Holland's Secondary Constructs of Vocational Interests

and Career Choice Readiness of Secondary Students:

Measures for Related but Different Constructs.

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Abstract

The study examined the relationship between the secondary constructs of Holland's (1997) theory of vocational interests and career choice readiness [career maturity] attitudes with 358 Swiss secondary students. The hypothesis was tested that the secondary constructs consistency, coherence, differentiation, and congruence are measures for the degree of vocational interest development. Thus, they should belong to the content domain in career choice readiness and should show meaningful relations to career choice readiness attitudes. The hypothesis was confirmed for congruence, coherence, and differentiation. Interest profile consistency showed no relation to career choice readiness attitudes. Vocational identity emerged as a direct measure for career choice readiness attitudes. Realism of career aspirations was related to career choice readiness attitudes and coherence of career aspirations. Profile elevation was positively connected to more career planning and career exploration. Differences between gender, ethnicity, and school-types are presented. Implications for career counselling and assessment practice are discussed.

Keywords: vocational interests; career choice readiness; career maturity; RIASEC model; career counselling; interest assessment, career development

Introduction

Assessment of vocational interests is common practice in today's career counselling because vocational interests as a specific aspect of a person's personality are a crucial factor in both career choice and career development (for an overview see Savickas & Spokane, 1999). Holland's (1997) theory of vocational interests is the empirical most sound model with it's strength lying in it's direct practical utility (e.g., Rayman & Atanasoff, 1999). The theory states that persons in our culture can be described in six basic interest-types: Realistic, Investigative, Artistic, Social, Enterprising and Conventional (the RIASEC typology). One of the major practical advantages of Holland's theory is the number of well-developed assessment instruments based on the RIASEC model. Internationally, the *Self-Directed-Search* (Holland, 1994) is a very common used instrument. In the German speaking countries the *Allgemeiner Interessen-Struktur-Test* [*General Interest-Structure-Inventory*] (Bergmann & Eder, 1992, 2005), *EXPLORIX* (Jörin, Stoll, Bergmann, & Eder, 2004) and *Foto-Interessen-Test* [*Photo-Interest-Survey*] (Stoll & Jungo, 1998; Stoll, Jungo, & Toddweiler, 2006) are common instruments based on Holland's theory.

The major use of these instruments in counselling practice is to measure a client's vocational interests in order to identify suitable occupations. Research shows that working in an occupation which is congruent with one's own interests can lead to more satisfaction and success in work (Spokane, Meir, & Catalano, 2000). However, the authors of these instruments and others recommend that the inventories should not only be used to identify the specific vocational interest type of the client. The test profiles can also be used to give information about the secondary constructs of Holland's theory: congruence, consistency, coherence, and differentiation. More recently, the elevation of the interest profile was proposed as an other secondary construct (cf. Bullock & Reardon, 2005). *Congruence* is one of the most basic and widely researched secondary constructs of Holland's theory. It generally refers to the degree of fit between an environment and personal characteristics of a person. According to Holland (1997) working in an environment which is congruent to one's personal characteristics should result in beneficial outcomes such as tenure in the organization and satisfaction with work. Research to support this assertion is not always consistent (e.g., cf. Tinsley, 2000) although there is some strong evidence to support these claims (cf. Spokane et al., 2000). In the present study congruence refers to the degree of similarity between a clients career aspirations and his interest test profile. This can also be considered as a measure of the similarity between a client's expressed and measured interests. *Consistency* is a measure for the similarity of the first two RIASEC types of a person's test profile. Since Holland's model places the six interest types on a hexagonal structure, for example, Realistic and Investigative types are considered to be more consistent than Realistic and Enterprising types. *Coherence* of vocational aspirations, recently also termed *Vocational Aspiration Consistency* by Holland (1997), refers to the similarity of a person's different career aspirations (measured in terms of the RIASEC model). *Differentiation* is a measure of the level of definition or distinctness of a persons test profile. *Elevation* refers to the overall level of the interest profile as having generally high or low values for the different types.

In an early formulation of his theory Holland (1973) explicitly postulated a direct positive connection between the secondary constructs and career choice readiness. In his newest statement he emphasises more their positive connection to stability of vocational interests and career paths (Holland, 1997). However, until today, these measures are supposed to give information about the state of career development and career choice readiness of the client (Holland, 1997; Reardon & Lenz, 1999). Unfortunately, despite its theoretical base and propagated usefulness in counselling practice research on the validity of the secondary constructs is far from conclusive and continues to receive mixed results (see Holland, 1997, for a review). Thus, the connection between the secondary constructs and degree of career choice readiness is both theoretically and empirically ambiguous.

An important limitation of the literature in this area is the predominance of research conducted with college and high school students – mostly in the US. Research with younger adolescents in secondary school is almost inexistent. This lack is even more irritating as in the German speaking countries Germany, Switzerland, and Austria secondary students are, due to the educational system,

a major focus of career counselling in public agencies. In these countries most students are required to choose a specific vocational education (Lehre) after the ninth or tenth grade. Thus, for them career decision-making is required at a completely different state than in the Anglo-American school-system. These circumstances make research about career choice readiness of adolescence in these countries especially interesting and necessary. However, there are no studies to our knowledge which evaluated the relation between Holland's different secondary constructs and career choice readiness of adolescences in these educational systems. One notable exception is the study published by Bergmann (1993) regarding differentiation and career maturity of Austrian high school students. He could show that students with more differentiated interest profiles show a higher congruence between their vocational aspirations and their interest profile, show more career mature attitudes like decidedness, have more stable vocational interests over a period of eight months, and are more satisfied with their study major three years after finishing high school. However, this study also used the internationally common subjects of high school students and not younger adolescences confronted with the task of choosing a vocational education after school. The study did also not consider the other secondary constructs of Holland's theory and could not yet use a modern, well established measure of vocational interests.

Present Study and Hypotheses

Our study attempts to evaluate the kind of relationship between the secondary constructs of Holland's theory to the level of career choice readiness of secondary students. According to Holland's (1997) theory the secondary constructs differentiation, consistency, and vocational identity should be regarded as personality patterns. We assume, however, that differentiation, coherence, consistency, and congruence are also measures for the state of vocational interest development. They therefore should show meaningful relations to the degree of career choice readiness within secondary students. It is important to notice, however, that career choice readiness is a multifactor concept which contains very different variables. For example, one important distinction has been made between environmental and personal aspects of readiness (Sampson, Peterson, Reardon, & Lenz, 2000). Another frequently applied distinction is made between process (e.g., career choice attitudes) and content variables (e.g., realism of career choices, cf. Crites, 1978). Within the process domain a distinction between attitudes and competencies is also widely accepted (Crites, 1978; Super & Overstreet, 1960). Theoretically, the secondary constructs are closely connected to the content dimension of career choice readiness. For example, Crites' (1978) model sees career choice consistency besides career choice realism as the two main components of the content domain. Crites' concept of consistency also corresponds to Holland's notion of coherence of career aspirations since this measure can be regarded as another form of career aspiration consistency (Holland, 1997). Hence, we assume positive relations between coherence, consistency, and realism.

