congruent and construct validity. Additionally, the results showed that students experienced flow during a wide range of activities, but academic activities, such as learning and reading, were more conductive to flow than other activities.

Key words: *academic; learning; optimal experience; self-report questionnaire.*

Introduction

Flow is a highly enjoyable, optimal psychological state people feel when they are so focused on a task that it amounts to complete absorption in an activity (Csikszentmihalyi, 1975). A flow experience typically occurs when people are engaging in their preferred activity, including work, sports, and hobbies (Csikszentmihalyi, 1990). The defining characteristics of flow are the merging of action and awareness, concentration on the task at hand, sense of control, loss of self-consciousness, time transformation, and an autotelic experience (Csikszentmihalyi & Csikszentmihalyi, 1988; Csikszentmihalyi, 1990; Jackson, 1996). Flow experiences are positively related both to well-being (e.g. Bryce &

Haworth, 2002), and higher performance, in school (Carli, Delle Fave, & Massimini, 1988; Nakamura, 1988), at work (e.g. Demerouti, 2006; Salanova, Bakker, & Llorens, 2006), and in sports (e.g., Bakker, Oerlemans, Demerouti, Bruins Slot, & Karamat Ali, 2011).

Several studies have shown that students can experience flow as part of their schoolwork and college activities (e.g., Bassi & Delle Fave, 2012; Egbert, 2003; Klein, Rossin, Guo, & Ro, 2010; for a review, see also Shernoff & Csikszentmihalyi, 2009), or while studying at home (Bassi & Delle Fave, 2004). Flow was found to be related to higher levels of commitment to education, progress through the school curriculum (Csikszentmihalyi, Rathunde, & Whalen, 1993), and a higher level of educational outcomes in adolescents and high-school students (Rossin, Ro, Klein, & Guo, 2009; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). For example, Engeser, Rheinberg, Vollmeyer, and Bischoff (2005) found that the flow that students experience during a lesson at the beginning of a course was predictive of the exam performance in the same course at the end of the semester. Flow has also been found to mediate the relationship between the characteristics of teachers' work (role clarity, teacher support for autonomy, and feedback) and psychological well-being, and also has an indirect effect on physical health (Steele & Fullagar, 2009). Learning activities are particularly positively associated with flow among students with a high level of self-efficacy (Bassi, Steca, Delle Fave, & Caprara, 2007).

There are many ways of measuring flow: through (semi-structured) interviews (Csikszentmihalyi, 1975), the experience sampling method (ESM) (Csikszentmihalyi & Larson, 1987), observations (e.g., Egbert, 2003), observation in association with interview (Seifert & Hedderson, 2010), by using a challenge-skill ratio (e.g., Pearce, Ainley, & Howard, 2004; Voelkl & Ellis, 1998), and through self-report questionnaires (e.g., Bakker, 2005; 2008; Jackson & Marsh, 1996; Rheinberg, Vollmeyer, & Engeser, 2003; for reviews see Delle Fave, Massimini, & Bassi, 2011; Moneta, 2012). However, the most frequently used method for measuring flow is the self-report questionnaire. Based on the view that flow is a multidimensional construct, various self-report measures have been designed to assess the different dimensions of the flow experience, and usually include the dimensions of involvement, enjoyment, and concentration (Nakamura & Csikszentmihaly, 2002). It should also be noted that researchers differentiate between the immediate level of the flow experience (flow state), and the propensity to experience flow in general during a specific activity (dispositional flow) (e.g., Jackson & Eklund, 2002; Wang, Liu, & Khoo, 2009).

Although several questionnaires have been developed to measure flow, little is known about the applicability of these scales to the experience of flow in students' academic work. Recently, Bakker (2005, 2008) developed a scale for measuring flow at work, the Work-Related Flow Inventory (in short: WOLF). Research among several samples has shown the reliability, as well as the factorial, constructive, and predictive validity (Bakker, 2008). Since WOLF has demonstrated strong psychometric properties, it may be useful to adopt it for use in an academic setting.

Therefore, to fill the aforementioned gap in the research of measures of flow in educational context, the purpose of this study was to examine the psychometric adequacy of the WOLF modified for measuring flow in an education setting, i.e. The

Study-Related Flow Inventory (WOLF-S). Accordingly, study-related flow is defined as a short-term peak experience during study activities that is characterised by absorption, study enjoyment, and intrinsic motivation for these activities. Absorption refers to a state of total concentration, whereby students are totally immersed in their academic work. Enjoyment refers to a positive judgment about the quality of their study and academic obligations. Intrinsic study motivation indicates the desire to perform a certain study-related activity with the aim of experiencing inherent pleasure and satisfaction in the activity (cf. Bakker, 2005, 2008).

In more detail, the aim of the present study was to test the validity and reliability of WOLF-S. The factorial validity of WOLF-S was tested by comparing the goodness-of-fit of the three-factor model to that of one-factor and two-factor models. In the light of research on flow in the work context (Bakker, 2008), we predicted a three-factor structure of WOLF-S (Hypothesis 1). The convergent validity of the WOLF-S was examined by correlating the dimensions of WOLF-S with other measures of flow in learning activities: dispositional flow in learning (Adapted Flow Scale; Myers, 1978, as cited in Delle Fave & Massimini, 1988) and reported flow in learning activities during secondary school and university (adapted from Flow Questionnaire; Csikszentmihalyi & Csikszentmihalyi, 1988). We hypothesised that each of the three WOLF-S subscales would correlate positively with other measures of flow in learning activities (Hypothesis 2).

Construct validity was assessed by relating the WOLF-S subscales and two other constructs: satisfaction with studying, and perceived academic overload. Based on theory (Csikszentmihalyi, 1990), flow is accompanied by positive emotions and satisfaction regarding the activity. In line with this, previous research on flow in a work setting showed positive correlations between the WOLF subscales and job satisfaction (Bakker, 2008). In contrast, perceived academic overload is accompanied by negative emotions, e.g. anxiety and stress, and such emotions are theoretically counterproductive for the state of flow (Csikszentmihalyi, 1990). Therefore, we expected a positive association between WOLF-S and satisfaction with studying (Hypothesis 3a) and a negative association with perceived academic workload (Hypothesis 3b).

Methods

Participants and Procedure

A convenience sample of university students included 394 Croatian students (74.8% females, 1 participant did not indicate gender) from the Faculty of Science (Department of Mathematics, Physics and Geography) (75.5%) and from the Faculty of Teacher Education (24.5%), both at the University of Zagreb. Participants ranged in age from 18 to 43 years, with a mean age of 21 years (M=20.63; SD=2.42). They filled in questionnaires voluntarily and anonymously during a regular course in psychology.

Measures

1. Flow Questionnaire. The Flow Questionnaire (FQ; Csikszentmihalyi, 1975; Csikszentmihalyi & Csikszentmihalyi, 1988) presented three quotations vividly

describing flow experience to participants. The quotations were taken from the original flow interviews (e.g., "*My mind isn't wandering. I am not thinking of something else. I am totally involved in what I am doing...*"). Each respondent was asked to read the quotations of flow experiences and to answer some questions regarding such experience. First, each respondent was asked to indicate if he or she had ever experienced something similar. If the answer was "yes", the respondent was asked to describe what activity or activities provided such an experience. We added three questions regarding study-related flow which were analysed separately: (a) Did you have such an experience during learning activities in secondary school (*yes/no* answer); (b) Did you have such an experience during learning activities while at university? (*yes/no* answer); (c) How often did you have such an experience this semester while studying? (1=*never*, 2=*once a month*, 3=*several times a month*, 4=*several times a week*, 5=*every day*). The FQ was extensively used in previous research on flow (e.g., Massimini, Csikszentmihalyi, & Delle Fave, 1988; Rijavec, Ljubin Golub, & Olčar, 2016).

2. Flow Scale. The Flow Scale (FS) was developed by Mayers (1978, as cited in Delle Fave & Massimini, 1988) and consists of 12 items describing the characteristics of flow as posited by the flow model. Previous researchers have often revised the Flow Scale to adapt the items in reference to flow activity in various settings, such as family life, schoolwork, etc. (e.g. Delle Fave & Massimini, 1988). In the present study, FS was used for measuring the quality and intensity of the flow experience in learning activities. Respondents were asked to rate their subjective experience in learning activities in general, using an 8-point scale ranging from 1 (*do not agree at all)* to 8 (*completely agree)*. Example items include: *I get involved with what I am doing* and *I enjoy the experience and the use of my skills*. The FS overall score was derived by computing the mean of all 12 items. A higher score indicates a higher disposition to experience flow during learning activities.

3. The Study-Related Flow Inventory (WOLF-S). WOLF-S is based on the Work-Related Flow Inventory (WOLF, Bakker, 2008), which includes thirteen items measuring absorption (4 items), work enjoyment (4 items), and intrinsic work motivation (5 items). In the present study, the original WOLF items were modified in order to make them suitable for an academic setting. An example of a modification is where "When I am working, I think about nothing else" was modified into "When I am learning, I think about nothing else." The instrument is included in the Appendix. All items are rated on a seven-point scale ranging from 1 (*never*) to 7 (*always*). The flow experience referred to the preceding two weeks. Scores on the WOLF-S subscales were derived for each participant by computing the mean of their responses on each subscale, and one overall score was derived by computing the mean of all 13 items.

4. Satisfaction with studying. Consistent with the approach of Lizzio, Wilson, and Simons (2002), study satisfaction was measured with one item asking participants to indicate how satisfied they are with study as a whole. Responses ranged from 1 (*not at all satisfied)* to 4 (*extremely satisfied*).

