



The effects of middle-school career intervention on students' career readiness

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Abstract

The study examines the effectiveness of a career intervention in middle schools. The intervention was organized in eight 45-minute-long group sessions. A quasi-experimental pre- and post-test design was applied, with 120 students in the experimental group and 156 in the control group. Small- to medium-size effects were found in terms of reduction of lack of career information and an increase in independence in career decision-making. The observed effects were stable across gender and for high and low school achievers.

Keywords Career development intervention; Career readiness; Career decision-making selfefficacy

Resumé

Les effets d'une intervention d'orientation de carrière chez des collégien.ne.s sur la préparation au choix professionnel L'étude examine l'efficacité d'une intervention d'orientation de carrière dans les collèges. L'intervention a été organisée en huit séances de groupe de 45 min chacune. Dans cette étude, un design quasi-expérimental composé d'un pré- et d'un post- test a été adopté, avec 120 étudiant.e.s dans le groupe expérimental et 156 dans le groupe témoin. Des effets de taille petite à moyenne ont été constaté en termes de réduction du manque d'information sur les parcours professionnels et de l'augmentation de l'indépendance dans le processus de prise de décision. Les effets observés étaient stables entre les genres et entre le niveau de performance scolaire des étudiant.e.s.

Abstrakt

Effekte von Interventionen der Berufs- und Studienwahl in der Mittelstufe auf die Berufswahlbereitschaft der Schülerinnen und Schüler Die Studie untersucht die Wirksamkeit von Interventionen der Berufs- und Studienwahl in Schulen der Mittelstufe. Die Interventionen bestanden aus acht 45-minütigen Gruppensitzungen. Da-

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bei wurde ein quasi-experimentelles Prä- und Post-Test-Design angewendet mit 120 Studierenden in der Versuchsgruppe und 156 Studierenden in der Kontrollgruppe. Es wurden kleine bis mittlere Effekte festgestellt in Form einer Reduktion von fehlenden Laufbahninformationen sowie einer größeren Unabhängigkeit bei der beruflichen Entscheidungsfindung. Die beobachteten Effekte waren stabil bezüglich des Geschlechts und bezüglich der Schulleistung der Schülerinnen und Schüler.

Resumen

Los Efectos de la Intervención Profesional en la Escuela Intermedia en la Preparación Profesional de los Estudiantes El estudio examina la efectividad de una intervención profesional en las escuelas intermedias. La intervención se organizó en ocho sesiones grupales de 45 minutos de duración. Se aplicó un diseño cuasi experimental pre y post prueba, con 120 estudiantes en el grupo experimental y 156 en el grupo control. Se encontraron efectos de tamaño pequeño a mediano en términos de reducción de la falta de información profesional y un aumento de la independencia en la toma de decisiones profesionales. Los efectos observados fueron estables en todos los géneros y para los alumnos de secundaria y bachillerato.

Introduction

The end of middle school is a crucial period of students' career development. At that time students make their first career choice—the selection of a high school. In the education systems of many European countries, as well as in Croatia, choosing a high school places a person on a certain career path that can narrow future career opportunities and is later quite difficult to change. After completing the middle school, it is possible to choose between the gymnasium, leading to the university education, and vocational education and training school leading to the world of work or to the further studies of applied sciences or polytechnics. Therefore, if middle schoolers do not make age-appropriate and well-informed career decisions they can make a costly mistake. However, studies have shown that most students at that age are not very much aware of their interests, aptitudes and skills (Caleon & Subramaniam, 2008; Wyss, Heulskamp, & Siebert, 2012), don't have realistic career plans and awareness of the world of work (Finch & Mooney, 1997), have insufficient levels of vocational maturity (Akos, Konold, & Niles, 2004; Babarović & Šverko, 2011; Šverko, Babarović, & Černja, 2015), know very little about the requirements and the skills needed for specific workplace, and do not relate education choices to future careers (Johnson, 2000). Furthermore, one research conducted in Croatia demonstrated that vocational school students' interests are often not in line with their educational profiles and that they show reduced satisfaction with the school and educational programmes (Babarović, 2009). Also, in the Croatian education system, as well in some other European countries, formally organized career guidance within the school or school subject curriculum rarely exists or is conducted (Babarović & Šverko, 2017). Regarding career counselling, students most often rely on themselves or

sporadic interventions of school psychologists and/or motivated teachers. Student's need career guidance and assistance to discover their interests, learn about different occupations and to facilitate their career decision-making processes. Such assistance can be provided in the form of career interventions.

Career interventions are defined as "any treatment or effort designed to enhance an individual's career development or to enable the person to make better career-related decisions" (Spokane & Oliver, 1983, p. 100). In this area, several meta-analyses stand out (Baker & Popowicz, 1983; Brown & Ryan Krane, 2000; Oliver & Spokane, 1988; Spokane & Oliver, 1983; Whiston, Brecheisen, & Stephens, 2003; Whiston, Sexton, & Lasoff, 1998) which offer a comprehensive overview of the effectiveness of career interventions in the period from 1950 to 2000. The effect sizes obtained in these meta-analyses were somewhat different because of the different meta-analytical techniques used. However, when the same effect size estimation standards are applied to said meta-analyses, a relatively similar effect sizes were obtained. The overall effect size of the career interventions ranges from .30 to .60 (Whiston, 2002; Whiston & Oliver, 2005; Whiston & Rahardja, 2008), which is by Cohen's (1988) classification considered as a moderate effect. Even the most conservative effect size (.30) indicates that the average participant in the intervention exceeds 62% of the control group on different vocational outcomes (Whiston, 2002).