Congruence between measured and inventoried interests also shows a close theoretical connection to the content domain since it also deals with career aspirations. However, it also relates to basic aspects in the process domain such as self-awareness or occupational knowledge which are both necessary to find occupations which are congruent to ones interests. We therefore assume that congruence shows positive relations to both measures of career choice readiness attitudes and measures of career choice readiness content.

Interest differentiation is not explicitly included in common concepts of career choice readiness. However, differentiation of interests and values is an important part for career choice readiness crystallization (Super, Starishevsky, Maltin, Jordaan, 1963) and thus also shows close conceptual connection to the content domain of career choice readiness. We therefore assume that interest differentiation shows positive correlations to consistency, coherence, realism, and congruence. Previous research has shown that studies of profile differentiation should take into consideration the elevation of an interest profile. High-score undifferentiated students showed, for example, higher grade point averages and more persistence in college compared to their low-score undifferentiated colleagues (Swanson & Hansen, 1986). Based on this research we propose the hypothesis that students with undifferentiated but high profiles show more advanced career choice readiness attitudes than students with undifferentiated and low profiles.

However, the secondary constructs are also measures for very different aspects and are based on very different measurement methods. For example, Holland's (1997) secondary construct of vocational identity refers to „… the clear and stable picture of one's goals, interests, and talents" (Holland, 1997, p. 5). Thus, it is not conceived as a measure of vocational interest development but rather shows a conception very close to basic aspects of career choice readiness such as certain attitudes or even competencies. Research also shows that the degree of vocational identity has positive connections to more fundamental aspects in career decision-making like emotional stability or progress in decision-making (Holland, Johnston, & Asama, 1993). Other research shows that vocational identity is also closely related to career decidedness which led some researches to conclude that it might be just another measure for the same basic construct (e.g., Leung, Conoley, Scheel, & Sonnenberg, 1992). Thus, vocational identity seems to be a measure related to the career choice readiness process domain and therefore belongs to another domain than the other secondary constructs. This leads us to the assumption that it shows stronger correlations to measures within the process domain of career choice readiness (e.g., attitudes) than to the other secondary constructs.

The secondary construct of elevation was shown to be positively related to basic personality characteristics such as openness, extraversion, and emotional stability (for an overview cf. Bullock & Reardon, 2005). However, since no empirical or theoretical research implies a meaningful connection to the state of career choice readiness we postulate the null-hypothesis that they show no correlation with each other.

Within the process domain of career choice readiness the present study focuses on career choice readiness attitudes. Career exploration and career planning are typical examples of positive career choice readiness attitudes according to the most common used models of career development and readiness (Crites, 1978; Super & Overstreet, 1960). Career decidedness or decisiveness is also regarded as central aspects of the attitude domain of career choice readiness (Crites, 1978; Seifert & Stangl, 1986). The ability to reach a career decision at a necessary developmental point in time is commonly cited as the core defining aspect of career choice readiness (e.g., Savickas, 1984). Research also shows that decidedness shows clear positive connections to overall readiness (e.g., Brusoki, Golin, Gallagher, & Moore, 1993; Creed & Patton, 2003). However, career decidedness and career choice readiness also show an ambitious relation since there is research which shows that students can be very decided without being mature (e.g., Blustein, 1988). Based on existing research and theory we suppose that career decidedness and vocational identity are closely related concepts for secondary students since both of them can be regarded as measures for the state in career decision-making. Despite the above mentioned reservation, both of these measures are also expected to show strong relations to basic aspects of career choice readiness attitudes such as career planning and career exploration. We assume that all of these four aspects are direct measures for the attitude domain in career choice readiness. As explained above, we assume that the secondary constructs consistency, coherence, congruence, and differentiation belong to the content domain in career choice readiness. We therefore assume that all of these measures also show positive relations to the measures of the process domain in career choice readiness in terms of career choice readiness attitudes.

Method

Subjects

358 students (49.4 percent female) near the end of grade seven participated in the study. Our sample consisted of 20 secondary school classes from 5 different school districts in the southern part of the Canton St. Gallen, Switzerland. Participants ranged in age from 12 to 16 (*M* = 14.07; *SD* = .689). 293 (81.8 percent) of the students were Swiss, the others having other nationalities, mostly from south-eastern Europe. The parents of these students with no Swiss nationality often have a minimal academic background and are frequently employed in jobs with low qualification requirements. 135 (37.7 percent) visited the Realschule, a school-type with basic academic requirements (similar to the Hauptschule in Germany). The other students were in the Sekundarschule, a school-type with advanced academic requirements (similar to the Realschule in Germany) which can also lead to a Gymnasium after grade eight or nine for a latter college education.

Measures

Career choice readiness attitudes scales.

For application in German language, only two established measures for career choice readiness exist: The *Fragebogen Einstellung zur Berufswahl und beruflichen Arbeit* [*Questionnaire on Attitudes towards Career Choice and Work*] (Seifert & Stangl, 1986) – a German adaptation of the *Career Maturity Inventory* (Crites, 1973) and the *Fragebogen zur Laufbahnentwicklung* [*Questionnaire on Career Development*] (Seifert & Eder, 1985) – a German adaptation of the *Career Development Inventory* (Super, Thompson, Lindeman, Jordaan, & Myers, 1981). However, both inventories would need a revision and actualisation of certain scales, since job titles and educational requirements have changed over the years. Therefore, instead of using any of these inventories in their entirety we decided to measure career choice readiness with some specific dimensions which according to empirical and theoretical research form core components of career choice readiness attitudes: *decidedness* (e.g., Creed, Prideaux, & Patton, 2005), *career planning* (*planfulness*) (e.g., Savickas, 1997; Seifert, 1993), and *career exploration*: (e.g., Blustein, 1997; Jepsen & Dickson, 2003). As explained above, we also consider Holland's construct of *vocational identity* (Holland et al., 1993) as a direct measure of career choice readiness.