5. Perceived academic workload. Perceived academic workload was measured by one item asking subjects to determine how loaded they are with obligations and requirements related to their study. The answer options ranged from 1 (*not at all loaded*) to 5 (*extremely loaded*).

Two single-item measures were used in this research for several reasons. First, single-item measures have good content validity as they are simple and direct (Sloan, Aaronson, Cappelleri, Fairclough, & Varricchio, 2002), and have high face validity (Nagy, 2002). Second, the concepts measured by a single item (study satisfaction and perceived academic workload) are well-known and unambiguous to the respondents. Third, we do not need to measure these variables more specifically across domains and in detail, since we want to capture overall concepts which are more appropriate and convenient for use in the process of validation. In these circumstances, the use of a single-item measure provides an acceptable and reliable representation of the given construct, while at the same time being efficient (e.g. Nagy, 2002; Oshagbemi, 1999; Wanous, Reichers, & Hudy, 1997).

Overview of Data Analysis

Confirmatory factor analysis (CFA) was performed with the AMOS 20 program (Arbuckle, 2011) to investigate whether the WOLF-S responses would fit a three-factor (absorption, enjoyment, and intrinsic motivation) model. Several indices of model fit were used, including the chi-square statistic (χ^2), the chi-square/degrees of freedom ratio (χ^2 /*df*), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Recommended values for acceptable fit (Hair, Black, Babin, & Anderson, 2010; Schumacker & Lomax, 2010) are as follows: for χ^2 /*df*, a value below 3.0 is considered acceptable; the value of the CFI and TLI should be higher than or equal to .90; and the RMSEA value should be smaller than or equal to .08. In addition, both factorial validity and discriminant validity of WOLF-S were assessed by average variance extracted (AVE) measurement (Fornell & Larcker, 1981). Reliability analysis was conducted using Cronbach alpha coefficients.

Results

Descriptive Statistics

Descriptive statistics, internal consistencies and correlations among measured variables are presented in Table 1. Before performing other analyses, we examined the skewness and kurtosis of the data. All the parameters for the WOLF-S subscales were between 0 and 1 which, along with the inspection of the histograms, suggests that the data distributions are acceptable (Bulmer, 1979).

The inter-correlations between the three WOLF-S subscales range between r=.54 and .64. The inter-correlations between the WOLF-S subscales and the other flow measures were also significant and positive and ranged between r=.18 and .47. No gender differences were found in any of the three WOLF-S subscales (all p values >.05),

in the frequency of experiencing study-related flow in the last semester (t=-.89, p>.05), or in the scores on the Flow Scale (t=-.720, p > .05).

Table 1

Descriptive statistics, intercorrelations, and internal consistencies of the measured variables

	Correlation coefficients							
	1.	2.	3.	4.	5.	6.	7.	8.
1. WOLF-S Absorption	-							
2. WOLF-S Enjoyment	.62**	-						
3. WOLF-S Intrinsic Motivation	.53**	.64**	-					
4. WOLF- S Overall score	.82**	.87**	.88**	-				
5. Flow Scale (dispositional flow)[a]	.41**	.40**	.40**	.47**	-			
6. FQ - Flow frequency during the last semester	.43**	.26**	.27**	.36**	.10	-		
7. Satisfaction with study	.28**	.43**	.19**	.34**	.08	.13**	-	
8. Academic workload	-.12**	-.24**	-.15**	-.19**	-.31**	.09	-.16**	-
	Descriptive statistics							
Mean	3.43	3.55	3.13	45.50	5.16	1.97	2.96	2.90
Standard deviation	1.02	1.07	1.19	11.88	0.93	1.06	0.63	0.80
Cronbach's α	.85	.88	.84	.91	.78	n.a.	n.a.	n.a.
Actual range (raw scores)	1-7	1-7	1-7	13-88	28-89	1-5	1-4	1-5
Expected range (raw scores)	1-7	1-7	1-7	13-91	1-8	1-5	1-4	1-5

Note. [a] measured in N=189.

Prevalence of Flow in Daily Activities and Learning

Based on the FQ, 79.1% of the participants had experienced flow in some activity during their life. The majority of the participants stated learning in the open-ended question as the activity in which they had experienced flow (50.7%, i.e. 37.6% of the total sample), followed by reading (15.1%), sport training (6.8%), watching a movie (4.8%), playing games (3.8%), dancing (3.4%), watching TV (2.7%), playing an instrument (2.4%), listening to music (2.4%).

Experience of flow at least once during academic work in secondary school was significantly higher in females than in males (63.3% vs. 50.5%; χ^2=4.509, df=1, p<.05), while there were no differences in reported flow in learning at university (64.6% of females vs. 56.6% of males, χ^2=1.725, df=1, p>.05).

Factorial Validity

The thirteen items of WOLF-S were analysed via CFA in order to test the factorial validity of WOLF-S by comparing the goodness-of-fit of the three-factor model to that of the one-factor and two-factor models. No cross-loadings of items were allowed, all latent factors were intercorrelated, and one item from each factor was fixed to 1.0 for purposes of identification and latent variable scaling. The hypothesised three-factor model was tested against the null-model and the two alternative models. The two alternative models were: (M1) a one-factor model in which all items of the three subscales were allowed to

load on one general flow factor; (M2) a two-factor model in which the items of the two highest correlating variables – Intrinsic Motivation and Enjoyment – were collapsed into one factor, whereas the items of the Absorption subscale were allowed to load on a second factor. Fit statistics for all models are reported in Table 2. As can be seen, the fit indices were acceptable for the three-factor model. In addition, the results indicate that the three-factor model fits better to the data than the one-factor ($\Delta\chi^2$=1883.43, p<.001) and the two-factor models ($\Delta\chi^2$=366.76, p<.001), confirming Hypothesis 1. All standardised loadings were significant (p<.01) and ranged from .55 to .96. Additionally, all AVE values were above .50 (.51, .58 and .63 for absorption, enjoyment, and intrinsic motivation, respectively). This means that more than 50% of the variances observed in the items were accounted for by their hypothesised factors, thus suggesting adequate factorial validity.

Table 2

Model Fit Indices for Alternative Models for the WOLF-Study Questionnaire

Alternative models	χ^2	df	p	χ^2/df	CFI	TLI	RMSEA
Null model	3306.75	78	.000	42.39	.00	.00	.32
One-factor model	2085.79	63	.000	33.11	.37	.22	.28
Two-factor model	569.12	62	.000	8.31	.84	.80	.14
Three-factor model	202.36	60	.000	3.37	.96	.94	.08

Note. χ^2, chi-square; df, degrees of freedom; CFI, comparative fit index; TLI, Tucker-Lewis index; RMSEA, root mean square error of approximation.

CFA discriminant validity analyses provided support for the distinctiveness of the WOLF-S factors. Specifically, the factor correlation between absorption and enjoyment was r=.67 (95% CI=.58 – .67), between absorption and intrinsic motivation it was r=.60 (95% CI=.48 – .60), and between enjoyment and intrinsic motivation it was r=.70 (95% CI=.60 – .70). Since the confidence intervals of the paired correlations do not include the value of 1, this can be taken as evidence of discriminant validity (Torkzadeh, Koufteros, & Pflughoeft, 2003).

Additionally, the discriminant validity of WOLF-S was tested using the AVE measurement. Discriminant validity is present when the variance shared between a construct and any other construct in the model is less than the variance that the construct shares with its indicators. To assess for discriminant validity, the square root of the average variance extracted (AVE) for a given construct was compared with the correlations between that construct and all other constructs. If the square roots of the AVEs are greater than the correlations between that construct and all other constructs, it shows that the construct has stronger correlation with its indicators than with the other constructs in the model (Fornell & Larker, 1981). For the three study flow subscales, all the square root values of the AVEs were greater than the correlations between that construct and all the other constructs, suggesting that discriminant validity is adequate (.71 for enjoyment vs .60 for absorption and .70 for intrinsic motivation; .76

for absorption vs .60 for enjoyment and .67 for intrinsic motivation; .79 for intrinsic motivation vs .70 for enjoyment and .67 for absorption).

The reliability indices supported the adequate internal reliability for all three subscales. The alpha coefficients were .85, .87, and .81 for absorption, enjoyment, and intrinsic motivation, respectively (Table 1).

Convergent Validity

As predicted, the WOLF-S subscales correlated positively with other measures of flow in learning: dispositional flow in learning and frequency of flow in learning over the last semester. The coefficients range from low to moderate (Table 1).

In addition, the results show significant differences in all dimensions of study-related flow (absorption, enjoyment and intrinsic motivation) between participants who did or did not experience flow in high school (Table 3) and university (Table 4). Participants who reported experiencing flow in learning during secondary school and while at university had significantly higher scores on all three study-related flow dimensions than participants reporting no such experiences. Thus, the results confirm Hypothesis 2.

Table 3

Differences in WOLF-S (absorption, enjoyment and intrinsic motivation) between participants who did or did not experience study-related flow in secondary school as measured by FQ

Experience of study-related flow in secondary school[a]	WOLF-S Absorption		WOLF-S Enjoyment		WOLF-S Intrinsic motivation	
	M	*SD*	*M*	*SD*	*M*	*SD*
Yes (N=250)	3.66	0.96	3.73	1.07	3.29	1.16
No (N=160)	3.05	1.07	3.27	1.02	2.88	1.17
t-test	6.05		4.33		3.50	
p	.000		.000		.001	

Note. [a] as measured by FQ.

