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Career Adaptability and Social Support of Vocational Students Leaving Upper Secondary School

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Abstract

This study used a sample of 3,028 vocational upper secondary Czech students to validate the measurement model of the Career Adapt-Abilities Scale—Czech Form, assessing concern, control, curiosity, and confidence as the psychosocial resources for managing occupational transitions, developmental tasks, and work traumas. We moreover examined the associations of parental psychosocial support, parental instrumental support (action), teacher support, and peer support with the four components of career adaptability. As expected, social support provided by significant others was positively associated with career adaptability. Diverse sources of social support related differently to various career adaptability components. Career concern and confidence were associated simultaneously with parental psychosocial support, teacher support, and peer support while control was associated only with the parental and friend support and curiosity was associated with the social support from teachers and friends. Moreover, parental instrumental support did not show any significant link to career adaptability components.

Keywords

career adaptability, Career Adapt-Abilities Scale, social support, parental support, teacher support, peer support

Students in upper secondary schools have to deal with a number of transitions, the handling of which may significantly affect their close and distant educational and career future (Blustein et al., 2002; Nurmi, 2004). Particularly students in a vocational track struggle with school-to-work transition, have difficulty finding employment, drift from one job to another, and often end up in jobs lacking advancement opportunities (Ling & O'Brien, 2012). Internal resources enabling young people in emerging adulthood to manage their career-related tasks and transitions and adapt to social changes

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are reflected in the construct of career adaptability (Savickas & Porfeli, 2012). Indeed, several studies have shown that career adaptability is crucial for mastering the school-to-work transition (Konstam, Celen-Demirtas, Tomek, & Sweeney, 2015). Research has found that higher career adaptability increases an individual's chances of finding a suitable job (Koen, Klehe, & van Vianen, 2012), career satisfaction (Rudolph, Lavigne, & Zacher, 2017), and job satisfaction (Han & Rojewski, 2015; McKenna, Zacher, Ardabili, & Mohebbi, 2016). Although vocational students are at risk of failing when dealing with career-related issues (Chu, Li, Yan, Han, & Fan, 2015), only a few studies have examined career adaptability in this population (Hirschi, 2009; Negru-Subtirica, Pop, & Crocetti, 2015).

Furthermore, vocational students entering the labor market tend to lack social support (Chu et al., 2015), which is known to be associated with a range of academic achievement and career indices, for example, career adaptability (P. Guan et al., 2016; Han & Rojewski, 2015; Hui, Yuen, & Chen, 2018). Nevertheless, in contrast to the positive relation found between parental involvement and career adaptability, only a negligible number of studies have examined the roles of teachers and friends in career adaptability (Han & Rojewski, 2015; Kenny & Bledsoe, 2005; Tian & Fan, 2014). Moreover, to our knowledge, no research has been conducted on the associations between social support from parents, teachers, and friends and career adaptability among vocational students. Thus, this article provides empirically supported findings that fill an existing gap in the knowledge regarding the career adaptability and social support of vocational students. To do so, we will also provide evidence of the validity of the Czech version of the Career-Adaptability Scale (CAAS; Savickas & Porfeli, 2012) and, thereby, contribute to the international examination of career construction theory (CCT; Savickas, 2005).

The Construct of Career Adaptability

Career adaptability, one of the core components of vocational psychology and CCT (Savickas, 2005), is defined as "a psychosocial construct that denotes an individual's resources for coping with current and anticipated tasks, transitions, and traumas in their occupational roles" (Savickas & Porfeli, 2012, p. 662). The multidimensional developmental construct of career adaptability, which reflects a series of psychological aspects, such as personality, motivation, readiness, strengths, behavior, and attitudes, was designed to assess a person's readiness for successful mastery of career tasks and capacity to prepare and participate in work roles (Hartung, Porfeli, & Vondracek, 2008). Researchers have identified four components of career adaptability: concern about the future (planning), control over life (decision-making, being decisive), curiosity about occupational careers (exploring, being inquisitive), and confidence to construct a future and deal with career barriers (problem-solving, being efficacious; Hirschi, Herrmann, & Keller, 2015; Savickas, 2005). According to CCT, individuals ought to approach career-related tasks with concern about their future, a need to control and exercise influence over their career choices, as much knowledge as possible about career opportunities and their alternatives, and confidence in planning their future careers and implementing their plans (Savickas, 2005). Thus, career adaptability resides at the intersection between a person and his or her environment and reflects individuals' resources to manage career tasks and challenges (Zacher, 2014).

Recent studies have focused on examining the relations between career adaptability and different variables across diverse samples. Overall, cognitive ability, big five personality traits (Rudolph et al., 2017), future temporal focus (Zacher, 2014), proactive personality (Y. Guan et al., 2017), positive emotional disposition (Hirschi, 2009), motivation in educational environments (Pouyaud, Vignoli, Dosnon, & Lallemand, 2012), explicit and implicit self-concept (Hui et al., 2018), core self-evaluation (Y. Guan et al., 2017), self-esteem (van Vianen, Klehe, Koen, & Dries, 2012), career decision self-efficacy (Douglas & Duffy, 2015), and vocational identity (Negru-Subtirica et al.,

2015) have been found to positively predict career adaptability. Furthermore, education (Zacher, 2014), training (Hlaďo, Lazarová, & Hloušková, 2019; Koen et al., 2012), academic achievement (Negru-Subtirica & Pop, 2016), work volition (Autin, Douglass, Duffy, England, & Allan, 2017), and career calling (Praskova, Hood, & Creed, 2014) have been identified as significant predictors of career adaptability. Career adaptability is not only influenced by factors within the individual, but it is also positively associated with factors connected with social background, more specifically, career adaptability has been found to be positively associated with perceived social support, particularly with parental support, perceived teacher or school support, and peer support (Ebenehi, Rashid, & Bakar, 2016; Ginevra, Nota, & Ferrari, 2015; Y. Guan et al., 2013; Y. Guan et al., 2015; Han & Rojewski, 2015; Hui et al., 2018; Tian & Fan, 2014; Wang & Fu, 2015).

