



CORRESPONDENCE OF INTERESTS AND SELF-EFFICACY BELIEFS WITH OCCUPATIONAL CHOICE

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Person-environment (P-E) congruence and its relation to study satisfaction and academic achievement were examined. Two interest measures and one self-efficacy measure were used to represent RIASEC personality types. The Croatian version of Personal Globe Inventory was administered on a sample of 630 university students. The congruence indices have shown that students' future occupations are almost equally related to their interests as to their self-efficacy beliefs. P-E congruence shares less than 1% of common variance with study satisfaction and academic achievement, regardless of the RIASEC personality measures used to estimate the congruence.

Key words: P-E congruence, Personal Globe Inventory, interests, self-efficacy, study satisfaction, academic achievement



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BACKGROUND

The importance of matching characteristics of a person and characteristics of an occupation is well-known in vocational psychology. The congruence postulate was first brought up by Parsons (1909), while Holland (1959; 1966; 1997) stated more specific and comprehensive principles of the congruence hypothesis. Today, the congruence concept is integrated in many theories of career choice, and frequently forms a basic framework for career counseling.

As Tinsley (2000) specifies, congruence, person-environment (P-E) fit, or correspondence, is the similarity between a person's capacities or desires (e.g., abilities, education, experience, interests, values, or needs) and job demands or supplies (e.g., work load, ability requirements, contents of work tasks, reinforces, benefits). Congruence reduces negative vocational outcomes (e.g., job stress, anxiety, absenteeism, or turnover), and increases positive job outcomes (e.g., physical and psychological health, work motivation, performance in work tasks, occupational success and advancement, or job satisfaction). Following this clear and sound idea, the main goal of the career choice process is to find a narrow group of occupations that best suit a person's needs and abilities, and thus provide the best job outcomes for a person.

Although congruence implies similarity between a wide set of personal and occupational characteristics, vocational interests are most frequently used for examining relations between persons and environments (Tracey & Hopkins, 2001). Holland's (1997) theory provides a good framework for studying characteristics of interests and characteristics of occupations and thus has a leading role in congruence research. The main postulate of Holland's (1997) theory is that people seek working environments that closely match their personal vocational interest profile with intention to gain the greatest vocational satisfaction, stability, and achievement. According to Holland (1997), there are six basic vocational interest types, and therefore six suitable working environment types – *realistic*, *investigative*, *artistic*, *social*, *enterprising* and *conventional*, collectively known as RIASEC types. Each person will benefit most if involved in the matching environment: in a congruent environment people can best develop and grow, they are best adjusted and most efficient in work tasks.

However, empirical findings on congruence hypothesis are not so straightforward. The positive relation among the person-environment fit (principally defined as congruence between interests and occupation or academic major) and some job outcomes (mainly job satisfaction) is weak, as clearly shown by two recent and very thorough meta-analyses. Transberg, Slane, and Ekeberg (1993) analyzed 17 published studies and found the average correlation among congruence and job satisfaction $r = .20$. Tsabari, Tziner, and Meir (2005) examined results of 36 published studies and found the average correlation among congruence and job satisfaction $r = .14$. Besides, Spokane, Meir, and Catalano (2000) analyzed and presented 66 congruence studies published from 1985 to 1999, and concluded that the overall relationship between congruence and satisfaction is around $r = .25$. When some modera-

ting effects are considered (e.g., RIASEC interest type, working environment, gender, type of environment measure, type of congruence index), the correlation varies from unsubstantiated to $r = .40$ (Hoeglund & Hansen, 1999; Spokane et al., 2000; Transberg et al., 1993; Tsabari et al., 2005). Consequently, congruence and job satisfaction share only 5% of the common variance. In addition, there were just a few studies examining the congruence hypothesis on student samples. Transberg et al. (1993) analyzed 5 studies and found the average correlation among congruence and academic satisfaction of $r = .10$, while Tsabari et al. (2005) reported only 1 study that found a correlation among congruence and academic satisfaction of $r = -.03$. Their findings specify that interest-study congruence also seems to be very weakly related to study satisfaction.

