FACILITATING THE SCHOOL-TO-WORK TRANSITION:

Design and Evaluation of a Skills Promoting Intervention Program

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Gutachter/in

1. Prof. Dr. Rainer K. Silbereisen; Friedrich-Schiller-Universität Jena
2. PD Dr. Karina Weichold; Friedrich-Schiller-Universität Jena
3. J. Douglas Coatsworth, Ph.D.; Pennsylvania State University, State College, USA

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ZUSAMMENFASSUNG

Der erfolgreiche Übergang von der Schule ins Erwerbsleben:

Entwicklung und Evaluation eines Trainingsprogramms zur Kompetenzförderung

Aufgrund vielfältiger sozialer und ökonomischer Veränderungen gestaltet sich die Situation junger Arbeitsmarkteinsteiger heutzutage herausfordernder und stellt höhere Ansprüche an die Fertigkeiten und Ressourcen Jugendlicher bei der Bewältigung des Übergangs von der Schule in das Berufsleben. Die vorliegende Dissertation beschäftigt sich mit der Entwicklung und Evaluations eines Interventionsprogramms, um diesen Übergang durch die Förderung von Kompetenzen und Ressourcen bei Schülern, die nicht das Abitur anstreben, erfolgreicher zu gestalten.

Aktuelle Maßnahmen mit dem Ziel, Jugendliche auf die Ausbildung und das spätere Erwerbsleben vorzubereiten, setzen entweder auf einer strukturellen Ebene an (z.B. durch die Bereitstellung einer größeren Anzahl von Ausbildungs-plätzen), zielen auf besonders förderbedürftige Jugendliche ab oder fokussieren auf sehr spezifische Aspekte oder Aufgaben in der Berufswahl (z.B. Bewerbungstraining). In der Vergangenheit wurden Bedenken geäußert, dass diese Maßnahmen -obwohl sehr nützlich- eventuell nicht ausreichend sind, um Jugendliche dazu zu befähigen, ihre berufliche Entwicklung aktiv zu gestalten. An diesem Punkt setzt die Entwicklung des vorliegenden Interventionsprogramms SCHuuuB für Regelschüler (d.h., Haupt- und Realschüler) der Abgangs- und Vorabgangsklassen an.

Ausgehend von aktuellen Theorien und Konzepten der beruflichen Entwicklung werden zunächst relevante Kompetenzen und persönliche Ressourcen identifiziert, die in Zusammenhang mit einem erfolgreichen Übergang ins Erwerbsleben stehen und im Rahmen des Programms trainiert werden sollen (z.B. Wissen über den Arbeitsmarkt, eigene berufliche Interessen und Möglichkeiten, Zielsetzungs- und Zielverfolgungsstrategien, soziale Fertigkeiten). Aufgrund der konzeptuellen Überschneidung dieser Variablen mit den sogenannten Lebenskompetenzen, basiert die Vermittlung der ausgewählten Variablen auf dem Lebenskompetenzansatz. Dabei wird das Training allgemeiner Lebenskompetenzen mit der Vermittlung berufsbezogener Kompetenzen und karrierebezogenes Wissen ergänzt.

Das entwickelte Interventionsprogramm SCHuuuB besteht aus zehn Modulen von je 90 Minuten und wird von Lehrern, die zuvor umfangreich trainiert wurden, mithilfe eines strukturierten Manuals in der Klasse durchgeführt.

In der Evaluationsstudie zu SCHuuuB sollten Fragen hinsichtlich der Implementationsgüte und Akzeptanz sowie bezogen auf die Effektivität des Programms zur Veränderung der angezielten Kompetenzen und Ressourcen beantwortet werden. Weiterhin ergab sich aufgrund der Heterogenität der Stichprobe hinsichtlich der Teilnahme an verschiedenen weiteren berufsvorbereitenden Maßnahmen und Aktivitäten die Frage nach potentiellen Wechselwirkungseffekten zwischen SCHuuuB und diesen anderen Maßnahmen.

Die Evaluation erfolgte in einem Prätest-Posttest-Design mit Follow-Up (nicht Gegenstand der vorliegenden Dissertation) und Interventions- und Kontrollgruppe. Insgesamt nahmen 600 Neuntklässler aus 25 verschiedenen Thüringer Regelschulen (n_{IG} = 12; n_{KG}=13) teil. Die interessierenden Variablen wurden zu den jeweiligen Messzeitpunkten mittels Fragebögen zur Selbstauskunft von Schülern und Lehrern erhoben. Zur Überprüfung der Hypothesen der Ergebnisevaluation wurde ein regressionsanalytischer Ansatz mit Strukturgleichungsmodellen angewendet.