Parental Support, Teacher Support, Peer Support, and Career Adaptability

Social support is a multifaced concept (Langford, Bowsher, Maloney, & Lillis, 1997), which has been defined in the literature as the psychological or physical help that individuals receive through social connections (Wang & Fu, 2015). According to the relational theory of working (Blustein, 2011), the role of family, teachers, peers, and social networks in individuals' career development is crucial. The support from significant others is often connected with encouragement and help in academic and career decision-making while perceived lack of support may prevent young people from progressing on a career path (Creed, Fallon, & Hood, 2009; Garcia, Restubog, Bordia, Bordia, & Roxas, 2015; Kenny & Bledsoe, 2005; Wentzel, Muenks, McNeish, & Russell, 2017). Thus, social networks can facilitate or inhibit career development. In this line of research, it has been shown that social support is associated with a range of academic achievement and career indices, for example, career adaptability (P. Guan et al., 2016; Han & Rojewski, 2015; Hui et al., 2018). However, these studies focused mainly on high school students in general education or university students. Little is known about the role of social support in the life of vocational students during the school-to-work transition. These students often have difficulties progressing smoothly on their career path, and they could indeed benefit from social support (Chu et al., 2015). Moreover, previous studies have mostly examined general social support, and they did not distinguish the roles of various persons in career adaptability (Ebenehi et al., 2016; Gosh & Fouad, 2017; Wang & Fu, 2015). Other studies have tested mostly career adaptability in relation to family, friends, and significant others (Tian & Fan, 2014; Yousefi, Abedi, Baghban, Eatemadi, & Abedi, 2011). As such, they did not capture the unique role of parents and teachers in career adaptability. In addition, research on career adaptability and social support focused on general career adaptability and not on particular dimensions of concern, control, curiosity, and confidence that career adaptability reflect (e.g., P. Guan et al., 2016; Y. Guan et al., 2013; Han & Rojewski, 2015; Hui et al., 2018). To our knowledge, no study has been conducted on the relation between various dimensions of career adaptability and social support from parents, teachers, and friends. Thus, the unique associations between career adaptability and social support remain unclear.

Parental Support

When exploring social support in connection with career, the researchers have focused primarily on the role of parents. Research has shown that cognitive, affective, and behavioral factors of parenting are important prerequisites for the career development of adolescents (Bryant, Zvonkovic, & Reynolds, 2006). First, parents introduce the work to their children and serve as occupational role models (Savickas, 2002). Moreover, especially during initial phases of career development, parents shape career interests (Turner, Steward, & Lapan, 2004), career aspirations (Cheng & Yuen, 2011),

and take part in their children's career planning and career decision-making. Specifically, they assist them with formulating academic and career goals (Dietrich & Salmela-Aro, 2013), motivate them to pursue these goals, and help them when facing difficult career decisions (Garcia, Restubog, Toledano, Tolentino, & Rafferty, 2011; Ginevra, Nota, & Ferrari, 2015). Moreover, parents can diminish the effect of stressful career-related challenges (Ong, Phinney, & Dennis, 2006; Restubog, Florentino, & Garcia, 2010).

Furthermore, parents provide their children with both emotional and instrumental resources that are particularly important in adolescents' career self-exploration (Kanten, Kanten, & Yeşiltaş, 2016) as well as academic and active career exploration (Creed et al., 2009; Neuenschwander, 2008; Noack, Kracke, Gniewosz, & Dietrich, 2010). For example, instrumental support (such as financial help) allows adolescents to explore a wide range of educational or career opportunities (such as studying at a particular high school or university or taking some extra educational courses, among others). Emotional parental support strengthens adolescents' confidence to cope with career-related decisions, tasks, and transitions (Garcia et al., 2015; P. Guan et al., 2016). In addition, the perceived parental support, supportive parental behavior, and parent–adolescent relationship are important sources and predictors of career decision-making self-efficacy (Garcia et al., 2015), vocational identity (Tracey, Lent, Brown, Soresi, & Nota, 2006), and vocational self-concept (Savickas, 2005). Since parents play a role in their children's career planning, career decision-making, career exploration, and ability to face career tasks, all of which underlie the basic adaptabilities of concern, control, curiosity, and confidence, we can assume that career-related parental support and behaviors (Dietrich & Kracke, 2009; Keller & Whiston, 2008) are associated with career adaptability as well. Indeed, a considerable number of studies have reported a positive association between parental support and career adaptability (Creed et al., 2009; P. Guan et al., 2016; Y. Guan et al., 2015; Han & Rojewski, 2015; Hirschi, 2009; Tian & Fan, 2014). Therefore, we hypothesized:

Hypothesis 1: Perceived parental support positively predicts the four career adaptability components, that is, concern, control, curiosity, and confidence among vocational students.