Although interests were traditionally linked to vocational choice, another possible career determinant is getting more attention in recent literature. Vocational self-efficacy, or self-perceived ability to manage particular tasks successfully, has shown to be related to one's vocational choice. The general motivational character of self-efficacy was previously defined by Bandura (1997; Bandura & Locke, 2003), while Lent, Brown, and Hackett (1994) have recently specified an explicit motivational role of self-efficacy in vocational development and the career decision-making process. Career self-efficacy can be defined as patterns of perceptions regarding ability to perform career-relevant activities or occupational tasks (Donnay & Borgen, 1999). According to Holland (1997), vocational interests and self-perceived career competencies develop in interaction and are both an expression of vocational personality. For this reason Holland (1994) integrates both measures in his *Self-directed Search* which yields RIASEC scores combined across interest and competency scales. Other instruments also combine interests and self-efficacy beliefs in one global measure; for example, Tracey's *Personal Globe Inventory* (PGI) measures 18 vocational types across occupational preferences, activity preferences and activity competence beliefs (Tracey, 2002b; 1997).

Vocational interests and career self-efficacy beliefs are moderately correlated and share approximately one third of the common variance (Betz, Harmon & Borgen, 1996; Lent et al., 1994; Nauta, Kahn, Angell & Cantarelli, 2002; Rottinghaus, Larson & Borgen, 2003). Rottinghaus et al. (2003) and Lent et al. (1994) found in their meta-analyses the average correlations among interest and self-efficacy measures of $r = .59$ and $r = .53$, respectively. The correlations between RIASEC interests and self-efficacy beliefs generally range from .40 to .70 (Betz et

al., 1996; Nauta et al., 2002; Rottinghaus et al., 2003). Self-efficacy beliefs and interests also share the same structure. They can both be represented with Holland's (1997) circular RIASEC model (Long, Adams & Tracey, 2005; Tracey, 2002a; Tracey, 2002b; Tracey & Ward, 1998), Prediger's (1982, Prediger & Vansickle, 1992) two-dimensional model (Tracey, 1997; Tracey & Hopkins, 2001; Tracey & Ward, 1998), and also with Tracey's spherical model (Long et al., 2005; Tracey, 1997; Tracey, 2002b).

The study of relative importance of interests and self-efficacy in the career decision-making process has shown ambiguous results (Donnay & Borgen, 1999; Lent et al., 1994; Tracey & Hopkins, 2001). Lent et al. (1994) conducted a meta-analysis and found that the choice of math and science occupations correlates stronger with interests ($r = .60$), than with self-efficacy estimates ($r = .40$, and even $r = .12$ when interests were partialled out). Tracey and Hopkins (2001) found that interests contribute more in the variance of future occupational choices of high-school seniors than do self-efficacy beliefs: interests and future occupational choice share 27% of the variance (14% after partialing out the self-efficacy beliefs variance), while self-efficacy beliefs and future occupational choice share 19% of the variance (5% after partialing out the interest variance), when collectively expressed on Prediger's dimensions. On the contrary, Donnay and Borgen (1999) found an equally accurate prediction of occupational membership of adult employees regardless of whether RIASEC interests or RIASEC self-efficacy measures are used. However, they also stressed a more accurate prediction when both sets of variables are used together. Conclusively, findings of previous studies do not specify a clear advantage of either interests or self-efficacy beliefs for occupational choice prediction, but they strongly emphasize the unique contribution of both constructs to occupational choice (Donnay & Borgen, 1999; Lent et al., 1994; Tracey & Hopkins, 2001).

Donnay and Borgen (1999), Lent et al. (1994) and Tracey and Hopkins (2001) have applied different methods to explore whether occupational choice is more strongly defined by vocational interests or by vocational self-efficacy. Another promising method is to apply common congruence research design. Particularly, it is possible to explore the degree of P-E fit achieved if interests or self-efficacy beliefs are contrasted to occupational demands. The possible differences in obtained P-E congruence indices will show a potential advantage of either interests or self-efficacy beliefs as predictors of occupational choice.