Die Ergebnisse der Studie zeigen, dass das Programm im Durchschnitt gut im Hinblick auf Quantität und Qualität in den Interventionsklassen umgesetzt wurde. Weiterhin konnten positive Programmeffekte auf verschiedene Ergebnisvariablen (z.B. Zunahme von Wissen über den Arbeitsmarkt und Steigerung sozialer Kompetenzen) festgestellt werden. Allerdings waren diese Effekte meist von der Teilnahme an anderen berufsvorbereitenden Maßnahmen abhängig. Im Speziellen wurden die Effekte meist nur dann gefunden, wenn die Schüler nicht an einem weiteren Programm (BERUFSSTART Plus) teilgenommen hatten.

Im abschließenden Diskussionsteil dieser Arbeit werden die Hauptergebnisse der Evaluation und die methodologischen Charakteristika besprochen. Weiterhin werden mögliche Implikationen der vorliegenden Studie für das Interventionsprogramm, für berufsvorbereitende Maßnahmen in der Schulzeit generell, sowie die Grundlagenforschung diskutiert.

Table of Contents

List of Tables

List of Figures

Choose a job you love
and you will never have to work a day in your life.

Confucius (551 - 479 BC), *The Analects*

0
Introduction and Overview

As simple and plausible the quote above may seem, as difficult it has become to follow that advice nowadays and also experiencing the consequences Confucius implied for several reasons. First, the number of possible occupations is high which makes it harder to identify the one or the few jobs one really loves or at least is interested in. For example, in Germany there are currently about 350 different certified occupations and this number does not include the numerous university study subjects. Second, choosing an occupation or job that fits the own interests is only a first step in the life-span task of career development (Super, 1990; Vondracek, 1998). With increasing globalization, world work competition and the increased risk of unemployment, the chances to get and keep a job decreased and individuals have to put effort into attaining their occupational goal (Gangl, 2002). Finally, due to a gradual shift from manufacturing to service-oriented industries and technological advance, the occupations and jobs change in their characteristics and demands over time, meaning that the job individuals chose and were trained in earlier may change in a way that it does not fit with the individual preferences anymore. Individuals then either have to adapt to these changes or look for alternatives. In essence, even if individuals are able to choose a job they love they nowadays still have to work on implementing their vocational goals in a profoundly changed labor market.

Recent research indicates that the changes on the labor market during the past decades have affected especially adolescents and young adults who are at the beginning of their

working lives (e.g., Blossfeld, Mills, Klijzing, & Kurz, 2005). In nearly all Western countries the school-to-work transition (STWT) nowadays is characterized by insecure work conditions, spells of unemployment, and discontinuous employment. This is especially true for individuals with lower education. Although the transition in countries with structured institutionalized pathways from education to work such as Germany and Austria is somewhat easier to accomplish (Heckhausen, 2010), also in these systems young labor market entrants face increasing difficulties that challenge them to become more active in shaping their transition and future career development. The current efforts to facilitate the STWT in Germany primarily set in at a structural level by increasing the number of vocational training positions, target only youths that seem to be in special need for assistance, or assist in very specific tasks in the transition process (e.g., career exploration by providing practical work experience, job application/interview training). In this regard, concerns have been raised that these approaches may not be sufficient alone to equip youth with the necessary skills and resources that enable them to become active themselves during the transition and later career development (e.g., Trilling & Fadel, 2009; Youniss & Ruth, 2002).

For that reason a new school-based skills promoting program for facilitating the STWT for German non-college bound youth (SCHuuuB) was developed. The major aims of the current dissertation thesis were now (1) to present the development and (2) the evaluation of that program.

The thesis is structured in five chapters. In Chapter I and II the theoretical and empirical background to the intervention program and the evaluation study is provided. Specifically, in Chapter I the recent changes in the world of work and their effects on the STWT in Western societies and in Germany are described, and current efforts to facilitate the STWT are outlined. This chapter closes with addressing the potential shortcomings of these approaches and suggesting a complementary avenue to prepare youths for an adaptive coping with the task of mastering the STWT through the promotion of rather transferable or generic skills.