Teacher Support

Because career preparation takes place primarily in school, which is a dominant social environment in adolescence, teachers may offer specific support and encouragement related to academic and career progress (Di Fabio & Kenny, 2015; Ruzek et al., 2016). Numerous studies have linked teacher emotional support to students' motivation and academic engagement (Cooper, 2014; Perry, Liu, & Pabian, 2010; Quin, 2017; Ruzek et al., 2016). Moreover, students' school engagement, academic performance, and academic motivation are further reflected in their career paths (Vuolo, Mortimer, & Staff, 2014). However, the research on teacher support has focused primarily on academic-related outcomes, and a limited research has been conducted on the role of teacher support in adolescent career development (Metheny, McWhirter, & O'Neil, 2008). Since then, some studies have examined the influence of teacher support on career planning (Perry et al., 2010) and career decision-making self-efficacy (Di Fabio & Kenny, 2015; Garcia et al., 2015; Perry et al., 2010).

Nevertheless, the role of teacher support in career adaptability has not been fully examined yet. For example, while Paa and McWhirter (2000) showed that adolescents rank the influence of teachers on their career choices as less important than the influence of family or peers, Perry, Liu, and Pabian (2010) argued that teacher support exerts greater influence on high school students' career preparation compared to parental support. Further on, Kenny and Bledsoe (2005) investigated teacher support together with support from family and peers in relation with career adaptability (school identification, perceptions of educational barriers, career outcome expectations, and career

planning) using a sample of urban high school students. They concluded that emotional support from family, teachers, and peers, when considered together, all contributed significantly to the four components of career adaptability, with students who perceived more support also reporting higher levels of career adaptability. In their study, Kenny and Bledsoe (2005) stressed that teacher support contributed uniquely to school identification, yet, they argued that when other factors in the model were considered first, analyses did not reveal a unique contribution of teacher support to the other career adaptability variables. Accordingly, Kenny and Bledsoe (2005) suggested that diverse sources of support (family, teachers, and peers) contribute to various components of career adaptability differently. Based on theoretical findings and previous research, we proposed that:

Hypothesis 2: Perceived teacher support predicts positively the four career adaptability components, that is, concern, control, curiosity, and confidence, among vocational students.

Peer Support

Peers have the greatest influence on young people's day-to-day behaviors in school (e.g., how much time they spend on homework, whether they enjoy coming to school each day, and how they behave in the classroom; Steinberg, Dornbusch, & Brown, 1992); thus, they play an important role in their academic motivation and achievement (Ahmed, Minnaert, van der Werf, & Kuyper, 2010; King & Ganotice, 2014; Wenztel, Muenks, McNeish, & Russel, 2017). However, the research on peer support and career adaptability have shown contradictory results. Kenny and Bledsoe (2005) found that peer support is positively related to career planning and career expectations, both representing career-related tasks that are developmentally and contextually relevant to the career adaptability. A similar relation between peer support and career planning was reported in a study by Creed, Fallon, and Hood (2009). Moreover, Wang and Fu (2015) confirmed that social support from schoolmates was strongly and positively related to career adaptability among a group of senior-year college students in China. Additionally, Tian and Fan (2014) found a positive correlation between friend support and career adaptability in Chinese students. On the other hand, Yousefi, Abedi, Baghban, Eatemadi, and Abedi (2011) did not find a significant relationship between career adaptability (career planning, career exploration, self-exploration, decision-making, self-regulation) and friend support in university students. Comparable results were reported for high school students by Kozan, Di Fabio, Blustein, and Kenny (2014).

Some studies have examined support from parents, friends, and teachers simultaneously. For example, in a longitudinal study, Hirschi (2009) found that the students who received support from parents, friends, relatives, and teachers more frequently reported more career adaptability. Similarly, Hui, Yuen, and Chen (2018) found that social support from family members, friends, and significant others is positively linked to university students' career adaptability. However, the unique contribution of peer support remains unclear. Therefore, based on the theory and prior research, we predicted that:

Hypothesis 3: Perceived close friend support predicts positively the four career adaptability components, that is, concern, control, curiosity, and confidence, among vocational students.

Present Study

Although career adaptability is crucial for transitions within the educational context as well as for the school-to-work transition (Konstam et al., 2015), no research has thus far focused in detail on exploring the career adaptability construct in students graduating from vocational upper secondary

schools. To date, evidence on the relation between the four components of career adaptability (concern, control, curiosity, and confidence) and social support from parents, teachers, and peers, particularly in students following a vocational track is limited. Thus, the main aim of this study was to investigate the unique contribution of social support from various sources to particular components of career adaptability, more specifically, the link between parental, teacher, and peer support and the four components of career adaptability, that is, concern, control, curiosity, and confidence. A partial aim of the present study was to verify the Czech version of the CAAS and, thereby, extend the existing translations, which will contribute to the current research with additional, cross-culturally validated findings on career adaptability.

To address this goal, we surveyed a large and diverse group of Czech vocational upper secondary school students from a wide range of fields. The Czech Republic is well suited to address our research aims because approximately 80% of the Czech lower secondary students enroll in different types of vocational upper secondary schools after completing lower secondary schools. Vocational upper secondary education entails obtaining an apprenticeship certificate or a school graduation certificate that is designed primarily to prepare graduates to enter the labor market. Therefore, a significant number of vocational upper secondary school graduates in the Czech Republic do not pursue tertiary education but seek to enter employment upon graduation. Specifically, approximately two-thirds of graduates with a vocational education apprenticeship and more than one-third of graduates with a school graduation certificate enter the labor market after graduation (Chamoutová et al., 2019).