Table 4

Differences in WOLF-S (absorption, enjoyment and intrinsic motivation) between participants who did or did not experience study-related flow at university as measured by FQ

Experience of study-related flow in secondary school[a]	WOLF-S Absorption		WOLF-S Enjoyment		WOLF-S Intrinsic motivation	
	M	SD	M	SD	*M*	*SD*
Yes (N=256)	3.71	0.97	3.73	1.01	3.32	1.16
No (N=155)	2.97	0.95	3.25	1.12	2.84	1.15
t-test	7.45		4.52		4.15	
p	.000		.000		.000	

Note. [a] as measured by FQ.

Construct Validity

We also correlated WOLF-S with the other constructs expected to be related to flow dimensions, i.e. satisfaction with studying and perceived academic workload. In line

with Hypotheses 3a and 3b, the total score of WOLF-S, and each of the three subscales, correlated positively with satisfaction with studying, and negatively with perceived academic load (see Table 1).

Discussion

Students' flow experiences in academic settings are important for their learning motivation, academic performance, and future educational plans (Shernoff & Hoogstra, 2001). In order to research study-related flow and its possible predictors and consequences, and to make advances in research and theory, as well as to derive practical applications, a valid and reliable instrument for measuring flow in an academic setting is needed. WOLF (Bakker, 2008) is a well-known and validated instrument for measuring flow at work. Therefore, the aim of the present study was to validate WOLF-S, a modified version of WOLF, aimed at measuring study-related flow. The key findings can be summarised as follows.

First, as expected, the results indicate that the three flow dimensions can be distinguished in an academic setting. The results of the CFA on the data of university students demonstrated that WOLF-S has the same structure as the original WOLF, with three separate factors, namely, absorption, enjoyment, and intrinsic motivation for studying. All model fit indices reached their corresponding criteria satisfactorily. In addition, all AVE values were acceptable both for factorial and discriminant validity and were also acceptable for the internal consistency type of reliability of the scales. This indicates that the three-factor model of study-related flow has good internal reliability and structural validity.

We also examined the convergent and construct validity of WOLF-S. Assessment of convergent validity showed that all three WOLF-S components were significantly and positively related to other measures of flow experiences in learning activities. Examination of construct validity showed that all three WOLF-S subscales correlated with other constructs in the predicted way: positively with satisfaction with studying, and negatively with academic workload.

It should be noted that the negative relationship between flow and academic workload found in this study is based on flow theory (Csikszentmihalyi, 1990). In contrast, Bakker (2008) found in an organisational setting that job demands such as work pressure and emotional demands had a positive relationship with absorption. Employees who work under pressure and are confronted with demanding clients often lose their perspective of time, and become immersed in their work. However, there is a clear difference between work pressure defined as working hard and heavy academic workload. Academic overload does not imply only working hard at the moment, but also being under stress due to academic duties while still acquiring knowledge and skills, i.e. the challenges are too tough. On the other hand, experienced workers, although working under pressure, have adequate skills matching the task. From a theoretical viewpoint, this result points to the importance of the skill-challenge balance, as proposed by Csikszenthmihalyi (1990).

Further studies and more complex measures of academic workload may provide insights into different aspects of academic workload. The student may be overloaded for various reasons, such as having a too heavy study load, feeling overwhelmed by the quantity of materials, time pressure, or insufficient skills for academic activities.

This research examined flow as a phenomenon with three underlying dimensions which were, in turn, operationalised as continuous variables. Although a global flow score on WOLF-S may be used by calculating the mean score on all items, we were interested in investigating the specific relationships of flow components with criterion variables and therefore calculated scores for absorption, enjoyment and intrinsic motivation. Currently, there is controversy in literature about the number of flow components, but Schiefele (2013, p. 531) concluded that "(a) absorption is the core component of flow, (b) there is no agreement on additional dimensions, and (c) enjoyment is a relevant aspect of flow that emerges as a separate factor or is included in the dimension of absorption". Thus, it seems that WOLF-S measures the crucial elements of flow.

The results also showed that 79.1% of the participants had experienced flow in some activity during their life, and the majority of the participants stated learning as the most frequent flow-inducing activity, followed by reading (15.1%), sport training (6.8%), watching a movie (4.8%), playing games (3.8%), dancing (3.4%), watching TV (2.7%), playing an instrument (2.4%), and listening to music (2.4%). In line with this, Massimini and Carli (1988) by means of the ESM method found that in Italian teenagers optimal experiences typically occur while teenagers are either engaged in class work or in studying (34%), or in situations in which they are socialising with peers (28%), followed by situations in which they are thinking (8%), they are involved in art and hobbies (7%) and reading (5%). There may be many aspects that influence the reported flow-inducing activities, such as sample characteristics or the measurement method. However, our results suggest that activities in which a subject is more often involved have a better chance of inducing flow.

In regards to flow and specific types of academic activities, there are several findings that are worth noting. First, very few students (only two) reported that they experienced flow during lessons in their course of study. On the other hand, the majority of those experiencing study-related flow describe learning (e.g. solving mathematical problems) as a flow-inducing activity. This result is in line with the study showing that the flow in students majoring in primary education is the most frequent while preparing for seminars and similar tasks, as well as while preparing for exams, and the least frequent during lectures (Rijavec, Ljubin-Golub, & Olčar, 2015). Second, several students, while describing learning as a flow inducing activity, reported that learning was related to content which they liked or to the subject they like the most. Therefore, it seems that active learning and interest in content and subject are important elements for flow in learning. The importance of intrinsic motivation for experiencing flow was also indicated in the first studies of flow: flow was firstly noted in preferred activities such as chess playing, dancing, or sports (Csikszentmihaly, 1975). However, further studies

have shown that flow is also experienced at work (Bakker, 2008; Demerouti, 2006), and, even more, it has been found that flow can be more often found at work than in a leisure setting (Csikszentmihalyi & LeFevre, 1989), which was explained by the inability to create a situation with a challenge-skill balance (Csikszentmihalyi & LeFevre, 1989). Additionally, Csikszentmihalyi (1990) suggested that "the best moments usually occur when a person's body or mind is stretched to its limits in a voluntary effort to accomplish something *difficult* or *worthwhile* [italics added]" (p. 3). In an academic setting, a student is likely to experience a challenge-skill balance (high challenge – high skill), the activity of studying is at least sometimes difficult, and the activity is worthwhile (aimed at passing exams and getting a degree).

This study has several limitations. In regard to the prevalence of flow, our participants were not randomly selected from the entire university student population and thus potential selection bias might have influenced the results, and the results may not be applicable to students in general. Future studies should try to determine the robustness of the findings in other samples or investigate study-related flow in more representative samples. Another limitation relates to the use of single-item measures of satisfaction with study and academic workload for establishing congruent validity. Although this approach enables us to show the congruent validity of WOLF-S with two distinct concepts, future studies should include other measures.

To sum up, our results confirm the three-factor structure of study-related WOLF-S adapted from WOLF, proposed by Bakker (2005, 2008) for work-related flow. There is also evidence to support the convergent and construct validity of the scale. Therefore, the results provide justification for the use of WOLF-S in a university context to assess study-related flow experiences. Additionally, WOLF-S is not a time-consuming inventory. As a whole, the present findings indicate that WOLF-S can be effectively and efficiently used in an academic setting for measuring flow in study-related activities.

Funding and Declaration of Conflicting Interests

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Arbuckle, J. L. (2011). *Amos 20 user's guide.* Chicago, IL: IBM/SPSS. Bakker, A. B. (2005). Flow among music teachers and their students: The cross-over of peak experiences. *Journal of Vocational Behavior, 66,* 26-44.

Bakker, A. B. (2008). The work-related flow inventory: Construction and initial validation of the WOLF. *Journal of Vocational Behavior, 72,* 400-414. https://doi.org/10.1016/j.jvb.2007.11.007

Bakker, A. B., Oerlemans, W., Demerouti, E., Bruins Slot, B., & Karamat Ali, D. (2011). Flow and performance: A study among talented Dutch soccer players. *Psychology of Sport and Exercise, 12,* 442-450. https://doi.org/10.1016/j.psychsport.2011.02.003

Bassi, M., & Delle Fave, A. (2004). Adolescence and the changing context of optimal experience in time: Italy 1986-2000. *Journal of Happiness Studies, 5,* 155-179. https://doi.org/10.1023/B:JOHS.0000035914.66037.b5

Bassi, M., & Delle Fave, A. (2012). Optimal experience and self-determination at school: Joining perspectives. *Motivation and Emotion, 36*, 425-438. https://doi.org/10.1007/s11031-011-9268-z

Bassi, M., Steca, P., Delle Fave, A., & Caprara, G. V. (2007). Academic self-efficacy beliefs and quality of experience in learning. *Journal of Youth and Adolescence, 36,* 301-312. https://doi.org/10.1007/s10964-006-9069-y

Bryce, J., & Haworth, J. (2002). Wellbeing and flow in sample of male and female office workers. *Leisure Studies, 21,* 249–263. https://doi.org/10.1080/0261436021000030687

Bulmer, M. G. (1979). *Principles of statistics*. Mineola, N.Y.: Courier Dover Publications.

Carli, M., Delle Fave., & Massimini, F. (1988). The quality of experience in the flow channels: Comparison of Italian and U.S. students. In M. Csikszentmihalyi, & I. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 288-306). Cambridge: Cambridge University Press.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety.* San Francisco: Jossey Bass.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience.* New York: Harper & Row.

Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (Eds.) (1988). *Optimal experience: Psychological studies of flow in consciousness.* Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511621956

Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the Experience Sampling Method. *Journal of Nervous and Mental Disease, 175*, 526–536. https://doi.org/10.1097/00005053-198709000-00004

Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology, 56,* 815–822. https://doi.org/10.1037/0022-3514.56.5.815

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). *Talented teenagers: The roots of success and failure.* New York: Cambridge University Press.

Delle Fave, A., & Massimini, F. (1988). Modernization and the changing contexts of flow in work and leisure. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 192-213). New York: Cambridge University Press. https://doi.org/10.1017/CBO9780511621956.012

Delle Fave, A., Massimini, F., & Bassi, M. (2011). Instruments and Methods in flow research. In *Psychological Selection and Optimal Experience Across Cultures. Social Empowerment through Personal Growth. Cross-Cultural Advancements in Positive Psychology* (Volume 2), (pp. 59-87). Dordrecht: Springer. https://doi.org/10.1007/978-90-481-9876-4_4

Demerouti, E. (2006). Job characteristics, flow, and performance: the moderating role of conscientiousness. *Journal of Occupational Health Psychology*, 11, 266-280. https://doi.org/10.1037/1076-8998.11.3.266

Egbert, Y. (2003). A study of flow theory in the foreign language classroom. *The Modern Language Journal, 87*(4), 499-518. Retrieved from http://www.jstor.org/stable/1192800. https://doi.org/10.1111/1540-4781.00204

Engeser, S., Rheinberg, F., Vollmeyer, R., & Bischoff, J. (2005). Motivation, Flow-Erleben und Lernleistung in universitären Lernsettings [Motivation, flow experience and performance in learning settings at university]. *Zeitschrift für Pädagogische Psychologie, 19*, 159-172. https://doi.org/10.1024/1010-0652.19.3.159

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50. https://doi.org/10.2307/3151312

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Upper Saddle River, New Jersey: Pearson-Hall International.

Hambleton, R. K. (1994). Guidelines for adapting educational and psychological tests: A progress report. *European Journal of Psychological Assessment, 10*, 229-244.

Jackson, S. A. (1996). Toward a conceptual understanding of the flow experience in elite athletes. *Research Quarterly for Exercise and Sport, 67*(1), 76-90. https://doi.org/10.1080/02701367.1996.10607928

Jackson, S. A., & Eklund, R. C. (2002). Assessing flow in physical activity: The Flow State Scale-2 (FSS-2) and Dispositional Flow Scale-2 (DFS-2). *Journal of Sport and Exercise Psychology, 24*, 133-150. https://doi.org/10.1123/jsep.24.2.133

Jackson, S. A., & Marsh, H. W. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of Sport & Exercise Psychology, 18,* 17-35. https://doi.org/10.1123/jsep.18.1.17

Klein, B. D., Rossin, D., Guo, Y. M., & Ro, Y. K. (2010). An examination of the effects of flow on learning in a graduate-level introductory operations management course. *Journal of Education for Business, 85*(5), 292-298. https://doi.org/10.1080/08832320903449600

Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: implications for theory and practice. *Studies in Higher Education, 27*, 1, 27-52. https://doi.org/10.1080/03075070120099359

Massimini F., Csikszentmihalyi M., & Delle Fave, A. (1988). Flow and biocultural evolution. In M. Csikszentmihalyi, & I. Csikszentmihalyi (Eds.), *Optimal experience. Psychological studies of flow in consciousness* (pp. 60-81). New York: Cambridge University Press. https://doi.org/10.1017/CBO9780511621956.004

Massimini, F., & Carli, M. (1988). The systematic assessment of flow in daily experience. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: psychological studies of flow in consciousness* (pp. 266-287). Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9780511621956.016

Moneta, G. B. (2012). On the Measurement and Conceptualization of Flow. In S. Engeser (Ed.), *Advances in Flow Research* (pp. 23-50). New York: Springer. https://doi.org/10.1007/978-1-4614-2359-1_2

Nagy, M. S. (2002). Using a single-item approach to measure facet job satisfaction. *Journal of Occupational and Organizational Psychology*, 75, 77-86. https://doi.org/10.1348/096317902167658

Nakamura, J. (1988). Optimal experience and the uses of talent. In M. Csikszentmihalyi, & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Studies of flow in consciousness* (pp. 319–326). New York, NY: Cambridge University Press. https://doi.org/10.1017/CBO9780511621956.019

Nakamura, J., & Csikszentmihalyi, M. (2002). The concept of flow. In C. R. Snyder, & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 89-105). New York: Oxford University Press.

Oshagbemi, T. (1999). Overall job satisfaction: How good are single versus multiple-item measures? *Journal of Managerial Psychology*, *14*, 388–403. https://doi.org/10.1108/02683949910277148

Pearce, J. M., Ainley, M., & Howard, S. (2005). The ebb and flow of online learning. *Computers in Human Behavior, 21*, 745–771. https://doi.org/10.1016/S0747-5632(04)00036-6

Rijavec, M., Ljubin-Golub, T., & Olčar, D. (2016). Can learning for exams make students happy? Faculty-related and faculty-unrelated flow experiences and well-being. *Croatian Journal of Education, 18, Sp. Ed. 1*,153-164.

Rheinberg, F., Vollmeyer, R., & Engeser, S. (2003). Die Erfassung des Flow-Erlebens [The assessment of flow experience]. In J. Stiensmeier-Pelster, & F. Rheinberg (Eds.), *Diagnostik von Motivation und Selbstkonzept* (pp. 261-279). Göttingen, Germany: Hogrefe.

Rossin, D., Ro, Y.K., Klein, B. D., & Guo, Y. M. (2009). The effects of flow on learning outcomes in an online information management course. *Journal of Information Systems Education, 20*(1), 87-98.

Salanova, M., Bakker, A. B., & Llorens, S. (2006). Flow at work: evidence for an upward spiral of personal and organizational resources. *Journal of Happiness Studies, 7,* 1-22. https://doi.org/10.1007/s10902-005-8854-8

Sansgiry, S. S., & Sail, K. (2006). Effect of students' perception of course load on test anxiety. *American Journal of Pharmaceutical Education, 70*, 2, Article 26. https://doi.org/10.5688/aj700226

Schiefele, U. (2013). Response to Engeser (2012). On the nature of flow experience. *Psychological Reports: Mental & Physical Health, 112*(2), 529-532. https://doi.org/10.2466/04.PR0.112.2.529-532

Seifert, T., & Hedderson, C. (2010). Intrinsic motivation and flow in skateboarding: An ethnographic study. *Journal of Happiness Studies*, *11*, 277–292. https://doi.org/10.1007/s10902-009-9140-y

Shernoff, D. J., & Csikszentmihaly, M. (2009). Flow in schools: Cultivating engaged learners and optimal learning environments. In R. C. Gilman, E. S. Heubner, & M. J. Furlong (Eds.), *Handbook of positive psychology in schools* (pp. 131-145). New York, NY: Routledge.

Shernoff, D. J., & Hoogstra, L. (2001, Fall). Continuing motivation beyond the high school classroom. *New Directions for Child and Adolescent Development, 93*, 73-87. https://doi.org/10.1002/cd.26

Shernoff, D. J., Csikszentmihalyi, M., Schneider, B., & Shernoff, E. S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly, 18*(2), 158-176. https://doi.org/10.1521/scpq.18.2.158.21860

Sloan, J. A., Aaronson, N., Cappelleri, J. C., Fairclough, D. L., & Varricchio, C. (2002). Assessing the clinical significance of single items relative to summated scores. *Mayo Clinic Proceedings*, *77*, 479–487. https://doi.org/10.1016/S0025-6196(11)62218-0

Steele, J. P., & Fullagar, C. J. (2009). Facilitators and outcomes of student engagement in a college setting. *The Journal of Psychology: Interdisciplinary and Applied, 143*(1), 5-27. https://doi.org/10.3200/JRLP.143.1.5-27

Torkzadeh, G., Koufteros, X., & Pflughoeft, K. (2003). Confirmatory analysis of computer self-efficacy. *Structural Equation Modeling, 10*(2), 263-275. https://doi.org/10.1207/S15328007SEM1002_6

Voelkl, J. E., & Ellis, G. D. (1998). Measuring flow experiences in daily life: An examination of the items used to measure challenge and skill. *Journal of Leisure Research, 30*, 380-389.

Wang, C. K. J., Liu, W. C., & Khoo, A. (2009). The psychometric properties of dispositional flow scale-2 in Internet gaming. *Current Psychology, 28*, 194–201. https://doi.org/10.1007/s12144-009-9058-x

Wanous, J. P., Reichers, A. E., & Hudy, M. J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology, 82*, 247-252. https://doi.org/10.1037/0021-9010.82.2.247

Arnold B. Bakker
Department of Work & Organizational Psychology
Erasmus University Rotterdam
Burg Oudlaan 50 PO Box 1738, 3000 DR Rotterdam, The Netherlands
bakker@fsw.eur.nl
Department of Industrial Psychology and People Management
University of Johannesburg
PO Box 524, Auckland Park 2006, South Africa
bakker@fsw.eur.nl

Tajana Ljubin Golub
Department of Psychology
Faculty of Teacher Education
University of Zagreb
Savska cesta 77, 10000 Zagreb, Croatia
tajana.ljubingolub@ufzg.hr
Department of Psychology
Catholic University of Zagreb
Ilica 242, 10000 Zagreb, Croatia
tajana.ljubin.golub@unicath.hr

Majda Rijavec
Department of Psychology
Faculty of Teacher Education
University of Zagreb
Savska cesta 77, 10000 Zagreb, Croatia
majda.rijavec@ufzg.hr

Appendix 1

The English version of the Study-Related Flow Inventory (WOLF-S)

The following statements refer to the way in which you experienced your academic work during the last two weeks. Please indicate how often you experienced each of the statements. (1=never, 2=almost never, 3=sometimes, 4=regularly, 5=often, 6=very often, 7=always).