Whiston (2002), combining the results of two meta-analyses (Oliver & Spokane, 1988; Whiston et al., 1998), differentiates the effectiveness of different types of interventions. Workshops and class interventions are the most cost-effective but they also require a large number of hours in the treatment to achieve that effect. On the other hand, individual counselling is the most effective type of intervention per hour and produces the most client gain per session. As for the effectiveness of other types of interventions, group career counselling is less effective intervention than workshops or structured groups (Whiston et al., 2003). Counsellor-free interventions are less effective than other types of interventions and career computer system interventions are less effective than career computer system interventions supplemented by counselling (Brown & Ryan Krane, 2000; Oliver & Spokane, 1988; Whiston et al., 2003, 1998). The aforementioned suggests that counsellor involvement in interventions is crucial. However, it is important to note that research did not confirm that experienced (master's or doctoral-level) psychologists are more effective than assistants or teachers (Gati & Ram, 2000; Oliver & Spokane, 1988; Whiston et al., 1998).

Brown and Ryan Krane (2000) reviewed 62 career intervention research and identified five key components that make a successful intervention: (1) employment of written exercises and exploratory homework activities, (2) individualized feedback, (3) world of work information, (4) exposure to models and (5) bringing attention to building support for career choices and plans. Using only one of these components significantly increases the effectiveness of the intervention (Brown & Ryan Krane, 2000). Regarding the duration of interventions, some studies have shown that interventions that last longer (number of hours and sessions) are more effective (Oliver & Spokane, 1988), while other studies failed to confirm this finding (Whiston et al., 1998, 2003). This inconsistency in the results can be clarified by Brown and Ryan Krane (2000) research in which the nonlinear relationship between the number of sessions and career outcomes was determined. The effectiveness of interventions is

growing rapidly with the first session, the peak is experienced around the fourth and fifth sessions, followed by a significant decline in efficiency.

The most commonly used outcome measure (Whiston et al., 2003) is career decision-making (46%) which includes career information seeking, certainty/decidedness of choice, decision-making skills etc. The following are effective role-functioning outcome measures (29%) that include career maturity, career-related knowledge etc. The least measured outcomes are from the counselling evaluation category (18%), among which the most frequent is satisfaction with counselling (8%). The greater effect sizes of the outcome measures were related to the measures of career maturity and performance of career-related skills versus decision-making outcome measures (e.g. measures of certainty or decidedness) (Whiston & Rahardja, 2008).

There are some challenges related to career interventions' outcome measures. Even though in 1988, Oliver and Spokane stressed the importance of developing a battery of standardized measures that would be used in the career counselling research, significant progress in that direction is still not achieved. First, only 36% of the research uses standardized measures, and only 49% of the research reports reliability coefficients for the measures used (Whiston et al., 2003). Second, there is a significant lack of behavioural outcome measures because research primarily focuses on self-assessment measures (Whiston & Rahardja, 2008; Hughes & Karp, 2004). Third, 65% of the research does not carry out follow-up evaluations and does not measure long-term outcomes (Whiston et al., 2003; Whiston & Rahardja, 2008). Fourth, researchers often use excessively large number of outcome measures (e.g. 32 measures in one study) (Whiston et al., 2003), often chosen in a random and unsystematic manner without a clear underlying conceptual framework which is making it difficult to draw profound conclusions about the outcomes of interventions (Whiston & Oliver, 2005).

Also, there are certain challenges in the wider area of career intervention. In most studies data on counsellor experience, dropout rate and potential reasons for attrition are omitted (Oliver & Spokane, 1988). There is a very small number of studies (18 studies out of 62) that considered gender differences in career intervention outcomes (Brown and Ryan Krane, 2000). Of these studies, only three determined statistically significant differences between genders in a way that women show higher career maturity. Also, men attribute greater stigma to career counselling (Rochlen, Mohr, & Hargrove, 1999), while women show greater satisfaction with career counselling (Mau & Fernandes, 2001) and greater change in vocational identity (Lapan, Gysbers, Hughey, & Arni, 1993). Likewise, we couldn't find a study that examined differences in career intervention outcomes between middle school students with higher and lower school achievement. But we found a study that explored differences between more and less motivated students, which showed that information-seeking intervention was more effective for more motivated students, while individual counselling was more suitable for less motivated students (Borman, 1972). However, some research (Rosenzweig & Wigfield, 2016) on students' interests showed that more-motivated students experience fewer gains from these interventions than less-motivated students because they have high initial levels of interest and experience so-called ceiling effect. There is an evident need for more studies that would explore such a difference. Also, researchers typically conduct fewer career interventions for

middle school students. Most interventions were conducted at the high school and college level (Oliver & Spokane, 1988; Whiston et al., 1998, 2003) and only 3% of the studies included younger age groups such as middle/junior high school students (Whiston et al., 2003). That prevents determining the effectiveness of a particular type of intervention for a particular life stage of an individual (Whiston, 2002). This lack of interventions on middle schoolers is particularly surprising given that, career interventions aimed at middle school students had the greatest effect of all age groups (Oliver & Spokane, 1988; Whiston et al., 1998) and considering that career plans and preferences begin emerging in elementary school (Tai, Liu, Maltese, & Fan, 2006; Trice & King, 1991).