Method

Participants and Procedures

The study was conducted in the Czech Republic in two regions, namely the South-Moravian Region (NUTS CZ064) and the Moravian-Silesian Region (NUTS CZ080), which are the establishing entities of upper secondary schools in the Czech Republic. In both regions, head teachers of all vocational upper secondary schools (International Standard Classification of Education [ISCED] 353, 354) were contacted by the Department of Education of the respective region, asking them to participate in the research. The data collection was performed in by 44 schools (21 from the South Moravian Region and 23 from the Moravian-Silesian Region). The data collection took place in March and April 2018 using either web-based or paper-and-pencil self-reported questionnaire. The questionnaire was administered in vocational upper secondary schools during lessons and when completing the questionnaires, a trained teacher was present to provide assistance to the participants if necessary. The participants filled out the questionnaires voluntarily. They were informed that the research was anonymous and that their answers would be used for research purposes only.

The questionnaires were administered to groups of participants with different levels of motivation to respond. Some participants were not motivated to respond truthfully, for example, their responses were identical or repeated patterns of 123454321 were noted, among others. To filter such cases, we computed first- and second-order autocorrelations on the individual series of responses and filtered out cases with any of the two auto-correlation function (ACF) values higher than 0.70–0.90 across different measures. This was a rather conservative filter, leaving many suspicious response patterns in the data. The filter removed 98 observations for CAAS-Czech, leaving an effective sample size of 3,028, and 524 observations for Parent Career Behavior Checklist—Czech Form (PCBC-CZ), leaving an effective sample size of 2,602. Since PCBC-CZ is a measure of parental support, 728 participants were filtered out in the second step because they did not follow the instructions and responded about a person other than a parental figure (usually about themselves, partners, or friends). Thus, the final effective sample size for the PCBC-CZ analyses was 1,874.

The participants in this study were 3,028 full-time students (46.5% female, 53.5% male) aged 18–26 ($M = 18.97$ years, $SD = 1.09$) attending the final year of vocational upper secondary schools in the Czech Republic (ISCED 353, 354). Moreover, 63.2% of the participants were preparing for a graduation examination in the field of education and 36.8% were preparing to complete an apprenticeship certificate; 55.1% lived with their father and mother, 16.1% lived only with their mother, 4.1% lived only with their father, and 24.7% lived in other family structures; 14.3% of mothers and 15.3% of fathers had completed tertiary education; 78.8% of mothers were employed, 7.9% had a business, 1.4% were unemployed, and 12.0% had a different status (e.g., on maternity leave, housewives had an invalidity pension); and 69.1% of fathers were employed, 21.3% had a business, 1.2% were unemployed, and 8.4% had a different status. According to the last Population and Housing Census (Czech Statistical Office, 2019), in 2011, national and ethnic minorities in the Czech Republic accounted for only about 3% of the population. For this reason, neither nationality nor the ethnic origin of participants needed to be assessed.

Measures

Career adaptability. To measure career adaptability, the 24-item *CAAS—International Form* Version 2.0 (Savickas & Porfeli, 2012) was used. The CAAS consists of four subscales that measure concern, control, curiosity, and confidence as a set of essential psychological resources for individuals' career development. Each subscale contains six items measured on a 5-point Likert-type scale ranging from 1 (*not strong*) to 5 (*strongest*). The international CAAS has excellent psychometric properties cross-culturally (Savickas & Porfeli, 2012). The English version was first translated into Czech by a professional translator and adapted to the context and the specifics of the educational and career choices of Czech emerging adults. The back-translation was done by a bilingual translator. The Czech items and final version of the Career Adapt-Abilities Scale—Czech Form (CAAS-Czech) are reported in the Supplementary data. In the present study, the estimated internal consistency reliability of the total score was $\alpha = .93$ while the reliabilities of the four subscales were as follows: concern $\alpha = .84$, control $\alpha = .80$, curiosity $\alpha = .82$, and confidence $\alpha = .88$.

Parental support. Parental support was assessed using the PCBC-CZ (Hlaďo & Ježek, 2018). The PCBC was developed by Keller and Whiston (2008) to measure the construct of career-specific parental behaviors. It assesses the behaviors of the parent who is the most engaged in career issues of the respondent. The PCBC-CZ is a 15-item scale measuring two dimensions of career-related parental support, parental psychosocial support (*support*), and parental instrumental support (*action*), on a Likert-type scale ranging from 1 (*never*) to 5 (*very often*). In the present study, the estimated Cronbach's α internal consistency reliability was .92 for the Support subscale and .87 for the Action subscale.

Teacher support. Teacher support was assessed with the *Teacher Support Scale* (TSS; Metheny et al., 2008). The original TSS is a 21-item measure consisting of four subscales (Invested, Positive Regard, Expectations, Accessible) designed to assess students' perceptions of teachers' support. Items are measured on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Our data did not seem to support the factor structure reported by Metheny, McWhirter, and O'Neil (2008). Overall, the items appeared to measure one to two dimensions, with groups of items sharing extra common variance. We used a bifactor model with all items loading on one general teacher support factor and items from the original positive regard factor forming a specific factor, a facet. The bifactor model fit the data reasonably well, $\chi^2(172) = 3{,}035$, $p < .001$, Comparative Fit Index (CFI) = .955, Root Mean Square Error of Approximation (RMSEA) = .079, Standardized Root Mean Square Residual (SRMR) = .041. Only the general teacher support factor was used in this analysis, and its internal consistency was high (McDonald $\omega = .90$).