In Chapter II the design of the current intervention program is described. The chapter starts with considerations concerning the target group, timing, and implementation setting of the program that led to the decision of developing a school-based program for ninth graders on non-college bound tracks. In the section after that, several current career theories and concepts are outlined with the goal of identifying important individual variables that should be targeted in order to facilitate the STWT. The summary of this section concludes with the skills and resources that are targeted by the current intervention program: Variables related to

career choice (i.e., self-reflection on personal interests, the exploration of diverse occupations knowledge about the labor and vocational training market and information resources), variables associated with career-related goal pursuit (i.e., goal setting and goal adjustment skills, planning skills, adaptive coping skills, and interpersonal skills), and psychological resources (i.e., self-efficacy, optimism, and internal control beliefs). Furthermore, parallels between these skills and resources to so-called life skills (WHO, 1997) are drawn and the Life Skills approach (e.g., Botvin, 1998) is presented as a promising avenue to teach the chosen skills and resources. The next section reviews characteristics of effective school-based skills promotion programs that led to the conclusion to use resource-oriented and interactive teaching methods in the new program that provide adolescents with opportunities to practice and apply what they have learned in a secure context. At the end of Chapter II the intervention program SCHuuuB for non-college bound students, that comprises 10 sessions of 90 minutes duration each and is implemented by trained teachers who are provided a structured manual, is described and results from a pilot evaluation study are presented.

Chapter III introduces the research questions of the present evaluation study. An initial question concerned the implementation and acceptance of the program by teachers and students as a precondition for evaluating the program's effectiveness. The first research question addressed the intervention effects on the variables related to career choice, career-related goal pursuit, and interpersonal skills. The second research question emerged in the course of implementing the evaluation study. Originally it was planned to evaluate the SCHuuuB program independent of other career preparation measures. However, in the Federal State of Thuringia, where the study was conducted, 60% of the non-college bound (primarily urban) schools are taking part in another larger career preparation program that focuses on providing practical work experience. Schools that take part in that program had to be included in the present study in order to obtain a sample that could be representative for schools in Thuringia (especially with regard to community size). Furthermore, the schools recruited for participation in the evaluation study differed regarding the career preparation activities they provide their students in their curricula. Taken together, schools in the present study did not only differ by their participation in SCHuuuB but also regarding other career preparation measures with similar goals. Therefore, the second research question of this dissertation study dealt with potential moderator effects of other career preparation measures students take part in on the effectiveness of SCHuuuB. However, the design of the present study did not allow for evaluating the effectiveness of these other measures.

In Chapter IV the study design, sample, measurement instruments, and the statistical procedure used to test the hypotheses are described. The study follows a quasi-experimental pre-posttest-design with an intervention and a control group. The intervention group comprised about 300 ninth graders from 12 different non-college schools, the control group about 300 ninth graders from 13 other non-college bound schools in Thuringia. Data on variables of interest were assessed with teacher and student self-report questionnaires after each session and at pre- and posttest, respectively. The data were analyzed using a regression analytical approach with structural equation modelling that allows for investigating program effects on true (latent) change in variables.

In Chapter V the results of the present study are presented. As outlined in the first section of that chapter, the program was implemented with nearly all content according to the manual in a good quality. Students' program acceptance was also good. Given that, the outcome evaluation was addressed in the following sections. To summarize, positive program effects were found on knowledge about the labor and vocational training market, engaging coping with career-related tasks and problems (only for using alternative means and social support when previous individual efforts fail), and interpersonal skills (knowledge about adequate social behavior and perceived social competence). However, these effects were mostly dependent on participation in other career preparation measures.

In the final chapter, Chapter VI, the main findings concerning the process and outcome evaluation are discussed. Following that, the methodological strengths and weaknesses of the current study are addressed. The chapter closes with an outline of potential implications of the present study for the SCHuuuB program and its further evaluation, for career preparation during school time in general, and for basic research.

I

Changes in the School-to-Work Transition and Current Approaches to Fostering a Successful Transition

The first chapter of this thesis provides an overview of recent changes in the labor market and their effects on labor market entrants and the school-to-work transition (STWT) in general and in Germany, specifically. Furthermore, current approaches to facilitating the STWT are described. The chapter closes with a brief review of potential shortcomings of these approaches along with the introduction of an additional, alternative approach.