Moreover, this method gives an opportunity to extend the problem and to more thoroughly explore the lack of con-

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
STR. 397-414

ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

gruence-outcome relations found in previous research (e.g. Hoeglund & Hansen, 1999; Spokane et al., 2000; Transberg et al., 1993; Tsabari et al., 2005). Specifically, Donnay and Borgen (1999), Lent et al. (1994) and Tracey and Hopkins (2001) have found the unique contribution of both self-efficacy and interests to occupational choice. For that reason, interests and self-efficacy beliefs will explain a bit different P-E fit variance when used to calculate the congruence. Therefore it is possible that congruence estimated on interest measures and congruence estimated on self-efficacy measures also bear different relations to various job outcomes. The logical, but weakly supported relation between congruence and job outcomes (e.g. satisfaction or achievement) may possibly be moderated with measures used to portray characteristics of a person. However, this possible moderation effect has never been investigated.

The main aim of this study is to investigate the person-environment congruence and its relation to satisfaction and achievement. The P-E congruence hypothesis will be tested in Croatian university student sample. Students' vocational interests and career competence beliefs will be used as personality variables, while their academic program and associated future occupation will be used as environment variable. At first, the extent of P-E congruence will be analyzed. As interests and competence beliefs will be used as personality variables, the P-E congruence will be defined as interest-study congruence and as competence-study congruence. The equal *extent* of congruence is expected regardless personality variables used, although somewhat different *content* of congruence is anticipated on the basis of different personality variables. The particular relevance of vocational interests and career self-efficacy for occupational choice will be discussed. Further on, the relation among P-E congruence and study satisfaction and academic achievement will be analyzed. According to the findings of previous studies, the low level of congruence-outcome relation is expected. However, as content of interest-study congruence and competence-study congruence should possibly differ, somewhat different relation of interest-study congruence and competence-study congruence to study satisfaction and academic achievement is anticipated. Higher relation of competence-study congruence to academic achievement is likely, as well as higher relation of interest-study congruence to study satisfaction. The overall relation of P-E congruence to study satisfaction and academic achievement will be discussed, with particular focus placed on potential moderating effects of personality measures used to estimate the congruence.

METHOD

Sample

The participants were 630 university students (256 males and 374 females) finishing different academic programs at Zagreb University, Croatia. At the time the data was collected, the Croatian academic education for professional occupations (e.g., lawyers, psychologists, mechanical engineers, medical doctors, etc.) lasted between 4 and 6 years. At the end of university study, students received a bachelor's degree, which was comparable to a European master's degree. (The next academic year (2005/06) the Croatian higher education system converted to the European higher education system, according to the Bologna Declaration.) All participants were students attending the last term of the final year of their academic programs and were preparing their final theses. According to the field of study, they were close to becoming psychologists (15.1%), recreation workers and sport trainers (11.1%), economists (10.1%), mechanical engineers (9.0%), lawyers (6.1%), architects (5.7%), art historians (5.2%), philologists (4.7%), wood technology engineers (4.4%), medical doctors (4.3%), textile technology engineers (4.1%), rehabilitation counselors (3.9%), electronic engineers (3.6%), forestry engineers (3.6%), programmers (2.0%), civil engineers (1.6%), computer electrical engineers and mathematicians (1.6%), art teachers (1.3%). In addition, the sample also included several air traffic planners, archeologists, historians, mining and petroleum engineers, printing technology engineers, road traffic planners, surveyors, teachers in elementary schools, and telecommunications engineers, representing in total less than three percent of respondents. As many as 92% of the participants expressed the intention to find a job in the field of study after they graduate. The participants were mostly 22-24 years old, with the mean age of 23.6 years.

Instruments and measures

The Personal Globe Inventory – a measure of interests and self-efficacy beliefs

Tracey's (2002b) Personal Globe Inventory (PGI) was used to assess respondents' vocational interests and perceived competencies at work-related activities. The questionnaire measures 18 scales which are organized in the three-dimensional spherical model: Social Facilitating, Managing, Business Detail, Data Processing, Mechanical, Nature/Outdoors, Artistic, Helping, Social Sciences, Influence, Business Systems, Financial Analysis, Science, Quality Control, Manual Work, Personal Service, Construction/Repair, and Basic Services (Tracey, 2002b). The respondent indicates, on Likert's 7-point scale, liking of

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
STR. 397-414

ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

different occupations (*occupational preferences*), liking of work activities (*activity preferences*), and self-perceived competencies at work related tasks (*activity competence beliefs*). Personal results on 18 spherical scales can be obtained by separate scoring of each of the three different item types or by aggregate scoring of all item types together. Thus, results on each of the 18 spherical scales can be expressed on occupational preferences ($k = 6$), activity preferences ($k = 6$), activity competence beliefs ($k = 6$), or on composite measure ($k = 18$). The 18 spherical scales may further be transformed to Holland's RIASEC types, Prediger's dimensions and poles, and the dimension of Prestige.