Career Decidedness. Career decidedness was measured by the respective scale from the Fragebogen Einstellung zur Berufswahl und beruflichen Arbeit [Questionnaire on Attitudes towards Career Choice and Work] (Seifert & Stangl, 1986). The scale consists of 12 items (e.g., "I don't know exactly what to do in order to choose the right occupation"). Responses are made on a four-point scale ranging from "not agree at all" to "totally agree". Several studies present evidence for contend and criterion validity (Bergmann, 1993; Hirschi & Werlen Lutz, submitted; Seifert, 1983, 1993; Seifert, Bergmann, & Eder, 1987). The mean score in our sample on this scale was 34.57 (SD = 6.54). The internal reliability (Cronbach) in the present study was .86.

Career Planning. We used the respective scale from the *Fragebogen zur Laufbahnentwicklung* [*Questionnaire on Career Development*] (Seifert & Eder, 1985). The scale includes 22-items measuring career planning attitudes in three parts. Students are asked to indicate on a five-point scale how much they have thought about different activities concerning their career choice (nine items), how much time they have invested in thinking about career relevant questions in comparison to their classmates (five items), and how much they know about their preferred occupation (eight items). Different studies have shown the contend and criterion validity of this scale (Hirschi & Werlen Lutz, submitted; Seifert, 1993; Seifert et al., 1987; Seifert & Eder, 1985, 1991). The mean score in our sample on this scale was 69.12 (*SD* = 13.47). The internal stability was .90

Career Exploration. Career exploration was measured with the respective scale from the *Fragebogen zur Laufbahnentwicklung* [*Questionnaire on Career Development*] (Seifert & Eder, 1985). The scale is divided in two parts. Part one (13 items) asks students to indicate, whether they would consult different sources of information for their career development (e.g., my father, my teacher, job-shadowing). Answers can be given on a 5-point scale ranging from "never" to "certainly". Part two (13 items) asks how much useful information they have already obtained from these sources. Answers are indicated on a five-point scale with end points of "none" to "very much". As for the Career Planning Scale several studies confirmed the contend and criterion validity of this scale (Seifert, 1993; Seifert et al., 1987; Seifert & Eder, 1985, 1991). The mean score in our sample on this scale was 85.44, (*SD* = 14.59). The internal stability in the present study was .86.

Vocational Identity. We used the ten items scale from Jörin et al. (2004) to measure Holland's construct of vocational identity. The scale is an adaptation of the *Vocational Identity Scale* (Holland, Daiger, & Power, 1980). In order to achieve a higher internal stability of the scale we used a five-point Likert scale instead of the original dichotomous scale. Students could indicate how much the statements (e.g.,"I'm not sure yet which occupations I could perform successfully") resemble their personal situation ranking from "not at all" to "completely". Hirschi and Werlen Lutz (submitted) provide positive evidence for the contend and criterion validity of this scale. The mean score in our sample on this scale was 34.51 (*SD* = 7.58). The internal stability was .85.

Total Career Choice Readiness. Based on the four scales presented above a scale for the total degree of career choice readiness attitudes was calculated. First, we linearly transformed the four-point career decidedness scale into a five-point scale ranking from 12 to 60 points to make it comparable to the other five-point scales. We then calculated the mean-score for each scale by dividing the sum-score by the number of items of the respective scale. Next, we summed up the four mean-scores and then divided them by four. Thus, in the resulting scale each of the four scales adds one fourth. The resulting scale ranges from 1 to 5 and has a mean score in our sample of 3.35 (*SD* = 0.51). The reliability (Cronbach) in our sample was .93.

Realism of career aspirations.

Each student in our study wrote down which vocational apprenticeship or school he or she is currently considering to pursue after finishing school. A value for realism was assigned for the first three career aspirations. Realism was calculated by using three criteria:

(1) Correspondence to an actual type of vocational education or a specific school-type which can be pursued directly after finishing school. This criterion was evaluated as a yes or no criterion. If the aspiration could not be learned directly after school, the realism for this aspiration was calculated as zero.

(2) Possibility of pursuing the occupation or school from the respective school-type of the student (certain kinds of vocational educations can only be studied when finishing the Sekundarschule but not the Realschule). For this criterion we gave one or two points (one point if the apprenticeship can be pursued but only under certain conditions like excellent school marks; two points if the apprenticeship can be pursued without any limitations regarding the school-type of the student). If the apprenticeship can not be pursued at all from the school-type of the student the realism for that aspiration was calculated as zero.

(3) Number of possible companies for vocational apprenticeships in that particular vocation within the Canton of residence. For this criterion we gave between zero to three points for each aspiration (0 points for 1-3 possible places for apprenticeships in the Canton; 1 point for 4-33 possible places; 2 points for 34-330 possible places; 3 points for 331-3330 possible places).

The values from criteria (2) and (3) were summed up to result in a total value for the realism of this career aspiration. This resulted in a scale from 0 to 5 points for each aspiration. The values of the first three aspirations were summed up to build the Realism of career aspirations scale, ranking from 0 to 15 points. The rationale behind this procedure is the fact that we consider it adaptive for students at the beginning of their career choice process to have a certain number of career aspirations for further exploration. Thus, students who could name more realistic career aspirations were assigned a higher value in their realism of career aspirations. In our sample, students achieved between 0 and 13 points on this scale (*M* = 6.01, *SD* = 3.65).

Interest profile and interest type.

For assessing the interest profile of a student we used the AIST-R *Allgemeiner Interessen-Struktur-Test – Revidierte Version* [*General Interest-Structure-Inventory – Revised Version*] (Bergmann & Eder, 2005). The AIST is a well-established inventory in German speaking countries for assessing vocational interests according to Holland's (1997) model, especially for younger students and adolescents. Each interest type is assessed with 10 items describing a typical activity of that type (e.g., "learn a foreign language", "work on a construction-side") and students are asked to indicate on a five-point scale how much interest they have in this particular activity, ranking from "This interests me a lot; I like to do that very much" to "This interests me not at all; I don't like to do that". We calculated standard values from the raw scores for each scale using the table provided by Bergmann and Eder (2005). The authors provide extensive evidence for contend and criterion validity of the inventory. The mean internal stability (Cronbach) of the scales in the present sample was .866 (*SD* = .03) and ranged from .851 (Investigative) to .921 (Social).

To determine the interest type of a student we took the type who received the highest standard value as the student's interest type.

Measures of secondary constructs.