1.1 General Trends and Cross-national Differences in the STWT

Macro-social tendencies such as globalization, demographic change, as well as pluralization of biographical trajectories, generally referred to as social change, translate on the individual level into new demands in several of domains of life such as work, family, or leisure (Silbereisen & Pinquart, 2008). Overall, the life course has become less determined by social contexts, providing increased opportunities for individuals to exercise personal agency over their lives but also leading to greater unpredictability of one's life (e.g., Blossfeld & Mills, 2003). The challenges resulting from these changes might be especially pronounced for adolescents and young adults who are at the beginning of planning their lives with respect to family, school, and work (Hamilton & Hamilton, 2002; Shanahan & Hood, 2000). The domain of life which may be most characterized by change and increasing demands for the individual is the domain of work (Tomasik & Silbereisen, 2009). The decline of the traditional linear work-biography, characterized by training and successive promotion within only one company, and increasingly insecure employment conditions have turned vocational development into an actual lifespan task (e.g., Vondracek, 1998). This task also involves the need for adaptive coping with uncertainty, flexibly handling changing work conditions, and the willingness for life-long learning (e.g., Fugate, Kinicki & Ashforth, 2004). Furthermore, technological advance and the gradual shift towards service economies increase the demand for social and technological skills.

The globalization of economies, increasing world work competition, and rapidity of technological advance have shown to affect not only labor market insiders but to an even greater degree young labor market entrants, and especially those with lower education, whose work careers are often characterized by insecure discontinuity and under-employment

(Blossfeld et al., 2005; Buchholz & Kurz, 2005; Gangl, 2002; Ryan, 2000; Wolbers, 2007). During the past decade, the average youth unemployment rate (15 to 24 years) increased from 12% in 2001 to 16% in 2011 in the OECD countries and today is nearly twice as high as the general unemployment rate which ranged between 7 and 8% in the same time span (OECD, 2012a, b). Furthermore, most young labor market entrants start their work careers with one or several temporary contracts and experience multiple spells of unemployment in the years after leaving education (Quintini, Martin, & Martin, 2007). Accordingly, the average length of the school-to-work transition (STWT), that is the phase between completion of (compulsory) full-time education and the entry into continuous full-time employment, is also increasing (e.g. OECD, 2000). Apart from these general trends there is evidence for great cross-national differences with respect to youth unemployment rates, the proportion of precarious work contracts, as well as the length of the transition depending on the degree national institutions regulate the labor market and the vocational specificity of the educational system, and thus, either strengthen or weaken the effect of economic changes on youths' labor market outcomes (Quintini et al. 2007, Ryan, 2001; Wolbers, 2007). For example, in Mediterranean European countries where policies strongly protect labor market insiders and the educational system is rather decoupled from the labor market the youth unemployment rates range between 30% in Portugal and 45% in Greece, and thus, clearly exceed the OECD average (OECD, 2012a). On the other sides, in Germany or Austria, which are characterized by strongly institutionalized pathways from school to work and high occupational specificity of the training system, the unemployment rates of about 8% are among the lowest in all OECD countries (ibid.). In countries where the labor market regulation and the occupational specificity of the educational systems are rather low like in the United States or Canada youth unemployment rates are close to the OECD average (ibid.).

Despite these cross-national differences in the degree social and economic changes have affected youth labor markets, adolescents and young adults everywhere have to accomplish one of the most salient developmental task (e.g., Havighurst, 1972), namely the transition from school to work under circumstances of increased unpredictability and insecurity about to the direction one should take with regard to their vocational development (Vondracek, Reitzle, & Silbereisen, 1999). Thereby, the way youths master the transition to work life has multiple implications for adult development and adjustment. It does not only affect career options and sets patterns for dealing with later career changes but is also related to the timing of inter-related transitions (e.g., leaving the parental home, family formation) as well as economic and psychological well-being (Mortimer, Zimmer-Gembeck, Holmes, &