This study aims to explore the effect of a group counselling program on three commonly used vocational outcome measures (*career decision self-efficacy*, *career decision-making difficulties*, and *career maturity*) in a sample of middle schoolers, by taking into consideration aforementioned challenges in career intervention research. By examining the effectiveness of a group counselling program on middle school students we are focusing on younger students that are typically neglected in this kind of research. Using a pre-post experimental design, in which students who received the intervention were compared to a group of students who did not receive the intervention, we are securing a quasi-experimental design that enables intervention evaluation. Also, all vocational outcomes are measured with standardized measures with good reliability and appropriate for assessing middle school students. Additionally, data about counsellor experience and the dropout rate is collected, reported and taken into account while analyzing and interpreting results, which most of the research in this area is often lacking. Another contribution of this research is analyzing the moderation effects of gender and students' school achievement on career intervention effectiveness. Namely, because the current research on gender and achievement in this area are rare and with inconsistent results, especially for middle schoolers. An important contribution of this research is analyzing the effectiveness of a group counselling program in a specific educational system with no systematically organized formal career counselling within schools. So, if this kind of relatively short career intervention, in such educational context, could improve students' vocational outcomes, it would have a lot of practical value for schools, teachers and students.

Based on the previous research findings, we proposed three specific hypotheses. We expected that career intervention would have a statistically significant effect on career decision self-efficacy, career decision-making difficulties, and career readiness (H1). Further, we expected that students' gender (H2) and school achievement (H3) will not be statistically significant moderators of the intervention effects.

Method

Participants

A convenient sample of 179 eighth grade students ($Mdn_{age} = 14$) from the 9 schools situated in the city of Zagreb and its surroundings formed the experimental group.

Within each of the experimental schools, up to 25 students volunteered to participate in the program, forming a class of students for the group intervention. The experimental group was recruited by their teachers who explained the content, duration and aims of the program and distributed the program's leaflets to the students. The leaflet contained a short description of the program, its duration and aims. The main motivation for students' participation was that the program might help them in their career choice. The students willing to participate in the program signed the consent form and written parental consents were collected. The control group consisted of a convenient sample of 161 students coming from four schools equivalent to those in the experimental group by the level of urbanization and development of school's surrounding (Burušić, Babarović, & Šakić, 2008; Burušić, Babarović, & Šakić, 2009). This procedure ensured that schools in the experimental and control group were equivalent or at least comparable by the socio-economic status of students and their families. Within each of the control schools, two classes of students were selected by random and all students from the class participated voluntarily, with parental consent.

The questionnaires were assessed before and after the intervention. In total 340 eighth grade students participated in pretesting ($n_{\text{female}} = 60\%$; $n_{\text{male}} = 40\%$). Missing data in pretesting were less than 1% for all the variables. The drop-out in the post-testing in the experimental group was 33% (59 students), and in the control group was 3% (5 students). Thus, the total number of students that remain in the study was $N = 276$ (81% of the initial sample), of which 60% were female. Namely, 120 students in experimental and 156 students in the control group had the results in both waves and were included in the analyses.

Description of the intervention

Career development school program was based on two teachers' manuals "Exploring Future Options" (Perry & VanZandt, 2006a) and "Focus on the Future" (Perry & VanZandt, 2006b) that were translated and adapted for Croatian students. These manuals were published in Croatia (Babarović & Šverko, 1999a, b) and approved by The Ministry of Science and Education of Croatia for use in Croatian primary and secondary schools. Both manuals are structured in the same way, but exercises within them are modified to correspond to students' age, i.e. primary and/or secondary school students. Each manual has three parts with 12 exercises per part that contain a short overview, duration, objectives, materials and preparation needed, instructions, suggested questions for discussion for each exercise and suggestions for additional activities within specific exercises. The program was conducted in a group workshop format, lasting 45 min-per-session, once per week, through 8 weeks and was led by two co-presenting psychology graduate students that received the four hours training how to adequately implement the program in schools. The training was conducted by the expert, experienced researcher and university psychology professor in the field of career counselling and guidance, who adapted the program for the Croatian population. Graduate students were reminded about career development theories and instructed how to implement effective teaching methods (how to

structure teacher/student interactions, steer group dynamics etc.). Also, three exemplary exercises (one from each part) were demonstrated. The workshops were conducted in schools as an elective and extracurricular activity during February and March 2017 and psychology students had the freedom to choose exercises from the manual which they considered most appropriate for “their” group of students.

The workshops are organized in three parts: Self-Knowledge (*Who am I?*), Career and Educational Exploration (*Where am I going?*) and Career Planning (*How do I get there?*). The first part aimed to help students better understand their interests, skills, values, and aspirations. The second part was aimed to help students to get information about the labour market, types and characteristics of different occupations and secondary schools. The third part sought to help students in making an informed decision about their career, choosing the appropriate high school, and to set clear plans for their professional future.

In addition to workshops, the Career development school program also contained a Parent’s Guide to Career Decision-Making and the Focus on My Future Action Plan. A Parent’s Guide was distributed to the parents and included information on the importance of career choice and guidelines on how to behave when their child makes a career decision. Specifically, it consists of several topics distributed on four A4 pages: (1) Introductory letter to parents which emphasizes importance of career choice and development and parental role in this process; (2) Career as life, i.e. importance of career choice and its impact on individuals’ life; (3) Stages of career development; (4) The importance of decision-making; (5) Suggestions for being actively involved in child’s career decisions; (6) Developmental issues in adolescence. In the Action Plan students have to define their desired career goal and specific steps that will lead them to the goal attainment.

Career development school program by weeks: (a) week 1 (Introduction and testing): presenting the program, distributing portfolios, applying the initial questionnaire; (b) week 2, 3 and 4 (Self-Knowledge Unit): feedback from the interest questionnaire (RIASEC based), workshops related to exploring their interests, values, and skills, and distribution of a Parent’s Guide; (c) week 5 and 6 (Career and Educational Exploration Unit): workshops related to introduction to the world of work, exploring characteristics of different occupations, getting information about high-schools educational programs, and exposure to all relevant websites for exploring the vocational and educational paths; (d) week 7 (Career Planning Unit): workshop addressing the difficulties students face when making career decisions, introduction to effective decision-making strategies, and filling out the Focus on My Future Action Plan; (d) week 8 (Testing and closure): applying the final questionnaire, giving a program completion certificate, and summing up what was done.