1. When I am learning, I think about nothing else
2. I get carried away when I am learning
3. When I am learning, I forget everything else around me
4. I am totally immersed in my studying
5. My studying gives me a good feeling
6. I do my study obligations with a lot of enjoyment
7. I feel happy during my learning
8. I feel cheerful when I am learning
9. I would still learn even if I did not have to
10. I find that I also want to learn in my free time
11. I study because I enjoy it
12. I am learning for my own sake
13. I get my motivation from the learning itself, and not from the grades

Validacija Inventara zanesenosti u studiranju (WOLF-S)

Sažetak

Zanesenost je izrazito ugodno stanje koje ljudi osjećaju kada su posve zaokupljeni aktivnošću koju rade. Ovo istraživanje ispituje psihometrijsku adekvatnost WOLF inventara (razvijenog za mjerenje zanesenosti u radnom okruženju), prilagođenog za mjerenje iskustva zanesenosti u obrazovnom kontekstu, tj. zanesenosti vezane uz studiranje (WOLF-S). Uzorak su činila 394 sveučilišna studenta koji su ispunili više mjera tipa papir-olovka namijenjenih mjerenju zanesenosti i povezanih konstrukata. WOLF-S je pokazao pretpostavljenu trofaktorsku strukturu, dobru pouzdanost tipa unutarnje konzistencije, kongruentnu i konstruktnu valjanost. Uz to, rezultati su pokazali da studenti doživljavaju zanesenost tijekom vrlo različitih aktivnosti, no akademske aktivnosti kao što su učenje i čitanje bile su poticajnije za doživljavanje zanesenosti od drugih aktivnosti.

Ključne riječi: *akademski; učenje; optimalno iskustvo; samoiskaz.*

Uvod

Zanesenost je izrazito ugodno, optimalno psihološko stanje koje ljudi osjećaju kada su u tolikoj mjeri usmjereni na zadatak da su posve zaokupljeni aktivnošću (Csikszentmihalyi, 1975). Iskustvo zanesenosti se obično javlja kada se ljudi bave aktivnošću koju vole, uključujući rad, sport i hobije (Csikszentmihalyi, 1990). Karakteristike koje definiraju zanesenost su stapanje aktivnosti i svjesnosti, koncentracija na zadatak, osjećaj kontrole, gubitak svjesnosti o sebi, transformacija vremena i autoteličko iskustvo (Csikszentmihalyi i Csikszentmihalyi, 1988; Csikszentmihalyi, 1990; Jackson, 1996). Iskustvo zanesenosti je pozitivno povezano i s dobrobiti (pr. Bryce i Haworth, 2002) i s većom učinkovitosti u školi (Carli, Delle Fave i Massimini, 1988; Nakamura, 1988), na poslu (pr. Demerouti, 2006; Salanova, Bakker, i Llorens, 2006) i u sportu (pr. Bakker, Oerlemans, Demerouti, Bruins Slot, i Karamat Ali, 2011).

Više je istraživanja pokazalo da učenici i studenti mogu doživjeti zanesenost za vrijeme školskog rada i tijekom aktivnosti na fakultetu (pr. Bassi i Delle Fave, 2012; Egbert, 2003; Klein, Rossin, Guo, i Ro, 2010; za pregled vidi također Shernoff i Csikszentmihalyi, 2009), kao i kada uče kod kuće (Bassi i Delle Fave, 2004). Pokazalo se da je kod adolescenata i visokoškolskih studenata zanesenost povezana s višom razinom

predanosti školovanju, boljim savladavanjem nastavnog programa (Csikszentmihalyi, Rathunde, i Whalen, 1993) i s višom razinom obrazovnih ishoda (Rossin, Ro, Klein, i Guo, 2009; Shernoff, Csikszentmihalyi, Schneider i Shernoff, 2003). Primjerice, Engeser, Rheinberg, Vollmeyer, i Bischoff (2005) su uvrdili da je iskustvo zanesenosti koje su studenti imali za vrijeme predavanja na početku kolegija bilo prediktivno za uspjeh na ispitu iz tog kolegija na kraju semestra. Pokazalo se, također, da zanesenost posreduje u odnosu između karakteristika rada nastavnika (jasnoća uloga, nastavnička podrška autonomiji, povratne informacije studentima) i psihološke dobrobiti, kao i da ima indirektan učinak na fizičko zdravlje (Steele i Fullagar, 2009). Učenje je pozitivno povezano s doživljavanjem zanesenosti pogotovo kod studenata koji imaju visoku razinu samoefikasnosti (Bassi, Steca, Delle Fave, i Caprara, 2007).

Postoji više načina za mjerenje zanesenosti: putem (polustrukturiranih) intervjua (Csikszentmihalyi, 1975), metode uzorkovanja iskustava (engl. *the experience sampling method*, ESM) (Csikszentmihalyi i Larson, 1987), opservacije (pr., Egbert, 2003), opservacije i intervjua (Seifert i Hedderson, 2010), korištenjem omjera izazov-vještina (pr. Pearce, Ainley, i Howard, 2004; Voelkl i Ellis, 1998), i putem samoiskaza (pr., Bakker, 2005; 2008; Jackson i Marsh, 1996; Rheinberg, Vollmeyer, i Engeser, 2003; za pregled vidi Delle Fave, Massimini, i Bassi, 2011; Moneta, 2012). Ipak, najčešće korištena metoda za mjerenje zanesenosti je samoiskaz. Budući da je zanesenost multidimenzionalni konstrukt, konstruirani su upitnici kojima se procjenjuju različite dimenzije zanesenosti, a obično uključuju dimenzije zaokupljenosti, uživanja i koncentracije (Nakamura i Csikszentmihaly, 2002). Treba također napomenuti da istraživači razlikuju trenutnu razinu iskustva zanesenosti (zanesenost kao stanje) i sklonost doživljavanju zanesenosti u nekoj specifičnoj aktivnosti (zanesenost kao dispozicija) (pr. Jackson and Eklund, 2002; Wang, Liu, i Khoo, 2009).

Ipak, bez obzira na to što je razvijeno nekoliko upitnika za mjerenje zanesenosti, malo se zna o primjenjivosti tih instrumenata za mjerenje zanesenosti u akademskom kontekstu. Nedavno je Bakker (2005, 2008) konstruirao skalu pod nazivom Inventar zanesenosti na poslu (WOLF). Istraživanje na više uzoraka pokazalo je da je navedena mjera pouzdana i da ima faktorsku, konstruktnu i prediktivnu valjanost (Bakker, 2008). Budući da se pokazalo da WOLF ima dobre psihometrijske karakteristike, smatrali smo da bi ga moglo biti korisno adaptirati za primjenu u obrazovnom kontekstu.

Stoga, kako bi se odgovorilo na navedeni nedostatak istraživanja mjera zanesenosti u obrazovnom kontekstu, svrha je ovog rada bila ispitati psihometrijsku adekvatnost WOLF inventara prilagođenog za mjerenje zanesenosti u obrazovnom kontekstu, tj. WOLF inventara zanesenosti u studiranju (WOLF-S). U skladu s time, zanesenost u učenju definirana je kao kratkotrajno vrhunsko iskustvo za vrijeme učenja, koje je karakterizirano apsorpcijom, uživanjem u učenju i intrinzičnom motivacijom za studiranje. Apsorpcija se odnosi na stanje potpune koncentracije u kojem su studenti posve uronjeni u akademsku aktivnost koju rade. Uživanje se odnosi na pozitivan doživljaj kvalitete studiranja i akademskih obveza. Intrinzična motivacija za studiranje

odnosi se na želju da se pojedine aktivnosti vezane uz studiranje rade zbog doživljaja ugode i zadovoljstva u samoj aktivnosti (cf. Bakker, 2005, 2008).

Konrektnije, cilj ovog rada bio je ispitati valjanost i pouzdanost WOLF-S inventara. Faktorsku valjanost WOLF-S ispitali smo tako što smo usporedili indekse pristajanja trofaktorskog, jednofaktorskog i dvofaktorskog modela. Na temelju dosadašnjih istraživanja zanesenosti u radnom kontekstu (Bakker, 2008) očekivali smo trofaktorsku strukturu skale WOLF-S (Hipoteza 1). Konvergentnu valjanost WOLF-S ispitali smo s pomoću korelacija dimenzija WOLF-S s drugim mjerama zanesenosti u učenju: Skalom za mjerenje zanesenosti u učenju (prilagođena Skala zanesenosti, Myers, 1978, prema Delle Fave i Massimini, 1988) i iskazanim iskustvom zanesenosti u učenju tijekom srednje škole i fakulteta (prilagođeni Upitnik za mjerenje zanesenosti, Csikszentmihalyi i Csikszentmihalyi, 1988). Pretpostavili smo da će svaka od tri WOLF-S podskale pozitivno korelirati s drugim mjerama zanesenosti u učenju (Hipoteza 2).