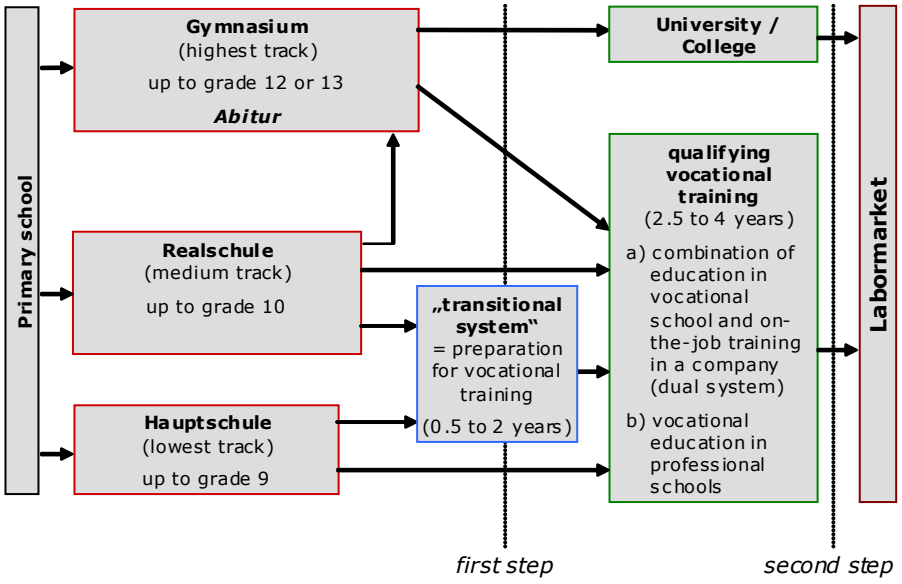
Shanahan, 2002; Schulenberg, Maggs & Hurrelmann, 1997; Taylor, 2005; Vondracek, 1998). Given these far reaching consequences, preparing adolescents for successfully mastering the STWT becomes a critical task.

1.2 Institutionalized Pathways and Arising Problems in Germany

Although the STWT is considered to be smoother, easier to accomplish, and more protected from cyclical economic changes in countries like Austria or Germany with highly structured and institutionalized pathways from education to work (Heckhausen, 2010, Quintini, Martin & Martin, 2007; Wolbers, 2007), the German system is also facing problems emerging from ongoing social and economic changes. Before addressing these problems, the pathways from compulsory schooling to entering work life are briefly described in the following.

The educational system in Germany is three-tiered in terms of school leaving certificates (see Figure 1). The separation into the three tracks takes place at a relatively early time point (depending on the federal state after grade 4 or after grade 6) and the tracks are rather impermeable with respect to upward mobility. The school leaving certificate adolescents attain then channels them into different school-to-work paths. There are two major transition paths: One path, which is only available for students who graduate from the highest school track (i.e., Gymnasium), is entering the labor market through tertiary education. The other path, which is open to students from all educational tracks, is entering the vocational training system which comprises vocational education in special professional schools, and the dual system that qualifies individuals for a specific occupation and combines vocational education at a vocational school with an apprenticeship in a company. Thus, it comprises theoretical as well as practical components at the same time and aims at providing individuals with the necessary occupational skills. Graduating successfully in the vocational training system is rewarded with an official occupational certificate which is a necessary precondition to enter skilled work. The latter path is the most prominent one in Germany with about 60% of each cohort of school graduates aiming at entering the labor market through vocational training (Bundesinstitut für Berufsbildung, BIBB, 2009).

Figure 1 The Institutionalized Pathways from School to Work in Germany



The advantages of this structured and guided transition system over purely market-driven systems have become less pronounced in the last decades for different reasons (Baethge, Solga, & Wieck, 2007). First, at the beginning of the new century, a structural imbalance of supply and demand of new vocational training positions became evident. Although the ratio between the supply and demand of positions is currently rising again, it is still only 93% (in 2011, Bundesministerium für Bildung und Forschung BMBF, 2012) and far from a value that would be required to provide young people the freedom of choice regarding their occupation. Furthermore, the chance to get a vocational training position is dependent on the educational degree (e.g., BMBF, 2008). In the course of the continuous shift of emphasis from the manufacturing to the service sector there has been a decline in the proportion of vocational training positions in occupations suitable for applicants with lower education (Baethge et al., 2007; Heinz, 2002). In the recent National Report on Education (Autorengruppe Bildungsberichterstattung, 2012) it is even stated that youths graduating from the lowest educational track have factually no access to nearly half of all occupations that require training anymore.