Peer support. We used the *Close Friend Support Scale* comprising 7-items rated on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*very often*). The Close Friend Support Scale was adapted from the Czech version of the Parent Career Behavior Checklist (Hlad'o & Ježek, 2018) by reformulating psychosocial support items of the parent checklist to reflect support from friends (e.g., "My friends encourage me to make my own decisions"). A unidimensional model with no residual covariances fit the data well, $\chi^2(14) = 612$, $p < .001$, CFI = .984, RMSEA = .124, SRMR = .032. The internal consistency in the current study was high (McDonald $\omega = .92$).

Statistical Analyses

Since the Czech version of CAAS is a new measure, we first used confirmatory factor analysis (CFA) to verify its factor validity. We also checked measurement invariance with respect to gender and type of administration (paper vs. online) to ensure that these construct-irrelevant variables did not affect the interpretation of CAAS scores. Correlations and latent regression models were used to examine links between variables. We used the R software to run statistical analyses (R Core Team, 2018), relying on the following packages: lavaan (Version 0.6-2; Rosseel, 2012), psych (Version 1.8.4; Revelle, 2017), and semTools (Version 0.5-0).

Results

Descriptive Statistics and Correlations

Means and standard deviations of individual items and subscales for the CAAS-Czech are reported in Table 1. CAAS-Czech item means indicate that the typical response ranged from *strong* (3) to *very strong* (4), suggesting that the vocational upper secondary school students in the Czech Republic generally have sufficient psychosocial resources for coping with the school-to-work transition. Item skewness and kurtosis ranged from −.96 to −.18 and −.75 to .54, respectively, suggesting that the data met the assumptions of normal distribution required for CFA. Correlations between the four summation subscales the total adaptability score ranged from 0.47 to 0.62. Because the items are ordinal with only five responses, we used polychoric correlations in all subsequent analyses. Correlations among items were positive and moderate, except for item Cont #1 (Keeping upbeat) that correlated noticeably less with most other items.

Results of CFA

According to the theory, CAAS-Czech should measure four closely related dimensions that may also be considered facets of the construct of career adaptability. The initial model was thus specified as a four-factor model with correlated factors, each measured by six items. We also estimated a hierarchical model with the four factors loading onto a second-order factor. Both models were specified and estimated in lavaan using the Weighted Least Squares Mean and Variance-adjusted (WLSMV) estimator with ordinal items. The initial model fit the data acceptably, $\chi^2(246) = 3{,}564$, $p < .001$, CFI = .932, RMSEA = .069, SRMR = .044. Correlations among the four factors ranged from .58 to .73. The hierarchical model fit was also acceptable, $\chi^2(248) = 3{,}584$, $p < .001$, CFI = .932, RMSEA = .069, SRMR = .045. The loadings of the four factors on the second-order factor ranged from .76 to .87. The two models had nearly identical fit, but due to the large sample, the hierarchical model fit significantly worse (Satorra & Bantler, 2001) based on the scaled difference test, $\chi^2(2) = 26.1$, $p < .001$. Nevertheless, the hierarchical model might be preferable for the CAAS-Czech version because it is more parsimonious and the fit difference is very small. The fit of both measurement models was not ideal. Residual covariances between neighboring items Conf #1 (Performing tasks efficiently) and Conf #2 (Taking care to do things well) and between Conf #5 (Overcoming obstacles) and Conf

Table 1. CAAS-Czech: Items, Descriptive Statistics, and Standardized Loadings.

Construct	Item (First-Order Indicators)	Mean	*SD*	Loading
Concern	1. Thinking about what my future will be like	3.65	1.05	.63
	2. Realizing that today's choices shape my future	3.72	1.03	.63
	3. Preparing for the future	3.41	1.02	.73
	4. Becoming aware of the educational and career choices that I must make	3.48	1.01	.66
	5. Planning how to achieve my goals	3.58	1.08	.75
	6. Concerned about my career	3.48	1.04	.72
Control	1. Keeping upbeat	3.48	1.21	.43
	2. Making decisions by myself	3.84	0.97	.67
	3. Taking responsibility for my actions	4.15	0.91	.70
	4. Sticking up for my beliefs	4.06	0.95	.68
	5. Counting on myself	4.10	0.94	.72
	6. Doing what's right for me	3.86	1.00	.67
Curiosity	1. Exploring my surroundings	3.43	1.04	.56
	2. Looking for opportunities to grow as a person	3.44	1.03	.78
	3. Investigating options before making a choice	3.45	1.00	.70
	4. Observing different ways of doing things	3.64	0.95	.75
	5. Probing deeply into questions I have	3.38	1.13	.54
	6. Becoming curious about new opportunities	3.78	1.02	.68
Confidence	1. Performing tasks efficiently	3.62	0.99	.69
	2. Taking care to do things well	4.00	0.91	.70
	3. Learning new skills	4.00	0.91	.82
	4. Working up to my ability	4.00	0.90	.83
	5. Overcoming obstacles	3.82	0.98	.79
	6. Solving problems	3.82	1.01	.73
Construct	Construct (Second-Order Indicators)	Mean	*SD*	Loading
Adaptability	1. Concern	3.55	0.75	.76
	2. Control	3.92	0.67	.81
	3. Curiosity	3.52	0.72	.87
	4. Confidence	3.88	0.71	.87

Note. $N = 2{,}999$–$3{,}028$, depending on missing responses. All loadings are $p < .01$. CAAS = Czech version of the Career-Adaptability Scale.