Instruments

The short form Career Decision Self-Efficacy Scale (CDSE-SF; Betz & Taylor, 2012)

The CDSE-SF is a 25-item scale based on the five-factor model proposed by Taylor and Betz (1983). In this research, a validated Croatian version of the scale was

used (Bošnjak, 2015; Babarović & Šverko, 2018). The five factors include skills in developing an accurate: (1) self-appraisal, (2) gathering occupational information, (3) goal selection, (4) making plans for the future, and (5) problem-solving. Participants indicate their level of confidence in carrying out specific behaviours associated with the five competency areas using a 5-point Likert-type response format with endpoints of 1—no confidence at all, and 5—complete confidence. The total and subscales scores are calculated as the mean of the items scores, with higher values indicating higher levels of confidence. The dimensionality of the CDSE-SF has previously been investigated in several studies using classical test theory approaches. These studies have resulted in very different conclusions. For instance, two factors were found in the U.S. sample (Peterson & del Mas, 1998). Three factors were found in Australian and South African samples (Creed, Patton, & Watson, 2002), as well as in Chinese sample (Hampton, 2005). Chaney, Hammond, Betz, and Multon (2007) found four factors, and Betz, Klein, and Taylor (1996) found five factors. Furthermore, others (Robbins, 1985; Taylor & Betz, 1983; Taylor & Popma, 1990) reported that CDSE and CDSE-SF measure only one general factor. Principal Component Analysis was applied to examine the factor structure of the tests in this study. The single-factor structure was obtained using the Scree test criterion explaining 34.05% of the variance. High total scale reliability was obtained in both waves, .92 and .91, respectively. To compare the results with earlier studies, we will present here also the results for the theoretical five subscales. Based on the theoretical model (Taylor & Betz, 1983), the a-prior five-factor solution with Varimax rotation explained 54.1% of the variance. Median scale reliability for the first and second wave were .64 and .65, respectively. In the first wave, the lowest reliability was found for the Occupational information subscale (.61) and highest for Problem-solving subscale (.74). In the second wave, the lowest reliability was found for Goal selection subscale (.60) and highest for Problem solving subscale (.75).

The Career Decision-Making Difficulties Questionnaire (CDDQ-R: Gati, Krausz, & Osipow, 1996)

A validated Croatian version (Babarović & Šverko, 2018) of CDDQ-R include three major categories of difficulties, which are further divided into 10 specific categories. The major categories are: 1) Lack of Readiness (e.g. “It is usually difficult for me to make decisions.”), 2) Lack of Information (e.g. “I find it difficult to make a career decision because I do not have enough information about the variety of occupations or training programs that exist.”), and 3) Inconsistent Information (e.g. “I find it difficult to make a career decision because people who are important to me do not agree with the career options I am considering and/or the career characteristics I desire”). In total, the CDDQ comprises 32 items that reflect career decision-making difficulties, and two validity items that are not used in scoring. Participants rate, on a 9-point scale, the degree to which each difficulty describes them (*1-does not describe me; 9-describes me well*). The subscales and total score are calculated as mean scores of corresponding responses with higher scores indicating greater career decision-making difficulties. Previous studies have shown good validity and reliability of CDDQ (e.g. Albion & Fogarty, 2002; Gati et al., 1996; Gati & Saka, 2001;

Mau, 2004; Tien, 2005), which is also confirmed in Croatian high-school samples (Babarović & Šverko, 2018). In our study the reliability of the total score was high in first (.86) and second wave (.89) while the reliability of subscales ranged from acceptable to good with the lowest reliability for subscale Lack of Motivation in both waves, .48 and .57, respectively, and highest reliability for subscale External Conflicts, .85 and .84, respectively. Median scale reliability for the first wave was .72 and .77 for the second wave. Principal Component Analysis was applied to examine the factor structure of the questionnaire. As expected, a ten-factor structure was obtained using the eigenvalue-over-one criterion for retaining components. The ten-factor solution with Varimax rotation explained 64.4% of the variance.

The Career Readiness Scale (CRS) (Babarović & Šverko, 2016a)

The scale was applied as an additional measure of career maturity. The questionnaire consists of 20 items and has five subscales with four items each. The subscales are: (1) Decisiveness in career decision making, (2) Involvement in making career decisions, (3) Independence in decision-making, (4) Importance of making career decisions, and (5) Willingness to compromise when deciding. The participants have to rate their agreement with each statement on a 5-point Likert-type scale ranging from 1-no agreement to 5-full agreement. Scores are calculated as the average of responses on scale items with higher scores indicating greater career maturity. In earlier research the questionnaire proved to be a structurally valid and reliable measure of career maturity on samples of middle and high school students, a five-factor solution was confirmed, $\chi^2/df(155)=3.731$, $p<.01$, CFI=.906, TLI=.884, RMSEA=.069, the reliability ranged from $\alpha=.65$ to .92 (Vlahović, 2017). In our research, the median reliability of subscales in the first and second wave was .64 and .66, respectively. The Principal Component Analysis yielded a five-factor structure based on the eigenvalue-over-one criterion for retaining the components. The five-factor solution with Varimax rotation explained 60.4% of the variance, with items highly saturated with the expected factor.