The Personal Globe Inventory was translated into Croatian by two psychologists and a university professor of English language and literature. They separately translated all items and later discussed them to achieve a consensus on their precise meaning. The first version was applied on a small sample to verify the clarity of items. Another university professor of English language and literature, who had never seen the original questionnaire, translated the Croatian version back into English. The minor differences among the original and the Croatian PGI were discussed with the author (T. J. G. Tracey), who approved the Croatian version of his instrument.

The Croatian version of the Personal Globe Inventory has shown good reliability and validity. In two earlier studies the reliability and validity estimates of the Croatian version of PGI have been introduced (Šverko, 2005a,b, 2007). It has been shown that adequate reliability coefficients are found in three different age samples. The Cronbach's alphas for 18 PGI scales (expressed as composite measures) vary in range .79 - .94 for the primary and secondary school samples, and .80 - .94 for this university student sample (Šverko, 2007). The structural validity of the Croatian version of PGI was also confirmed. Principal Component Analysis confirmed the three-dimensional solution that underlies interest scales across all three item types (Šverko, 2005b, 2007); while Randomization test supported the spherical structure of 18 PGI interest scales regardless of the different item type (Šverko, 2005b, 2007). Another aspect of construct validity was also analyzed. The results of various groups of participants on PGI scales have been compared to the ones that could be expected on sound theoretical grounds and previous research findings. Obtained differences in interests among different gender and professional groups were in accordance to theoretical expectations and similar to Tracey's (2002b) findings (Šverko, 2005a, 2007).

In this study, participants' vocational interests and self-efficacy beliefs have been expressed on RIASEC scales. As two different interest measures (occupational preferences and activity preferences) and one self-efficacy measure (activity com-

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
STR. 397-414

ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

petence beliefs) were used, for each participant three RIASEC profiles have been created. Respondents with ties found in their RIASEC profile have been dismissed from the congruence analyses (approximately 20%), while others' RIASEC profiles have been converted to Holland's three-letter codes.

The General Study Satisfaction Scale

The General Study Satisfaction Scale was created for the purpose of this study. It consists of four homogenous 4-point Likert-type items, measuring satisfaction with the chosen academic program and potential willingness for changing it. Four study satisfaction items (*Are you satisfied with your chosen academic program? Have you been thinking of changing your academic program? If you were about to choose your academic program today, would you choose the same one? Taking all into account, how satisfied are you with your academic program choice?*) are combined to represent general study satisfaction. Higher scale scores represent greater satisfaction with the chosen academic program.

The General Study Satisfaction Scale was analyzed in terms of its reliability and validity. The Cronbach's alpha reliability estimate of $\alpha = .83$ indicates very good internal consistency of this short scale. Content validity of this scale also seems to be adequate. General study satisfaction is typically measured through questions of satisfaction directed to peoples' feeling about their academic program and their intention for changing it. The four items of General Study Satisfaction Scale refer precisely to the same construct. The evidence on construct validity was provided by Principal Component Analysis. First component accounts for 67.2% of variance and highly correlates to all items (loadings are in range .79 - .86). Therefore, all General Study Satisfaction Scale items measure the same construct, namely study satisfaction.

The academic achievement (Grade Point Average)

The academic achievement was expressed as the cumulative grade point average. The cumulative GPA is the calculation of all grades received during the university study. As grades in Croatia vary in range from 1 ("insufficient" or equivalent to F) to 5 ("excellent" or equivalent to A), a greater GPA value indicates better academic achievement.

The characteristics of environment

The environment measure expresses the characteristics of the academic program and the corresponding future occupation of a student. As our participants are students that are actually finishing their final year of academic study, their careers are for the most part firmly determined: they will graduate in a year and thus become professionals in their field of work. By the time the data were collected, the academic programs

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
STR. 397-414

ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

in Croatia were highly specialized from the first year onwards (at each department all lectures were focused only on a particular field of study, there were almost no opportunities for students to take courses in other departments, most departments were located within their own separate buildings located throughout Zagreb, students from different departments could meet at lectures only in some exceptional situations).