#6 (Solving problems) could possibly be freed to improve fit in future analyses. There are legitimate reasons for these items to be locally dependent, such as the items in the dyads being similar, presented next to each other, and weakened motivation to complete the measure.

To compare groups (subpopulations) on latent variables, it was necessary to check for the invariance of the measurement model to determine whether the same construct is measured across subpopulations. We looked at measurement invariance with respect to gender and mode of administration. Some published studies have suggested gender differences in career adaptability (e.g., Coetzee & Harry, 2015), and we would not want them to be conflated with differences in the functioning of the CAAS-Czech. To check for invariance, we estimated a series of multi-group models in which we constrained, in steps, sets of parameters to be equal across groups to assess the change in model fit. With respect to gender, the correlated four-factor measurement model appeared to be invariant up to the level of strict invariance (although $\Delta\chi^2$ were significant at some steps, CFI improved with the constraints ranging from .933 to .936 and RMSEA decreased by .008 from .069 to .061). The significant increases in the χ^2 value thus seem to be due to the large sample size. With respect to the mode of administration (web-based vs. paper-and-pencil), we needed to make sure that

Table 2. Correlation Matrix of the Latent CAAS-Czech and Social Support Variables.

	1	2	3	4	5	6	7
1. CA concern	—						
2. CA control	.58	—					
3. CA curiosity	.70	.68	—				
4. CA confidence	.63	.73	.73	—			
5. Parental support	.30	.26	.19	.25	—		
6. Parental action	.17	.10	.14	.17	.49	—	
7. Teacher support	.25	.16	.18	.21	.18	.18	—
8. Peer support	.29	.31	.29	.27	.34	.12	.29

Note. Sample size: $N = 1{,}874$. All correlations over .05 are $p < .01$. CA = career adaptability; CAAS = Czech version of the Career-Adaptability Scale.

it does not introduce irrelevant variance to the measured construct. The correlated four-factor measurement model was invariant up to the level of strict invariance. Again, although the χ^2 increased, CFI and RMSEA improved with more restricted models (CFI from .935 to .942 and RMSEA from .069 to .059).

Test of Hypotheses

First, we estimated a baseline model in which all the latent variables representing career adaptability, parental psychosocial support (hereinafter referred as "parental support"), parental instrumental support (hereinafter referred as "parental action"), teacher support, and peer support were allowed to correlate; with no regression paths specified. Correlations among latent constructs are reported in Table 2. All correlations are in the predicted direction. Parental support, parental action, teacher support, and peer support were significantly moderately correlated with each component of career adaptability. Because all covariates of career adaptability components were correlated, we wanted to assess the unique predictive power of individual correlates using a simple latent regression model. In the model, the career adaptability components (i.e., concern, control, curiosity, and confidence) were regressed on all the covariates. More specifically, we examined how parental support, parental action, teacher support, and peer support predict the four adaptability components (see Figure 1).

The regression model had a good fit to the data, $\chi^2(2{,}033) = 5{,}379$, $p < .001$, CFI = .96, RMSEA = .033, SRMR = .041. In this model, parental psychosocial support had an effect on concern ($\beta = .22$, $p < .001$), control ($\beta = .20$, $p < .001$), and confidence ($\beta = .16$, $p < .001$) but not on curiosity ($\beta = .06$, *ns*). Parental action did not predict concern ($\beta = .00$, *ns*), control ($\beta = -.05$, *ns*), curiosity ($\beta = .06$, *ns*), or confidence ($\beta = .03$, *ns*). Thus, Hypothesis 1 was partially supported. Teacher support and peer support were each found to be predictors of concern ($\beta = .18$, $p < .001$ and $\beta = .16$, $p < .001$), control ($\beta = .08$, $p < .01$ and $\beta = .22$, $p < .001$), curiosity ($\beta = .10$, $p < .001$ and $\beta = .23$, $p < .001$), and confidence ($\beta = .16$, $p < .001$ and $\beta = .17$, $p < .001$). Hence, Hypotheses 2 and 3 were supported.

Discussion

The first aim of the present study was to assess the factor structure of the CAAS-Czech version. Because of social, economic, and cultural factors on career development, it is possible that the construct of career adaptability can have slightly different dimensions in culturally different contexts. For this reason, the CAAS—International Form has been tested in various countries around the

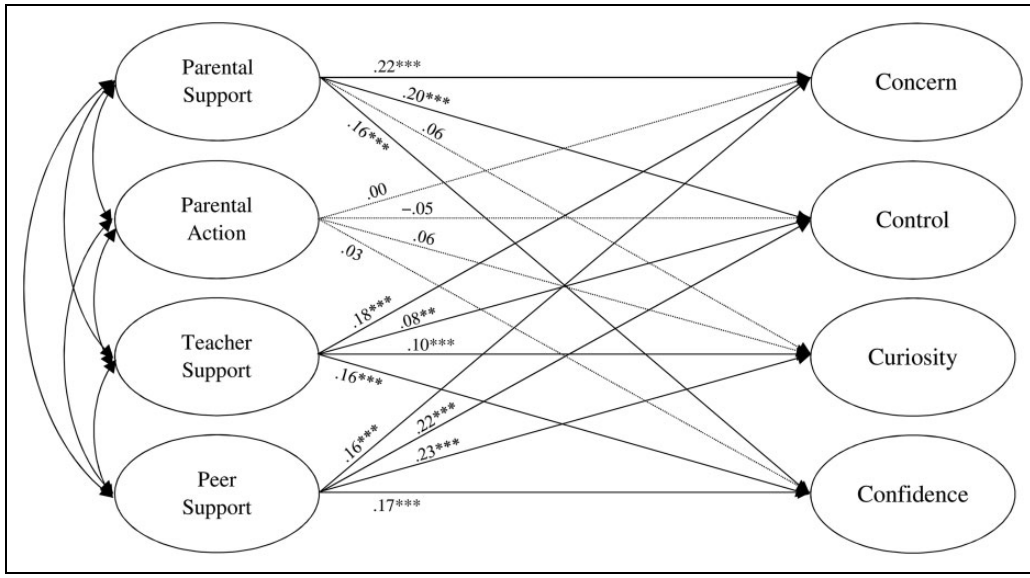

Figure 1. Latent regression model. $^{**}p < .01$. $^{***}p < .001$.