The school achievement scale

The scale was developed for this study and it comprises 10 items that reflect school achievement. The scale contains five objective and five subjective indicators of school achievement. Objective indicators include self-reported last year final grades in three school subjects (Croatian language, Foreign language, Mathematics), last year GPA, and one dichotomous item—Participation in school subject knowledge competition. On five subjective indicators, participants have to give a response on a 5-point scale, and items were: “How would you rate your achievement compared to other students in your class?”, “How would your teachers rate your school achievement?”, “How would other students rate your school achievement?”, “How satisfied is your family with your current school achievement?”, “How satisfied are you with your current school achievement?”. Principal Component Analysis was applied to examine the structural validity of the scale. As expected, a unidimensional structure was obtained, with items saturated moderately to highly with general factor (.51 to

.92), and high scale reliability was obtained ($\alpha = .93$). Participants' school achievement total score was represented as a factor score.

Statistical procedures

The sample used in this study is considered adequate in terms of sample size. A priori power analysis was conducted using GPower (Faul, Erdfelder, Lang & Buchner, 2007) with power ($1 - \beta$) set at .80, α at .05 (two-tailed), and effect size at $d = .30$ on the base of the previous studies (Whiston, 2002; Whiston & Oliver, 2005; Whiston & Rahardja 2008). The power analysis indicated that a total of 352 subjects is needed for the survey, which corresponds to our initial sample size.

Statistical software SPSS v23 was used for data analysis. The participants that did not participate in both pre- and post-testing were not used for testing the intervention effects and were deleted using listwise deletion. Before running the analysis, the assumptions for ANOVA repeated measures were checked. Shapiro–Wilk test was used to test the null hypothesis that the data is normally distributed. This assumption is met for the total scores of all instruments and second-order scales in CDDQ, but not for the rest of the dependent variables. Further analysis of p–p plots of these scales reveals that the distributions are symmetrical, and considering the similar group sizes, and the robustness of ANOVA against the normality assumptions (Glass, Peckham, & Sanders, 1972; Wilcox, 2005) we concluded that normality assumptions are largely met. To test the homogeneity of the error variance of the dependent variable across groups, Levene's Test of Equality of Error Variances was used. Homogeneity of variance is not violated for any of the CDSE scales. For CDDQ, homogeneity of variance is violated only for the subscale External Conflicts in both waves. For CRS scale, homogeneity of variance is violated only for subscale Active involvement in career decision-making in the first wave. We concluded that the assumption of homogeneity of variances is generally met.

Two-way repeated-measures ANOVA was used to determine the interaction effect between the experimental condition (experimental or control group) and time of measurement (pre- or post-testing) on vocational outcomes (time \times group). The statistical significance of interaction was used to determine whether the change in vocational outcomes is the result of the intervention.

To test the moderation effect of gender and previous school achievement on intervention effects, three-way repeated-measures ANOVA was used (time \times group \times gender and time \times group \times achievement). We used median split on the continuous variable of school achievement to turn it to a dichotomous variable with the participants being categorized as low-achievers (below median) or high-achievers (above median). The benefits of using a median split are having equal groups for statistical analysis, easier interpretation and simpler graphical presentation of the results. Bearing in mind the drawbacks of dichotomization (e.g. Maxwell & Delaney, 1993; MacCallum, Zhang, Preacher, & Rucker, 2002), and that only one variable is dichotomized in this research, we consider the downsides relatively small compared to the benefits in results' interpretability.

Because of multiple outcome measures used in this study, we applied the significance level of .01 to test an individual hypothesis.

Results

The effects of the career intervention were tested on different vocational outcomes: *Career Decision Self-Efficacy*, *Career Decision-Making Difficulties*, and *Career Readiness*. Additionally, three-way interactions, indicating the moderation effects of gender and previous school achievement were applied.

There was no significant interaction effect between group (Table 1) (experimental group or control group) and time of measurement (pre-testing or post-testing) on Career Decision-making Self-Efficacy total score, $F(1252) = .51$, $p = .48$, indicating that the intervention had no significant effect on career decision-making self-efficacy. Furthermore, the intervention had no significant effect ($p > .01$) on any of Career Decision Self-Efficacy subscales. There were also no significant moderation effects of gender, or school achievement on intervention effect on career decision-making self-efficacy, confirming that intervention did not affect student self-efficacy regardless of students' gender or previous school achievement.

The Career Decision-Making Difficulties were operationalized by three decision-making difficulties clusters: Lack of Readiness, Lack of Information and Inconsistent Information, each represented by specific subscales (Table 2). Intervention effects were found for the Lack of Information cluster, $F(1, 229) = 9.07$, $p < .01$, partial $\eta^2 = .04$ (subscale Lack of Knowledge About the Process, $F(1, 249) = 8.84$, $p < .01$, partial $\eta^2 = .03$, subscale Lack of Information About Self, $F(1, 247) = 13.18$, $p < .01$, partial $\eta^2 = .05$ and subscale Lack of Information About the Ways of Obtaining Information, $F(1, 250) = 11.31$, $p < .01$, partial $\eta^2 = .04$). These interaction effects are shown in Figure 1 (a–d). The obtained eta-squares (η^2), when converted to Cohen's d , and compared to the benchmarks (Cohen, 1988) can be interpreted as small to medium effect sizes. The effects of intervention were not found for the other two Career Decision-Making Difficulties clusters Lack of Readiness, $F(1, 240) = .31$, $p = .58$ and Inconsistent Information $F(1, 239) = .07$, $p = .79$, as well as for the associated subscales. Gender and achievement did not moderate the effects of the intervention on career decision-making difficulties.