Differentiation. Different ways to calculate differentiation have been proposed in the literature (for a review cf. Bergmann, 1993) but Holland states that „… different indices [of differentiation] produce similar outcomes" (Holland, 1997, p. 148). We measured differentiation using the index proposed by Holland (1985) (difference-index) and the *Streuungs-Index* (dispersion-index) as described by Bergmann and Eder (2005). Holland's index is calculated by subtracting the lowest interest-score from the dominant interest-score. The *Streuungs-Index* is calculated as the standard deviation among the standard values of all six interest-scores. Both measures can be transformed to standard values ranking from 70 to 130 ($M = 100$; $SD = 10$) using the tables provided by Bergmann and Eder (2005). Since two measures correlate substantially in our sample (.978 for the raw scores and .973 for the standard scores) we decided to report only the *Streuungs-Index* in this paper. This index has the advantage of taking into account the values of all six interest scores. The mean degree of profile differentiation in our sample was 102.25 ($SD = 10.38$).

Consistency. We calculated consistency by taking the two dominant interest types according to the standard test scores and assigning a value between 3 and 1 according to their respective position on the hexagon of Holland's model (see Holland, 1997). When interest profiles where tied for the first two types (which was the case for 8 percent of all subjects) we calculated the consistency for each possible profile and took the mean as the final value of consistency for that student. In our sample the mean degree of consistency was 2.53 ($SD = .64$).

Congruence. In the present study, congruence refers to the degree of fit between expressed (career aspirations) and measured vocational interests. Although it is often applied in this way in practice and research (cf. Reardon & Lenz, 1999) it is not the same as Holland's original meaning of the concept, which is the degree of fit between a person a the actual working environment. However, since out study is on the relation between vocational interest development and career choice readiness we regard this specific use of the measure as accurate.

As for differentiation, there are a number of ways to calculate congruence (cf. Brown & Gore, 1994; Holland, 1997; Rolfs, 2001). There is a debate in the literature whether the different indices of congruence can be used interchangeable. While some studies report that the different indices can lead to different results and conclusions (Assouline & Meir, 1987; Camp & Chartrand, 1992) others found that they correlate to a very high degree and can be used interchangeably (Young, Tokar, & Subich, 1998). Because of this disagreement we decided to use four different measures to calculate congruence between a student's interests profile and his or her career aspirations: We used the first-letter based on the hexagon as described by Holland (1997; "Holland-index"); the M-index (Iachan, 1984); the Zener-Schnuelle-index (Z-S-index; Zener & Schnuelle, 1976), and the C-index (Brown & Gore, 1994).

We calculated congruence by assigning a three-letter code to each of the first three vocational aspirations of a student according to the register of vocational codes provided by Jörin et al. (2003). When interest profiles of students were tied, which was the case for 27.4 percent in our sample, we calculated the congruence for each possible profile and took the mean as the final congruence score for a given career aspiration. The mean score for the congruence of the first three aspirations was taken as the overall value of congruence for a student. We restricted the measure to the first three career aspirations since we did not want students with a lot of career aspirations to receive lower congruence scores only because they have more (and thus probably more divergent) aspirations.

As our analysis showed, the four measures of congruence correlate substantially in our sample ($M = .755$, $SD = .098$) and thus confirming the results of Young et al. (1998). The highest correlation was found between the ZS-index and the M-index ($r = .971$) and lowest between the ZS-index and the Holland-index ($r = .651$). Because of the very high correlations between the different indices we decided to report only the C-index in this paper. This index is cited as the best available index for congruence research since it has the advantage that it uses all three types from the three-letter code, is based on the hexagonal structure of Holland's model, and is easy to calculate (cf. Eggerth & Andrew, 2006). Tables reporting all correlations can be obtained from the first author upon request.

Based on the C-index this resulted in a scale ranking from 0 to 18. In the sample of this study the mean degree of congruence with the C-index was 11.46 (SD = 2.95).

Coherence. Coherence of vocational aspirations is calculated by comparing the first letter of the first three career aspirations of a person for their similarity according to the RIASEC-types and assigning a value of 1 to 3 for their coherence. If all three of the first letters belong to the same Holland-type the coherence is high (3), if two belong to the same type it is medium (2), and if all three belong to a different type the coherence is low (1) (Reardon & Lenz, 1999). One limitation of this measure is that it can only be used if a client can name at least three concrete career aspirations. In our sample this was the case for 173 students (48.3 percent of all subjects). The mean value of coherence for this group was 2.06 (SD = 0.721).

Elevation: For calculating the elevation of a student's interest profile we summed up the standard scores from the six interests scales, resulting in a scale ranking from 420 to 780. In our sample profile elevation lie between 473 and 730 (M = 357.86; SD = 49.20).

Procedure

The participating students filled out a questionnaire tapping career decidedness, career planning, career exploration, vocational identity, and vocational interests (AIST-R). They also named their current career aspiration(s). Half of the students first filled out the interest measure the other half first completed the measures tapping career choice readiness. All students were asked to indicate their age, gender, nationality, and school-type. The students completed the measures during an ordinary school-lesson in their classrooms under the supervision of their classroom teacher.

Results
Preliminary Analysis
Distribution of vocational interests.

In order to evaluate whether vocational interests in our sample are biased towards a certain type we compared the mean standard values of each interest scale. Our results show that all six types are equally distributed in our sample (Realistic M = 100.61, SD = 9.74; Investigative M = 99.53, SD = 9.20; Artistic M = 99.99, SD = 10.32; Social M = 99.13, SD = 12.10; Enterprising M = 99.54, SD = 9.10; Conventional M = 100.44, SD = 10.25).

Gender differences. Male students scored higher in Realistic (t(351) = 13.36, p < .001) and Investigative (t(356) = 6.01, p < .001) interests while females scored higher in Artistic (t(356) = 11.21, p < .001), Social (t(356) = 12.41, p < .001), and Enterprising (t(356) = 3.48, p < .01) interests. No gender differences occurred in Conventional interests. Such gender differences, especially for the Realistic, Investigative, and Social type, are frequently reported in the literature (e.g., cf. Lippa, 1998).

Ethnicity differences. No differences emerged between Students with Swiss and other Nationalities on any of the six interest types.

School-type differences. Students from the Sekundarschule (advanced requirements) scored higher in Investigative (t(356) = 2.57, p < .05) and Artistic interests (t(356) = 2.21, p < .05). For the other types no differences where found between the two school-types.

Differences in career choice readiness and the secondary constructs.