Second, to mitigate the especially low chances of graduates from the lowest school track a so-called 'transitional system' (Übergangssystem) was established, comprising several activities which aim at preparing adolescents and young adults who experienced difficulties in

finding a vocational training position, either in educational or more practical settings. About 37% of graduates from the lowest and 18% from the medium school track directly transit into the transitional system (Beicht & Ulrich, 2008). These figures remained relatively stable over the past years despite the demographic change towards smaller absolute numbers of school graduates (Anbuhl, 2012). However, the chance to get a regular vocational training position afterwards is rather limited, and about 40% of youths will continue to participate in different compensatory activities provided by the state (Baethge et al., 2007; Beicht, 2009).

Finally, in the past a successful graduation from vocational training led to secure employment primarily in the company where the apprenticeship took place. This has changed during the past decades. Only 50 to 60% of all young adults remain in the company where they acquired their occupational certificate (BIBB, 2011). Graduates nowadays often have to search for jobs outside of their training company and have to compete with labor market insiders with more work experience. Although an occupational successful vocational graduation still remains a strong predictor, it does not guarantee further employment (BIBB, 2008).

Taken together, mastering the transition from school to work has become increasingly demanding for adolescents and young adults, and especially for those with lower school education. Even though there is some institutional guidance, also German youth is challenged to become active in searching an appropriate vocational training position and employment afterwards due to increased insecurities at the first and second step of the STWT.

1.3 Current Efforts to Facilitate the STWT: Description of existing career preparation measures in Germany

Although the German transition system already provides young adults with more institutional guidance than may be available in other Western countries (see Section 1.2), further measures for career preparation especially those starting already during compulsory schooling have been initiated due to social and economic changes over the past decades. There are several measures that have been designed for fostering the STWT in Germany (for overviews see, e.g., Lippegaus-Grünau, Mahl & Stolz, 2010, BMBF, 2012). Most of these measures target students from non-college bound school tracks who aim at starting a vocational training after graduating from school. The aim of this section is to provide an overview of these measures which could be broadly classified into measures that a) set in at a structural level in order to increase the number of available in-company vocational training positions, b) aim at fostering

students' career orientation during the final school years in general, and finally c) support students with difficulties and in need for assistance during the STWT. The section closes with a brief summary of current approaches supplemented with a description of shortcomings and potential additional measures are provided.

1.3.1 Increasing the Number of Available Training Positions – The National Pact for Career Training and Skilled Manpower Development in Germany

In reaction to an increasingly difficult transition situation in Germany, especially with regard to the mismatch in the number of requested and offered vocational training positions, the Federal Government and the central associations of the private economic sector agreed on the *National Pact for Career Training and Skilled Manpower Development in Germany* (short: Training Pact, Nationaler Pakt für Ausbildung und Fachkräftenachwuchs) in 2004. The pact has been renewed in 2007 and 2010 again, with new foci/emphases and contents due to changes in the economy and the vocational training market. The two major goals of the Training Pact are a) offering each willing and capable young adult a vocational training position, and b) to secure the nation's supply of skilled personnel. For that reason, partners of the private economic sector agreed on the acquisition of new vocational training positions in companies together with special training positions in companies that qualify disadvantaged young adults for further vocational training (*Einstiegsqualifizierung*). Public partners on the other side committed to additional efforts in career preparation measures during school time, supporting youths with difficulties prior and during the STWT, and advancing the integration of youth with migration backgrounds.

Since its initiation the Training Pact translated into a great number of new in-company vocational training positions with -depending on economic sector and region- now sometimes providing even more open positions than demands from applicants (BMBF, 2012).

Pact partners from the public sector also have created programs and initiatives that coordinate and (co)fund several career measures at the Federal as well as regional level. Some of these measures will be outlined in the course of the following sections.

1.3.2 Career Preparation Measures Aiming at Enhancing Career Orientation

The existing measures that aim at fostering the STWT by means of thorough career orientation for all students during school time can be broadly categorized into three groups: Those that are provided by the German Federal Employment Agency (Bundesagentur für

Arbeit – BA), those included in schools' career orientation curricula, and larger nationwide or regional programs.