Obtained effects of intervention indicate that participation in the intervention reduced the lack of information in general, and in particular, it reduced: Lack of knowledge about the steps in career decision-making, lack of information about the self and lack of information about the ways of obtaining information. These intervention effects are similar for boys and girls and students of different school achievement.

The effects of intervention on career readiness (Table 3) were found for the Independence in career decision-making subscale, $F(1, 234) = 8.98$, $p < .01$, $\eta^2 = .04$, indicating that independence in career decision-making increased significantly more in the experimental group than it did in the control group (Figure 1e). However, the intervention had no significant effects on Career readiness total score, as well as on

Table 1 The intervention effects on Career Decision Self-Efficacy (CDSE) and the effects of moderators

Scales	Pre-testing		Post-testing		Intervention effect (time × group)			Moderation effect of gender (time × group × gender)			Moderation effect of achievement (time × group × achievement)			
					<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>										
Self-appraisal (<i>n</i> = 249)	C	3.75	.74	3.79	.70	1.50	.22	.006	.91	.34	.004	.50	.48	.002
	E	3.61	.65	3.76	.65									
Occupational information (<i>n</i> = 247)	C	4.05	.61	4.07	.63	1.89	.17	.008	.63	.43	.003	.40	.53	.002
	E	3.90	.56	4.01	.57									
Goal selection (<i>n</i> = 242)	C	3.75	.62	3.83	.67	.03	.86	.000	1.24	.27	.005	.55	.46	.002
	E	3.64	.60	3.73	.63									
Planning (<i>n</i> = 247)	C	3.86	.66	3.88	.67	3.07	.08	.012	.01	.94	.000	.00	.99	.000
	E	3.68	.64	3.85	.65									
Problem solving (<i>n</i> = 241)	C	4.00	.69	3.99	.69	4.38	.04	.018	1.76	.19	.007	.64	.43	.003
	E	3.90	.68	4.06	.63									
CDSE total (<i>n</i> = 254)	C	3.83	.65	3.90	.60	.51	.48	.002	1.73	.19	.007	.05	.83	.000
	E	3.75	.54	3.86	.58									

C = Control group; E = Experimental group; η^2 = Partial eta square; * $p < .01$. According to Cohen (1988), $\eta^2 = .01$ is considered small effect, $\eta^2 = .06$ medium and $\eta^2 = .14$ large

Table 2 The intervention effects on Career Decision-Making Difficulties (CDDQ) and the effects of moderators

Scales	Pre-testing		Post-testing		Intervention effect (time \times group)		Moderation effect of gender (time \times group \times gender)		Moderation effect of achievement (time \times group \times achievement)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	η^2
Lack of readiness (<i>n</i> = 242)	C 4.77	1.07	4.57	1.02	.31	.58	.24	.63	.53	.47
	E 4.68	1.04	4.55	1.15						
Lack of motivation (<i>n</i> = 252)	C 3.78	1.67	3.41	1.53	1.03	.31	.01	.92	.29	.59
	E 3.39	1.40	3.24	1.48						
Indecisiveness (<i>n</i> = 253)	C 5.23	1.94	5.07	2.13	.03	.86	.08	.78	.00	.98
	E 5.56	2.09	5.36	2.14						
Dysfunctional beliefs (<i>n</i> = 247)	C 5.08	1.61	4.91	1.71	.35	.55	.36	.55	.46	.50
	E 4.97	1.61	4.92	1.58						
Lack of information (<i>n</i> = 231)	C 4.53	1.58	4.30	1.74	9.07*	.003	3.49	.06	.28	.60
	E 5.00	1.51	4.19	1.59						
Lack of knowledge about the process (<i>n</i> = 251)	C 5.13	2.05	4.67	2.21	8.84*	.003	2.80	.10	.01	.94
	E 5.62	2.13	4.36	2.31						
Lack of information about self (<i>n</i> = 249)	C 4.35	1.99	4.27	2.10	13.18*	.001	6.06	.02	.08	.77
	E 5.16	2.06	4.22	1.97						
Lack of information about occupations (<i>n</i> = 252)	C 5.27	2.06	4.91	2.22	6.21	.013	1.35	.25	.06	.80
	E 5.62	2.02	4.58	2.12						
Lack of information about ways of obtaining information (<i>n</i> = 241)	C 4.01	2.12	3.97	2.10	11.31*	.001	.38	.54	.87	.35
	E 4.56	2.13	3.54	2.18						
Inconsistent information (<i>n</i> = 241)	C 4.04	1.42	3.96	1.60	.07	.79	3.03	.08	.23	.63
	E 4.38	1.48	4.26	1.42						
Unreliable information (<i>n</i> = 247)	C 3.97	1.82	3.82	1.81	.42	.52	.00	.10	.29	.59
	E 4.14	1.84	4.13	1.95						

Table 2 (continued)

Scales	Pre-testing		Post-testing		Intervention effect (time \times group)		Moderation effect of gender (time \times group \times gender)		Moderation effect of achievement (time \times group \times achievement)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	η^2
Internal conflicts (<i>n</i> = 243)	C	4.61	1.57	4.44	1.76	.12	.73	.000	.06	.81
	E	4.88	1.54	4.78	1.52			.025		.000
External conflicts (<i>n</i> = 252)	C	2.54	2.12	2.80	2.14	1.83	.18	.007	.11	.74
	E	3.13	2.34	3.00	2.26			.004		.000
CDDQ total (<i>n</i> = 209)	C	4.45	1.08	4.25	1.22	1.75	.19	.008	.41	.52
	E	4.71	.98	4.34	1.07			.015		.002

C = Control group; E = Experimental group; η^2 = Partial eta square; * $p < .01$. According to Cohen (1988), $\eta^2 = .01$ is considered small effect, $\eta^2 = .06$ medium and $\eta^2 = .14$ large