We compared the values of realism of career aspirations, vocational identity, career decidedness, career planning, career exploration, and total career choice readiness with parametric t-tests for any significant differences between students of different gender, nationality, and school-type. We also did the same for the values of the secondary constructs differentiation, coherence, elevation, congruence, and consistency.

Differences between genders.

Female students had higher profile elevation in their interest inventories than males (female M = 604.53, SD = 35.82; male M = 594.06, SD = 41.06; t(356) = 2.569; p < .05). Male students showed more career decidedness (male M = 35.36, SD = 6.66 vs. female M = 33.77, SD = 6.34; t(356) = 2.309; p < .05), career planning (male M = 71.02, SD = 14.20 vs. female M = 67.20,

SD = 12.44; *t*(354) = 2.699; p < .01), and total career choice readiness (male *M* = 3.41, *SD* = 0.53 vs. female *M* = 3.29, *SD* = 0.48;; *t*(354) = 2.121; p < .05). Male students also scored higher in coherence of career aspirations (male *M* = 11.64, *SD* = 2.76 vs. female *M* = 10.78, *SD* = 2.65; *t*(279) = 2.637; p < .01).

Differences between nationalities.

Between Swiss students and students with other nationalities no significant difference occurred in the measures of career choice readiness or the secondary constructs.

Differences between school-types.

One significant difference occurred between the two school-types: Students from the Realschule reported higher levels of career exploration than students from the Sekundarschule (Realschule *M* = 89.27, *SD* = 14.68 vs. Sekundarschule *M* = 83.11, *SD* = 14.06; *t*(355) = 3.946; p < .001).

Test of the Hypothesis

Career choice readiness and the secondary constructs.

In order to test our hypotheses about the relation of the secondary constructs of Holland's theory to career choice readiness we calculated the correlations (Pearson) between realism of career aspirations, the five measures of career choice readiness, and the five calculated secondary constructs. Table 1 presents the correlations for all subjects, Table 2 shows the correlations divided by gender, Table 3 divided by nationality, and Table 4 divided by school-types.

[Insert Tables 1 to 4 about here]

The results for all subjects in Table 1 show that vocational identity correlates much stronger to the other measures of career choice readiness (mean r = .460) than to the secondary constructs differentiation, consistency, congruence, and coherence (mean r = .105). Thus, our assumption that vocational identity should be considered as a direct measure of career choice readiness attitudes is confirmed. As expected, it shows an especially high correlation to career decidedness, while its connection to career exploration is much smaller. Vocational identity shows almost no relation to consistency.

The results in Table 1 also show that all measures of career choice readiness correlate meaningfully with realism of career aspirations. Realism of career aspirations did, however, not show any significant correlation to differentiation, profile elevation, congruence or consistency. Thus, our hypothesis that students with higher values in the secondary constructs of differentiation, consistency and congruence show more realism in their career choice could not be confirmed. However, as expected realism shows a comparatively high positive relation to coherence of career aspirations. Overall, realism of career aspirations shows a much stronger relation to the measures of career choice readiness attitudes than to the measures of the secondary constructs.

The four measures of career choice readiness attitudes, vocational identity, career decidedness, career planning, and career exploration, show a meaningful correlation between each other (mean r = .425) as do the measures of the secondary constructs differentiation, consistency, congruence, and coherence (mean r = .208). These correlations between each other are also higher than the mean correlation between the career choice readiness attitudes measures and the measures for the secondary constructs (mean r = .083). These findings confirm our assumption, that the secondary constructs are measures of a different domain in career choice readiness than the measures for career choice readiness attitudes.

Total career choice readiness is positively associated with coherence, differentiation, and congruence. These findings are primarily because of the significant correlations between vocational identity and career decidedness with the secondary constructs. Consistency was, however, not significantly correlated to career choice readiness. With the notable exception of consistency, these findings confirm our hypothesis that the secondary constructs show a modest but meaningful relation to career choice readiness attitudes.

The results in Table 1 also show that profile elevation shows a meaningful positive relation to career choice readiness attitudes– especially to career planning and career exploration. Our null-hypothesis that they show no relation is therefore rejected.

To test the hypothesis that students with undifferentiated and high profiles show more advanced career choice readiness attitudes than students with undifferentiated and low profiles we divided our subjects in a group of undifferentiated profiles (low quartile of the sample) and a group of high differentiated profiles (high quartile). Next, we divided the undifferentiated participants based on their score in profile elevation into a high-score (high quartile; N = 24) and a low-score group (low quartile; N = 35). We then compared the two groups with one-tailed parametric t-tests for significant differences in their career choice readiness attitudes and realism of career aspirations. The results show that students with high-score undifferentiated profiles had higher scores in all measures of career choice readiness attitudes than students with low-score undifferentiated profiles: They had higher values in vocation identity ($M = 35.40$, $SD = 8.20$ vs. $M = 28.75$, $SD = 7.21$; $t(57) = 3.214$; $p = .001$), career decidedness ($M = 36.04$, $SD = 6.99$ vs. $M = 30.74$, $SD = 6.64$; $t(57) = 2.921$; $p < .01$), career planning ($M = 74.65$, $SD = 12.14$ vs. $M = 56.97$, $SD = 11.73$; $t(57) = 5.572$; $p < .001$), career exploration ($M = 90.05$, $SD = 12.05$ vs. $M = 77.65$, $SD = 12.02$; $t(57) = 3.889$; $p < .001$), and total career choice readiness ($M = 3.52$, $SD = 0.51$ vs. $M = 2.88$, $SD = 0.47$; $t(57) = 4.821$; $p < .001$). The two groups did not differ significantly, however, in their realism of career aspirations ($M = 5.89$, $SD = 4.37$ vs. $M = 5.63$, $SD = 4.37$; $t(57) = .224$; n.s.).

Group differences.

Regarding the correlations divided by gender as shown in Table 2 the results show two remarkable differences between genders. (1) Differentiation and congruence show much weaker relations to career choice readiness attitudes for female that for male students, (2) vocational identity for females is also weaker related to the secondary constructs differentiation, consistency, congruence, and coherence than for males.

Looking at the correlations for the two groups of nationalities as shown in Table 3 two notable differences emerged. (1) For students with no Swiss nationalities realism of career aspirations shows no significant correlation to either vocational identity or total career choice readiness. Surprisingly, for this group of students realism of career aspirations shows a comparatively strong negative correlation with congruence, (2) for foreign students career exploration does not show any meaningful relation to congruence or coherence.