The environment of each respondent is defined in accordance with *Croatian Occupations Finder* (B. Šverko, Akik, Barbarović, Brčina & I. Šverko, 2002), a catalog of 300 of the most common occupations that have been coded in Holland's three-letter codes. Although Holland's (1994) *Occupations Finder* defines three-letter codes for specific occupations (e.g. clinical psychologist SIA, work and organizational psychologist SEI), *Croatian Occupations Finder* specifies three-letter codes just for general occupations (e.g. psychologist SIE), and thus is even more suitable for describing the student's environment. While occupational and educational environments certainly differ to some extent, they mainly consist of similar core tasks and require similar abilities and competencies. For example, a good architect should express creativity and sense for aesthetics, understanding of mathematics, and proficiency in use of applied computer software. The same is needed for a successful student of architecture. Thus, if a person is finishing an academic program to become an architect, then his/her environment is defined as AIR, which is the three-letter code for architects.

Analysis

Hubert and Arabie's (1987) Randomization Test

In the preliminary analysis, the circular structure of different RIASEC measures is analyzed by Hubert and Arabie's (1987) randomization test. The randomization test yields two model-data fit indices – the correspondence index (CI) and the randomization p value (p). The correspondence index (CI) is a descriptive measure of the degree of fit of the model to the data and it varies from -1 to 1, with the higher value indicating a greater fit. The randomization p value is the exact test of the probability that the degree of fit of the model to the data was obtained by chance and it can be interpreted as the significance of fit.

The congruence index

The degree of fit among a person's characteristics and characteristics of environment is calculated with Brown & Gore's (1994) C index. The C index relies on Holland's circular order hypothesis and takes into account the full three-letter code of personal and environmental profiles. The C index is calculat-

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
STR. 397-414

ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

ed using formula $C = 3(X_i) + 2(X_i) + (X_i)$. In the equation, scores of 3, 2, 1, or 0 are assigned to X_i , depending on the hexagonal position (or similarity) of the corresponding personality and work environment codes (3 = identical position, 2 = adjacent position, 1 = alternate position, and 0 = opposite position). Moreover, primary, secondary, and tertiary comparisons are weighted (primary = 3, secondary = 2, tertiary = 1) and the weighted X_i values are summed to arrive at C. The C index is in range 0-18, with $M = 9$ (C index has symmetrical and approximately normal distribution). Higher values represent greater congruence among person and environment.

RESULTS

Similarity of RIASEC interest and self-efficacy measures: preliminary analysis

Prior to congruence analysis, the commensurate measurement of RIASEC types across different measures should be confirmed. Circular RIASEC structure should be apparent in each measure (occupational preferences, activity preferences and activity competence beliefs) and RIASEC scales should correlate highly across different measures. The results of the Randomization test confirm the circular structure of RIASEC scales based on occupational preferences ($CI_{OP} = .90, p < .05$), activity preferences ($CI_{AP} = .88, p < .05$), and activity competence beliefs ($CI_{ACB} = .83, p < .05$). Correlations among interest and self-efficacy RIASEC measures demonstrate that two interest scales are more strongly related to each other (correlations among occupational preferences and activity preferences range from .61 - .83) than to self-efficacy scale (self-efficacy beliefs correlate with occupational preferences in a range of .35 - .55 and with activity preferences in a range of .38 - .63; Table 1).

TABLE 1
Correlations among
RIASEC interest and
competence scales

		Activity preferences						Activity competence beliefs					
		R	I	A	S	E	C	R	I	A	S	E	C
Occupational preferences	R	<u>.67</u>	.19	-.03	-.11	.07	.49	<u>.48</u>	.12	-.07	-.17	-.04	.37
	I	.22	<u>.61</u>	.42	.35	.01	.04	.06	<u>.36</u>	.25	.18	-.02	-.06
	A	.02	.49	<u>.83</u>	.47	-.02	-.09	-.13	.26	<u>.52</u>	.30	.06	-.14
	S	-.10	.24	.31	<u>.69</u>	.36	.01	-.21	.07	.20	<u>.54</u>	.30	-.09
	E	.20	-.02	-.10	.21	<u>.67</u>	.45	.07	-.10	-.09	.15	<u>.35</u>	.26
	C	.66	.05	-.17	-.16	.25	<u>.73</u>	.49	-.01	-.17	-.22	.00	<u>.55</u>
	Activity preferences	R							<u>.62</u>	.14	-.01	-.19	-.03
I								.04	<u>.50</u>	.35	.26	.07	-.02
A								-.15	.25	<u>.59</u>	.31	.07	-.19
S								-.23	.13	.33	<u>.63</u>	.28	-.18
E								.04	-.06	.05	.27	<u>.38</u>	.18
C								.43	.03	-.10	-.13	.09	<u>.60</u>