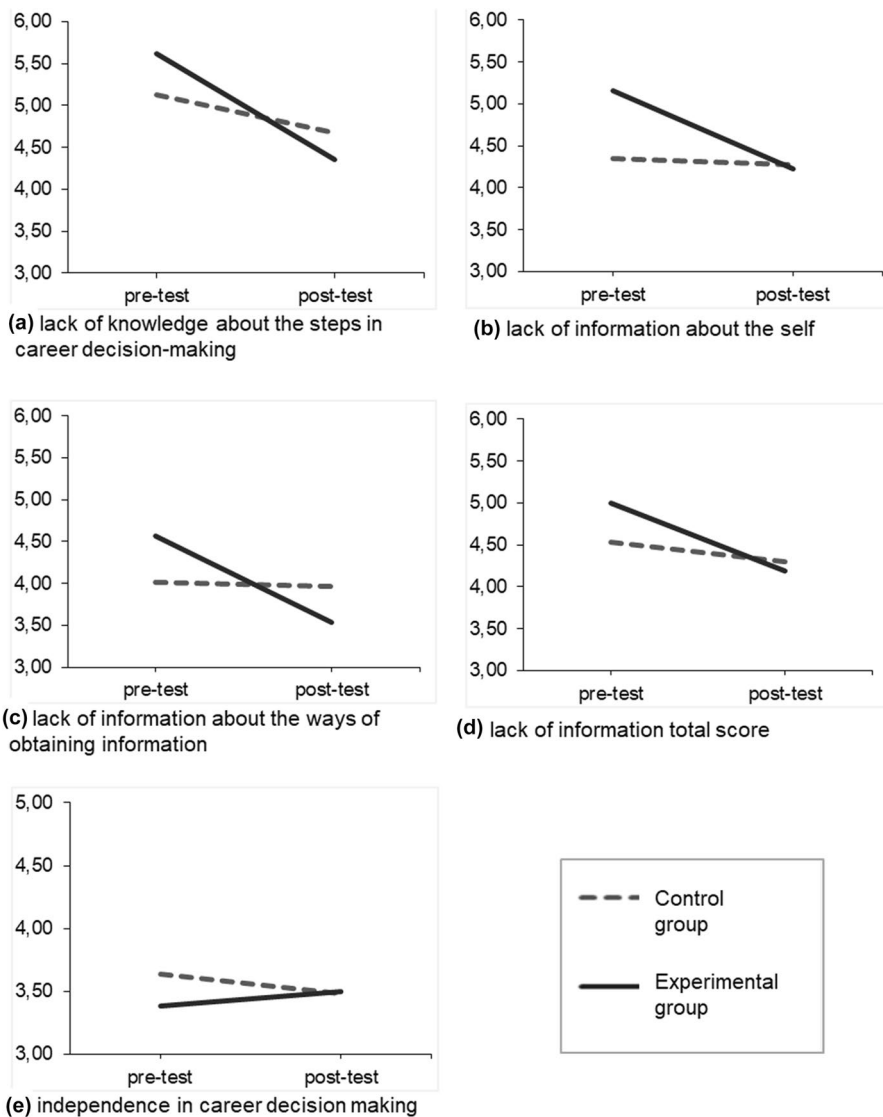


Figure 1 The effects of career intervention on vocational outcomes

Table 3 The intervention effects on Career readiness (CRS) and the effects of moderators

Scales	Pre-testing		Post-testing		Intervention effect (time \times group)			Moderation effect of gender (time \times group \times gender)			Moderation effect of achieve- ment (time \times group \times achieve- ment)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2
Decisiveness in career decision making (<i>n</i> = 238)	C 3.26 E 2.73	1.10 1.10	3.28 3.00	1.04 1.05	4.97	.03	.021	5.99	.02	.025	.00	.98	.000
Active involvement in career decision making (<i>n</i> = 237)	C 3.45 E 3.68	.92 .80	3.56 3.62	.86 .84	2.68	.10	.011	.87	.35	.004	2.04	.15	.009
Independence in career decision making (<i>n</i> = 236)	C 3.64 E 3.38	.78 .68	3.48 3.50	.82 .78	8.98*	.003	.037	.26	.61	.001	.31	.58	.001
Importance of career decision making and career management (<i>n</i> = 234)	C 4.36 E 4.50	.52 .47	4.24 4.36	.60 .59	.02	.90	.000	.04	.85	.000	.27	.61	.001
Readiness to compromise in career deci- sion making (<i>n</i> = 232)	C 3.37 E 3.41	.72 .75	3.31 3.61	.71 .69	6.82	.01	.029	2.61	.11	.011	3.51	.06	.016
CMQ Total (<i>n</i> = 205)	C 3.60 E 3.56	.45 .40	3.57 3.63	.48 .46	4.01	.05	.019	.55	.46	.003	.43	.51	.002

C = Control group; E = Experimental group; η^2 = Partial eta square; * $p < .01$. According to Cohen (1988), $\eta^2 = .01$ is considered small effect, $\eta^2 = .06$ medium and $\eta^2 = .14$ large

other subscales. There were no significant moderation effects, indicating that gender and achievement did not moderate the effects of the intervention on career readiness.

Discussion

This study aimed to examine the effects of eight-week group career intervention for middle schoolers. The effects were measured on different vocational outcomes: career decision self-efficacy, career decision-making difficulties, and career readiness. Additionally, possible moderation effects of gender and school achievement on the intervention effects were considered. The results showed that the career intervention had small to medium size effect on reduction of career-decision making difficulties related to lack of information, and small positive effect on one of the career readiness aspects—independence in decision-making. The intervention had no effects on students' perceived career decision self-efficacy. Finally, observed effects are the same for boys and girls, as well as for students of low and high school achievement.