Finally, regarding the differences between the two school-types (Table 4) the following notable differences occurred. (1) For students from the Sekundarschule realism of career aspirations and vocational identity show a weaker relation to coherence than for students from the Realschule. Overall, coherence is more strongly connected to total career choice readiness for students from the Realschule, (2) career exploration does not show any positive relation to interest congruence or coherence for students from the Realschule.

Discussion

The present study evaluated the relationship between the secondary constructs of Holland's (1997) theory of vocational interests (interest profile differentiation, congruence between inventoried interests and expressed interests, consistency of interest profile, coherence of vocational aspirations, and profile elevation) to career choice readiness attitudes of secondary students.

We supposed that Holland's secondary constructs show a meaningful relation to career choice readiness attitudes. We proposed that they can be seen as measures for the state of vocational interest development which is theoretically closely linked to the content domain in career choice readiness.

Career choice readiness attitudes where measured as the level of career decidedness, career planning, career exploration, and Holland's construct of vocational identity. Our results show that vocational identity is much stronger related to the measures of career choice readiness attitudes than to the measures of the other secondary constructs. This confirms our assumption that vocational identity should be considered as a direct measure of career choice readiness attitude and not of state

of vocational interest development. Thus, vocational identity seems to belong to a different category than the other secondary constructs. Especially noteworthy is the high correlation we found between vocational identity and career decidedness (.760) as did previous studies (e.g., Fuqua & Newman, 1989). This result gives further ground for the suggestion that Holland's vocational identity scale might be a measure of career decidedness (cf. Leung et al., 1992).

Overall, the different measures of career choice readiness attitudes correlated more within each other than to the measures of the secondary constructs. Differentiation, coherence, congruence, and consistency, on the other hand, also showed higher correlations to each other than to measures of career choice readiness attitudes. These findings correspond to the model of two distinct concepts of career choice readiness: process (career choice readiness attitudes) and content (state of vocational interest development). The correlations between the secondary constructs were smaller than between the measures of career choice readiness. As Holland (1997) noted, rather weak correlations between the secondary constructs may be due to very different measuring methods for the constructs. For example, while differentiation is a mathematical index of the average difference between interest-scales, interest coherence is based on the similarity between three expressed career aspirations in terms of a specific model of vocational personality types (the RIASEC hexagon). Thus, weaker correlations within these measures as compared to the ones for career choice readiness can be expected.

The different measures of career choice readiness and the secondary constructs showed a significant but modest relation. This confirms our assumption that career choice readiness attitudes are positively related to state of vocational interest development. Some previous studies did not find these relations. For example, other studies found that differentiation does not show significant positive correlations with career decidedness (Alvi, Khan, & Kirkwood, 1990) or vocational identity (Leung et al., 1992) and that congruence is not positively related to career maturity (Healy & Mourton, 1983; Ohler, Levinson, & Hays, 1996), career decidedness (Camp & Chartrand, 1992) or vocational identity (Leung, 1998). Contrary to these findings, in our study *especially* vocational identity and career decidedness showed significant correlations to differentiation, congruence, and coherence. These results confirm Holland's (1997) theory and other previous research findings (Bergmann, 1993; Conneran & Hartman, 1993; Erwin, 1987; Guthrie & Herman, 1982; Luzzo, 1993) that differentiation and congruence are positive signs for the degree of career development of a person. However, as our study shows, vocational interests development is specifically related to the state in career decision-making and less to the degree of activities in the process.

While career exploration and career planning were not significantly correlated with differentiation, consistency, congruence, or coherence they showed meaningful connections with profile elevation. Profile elevation was also positively related to the degree of total career choice readiness attitudes. The rather new secondary construct of profile elevation can therefore also be a sign of a more advanced degree of career choice readiness process. We assume that profile elevation is also a measure of activeness in life and career decision-making, as is implied by its positive relation to openness, extraversion, emotional stability or conscientiousness (cf. Bullock & Reardon, 2005). This could explain why students with general higher interest profile levels are also more active in career planning and career exploration.

As expected, realism of career aspirations was positively related to career choice readiness attitudes. It showed, however, no meaningful relation to differentiation, consistency or congruence. These findings contradict our hypothesis that realism of career aspirations is closely connected to the secondary constructs. We expected close relation because both relate to the content domain in career choice readiness. The results suggest that realism is clearly a sign of more advanced career choice readiness attitudes but has no relation to measures for the secondary constructs. One notable exception is the comparatively high correlation to coherence of career aspirations. This finding confirms Crites' (1978) model which places both of them in the content dimension of career choice readiness. The finding implies that for secondary students narrowing down one's career alternatives to a specific field goes along with become more realistic in one's career aspirations. However, progress in interest development per se has almost nothing to do with becoming more realistic. Realism

corresponds more to become clearer about one's own vocational identity, becoming more decided, and more actively engaging in career planning and career exploration.

Contrary to our expectation, consistency did not show significant correlations to any of our measured aspects of career choice readiness. This exception might be due to the fact that having a consistent interest type according to Holland's (1997) RIASEC model might just be a matter of individual personality patterns and not of career choice readiness. Our finding is in line with the study by Leung et al. (1992) who found that for high school students consistency is not related to vocational identity.

Differentiation showed positive correlations with consistency and congruence confirming the results by Taylor, Kelso, Longthorp, and Pattison (1980). Our study also confirmed the difference between students with low-score undifferentiated profiles and those with high score undifferentiated profiles. Students with high-score undifferentiated profiles show more advanced career choice readiness attitudes than their colleagues with low-score undifferentiated interests. This strengthens the point made by Swanson and Hansen (1986) to consider both differentiation and elevation of an interest profile.

Our finding that coherence of career aspirations is positively associated with realism of career aspirations, career decidedness, vocational identity, and total career choice readiness attitudes confirms the "practical experience … that when a client has very dissimilar occupational aspirations …, the client may have a confused picture of the occupational world, of his or her interests, or how these are related" (Reardon & Lenz, 1999, p. 109). It also confirms Holland et al. (1980) who state that a higher vocational identity correlates negatively with the variety of vocation aspirations of an individual.

Coherence of career aspirations was also positively connected with differentiation and congruence, confirming the findings reported by Holland, Gottfredson, and Baker (1990). Students who name career aspirations that are similar in terms of Holland's model also have more differentiated vocational interests and their career choices show a higher degree of correspondence to their interests.