The extent and content of congruence based on interest and self-efficacy scores

TABLE 2
Correlations among different P-E congruence measures, study satisfaction and academic achievement with descriptive parameters for all variables

The person-environment congruence is estimated as a similarity between participant's RIASEC characteristics and RIASEC characteristics of the pursued academic program and associated future occupation. As personal characteristics were assessed separately on two interest measures and on one self-efficacy measure, three different personal profiles were related to the occupational profile. Thus, three C indices were obtained per participant. Average C values were calculated for occupational preferences ($M_{OP} = 10.6$, $Sd_{OP} = 3.73$), for activity preferences ($M_{AP} = 10.5$, $Sd_{AP} = 3.74$) and for activity competence beliefs ($M_{ACB} = 10.0$, $Sd_{ACB} = 3.71$, Table 2).

	Interest- -study congruence (COP-S)	Interest- -study congruence (CAPS)	Competence- -study congruence (CACB-S)	Study satisfaction	Academic achievement
Interest-study congruence (COP-S)		.38***	.15**	.10*	.11*
Interest-study congruence (CAPS)			.22***	.08	.06
Competence-study congruence (CACB-S)				.09	.04
M	10.6	10.5	10.0	13.2	3.6
Sd	3.73	3.74	3.71	2.36	0.56

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; COP-S *interest-study congruence* where interests are expressed as occupational preference, CAPS *interest-study congruence* where interests are expressed as activity preference, CACB-S *competence-study congruence* where competences are expressed as activity competence beliefs.

The repeated measures ANOVA showed that the congruence level differs when congruence is computed on different RIASEC measures ($F_{2,728} = 4.30$, $p < .05$, listwise $N = 365$). Specifically, the results of LSD post-hoc comparison point to the precise differences among different measures used: a bit higher level of P-E congruence is found when occupational preferences and activity preferences are used to estimate personal profile.

Further on, the correlations among interest-study congruence and competence-study congruence show that interest variables provide a more similar measure of congruence than the competence variable. Particularly, higher correlation coefficients are observed among two different interest-study congruence measures (based on occupational preferences and activity preferences, $r_{AP-S,OP-S} = .38$) then between interest-study congruence measures and competence-study congruence

measure (based on activity competence beliefs, $r_{OP-S, ACB-S} = .15$, $r_{AP-S, ACB-S} = .22$; Table 2).

The person-environment congruence in relation to study satisfaction and academic achievement

The relation of P-E congruence to study satisfaction and academic achievement is examined with regard to different measures used to portray a person's RIASEC profile (Table 2). Overall, minor correlations among congruence and outcome variables are observed. When activity preferences and activity competence beliefs are used as a measure of personal RIASEC characteristics, no substantial relation of P-E congruence to study satisfaction and academic achievement is observed. However, when occupational preferences are used as a measure of personal RIASEC types, weak positive relations among congruence and satisfaction ($r = .10$, $p < .05$) and congruence and achievement ($r = .11$, $p < .05$) are noticed.

DISCUSSION

The commensurate measurement of RIASEC interest and self-efficacy scales of the Croatian version of PGI has been approved. It has been shown that interests and self-efficacy beliefs both have similar circular structure: the correspondence indices are all very high ($CI_{OP} = .92$, $CI_{AP} = .88$, $CI_{ACP} = .83$) and the randomization p values are all lower than .05. Reported CI values are very similar to those obtained on PGI RIASEC in US and Chinese college samples (Long et al., 2005; Tracey, 2002b), and are greater than CI values obtained in Croatian high school samples, using the Croatian version of SDS (Babarović, 2004a; Šverko, 2002; Šverko & Babarović, 2006).