world and in various populations. Consistent with an array of international validation studies (e.g., Hui et al., 2018; McKenna et al., 2016; Urbanaviciute, Kairys, Pociute, & Liniauskaite, 2014; van Vianen et al., 2012), our findings show that the instrument has good psychometric properties. The hierarchical four-factor model reinforces the assumption that concern, control, curiosity, and confidence function as four dimensions of the higher-order factor career adaptability.

Consistent with other studies (e.g., Di Maggio, Ginerva, Lura, Ferrari, & Soresi, 2015), our measurement model indicated that the CAAS-Czech version is invariant with respect to gender. Furthermore, our analysis confirmed measurement invariance with respect to the mode of administration (web-based vs. paper-and-pencil), which is an aspect that has not been considered in previous international studies. From our study, it follows that the CAAS-Czech version may be effectively, reliably, and validly administered not only in paper-and-pencil form but also in a web-based form, which may be especially attractive for conducting research among emerging adults. Generally, our results support the conclusion that the Czech Form and the International Form of the CAAS are similar in their psychometric strengths and construct validity. Thus, our study provides evidence for the cross-cultural relevance of the construct of career adaptability and its measurement using the CAAS (Savickas & Porfeli, 2012) and we believe that the CAAS-Czech version can be used effectively in future international research among Czech-speaking populations. Apart from this, descriptive statistics have pointed to the fact that Czech graduating vocational upper secondary school students have rather highly developed career adaptability. When we consider that career adaptability is a learnable meta-competence (Green, Noor, & Hashemi, 2019), the level of career adaptability of our participants may be explained by having undergone career education included in the mandatory curriculum of lower and upper secondary education. On the other hand, the responses might also be upward biased due to social desirability effects. Thus, we must bear in mind that the limitations of self-reports also apply in this study in that our findings reflect the emerging adults' reports of their personal perceptions of themselves, their abilities, and their environment.

The second aim was to examine the relationship between social support and career adaptability in graduating vocational upper secondary school students. More concretely, we investigated the

associations between various sources of social support (parental support and parental action, teacher support, and peer support) and components of career adaptability (concern, control, curiosity, and confidence). Our findings extend previous research on the positive roles of social factors in individuals' career development by showing that social support provided by abovementioned significant others positively affects almost all components of career adaptability. These outcomes are in line with previous research showing that social support is essential for career advancement (e.g., P. Guan et al., 2016; Han & Rojewski, 2015; Hui et al., 2018).

Our research further suggested that diverse sources of social support contribute differently to various career adaptability components, which is also in accordance with previous findings (Kenny & Bledsoe, 2005). In this study, parents, teachers, and friends played an important role in the career concern and career confidence of vocational students. Thus, benefits from the support of significant others include being planful and self-efficacious when facing various problem-solving challenges linked to career-related decisions, tasks, and transitions (Porfeli & Savickas, 2012). These results add to the previous studies showing that support from parents, teachers, and friends is positively linked to career planning and career decision-making self-efficacy (e.g., Dietrich & Salmela-Aro, 2013; Di Fabio & Kenny, 2015; Creed et al., 2009; Garcia et al., 2015; Kenny & Bledsoe, 2005; Perry et al., 2010). Our conclusions are consistent with previous findings reporting Czech students' (Hlad'o, 2010) concerns about the future and realization of career tasks, transitions, and career decision-making in the near or distant future reflect their parents' concerns. In the aforementioned study (Hlad'o, 2010), however, teachers who deliberately made students aware of career decision-making and its requirements were also found to be a significant source of support, which is in line with our findings on the influence of teachers on students' concerns. Parents, together with peers, had a positive effect on control, which means that their support positively affected one's formation of vocational future and decisiveness. Assistance provided by parents and friends, therefore, increases control over their own lives, specifically, the development of personal responsibility for career preparation and perceived personal control over career development (Savickas, 2005). Moreover, in our study, we expected that parental support would increase an individual's career curiosity. This assumption was not supported by the data, despite previous research showing that perceived parental support and supportive parental behavior are important predictors of career exploration (Kanten et al., 2016; Neuenschwander, 2008; Noack et al., 2010). On the other hand, in our study, curiosity was especially connected with the support provided by peers; thus, friends encourage individuals to be inquisitive and explorative. Career exploration has been empirically connected to secure attachment (Ketterson & Blustein, 1997; Vignoli, Croity-Belz, Chapeland, de Fillipis, & Garcia, 2005). Nevertheless, as young people develop, their relationship focus shifts from parents to peers, such as friends and romantic partners (Markiewicz, Lawford, Doyle, & Haggart, 2006). Some studies have already shown that peer attachment serves as a support network for emerging adults' exploration and commitment to their career development (Felsman & Blustein, 1999; Kvitkovičová, Umemura, & Macek, 2017). Despite few previous studies that have shown no relationship between friend support and career adaptability (Kozan, Di Fabio, Blustein, & Kenny, 2014; Yousefi et al., 2011), our study clearly indicates a significant positive relationship between perceived peer supports on all four components of career adaptability. Therefore, we suggest that peers could be especially important sources of support for emerging adults in terms of career adaptability.