Konstruktnu valjanost smo procijenili preko povezanosti WOLF-S podskala s druga dva konstrukta: zadovoljstvom studijem i percipiranim akademskim opterećenjem. U skladu s teorijom (Csikszentmihalyi, 1990), zanesenost prate pozitivne emocije i zadovoljstvo aktivnošću. Prijašnja istraživanja zanesenosti u radnom okruženju pokazala su pozitivnu povezanost između podskala WOLF upitnika i zadovoljstva poslom (Bakker, 2008). Za razliku od toga, percipirano akademsko preopterećenje povezano je s negativnim emocijama kao što su anksioznost i stres, a takve su emocije teorijski kontraproduktivne za doživljavanje stanja zanesenosti (Csikszentmihalyi, 1990). Stoga smo očekivali pozitivnu povezanost WOLF-S skale i zadovoljstva studiranjem (Hipoteza 3a) i negativnu povezanost s percipiranim akademskim opterećenjem (Hipoteza 3b).

Metoda

Sudionici i postupak

Prigodni uzorak sveučilišnih studenata uključivao je 394 studenta iz Hrvatske (74,8% ženskih, 1 osoba nije se izjasnila u pogledu roda) s PMF-a (Odsjek za matematiku, fiziku i geografiju (75,5%) i s Učiteljskog fakulteta (24,5%) Sveučilišta u Zagrebu. Dob studenata kretala se od 18 do 43 godine, uz prosječnu dob od 21 godinu (M=20,63; SD=2,42). Studenti su ispunili upitnike dobrovoljno i anonimno za vrijeme redovne nastave iz psihologije.

Instrumenti

1. Upitnik zanesenosti. Upitnik zanesenosti (engl. *Flow Questionnaire*, FQ; Csikszentmihalyi, 1975; Csikszentmihalyi i Csikszentmihalyi, 1988) na početku ima tri zorna opisa iskustva zanesenosti. Opisi su uzeti iz originalnih intervjua o zanesenosti (pr. „*Misli mi ne lutaju … Ne mislim ni na što drugo. Posve sam u onom što trenutno radim…*"). Zadatak sudionika bio je da pročitaju te opise iskustva zanesenosti i zatim odgovore na pitanja koja se odnosa na takva iskustva. Sudionici su najprije trebali odrediti jesu li ikada imali takvo iskustvo. Ako je odgovor bio „da", sudionik je trebao

opisati aktivnost odnosno aktivnosti tijekom kojih se takvo iskustvo dogodilo. Mi smo u upitnik dodali tri pitanja koja se odnose na zanesenost tijekom učenja, i odgovore na ta pitanja smo zasebno analizirali: (a) Jeste li ikad tijekom učenja u srednjoj školi imali iskustva poput ovih gore opisanih? (format odgovora *da/ne*); (b) Jeste li ikad tijekom učenja na studiju imali iskustva poput ovih gore opisanih? (format odgovora *da/ne*); (c) Koliko često ste tijekom ovog semestra imali takva iskustva za vrijeme učenja? (1=*nikada*, 2=*jednom mjesečno*, 3=*više puta mjesečno*, 4=*više puta tjedno*, 5=*svakodnevno*). FQ se vrlo često koristio u prijašnjim istraživanjima o zanesenosti (pr., Massimini, Csikszentmihalyi, i Delle Fave, 1988; Rijavec, Ljubin-Golub, i Olčar, 2016).

2. Skala zanesenosti. Skalu zanesenosti (engl. *The Flow Scale*, FS) konstruirao je Mayers (1978, prema Delle Fave i Massimini, 1988), a sastoji se od 12 čestica koje opisuju pojedine karakteristike zanesenosti u skladu s teorijskim modelom zanesenosti. U prijašnjim su istraživanjima istraživači često prilagođavali Skalu zanesenosti kako bi mogli mjeriti zanesenost u različitim kontekstima, kao što su obiteljski život, školski kontekst i dr. (Delle Fave i Massimini, 1988). U ovom istraživanju FS smo se koristili za mjerenje kvalitete i intenziteta iskustva zanesenosti u aktivnostima učenja. Ispitanici su trebali procijeniti svoje općenito subjektivno iskustvo tijekom aktivnosti učenja, koristeći se skalom od 8 stupnjeva: od 1 (ne slažem se uopće) do 8 (posve se slažem). Primjeri čestica su: *Uključen sam u ono što radim i uživam u tom iskustvu i korištenju svojih vještina.* Ukupan rezultat na FS dobiven je kao aritmetička sredina odgovora na svih 12 čestica. Veći rezultat ukazuje na veću sklonost doživljavanju iskustva zanesenosti tijekom aktivnosti učenja.

3. Inventar zanesenosti u studiranju (WOLF-S). WOLF-S temelji se na Inventaru za mjerenje zanesenosti na poslu (engl. *WOrk-related Flow Questionnaire, WOLF*, Bakker, 2008), koji se sastoji od trinaest čestica koje mjere apsorpciju (4 čestice), uživanje u poslu (4 čestice) i intrinzičnu motivaciju za posao (5 čestica). U ovom su radu originalne čestice WOLF inventara modificirane kako bi bile pogodne za akademsko okruženje. Primjer modifikacije je čestica „Kada radim na poslu, ne mislim ni o čemu drugom" koja je modificirana u česticu „Kada učim, ne mislim ni o čemu drugom". Instrument se nalazi u Prilogu. Sve čestice procjenjuju se na skali od sedam stupnjeva koja se kreće od 1 (*nikad*) do 7 (*uvijek*). Iskustvo zanesenosti odnosi se na protekla dva tjedna. Za svakog ispitanika dobivaju se rezultati na WOLF-S podskalama, koji se računaju kao prosjek odgovora na pripadajućim podskalama, i ukupan rezultat koji se dobiva kao prosjek svih 13 čestica.

4. *Zadovoljstvo studiranjem.* U skladu s pristupom autora Lizzia, Wilsona i Simonsa (2002) zadovoljstvo studijem mjereno je jednom česticom kojom se od sudionika tražilo da procijene koliko su zadovoljni studijem u cjelosti. Odgovori su se kretali od 1 (*nisam uopće zadovoljan*) do 4 (*izrazito sam zadovoljan*).

5. Percipirano akademsko opterećenje. Percipirano akademsko opterećenje mjereno je jednom česticom kojom se od sudionika tražilo da procijene koliko su opterećeni obvezama i zahtjevima studija. Mogući odgovori kretali su se od 1 (uopće nisam opterećen) do 5 (izrazito sam opterećen).

U ovom istraživanju koristili smo dvije mjere operacionalizirane jednom česticom, zbog nekoliko razloga. Prvo, mjere sačinjene od jedne čestice su jednostavne i direktne te imaju dobru sadržajnu valjanost (Sloan, Aaronson, Cappelleri, Fairclough, i Varricchio, 2002), kao i visoku facijalnu valjanost (Nagy, 2002). Drugo, koncepti koje smo mjerili s jednom česticom (zadovoljstvo studijem i percipirano akademsko opterećenje) sudionicima su dobro poznati i jasni. Treće, te koncepte smo htjeli zahvatiti na općoj razini jer su kao takvi prikladniji i praktičniji za korištenje u procesu validacije, odnosno te varijable nije bilo potrebno mjeriti detaljnije niti mjeriti njihove specifične domene. U takvim okolnostima smatra se da je korištenje mjera sačinjenih od jedne čestice prihvatljiva i pouzdana reprezentacija danih konstrukata, a uz to vremenski nezahtjevna (pr. Nagy, 2002; Oshagbemi, 1999; Wanous, Reichers, i Hudy, 1997).

Pregled analize podataka

Kako bismo istražili odgovaraju li podaci na skali WOLF-S trofaktorskom modelu (faktori apsorpcija, uživanje i intrinzična motivacija), proveli smo konfirmatornu faktorsku analizu (CFA) s programom AMOS 20. Pri tome smo upotrijebili nekoliko indeksa pristajanja, uključivo hi-kvadrat indeks (χ^2), omjer hi-kvadrat/stupnjevi slobode (χ^2/df), indeks komparativnog pristajanja (CFI), Tucker-Lewisov indeks (TLI), i prosječnu standardnu rezidualnu pogrešku (engl. *root mean square error of approximation*, RMSEA). Preporučene vrijednosti za prihvatljivo pristajanje modela (Hair, Black, Babin, i Anderson, 2010; Schumacker i Lomax, 2010) su: za χ^2/df prihvatljivom se smatra vrijednost ispod 3,0; vrijednosti indeksa CFI i TLI trebaju biti veće ili jednake ,90; vrijednost RMSEA treba biti manja ili jednaka ,08. Osim navedenog ispitali smo i faktorsku, kao i diskriminativnu valjanost skale WOLF-S s pomoću mjerenja ekstrahirane prosječne varijance (engl. *average variance extracted*, AVE, Fornell i Larcker, 1981). Analiza pouzdanosti provedena je Cronbachovim alpha koeficijentom.

Rezultati

Deskriptivna statistika

Deskriptivni pokazatelji, koeficijenti unutarnje pouzdanosti i korelacije između mjerenih varijabli prikazani su u Tablici 1. Prije provođenja daljnjih analiza, ispitali smo zakrivljenost i spljoštenost distribucija varijabli. Parametri svih WOLF-S podskala bili su između 0 i 1, što je, zajedno s inspekcijom histograma, sugeriralo da su distribucije podataka prihvatljive (Bulmer, 1979).