The positive relation among interest and self-efficacy measures is also found (Table 1). The correlation among two interest scales is stronger than correlations among interest and self-efficacy scale. A greater similarity of two interest scales (correlations in a range of .61 - .83) was reasonable and expected because occupational preferences and activity preferences both represent liking or disliking of career-relevant aspects. Self-efficacy beliefs are moderately related to both interest scales. A slightly higher correspondence of self-efficacy scale with activity preferences (correlations in range .38 - .63) than with occupational preferences (correlations in range .35 - .55) is noticeable and may be due to the same activity used to estimate liking and competence (method variance). The relation among interests and self-efficacy beliefs is modest and similar to those reported in the earlier studies (Betz et al., 1996; Lent et al., 1994; Nauta et al., 2002; Rottinghaus et al., 2003).

According to our data, interests provide a bit higher level of P-E congruence than self-efficacy beliefs ($M_{OP-S} = 10.6$,

$M_{AP-S} = 10.5$, and $M_{ACB-S} = 10.0$, $F_{2,728} = 4.30$, $p < .05$), and more similar content of congruence ($r_{AP-S, OP-S} = .38$, $r_{OP-S, ACB-S} = .15$, $r_{AP-S, ACB-S} = .22$). Somewhat greater P-E congruence is achieved on interest measures than on self-efficacy estimates, which imply that interests could be more relevant in the career choice process. Similar findings can be seen in some of the previous studies. Although Donnay and Borgen (1999) found equal contribution of self-efficacy and interests to one's occupational choice, Lent et al. (1994) and Tracey and Hopkins (2001) concluded that interests are more predictive of occupational choice than were self-efficacy beliefs.

A positive, but very weak relation of P-E congruence to study satisfaction and academic achievement was noticed (Table 2), regardless of the personality measure used to calculate the congruence. Correlation coefficients among all congruence measures and both outcome measures do not exceed $r = .11$ (Table 2). Only when congruence was calculated on the basis of occupational preferences, significant correlations with study satisfaction ($r = .10$, $p < .05$) and academic achievement ($r = .11$, $p < .05$) were observed. However, these low correlations do not specify the essential congruence-outcome relations as they are significant due to the big sample sizes ($N = 525$ and $N = 520$, respectively). Overall, the results show that P-E congruence shares less than 1% of the common variance with study satisfaction and academic achievement regardless of the RIASEC personality measure used to calculate the congruence. Our findings are very similar to those of Transberg et al. (1993) and Tsabari et al. (2005) who reported an average correlation among interest-study congruence and academic satisfaction of .10 and .03, respectively, and explicitly stated the lack of congruence-satisfaction relation in a university student sample. Still, it is known that congruence-outcome relation may be moderated with different congruence indices (Hoeglund & Hansen, 1999; Tinsley, 2000; Tsabari et al., 2005), and thus our findings should be constrained only to the specific method used to calculate the congruence (the C index).

In this study the congruence hypothesis was analyzed by taking into account the possible moderation effect of different personality measures used to calculate the congruence. In contrast to earlier studies, P-E congruence was expressed separately on interests and self-efficacy measures, and the congruence-outcome relation was analyzed in the light of these personality characteristics. In addition to satisfaction, the most frequently analyzed outcome, P-E congruence was also related to the achievement measure. The results support the earlier conclusion on the negligible congruence-outcome relation based on vocational interests (Spokane et al., 2000; Trans-

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
STR. 397-414

ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

berg et al., 1993; Tsabari et al., 2005), and extended it to the field of vocational self-efficacy. Regardless of whether P-E congruence was estimated on interests or on self-efficacy beliefs, no relations among congruence and different outcomes were found. Explicitly, students' satisfaction with their academic program and their academic achievement are related neither to the congruence among their interests and future occupations, nor to the congruence among their perceived competencies and future occupations.