We found several gender differences in the relation between career choice readiness attitudes and the secondary constructs. The most notable discrepancy is that for female students vocational identity and total career choice readiness attitudes is not related to interest differentiation or congruence. This finding can not be explained by the in general higher career choice readiness of male students, since the variance on this measure does not differ between gender (F = 1.106, n.s.). This finding implies that interest congruence and differentiation seem to provide useful information about the state of career choice readiness for male but nor for female secondary students. As our preliminary analysis showed, female students did *not* show less realism in career choice compared to their male classmates. They did, however, name more career aspirations and showed more interest in diverse activities as shown by their higher levels of profile elevation. Female students also reported to be less certain in their career choice, made fewer plans concerning their career and showed less advanced total career choice readiness attitudes. Male students also had higher levels of coherence in their vocational aspirations. Thus, it appears that the female students in our study were in a state of the career decision-making process where they showed interest in a number of different occupations and had diverse career aspirations while at the same time being unsure about which way to follow. Male students, on the other hand, already focused their interest more on some specific area and are surer about their vocational future. It could thus be that the relation of interest differentiation and congruence to career choice readiness attitudes depends on the state of career decision-making. The constructs might be more connected if students are in a more advanced state of the process.

Regarding the differences between Swiss and students with other nationalities the most remarkable difference was that for foreign students realism of career aspirations was *negatively* related to congruence, (not significant) to vocational identity, and total degree of career choice readiness attitudes. One possible explanation for these results might be that students with foreign nationalities show difficulties in transferring their interests and their self-concepts into realistic career aspirations. Realistic aspirations, on the other hand, might be a sign of an only superficial adaptation to reality – without being based on the student's true interests and self-concept.

Our results also showed that reporting coherent career aspirations is a sign of more career choice readiness for students from the Realschule and to an only lesser degree for students from the Sekundarschule. The reason for this difference could be the fact that students from the Realschule have more restricted vocational possibilities after school. Thus, under these circumstances narrowing down one's options to a specific field could be a stronger sign of realism and readiness than for students who are more fortunate in their range of possible options. Another interesting finding is that although students from the Realschule show more career exploration, this does not relate to more congruent career aspirations. This could mean that for these students using their obtained knowledge about vocations to find personally congruent career options is more difficult. These students should therefore particularly be assisted in connecting their knowledge to personal characteristics in order to identify suitable occupations.

Overall, our study shows that the distinction between career choice readiness content and process is valid for Swiss secondary school students. The secondary constructs coherence, congruence, and differentiation show meaningful relations to each other and to more advanced career choice readiness attitudes. Thus, they can be regarded as measures of the content domain of career choice readiness. Interest profile consistency seems, however, to be unrelated to career choice readiness for our group of subjects. Profile elevation, on the other hand, emerged as a sing of more positive attitudes towards the career decision-making process. The unequal relation of the secondary constructs to career choice readiness attitudes, along with several group differences within these connections, support our claim that the secondary constructs and career choice readiness attitudes show a very complex relation. While models of career choice readiness which distinguish between a content and a process domain (e.g., Crites, 1978) might be a useful reference for a basic understanding of these relations, they can not account fully for the complex relation we found within our study.

Implications for Theory and Research

Overall, our study confirms the notion from Holland (1997, p. 87) about research for differentiation that "… large samples are required … because the expected relations are small". When significant correlations between career choice readiness and the secondary constructs were found they were only about .150. Future studies should thus also use large samples if they want discover any meaningful relation between career choice readiness and the secondary constructs.

Our measures for career choice readiness strongly depended on the attitude aspects of the career choice readiness concept (e.g., cf. Super & Overstreet, 1960). It is possible that measures which rely more on cognitive aspects of career choice readiness, for example, knowledge of the world-of-work or career decision-making skills, show different relations to the secondary constructs. Future studies could try to test this assumption.

Our study also has implications for the theoretical understanding of Holland's secondary constructs. Vocational identity seems to be a direct measure of career choice readiness attitudes and shows a remarkably strong relation to career decidedness. Thus, it seems to tap a different concept than the other secondary constructs. Interest profile consistency also seems to have a different relation to career choice readiness than the other secondary constructs. It could thus be more likely a measure of a specific personality pattern than of the state of vocational interest development. Profile elevation emerged as a promising measure for career choice readiness, especially as a sign of more active behaviour and attitudes in career planning and career exploration. This finding should also deserve more theoretical and empirical research.

Implications for Career Counselling Practice

For career counselling practice with secondary students our study implies that the secondary constructs from Holland can provide useful information about the client's state of career development and career choice readiness. Career counsellors can assume that students with more differentiated interest profiles, more coherent and more congruent career aspirations also possess a more developed vocational identity, are more decided, and generally show more advanced career choice readiness attitudes. Students with higher elevated profiles can be assumed to have a more positive

attitude towards career planning and career exploration and also to show more total career choice readiness. Students with undifferentiated but high interest profiles generally show more career choice readiness than students with undifferentiated and low profiles. However, all of these inferences should be made with caution. As our study confirms, the secondary constructs should not be taken as direct measures of career choice readiness attitudes. They more likely represent a different concept which could be named state of vocational interest development. The correlations we found between these two concepts were only small and not valid for all subgroups. For example, for female students the connection between the secondary constructs and career choice readiness attitudes is much smaller than for males. Counsellors should therefore take the secondary constructs as promising clues about the client's career choice readiness which need further validation in the counselling process.

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Table 1: Correlations (Pearson) for all subjects (N = 358)

	RLSM	VID	CD	CP	CE	TCCR	Diff	Elev	Cons	Congr[a]	Coher[b]
RLSM	-	.116[*]	.152[**]	.177[***]	.244[***]	.212[***]	-.037	-.013	-.031	-.047	.257[**]
VID		-	.760[***]	.523[***]	.096	.827[***]	.109[*]	.057	.009	.153[**]	.149[*]
CD			-	.570[***]	.177[***]	.861[***]	.075	.080	-.031	.159[**]	.191[*]
CP				-	.422[***]	.816[***]	.080	.266[***]	-.009	.102	.119
CE					-	.505[***]	.043	.239[***]	.004	.078	.097
TCCR						-	.107[*]	.194[***]	-.008	.169[**]	.187[*]
Diff							-	-.153[**]	.163[**]	.288[***]	.121
Elev								-	-.031	-.038	-.132
Cons									-	.224[***]	.079
Congr										-	.377[***]
Coher											-