Tablica 1

Interkorelacije između tri podskale WOLF-S kretale su se između r=,54 i ,64. Povezanost WOLF-S podskala s drugim mjerama zanesenosti bila je također značajna i pozitivna, a kretala se između r=,18 i r=,47. Nisu nađene rodne razlike ni za jednu od tri WOLF-S podskale (sve p vrijednosti >,05), ni za frekvenciju doživljavanja zanesenosti u studiranju tijekom proteklog semestra (t=-,89, p>,05), ni za rezultate na Skali zanesenosti (t=-,720, p>,05).

Prevalencija zanesenosti u dnevnim aktivnostima i u učenju

Na temelju rezultata FQ upitnika pokazalo se da je 79,1 % sudionika tijekom života doživjelo zanesenost u nekoj aktivnosti. Većina sudionika na otvoreno pitanje o kojoj se aktivnosti radi navela je učenje kao aktivnost u kojoj su doživjeli zanesenost (50,7%, odnosno 37,6% ukupnog uzorka), a slijede čitanje (15,1%), sportski trening (6,8%), gledanje filma (4,8%), igranje igrica (3,8%), plesanje (3,4%), gledanje TV-a (2,7%), sviranje (2,4%), slušanje glazbe (2,4%).

Značajno više studentica u odnosu na studente navelo je da su najmanje jednom tijekom srednje škole doživjele iskustvo zanesenosti u učenju (63,3% vs. 50,5 %; χ^2=4,509, *df*=1, *p*<,05), a nije nađena razlika prevalenciji zanesenosti u učenju za vrijeme studiranja (64,6% studentica vs. 56,6% studenata, χ^2=1,725, *df*=1, *p*>,05).

Faktorska valjanost

Kako bismo ispitali faktorsku valjanost WOLF-S skale, trinaest čestica WOLF-S analizirali smo s pomoću CFA tako što smo usporedili indekse pristajanja uz trofaktorski, jednofaktorski i dvofaktorski model. Svaka čestica mogla je biti povezana samo s jednim faktorom, svi latentni faktori međusobno su bili korelirani, a po jedna čestica iz svakog faktora bila je fiksirana na vrijednost 1.0 zbog identifikacije i skaliranja latentne varijabe. Pretpostavljeni trofaktorski model usporedili smo s nultim modelom i dva alternativna modela. Dva alternativna modela bila su sljedeća: (M1) jednofaktorski model u kojem su sve čestice s podskala bile smještene na jedan opći faktor zanesenosti; (M2) dvofaktorski model u kojem su čestice koje su pripadale varijablama koje su najviše korelirale – Intrinzična motivacija i Uživanje – spojene u jedan faktor, a čestice podskale Apsorpcije smještene su na drugi faktor. Indeksi pristajanja za sve modele prikazani su u Tablici 2. Kao što se može vidjeti, indeksi pristajanja pokazali su prihvatljivost trofaktorskog modela. Uz to, rezultati su pokazali da trofaktorski model bolje pristaje podacima od jednofaktorskog modela ($\Delta\chi^2$=1883,43, *p*<,001) i dvofaktorskog modela ($\Delta\chi^2$=366,76, *p*<,001), čime je potvrđena Hipoteza 1. Sva standardizirana opterećenja bila su značajna (*p*<,01) i kretala su se od ,55 do ,96. Nadalje, sve AVE vrijednosti bile su iznad ,50 (,51, ,58 i ,63 za apsorpciju, uživanje i intrinzičnu motivaciju). To pokazuje da je više od 50 % varijance čestica bilo objašnjivo njihovim pretpostavljenim faktorima, što upućuje na adekvatnu faktorsku valjanost.

Tablica 2

Rezultati analize diskriminativne valjanosti provedene s pomoću CFA ukazuju na distinktivnost faktora WOLF-S. Konkretno, korelacija između faktora apsorpcije i uživanja bila je *r*=,67 (95% CI=,58 – ,67), između apsorpcije i intrinzične motivacije *r*=,60 (95% CI=,48 – ,60), a između uživanja i intrinzične motivacije *r*=,70 (95% CI=,60 – ,70). Budući da intervali pouzdanosti za pojedine korelacije ne sadrže vrijednost 1, to se može uzeti kao dokaz diskriminativne valjanosti (Torkzadeh, Koufteros, i Pflughoeft, 2003).

Dodatno smo diskriminativnu valjanost WOLF-S provjerili s pomoću AVE mjere. Smatra se da je diskriminativna valjanost zadovoljavajuća ako je varijanca koju konstrukt dijeli s nekim od drugih konstrukata u modelu manja od varijance konstrukta s njegovim vlastitim indikatorima. Kako bismo na taj način procijenili diskriminativnu valjanost, usporedili smo prosječnu ekstrahiranu varijancu za pojedini konstrukt (AVE) s korelacijama između tog konstrukta i drugih konstrukata. Ako su korijeni iz kvadriranih AVE vrijednosti veći od korelacija između konstrukta i drugih konstrukata, znači da konstrukt ima snažniju povezanost sa svojim indikatorima nego s drugim konstruktima u modelu (Fornell i Larker, 1981). Rezultati su pokazali da su za sve tri podskale zanesenosti u studiranju sve AVE vrijednosti (izražene kao drugi korijen iz kvadriranih AVE vrijednosti) veće od korelacija između tog konstrukta i drugih konstrukata, što ukazuje na to da je diskriminativna valjanost adekvatna (,71 za uživanje vs. ,60 za apsorpciju i ,70 za intrinzičnu motivaciju; ,76 za apsorpciju vs. ,60 za uživanje i ,67 za intrinzičnu motivaciju; .79 za intrinzičnu motivaciju vs. ,70 za uživanje i ,67 za apsorpciju).

Pokazatelji pouzdanosti pokazali su dobru unutarnju pouzdanost za sve tri podskale. Alfa koeficijenti iznosili su ,85, ,87, i ,81 za apsorpciju, uživanje i intrinzičnu motivaciju (Tablica 1.).

Konvergentna valjanost

U skladu s pretpostavkama, podskale WOLF-S instrumenta bile su pozitivno povezane s drugim mjerama zanesenosti u učenju: sklonosti zanesenosti u učenju i frekvencijom doživljene zanesenosti u učenju tijekom proteklog semestra. Koeficijenti korelacije kretali su se od niske do umjerene povezanosti (Tablica 1.).

Nadalje, rezultati su pokazali postojanje značajne razlike u svim dimenzijama zanesenosti u studiranju mjerenih WOLF-S (apsorpciji, uživanju i intrinzičnoj motivaciji) između sudionika koji jesu i onih koji nisu doživjeli zanesenost u učenju tijekom srednje škole (Tablica 3.), odnosno tijekom studija (Tablica 4.). Sudionici koji su iznijeli da su doživjeli zanesenost u učenju u srednjoj školi, odnosno tijekom studija, imali su značajno veće rezultate na sve tri dimenzije zanesenosti od sudionika koji nisu imali iskustva zanesenosti u učenju. Takvi rezultati potvrdili su hipotezu 2.

Tablica 3 i 4

Konstruktna valjanost

WOLF-S smo korelirali s drugim konstruktima za koje se očekuje da su povezani s dimenzijama zanesenosti, tj. sa zadovoljstvom studiranjem i percipiranim akademskim opterećenjem. U skladu s hipotezama 3a i 3b, ukupni rezultat na WOLF-S, kao i rezultati pojedinih podskala, bili su pozitivno povezani sa zadovoljstvom studiranjem, a negativno povezani s percipiranim akademskim opterećenjem (vidi Tablicu 1).

Rasprava

Iskustva zanesenosti studenata u obrazovnom kontekstu su važna za njihovu motivaciju za učenje, akademska postignuća, kao i planove za daljnje obrazovanje

(Shernoff i Hoogstra, 2001). Za istraživanje zanesenosti u studiranju i mogućih uzroka i posljedica te zanesenosti, kao i mogućih praktičnih implikacija koje iz toga proizlaze, potrebno je imati valjan i pouzdan instrument za mjerenje zanesenosti u akademskom kontekstu. WOLF (Bakker, 2008) je poznati i validirani instrument za mjerenje zanesenosti u radnom okruženju pa je cilj ovog istraživanja bio validirati WOLF-S, modificiranu verziju WOLF inventara, namijenjenog za mjerenje zanesenosti vezane uz učenje. U nastavku su prikazani glavni rezultati istraživanja.

U skladu s pretpostavkom, rezultati su potvrdili postojanje tri dimezije zanesenosti u obrazovnom kontekstu. Rezultati konfirmatorne faktorske analize na uzorku studenata pokazali su da WOLF-S ima istu strukturu kao i originalni WOLF, s tri posebna faktora: apsorpcija, uživanje u učenju i intrinzična motivacija za učenje. Svi indeksi pristajanja bili su zadovoljavajući. Uz to, AVE vrijednosti bile su prihvatljive i za faktorsku i za diskriminativnu valjanost, a prihvatljive su bile i vrijednosti za pouzdanosti skala tipa unutarnje konzistencije. To potvrđuje da trofaktorski model zanesenosti vezane uz učenje na studiju ima dobru unutarnju pouzdanost i strukturnu valjanost.