As can be seen from the results, the intervention was most effective in providing information about the process of career decision-making, gathering information about the self, and the ways of obtaining information. Those effects were expected, knowing the content of the intervention described in the Method section. During the intervention, students assessed their vocational interests, work values, and occupational preferences. The workshop leaders provided information about websites with career-related information, descriptions of different occupations, educational information, and online career assessment tools. At the end of the educational program, students fill in their career action plans which foster their independence in career decision-making. Therefore, it seems that the content of the workshops directly relates to the observed effects in outcome variables.

The other possible reason why this kind of intervention had the biggest effect on difficulties related to lack of information can be in the fact that lack of information is temporary or developmental indecision and refers to the normative vocational development phase (Saka & Gati, 2007). This type of difficulties could be resolved relatively easily for most adolescents (Meldahl & Muchinsky, 1997), and it reduces by age during the adolescence (Babarović & Šverko, 2016b). By its content, it can be successfully dealt with in the career interventions, and well addressed in group workshops. In contrast, the career indecisiveness that comes from emotionality and other personality-related sources (e.g. Lack of Readiness cluster) are more chronic and pervasive, and therefore more resilient to counselling process (Saka & Gati, 2007).

Career decision self-efficacy scale measures the degree to which individuals feel confident at completing tasks related to career decision-making. The results show that intervention had no effect on career decision self-efficacy total score as well as on any of the subscales. A possible explanation of no effect lies in the concept of self-efficacy and the short period between two measurement points. As it is well-known, the experience of mastery is the most important factor determining a person's self-efficacy (Bandura, 1997; Schunk & Usher, 2012). The intervention was

conducted in early spring—the period of preparation for actual career decision, and actual mastery of career decision task was not experienced. Thus, the career decision self-efficacy was reinforced only throughout the social persuasion provided by workshop leaders, which is much less effective (Bandura, 1997). Other possible reason why intervention effects were not observed for career decision self-efficacy could rely on the unclear factor structure of the questionnaire and quite low reliability of some scales. Therefore, we suggest that similar interventions should not be evaluated by the CDSE-SF (Betz & Taylor, 2012), especially if the evaluation period does not encompass actual decisions and career transition.

Career maturity as measured in this study contains five aspects of career readiness: decisiveness, active involvement, independence, perceived importance, and readiness to compromises. The results show no intervention effect on career maturity total score, but the small-size effect was found for Independence in Career Decision-making subscale. Moreover, the intervention effects were of marginal significance ($p < .05$) for Decisiveness and Readiness to Compromise subscales indicating possible trends that intervention effects could be possibly found on bigger samples of students, or by applying longer and more extensive intervention.

Although this research was carefully prepared and has reached its aims, there were still some limitations. Firstly, although the schools in experimental and control groups were selected to be similar according to the urbanization level, true random sampling was not used. This can endanger internal validity, meaning that we cannot be sure that career intervention was the only factor causing change. Some preexisting factors like prior achievement, prior participation in similar interventions or other students' family or school characteristics were not controlled in this study, so maybe career intervention was not the only factor causing the change in outcomes. Also, we did not control students' out-of-class career-related behaviour during the intervention. Students in both, experimental and control group, could go to career counselling or searched for information on their own which may have influenced the results. A further limitation of this study is the application of only self-reported outcome measures and measuring only short-term effects without capturing the outcomes after the real transition to high-school.

Additional potential reasons why intervention yielded small and less than expected effects can be found in the intervention program itself. The program was conducted in schools after or before students' regular classes. This turned out to be problematic because the fluctuation of students was considerable. Their attendance was heavily dependent on their morning or afternoon school-day shift and the program being before or after regular school classes. If the program was scheduled before regular afternoon school classes, a smaller number of students showed up. Second, because we want to include all student that showed interest in the program, some workshops were conducted in relatively large groups (up to 25 students). In those cases, any individualized approach couldn't be ensured, despite having two copresenters in classrooms. Third, because the program was organized only in schools and classrooms it relied mostly on the group workshop format which is lacking other ways of shaping students career development. For example, there were no organized visits to different workplaces, job shadowing, presentations of experts from different fields about their occupations which would give the students better insights in

different job requirements and the characteristics of people in that occupation. Also, as different research (Jacobs & Eccles, 2000; Park, Rojewski & Lee, 2018; Whiston & Keller, 2004) showed that parents are key actors influencing children's educational and career pathways it would be important to include parents more directly in the program, over and beyond just sending an informative letter. However, despite the possible shortcomings of this quasi-experimental study, some important practical implications still can be made, mostly focusing on intervention effectiveness in informing, encouraging and preparing the students for their first career decision.

This intervention can be implemented by school counsellors, school teachers and others who work with students and are interested in applying a program of career development in their schools. The materials and detailed instructions on how to conduct the workshops already exist, so it can be executed by interested school professionals. The intervention is relatively brief, inexpensive, easy to implement and incorporate in the regular school curriculum, and which is the most important, it has some positive effects on career decision-making capabilities of students. Moreover, results indicate that this intervention equally affects boys and girls, low and high school achievers, and therefore is suitable for all students. This career intervention also demonstrates that it is not crucial to spend resources for individual counseling if you want to make some positive changes in a short time for a larger number of students. To sum up, the results showed that it is possible to make some positive shift in career readiness of middle schoolers with this kind of group intervention. It suggests that an inexpensive and short-term school career development program can help middle schoolers to make their first vocational decisions in a more mature and informed way.

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