In our study, PCBC-CZ (Hlad'o & Ježek, 2018; Keller & Whiston, 2008) was used to measure parental support and parental action, two dimensions of parent career behavior. The Support Scale identifies psychosocial support, that is, whether parents encourage their offspring's career choice, provide him or her with emotional support, and express interest in their offspring and his or her inner world, among other forms of support. The Action Scale identifies the instrumental assistance of parents. It includes, for example, getting acquainted with available information resources, providing specific career information, participating in informational events, motivating and encouraging their

offspring to actively acquire the information needed to make a rational career decision, and the like. Interestingly, parental action, unlike parental support, was not significantly linked to career adaptability. This finding might reflect an individuation process that occurs during emerging adulthood. At this age, young people value emotional support linked with autonomy (Ryan & Deci, 2000). Thus, our results indicate that while instrumental assistance is not needed at this age, autonomy-supporting reactions of parents are vital for emerging adults' vocational development.

Limitations, Future Directions, and Practical Implications

The results and conclusions need to be considered in the light of limitations that inform directions for future research. First, our sample consisted of students graduating from vocational upper secondary schools. Although this study validated the international instrument for measuring career adaptability among Czech vocational upper secondary students, it is not clear whether the structure of the CAAS-Czech would be the same in other population (e.g., lower secondary school students, general upper secondary students, tertiary nonuniversity and university students, adults). An important area of future research includes verification of the psychometric properties and replication of presented findings on the associations between social support variables and career adaptability in more diverse samples. Second, the cross-sectional research design with self-reports was conducted. Specifically, career adaptability, parental career behavior, teacher support, and peer support were measured at the same time point; thus, causal inferences and long-term effects of social support on career adaptability development could not be determined from our data. Although the literature supports the associations between our variables in the present study (e.g., P. Guan et al., 2016; Kenny & Bledsoe, 2005; Tian & Fan, 2014; Wang & Fu, 2015), future research should examine the relation of study variables longitudinally to evaluate the effects of social support variables on development of career adaptability over time and to establish causal relations. Third, this study has explored only the direct effect of social support variables on career adaptability components. Future research may consider relevant mediators of the effect of social support on career adaptability and explore the relative strengths of these mediators in explaining the effect. For example, some studies have examined the mediating role of the self in the relation between attachment and career decision-making process (Downing & Nauta, 2010; Kvitkovičová et al., 2017; Tokar, Withrow, Hall, & Moradi, 2003). More concretely, Kvitkovičová, Umemura, and Macek (2017) found that attachment relationships were indirectly associated with the career decision-making process through self-concept clarity as the mediator. Close relationships facilitate the development of a healthy self-concept and healthy self-concept, in turn, influences career development (e.g., Blustein, Prezioso, & Schultheiss, 1995). Indeed, self-esteem or clarity of self has already been empirically linked to social support (Kong, Zhao, & You, 2013; Quinones & Kakabadse, 2015). As such, we propose to examine these constructs as mediators of the relation between social support and career adaptability.

Despite the above limitations, the present study has important practical implications for the assessment and the improvement of vocational upper secondary graduates' career development. The length of the 24-item CAAS-Czech version is acceptable; therefore, it may be a very useful tool for career counselors to assess the career adaptability of clients during emerging adulthood as well as develop and evaluate interventions to increase career adaptability in this developmental stage. Furthermore, career counselors and teachers working with vocational upper secondary school students may also benefit from the findings of this study. We found that parents, teachers, and peers contribute to students' career concerns, control, curiosity, and confidence differently; hence, practitioners might assess the type of social support that graduating students need and the extent to which they receive this form of support (Ghosh & Fouad, 2017). An assessment of the sources of social support may be beneficial in determining whether students can receive the needed support. If a student does not receive proper support, a career counselor or teachers should pay more attention to

high-risk issues pertaining to career adaptability of an individual and his or her career development. It has been shown that despite the progressive emancipation from the influence of parents and authorities, including teachers, support from these persons is still very important in emerging adulthood. We believe that career counselors play an important role not only in helping students directly but also in working with parents, namely motivating parents to actively participate in the career development of their children. Career counselors should spend enough time collaborating directly with parents, teaching parents to effectively communicate with their offspring about career-related issues, show confidence in the abilities of their offspring, encourage them, and provide them with psychosocial support. Career counselors and teachers should also promote the development of career adaptability by teaching their students to identify and use social support in their environment and create a support-oriented interpersonal connection (Wang & Fu, 2015). Additionally, friends or peers may have a positive but also negative effect on career development of emerging adults. It is therefore important to encourage students to seek out peer groups in which members motivate and encourage each other; compete for and acquire knowledge, skills, and competencies; and support each other in building their careers.

Our study provides evidence that parental support, teacher support, and peer support are important predictors of the career development of emerging adults. Thus, more elaborate research that would focus specifically on the individual social sources involved in the career development of young people in emerging adulthood is critically needed.

Authors' Note

This study is an outcome of the research project Career Adaptability of Vocational Upper-Secondary School Graduates During the School-to-Work Transition.

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Supplemental Material

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