Također su provjerene konvergentna i konstruktna valjanost skale. Procjene konvergentne valjanosti pokazale su da su sve tri komponente WOLF-S značajno i pozitivno povezane s drugim mjerama zanesenosti u aktivnostima učenja. Provjera konstruktne valjanosti pokazala je da su sve tri WOLF subskale na očekivan način povezane s drugim konstruktima: pozitivno sa zadovoljstvom studiranjem i negativno s akademskim opterećenjem.

Treba napomenuti da je negativan odnos između zanesenosti i akademskog opterećenja utemeljen na teoriji zanesenosti (Csikszentmihalyi, 1990). No, istraživanje koje je proveo Bakker (2008) u organizacijskom kontekstu pokazalo je da su zahtjevi posla poput pritiska i emocionalnog opterećenja pozitivno povezani s apsorpcijom. Zaposlenici koji rade pod pritiskom ili su suočeni sa zahtjevnim klijentima često izgube osjećaj za vrijeme i budu potpuno zaokupljeni svojim poslom. No postoji jasna razlika između pritiska na poslu koji uključuje naporan rad i intenzivnog akademskog opterećenja. Akademsko preopterećenje ne pretpostavlja samo da osoba trenutno naporno radi nego i da je pod stresom zbog različitih akademskih obveza i istodobnog usvajanja novih znanja i vještina. Drugim riječima, izazovi su za osobu preveliki. S druge strane, iskusni zaposlenici, čak i kad rade pod pritiskom, obično imaju adekvatne vještine potrebne za obavljanje zadatka. S teorijskog gledišta, ti rezultati ukazuju na važnost ravnoteže između vještina i izazova. Buduća istraživanja i složenije mjere akademske opterećenosti mogle bi dati bolje uvide u različite aspekte akademske opterećenosti. Studenti mogu biti preopterećeni zbog različitih razloga kao što su preteški sadržaji za učenje, previše sadržaja, vremenski pritisak ili nedovoljne vještine za određene akademske aktivnosti.

U ovom istraživanju zanesenost je konceptualizirana kao fenomen u čijoj se osnovi nalaze tri dimenzije operacionalizirane kao kontinuirane varijable. Iako se može koristiti ukupni rezultat na WOLF-S, izračunat kao prosječna vrijednost procjena na svim česticama, u ovom radu zanimala nas je povezanost pojedinih komponenti zanesenosti

s kriterijskim varijablama te su stoga izračunati rezultati za subskale apsorpcije, uživanja i intrinzične motivacije. Trenutno postoje kontroverze u literaturi o broju komponenti zanesenosti, ali Schiefele (2013, str. 531) zaključuje da „(a) apsorpcija je ključna komponenta zanesenosti, (b) ne postoji slaganje oko ostalih dimenzija i (c) uživanje je relevantni aspekt zanesenosti koji se pojavljuje kao zaseban faktor ili je uključen u dimenziju apsorpcije". Stoga se čini da WOLF-S mjeri ključne elemente zanesenosti.

Rezultati su također pokazali da je 79,1% sudionika doživjelo zanesenost u nekoj aktivnosti tijekom života, a većina je navela učenje kao najčešću aktivnost koja im izaziva zanesenost. Nakon toga slijede čitanje (15,1%), sportski treninzi (6,8%), gledanje filma (4,8%), igranje igara (3,8%), plesanje (3,4%), gledanje TV (2,7%), sviranje (2,4%), i slušanje glazbe (2,4%). U skladu s tim podacima su i rezultati koje su dobili Massimini i Carli (1988) koristeći se ESM metodom. Oni su ustanovili da talijanski tinejdžeri najčešće doživljavaju optimalna iskustva za vrijeme aktivnosti u razredu ili za vrijeme učenja (34%) ili u situacijama kada se druže s vršnjacima (28%), a slijede situacije u kojima razmišljaju (8%), bave se umjetnošću ili hobijem (7%) i čitanjem (5%). Izvještavanje o aktivnostima koje izazivaju zanesenost može biti pod utjecajem različitih činitelja kao što su karakteristike uzorka ili metode mjerenja. Ipak, naši rezultati ukazuju na to da aktivnosti u koje su ljudi češće uključeni imaju veću šansu za izazivanje zanesensoti.

Kad je u pitanju zanesenost u različitim vrstama akademskih aktivnosti, nekoliko je rezultata koje je vrijedno spomenuti. Prvo, vrlo je malo studenata (samo dvoje) izvijestilo da doživljavaju zanesenost za vrijeme predavanja. S druge strane, većina onih koji su izvijestili o iskustvima zanesenosti vezanima uz studiranje navode učenje (primjerice, rješavanje matematičkih problema) kao izvor zanesenosti. Takvi su rezultati u skladu s istraživanjem koje je pokazalo da je zanesenost kod studenata Učiteljskog fakulteta najčešća kad se pripremaju za seminare i slične zadatke, kao i kad uče za ispite, a najrjeđa je za vrijeme predavanja (Rijavec, Ljubin-Golub i Olčar, 2015). Drugo, nekoliko studenata, opisujući zanesenost za vrijeme učenja, izvijestilo je da se radi o učenju sadržaja koji im se sviđa ili o predmetu koji najviše vole. Izgleda da su aktivno učenje i zanimanje za sadržaj i predmet važni elementi za pojavu zanesenosti u učenju. Na važnost intrinzične motivacije za doživljavanje zanesenosti ukazano je već u prvim istraživanjima zanesenosti: zanesenost je prvi put zabilježena u preferiranim aktivnostima poput igranja šaha, plesu ili sportu (Csikszentmihaly, 1975). Ipak, kasnija su istraživanja pokazala da se zanesenost može doživjeti na poslu (Bakker, 2008; Demerouti, 2006), čak štoviše, zanesenost se češće doživljava na poslu nego u slobodnim aktivnostima (Csikszentmihalyi i LeFevre, 1989), što se objašnjava nemogućnošću stvaranja situacija u kojima bi postojala ravnoteža između vještina i izazova. (Csikszentmihalyi i LeFevre, 1989). Uz to, Csikszentmihalyi (1990) ukazuje na to da se „najbolji trenuci obično događaju kad su tijelo i um osobe napregnuti do krajnjih granica u voljnom (namjernom) pokušaju da učini nešto *teško* ili *vrijedno*" [italik slova dodana]" (str. 3). U obrazovnom okruženju, studenti će vjerojatno doživljavati ravnotežu između vještina i izazova (visoki izazovi – visoke vještine), kada su aktivnosti studiranja

barem ponekad teške, a aktivnost doživljavaju vrijednom (usmjerena na prolazak na ispitu i diplomiranje).

Ovo istraživanje ima nekoliko ograničenja. Kad je u pitanju učestalost zanesenosti, naši sudionici nisu bili slučajno odabrani iz cjelokupne populacije studenata pa je tako moguća pristranost u rezultatima i oni ne moraju vrijediti za sve studente općenito. Buduća istraživanja trebala bi provjeriti pouzdanost ovih rezultata na drugim uzorcima ili na reprezentativnom uzorku studenata. Drugo ograničenje odnosi se na korištenje mjera zadovoljstva studiranjem i akademske opterećenosti koje sadrže samo jednu česticu, a korištene su za određivanje kongruentne valjanosti. Iako nam je to omogućilo da potvrdimo kongruentnu valjanost WOLF-S skale s pomoću dva različita koncepta, buduća istraživanja trebala bi uključiti i druge mjere.

Može se zaključiti da rezultati ovog istraživanja potvrđuju trofaktorsku strukturu WOLF-S nastalog modifikacijom WOLF inventara koji je za mjerenje zanesenosti na poslu predložio Bakker (2005, 2008). Rezultati također ukazuju na konvergentnu i konstruktnu valjanost skale. Stoga rezultati opravdavaju korištenje WOLF-S za ispitivanje zanesenosti u učenju u sveučilišnom okruženju. Osim toga, primjena WOLF-S inventara traje kratko. Sveukupno, prikazani rezultati ukazuju na to da se WOLF-S može uspješno i učinkovito koristiti u akademskom okruženju za mjerenje zanesenosti vezane uz studiranje.

Financiranje i deklaracija konflikta interesa

Istraživanje nije dobilo nikakvu specifičnu potporu ni od jedne agencije u javnom, komercijalnom ili neprofitnom sektoru.

Autori izjavljuju da nemaju potencijalnih konflikata interesa u odnosu na istraživanje, autorstvo i/ili publikaciju ovog članka.

Prilog

Prilog 1.

Hrvatska verzija Inventara zanesenosti u studiranju (WOLF-S)

Niže navedene tvrdnje odnose se na vaše iskustvo tijekom akademskih aktivnosti u protekla dva tjedna. Molimo vas označite koliko često ste doživjeli što tvrdnja opisuje (1=nikad, 2=gotovo nikad, 3=ponekad, 4=redovito, 5=često, 6=vrlo često, 7=uvijek)

1. Kada učim, ne mislim ni na što drugo.
2. Učenje me ponese.
3. Kada učim, zaboravim na sve drugo oko mene.
4. Posve sam udubljen/a u studiranje.
5. Moj studij mi daje dobar osjećaj.
6. S puno uživanja obavljam svoje studentske obveze.
7. Osjećam se sretno dok učim.
8. Osjećam se radosno dok učim.
9. Čak i kada ne bih morao/la, učio/la bih i dalje.
10. Shvatio/la sam da želim učiti i u svoje slobodno vrijeme.
11. Učim jer u tome uživam.
12. Učim zbog samog sebe.
13. Motivaciju za učenje nalazim u samom učenju, a ne u ocjenama.