Note: [a] N = 333; [b] N = 173 (Number of subjects vary because not all students could name a concrete career aspiration or named only one or two)
RLSM: Realism of Career Aspirations; *VID*: Vocational Identity; *CD*: Career Decidedness; *CP*: Career Planning; *CE*: Career Exploration; *TCCR*: Total Career Choice Readiness; *Diff*: Differentiation; *Elev*: Elevation; *Cons*: Consistency; *Congr*: Congruence; *Coher*: Coherence
[*] $p \le 0.5$; [**] $p \le 0.01$; [***] $p \le 0.001$

Table 2: Correlations (Pearson) divided by gender

	RLSM	VID	CD	CP	CE	TCCR	Diff	Elev	Cons	Congr[a]	Coher[b]
RLSM	-	.164*	.141	.159*	.168*	.191**	.071	-.080	-.078	.051	.459***
VID	.073	-	.790***	.507***	.236**	.851***	.232***	.016	.065	.234**	.139
CD	.176*	.721***	-	.530***	.218**	.853***	.131	.062	.011	.251***	.186
CP	.213**	.531***	.604***	-	.462***	.795***	.156*	.273***	.061	.236**	.005
CE	.327***	-.048	.144	.396***	-	.577***	.044	.276***	.009	.154	.097
TCCR	.249**	.799***	.866***	.837***	.435***	-	.209**	.182*	.052	.294**	.147
Diff	-.157*	-.005	.030	-.017	.033	.013	-	-.296***	.150*	.336***	.230*
Elev	.056	.138	.143	.311***	.188*	.252***	-.008	-	-.056	-.104	-.223*
Cons	.018	-.052	-.085	-.094	.002	-.079	.181*	.006	-	.243**	.083
Congr[c]	-.147	.059	.045	-.072	-.007	.016	.252***	.052	.204**	-	.374***
Coher[d]	-.001	.048	.101	.013	.105	.123	.119	.057	.113	.355***	-

Note: above diagonal: male (N = 181); *below: female* (N = 177)
[a] N = 162; [b] N = 89; [c] N = 171; [d] N = 84 (Number of subjects vary because not all students could name a concrete career aspiration or named only one or two)
RLSM: Realism of Career Aspirations; *VID*: Vocational Identity; *CD*: Career Decidedness; *CP*: Career Planning; *CE*: Career Exploration; *TCCR*: Total Career Choice Readiness; *Diff*: Differentiation; *Elev*: Elevation; *Cons*: Consistency; *Congr*: Congruence; *Coher*: Coherence
* $p \leq 0.5$; ** $p \leq 0.01$; *** $p \leq 0.001$

Table 3: Correlations (Pearson) divided by nationality

	RLSM	VID	CD	CP	CE	TCCR	Diff	Elev	Cons	Congr[a]	Coher[b]
RLSM	-	.161**	.206**	.236**	.281***	.275***	-.060	.006	-.008	.027	.291***
VID	-.066	-	.778***	.521***	.103	.815***	.111	.042	.029	.141*	.136
CD	-.051	.876***	-	.576***	.200***	.855***	.045	.074	-.022	.143*	.204*
CP	-.067	.543***	.562***	-	.430***	.822***	.067	.227***	.010	.117	.133
CE	.126	.072	.091	.375**	-	.523***	.024	.203***	.008	.123*	.186*
TCCR	-.031	.882***	.892***	.791***	.419***	-	.095	.166**	.010	.176**	.217**
Diff	.022	.097	.194	.057	.168	.169	-	-.140*	.157**	.291***	.092
Elev	-.052	.121	.114	.435**	.382**	.306**	-.181	-	-.021	-.011	-.112
Cons	-.127	-.078	-.078	-.096	-.006	-.085	.182	-.061	-	.232***	.083
Congr[c]	-.325*	.196	.196	.039	-.091	.146	.264*	-.106	.189	-	.409***
Coher[d]	.077	.244	.244	.050	-.368	.048	.313	-.187	.035	.210	-

Note: above diagonal: Swiss (N = 293); *below: other nationalities* (N = 65)
[a] N = 273; [b] N = 147; [c] N = 60; [d] N = 26 (Number of subjects vary because not all students could name a concrete career aspiration or named only one or two)
RLSM: Realism of Career Aspirations; *VID*: Vocational Identity; *CD*: Career Decidedness; *CP*: Career Planning; *CE*: Career Exploration; *TCCR*: Total Career Choice Readiness; *Diff*: Differentiation; *Elev*: Elevation; *Cons*: Consistency; *Congr*: Congruence; *Coher*: Coherence
* p ≤ 0.5; ** p ≤ 0.01; *** p ≤ 0.001

Table 4: Correlations (Pearson) divided by school-type

	RLSM	VID	CD	CP	CE	TCCR	Diff	Elev	Cons	Congr[a]	Coher[b]
RLSM	-	.124	.239**	.141	.215*	.238**	.023	-.157	-.075	-.035	.332**
VID	.105	-	.734***	.419***	.024	.816***	.046	.013	-.016	.182*	.298*
CD	.088	.780***	-	.547***	.135	.882***	.025	.006	-.016	.161	.332**
CP	.205**	.610***	.575***	-	.257**	.751***	.036	.289**	.003	.087	.156
CE	.288***	.187**	.240***	.531***	-	.421***	.083	.192*	-.007	-.010	-.108
TCCR	.196**	.848***	.853***	.854***	.575***	-	.059	.151	-.016	.165	.255*
Diff	-.085	.151**	.102	.084	.034	.139*	-	-.323***	.095	.294***	.122
Elev	.116	.088	.132*	.259***	.327***	.234***	-.022	-	.034	-.072	-.194
Cons	.000	.028	-.028	-.015	.008	.003	.206**	-.080	-	.257**	-.096
Congr[c]	-.055	.130	.154*	.111	.147*	.173*	.283***	-.018	.208**	-	.388**
Coher[d]	.189	.063	.107	.111	.185	.144	.142	-.045	.077	.368***	-

Note: above diagonal: Realschule (N = 135); *below: Sekundarschule* (N = 223)
[a] N = 124; [b] N = 68; [c] N = 209; [d] N = 105 (Number of subjects vary because not all students could name a concrete career aspiration or named only one or two)
RLSM: Realism of Career Aspirations; *VID*: Vocational Identity; *CD*: Career Decidedness; *CP*: Career Planning; *CE*: Career Exploration; *TCCR*: Total Career Choice Readiness; *Diff*: Differentiation; *Elev*: Elevation; *Cons*: Consistency; *Congr*: Congruence; *Coher*: Coherence
* p ≤ 0.5; ** p ≤ 0.01; *** p ≤ 0.001