Although the congruence hypothesis on greater satisfaction, stability and success in work attained when personal characteristics are in tune with his/her occupation seems fully reasonable and clear, empirical findings specify an unsubstantial or a very weak congruence-outcome relation (Hoeglund & Hansen, 1999; Spokane et al., 2000; Transberg et al., 1993; Tsabari et al., 2005). Possible reasons for the lack of relation between congruence and vocational outcomes have been discussed elsewhere (e.g., Holland, 1997; Spokane et al., 2000; Tinsley, 2000). Vocational choice is determined with interests and self-efficacy beliefs, as well as with other career-influencing concepts, like work values, future expectations, personal limitations and other career-related characteristics (Dawis & Lofquist, 1984; Gati, 1998; Gottfredson, 1996; Lent et al., 1994; Super, 1995). Congruence-based career counseling should rely on many personality characteristics in addition to interests and self-efficacy beliefs and, accordingly, on more detailed descriptions of environments. Therefore, in congruence research an effort should be made to create congruence measures that would provide a more accurate estimate of P-E fit. For example, if values are integrated in the P-E fit model, a more obvious relation to satisfaction (Rounds, 1990) and more accurate prediction of occupational choice is found (Babarović, 2004b). Thus, we suggest that interests and self-efficacy beliefs should be accompanied with other aspects of vocational personality in order to better understand vocational behavior and to provide more comprehensive career advising.

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Sukladnost interesa i percipirane samoefikasnosti s odabranim zanimanjem

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U studentskom uzorku ispitana je sukladnost osobina pojedinca i osobina njegove radne okoline (kongruencija ili *person-environment fit*), kao i njezina povezanost sa zadovoljstvom studijem i uspjehom u studiju. Osobine pojedinca opisane su u okviru RIASEC modela primjenom dviju mjera interesa i jedne mjere percipirane samoefikasnosti. Hrvatska inačica Upitnika profesionalnih interesa PGI (*Personal Globe Inventory*) primijenjena je na uzorku od 630 studenata različitih profesionalnih usmjerenja. Indeksi kongruencije pokazuju kako je izbor studija podjednako sukladan interesima studenata, kao i s njihovim procjenama samoefikasnosti. Kongruencija studenata i njihove radne okoline dijeli tek 1% zajedničke varijance sa zadovoljstvom studijem i uspjehom u studiju, neovisno o tome jesu li interesi ili percipirana samoefikasnost upotrijebljeni za procjenu osobina pojedinca.

Ključne riječi: kongruencija, *person-environment fit*, Upitnik profesionalnih interesa PGI, interesi, samoefikasnost, zadovoljstvo studijem, uspjeh u studiju

DRUŠ. ISTRAŽ. ZAGREB
GOD. 17 (2008),
BR. 3 (95),
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ŠVERKO, I.,
BABAROVIĆ, T.:
CORRESPONDENCE...

Übereinstimmung von Interessen und wahrgenommener Selbsteffizienz bei der Berufswahl

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Im Rahmen einer Umfrage unter Studenten sollte die Übereinstimmung zwischen den Charakteristiken des Einzelnen und den Charakteristiken seines Arbeitsumfelds (Kongruenz oder person-environment fit) untersucht werden sowie der Bezug zur Zufriedenheit mit der Wahl des Studienfachs und zum Studienerfolg. Die Merkmale des Einzelnen wurden ausgehend vom RIASEC-Modell, anhand zweierlei Kriterien zur Bestimmung von Interessen sowie eines Kriteriums zur Bestimmung der wahrgenommenen Selbsteffizienz, beschrieben. In einer Untersuchungsgruppe von 630 Studenten unterschiedlicher Fachrichtungen wurde die kroatische Variante des Fragebogens zur Ermittlung von Berufsinteressen (PGI: Personal Globe Inventory) angewandt. Die Kongruenz-Indizes zeigen, dass die Wahl des jeweiligen Studienfachs mit den Interessen der Studenten übereinstimmt, ebenso mit den eigenen Einschätzungen zur Selbsteffizienz. Die Kongruenz von Studentencharakteristiken und den Charakteristiken des Arbeitsumfelds weicht in nur 1% von der Zufriedenheit mit der Wahl des Studienfachs und dem Studienerfolg ab, egal ob dabei Interessen oder wahrgenommene Selbsteffizienz zur Einschätzung der Merkmale des Einzelnen zum Tragen kamen oder nicht.

Schlüsselbegriffe: Kongruenz, Person-Environment Fit, PGI-
Fragebogen zur Ermittlung von Berufsinteressen,
Selbsteffizienz, Zufriedenheit mit dem Studienfach,
Studienerfolg