Measures offered by the Federal Employment Agency

The Federal Employment Agency contributes to students' career orientation and planning primarily through the provision of information regarding career choice, the vocational training market, professions and studies, open positions, and support measures. Students have free access to that information either in local Employment Agencies in so-called *Vocational Guidance Centers* (Berufsinformationszentrum – BIZ) or through the internet. The Employment Agency runs several websites such as BERUFENET or planet-beruf.de that are databases with detailed information regarding all occupations, typical work tasks, salaries, and required training. The latter website also comprises a test that suggests students possible occupational choices based on their interests. In addition, the Agency distributes free magazines to schools that inform about the current vocational training market, requested vocations, and local career events. Apart from career- and profession-related information, the local Employment Agencies also offer students career counseling to answer students' individual questions either directly in their facilities or during counseling hours in schools.

Measures included in schools' career preparation curriculum

During their final school years students take part in several activities that are comprised in schools' career orientation curriculum. Although the extent of these measures varies between school types and schools, they usually include at least one internship in a company for one to three weeks in students' final school years (i.e., in grade 7 to 10 for the non-college bound school track) and lessons providing information regarding different vocational fields and related professions. Furthermore, the whole class visits the Vocational Guidance Center of the local Employment Agency during the second final school year and a career counselor introduces students to the Agency's various databases. An additional career preparation measure is the so-called *Berufswahlpass* (career choice passport, http://www.berufswahlpass.de) which was designed in the course of the programme Schule-Wirtschaft/Arbeitsleben (school – economy/professional life) of the Federal Ministry of Education and Research (BMBF) for several Federal States. Later it was also adapted for all other Federal States. In Thuringia, it was introduced as mandatory career preparation instrument in the school year 2004/2005. The Berufswahlpass is a folder that entails three components. The first one provides an overview of regional offers and contact persons for

career choice in- and outside of the school setting. The second part contains a documentation of (self- and others-rated) personal interests, strengths, abilities, goals, and their development over the years. Finally, the third part is the collection of documents giving insight into personal development regarding acquired career-related abilities, competencies, and performance (e.g., references, certificates of participation in career preparation courses). Taken together, the whole individual career orientation process starting from grade seven onwards should be summarized in the Berufswahlpass.

In addition to the mandatory elements of career orientation and preparation during compulsory schooling, most schools also reserve school lessons for job application and job interview training which are conducted either by school teachers or external guests. Furthermore, some schools organize one-day visits to companies in order to provide students insight into a company's functioning and the world of work, or offer several other career information events for students as well as their parents. Although most schools develop and carry out their career orientation curriculum individually or in cooperation with partners from the economic sector, some schools also take part in larger nationwide or regional programs that integrate and extend career preparation measures in schools. These programs will be described in the next section. Figure 2 provides an overview of school-related career orientation and career preparation measures and activities in (Thuringian) schools.

Special career-orientation programs

As a central measure of the Training Pact a new initiative by the Federal Ministry of Education and Research (BMBF) called *Qualify and Connect - the education chain up to qualification* (Abschluss und Anschluss – Bildungsketten zum Ausbildungsabschluss) has been established in 2010. The initiative integrates and coordinates a comprehensive package of new, self-developed programs and already existing measures at the federal and regional level. These measures address (1) the enhancement of career orientation during school time, and (2) the support of adolescents and young adults with difficulties and in need for assistance. The measures that can be subsumed under the second heading are not directed at all students in general and will, therefore, be described in the next section (Section 1.3.3).

Among the measures supported under the first heading are federal and regional programs that target students of the non-college bound educational tracks with the aim of a thorough general career orientation during school time. The components such programs include vary: Whereas some only entail analyses of students' potentials in terms of their vocational interests and abilities to assist students in the career choice process (e.g., *KOMPO7*

in Hesse; *Potentialanalyse* in Baden-Württemberg), others are more thorough and comprise additional components such as the provision of detailed information about the vocational training market and different vocations as well as several (long-term) internships in educational institutions or companies.

One example for such regional programs is *BERUFSSTART Plus (BSP)* Thuringia. This joint project of several economic and political institutions (e.g., Thuringian chambers of handicrafts, industry and commerce; local Employment Agencies in Saxony-Anhalt and Thuringia; the Thuringian Ministry of Education, Science and Culture) which started with a pilot phase in 2003 (http://www.berufsstartplus-thueringen.de). Currently the program is implemented in about 60% (n = 137/230) of Thuringian schools of the non-college bound track (i.e., Regelschulen). The program sets in with a vocational aptitude test and an analysis of students' competencies at the beginning of grade seven. Based on the results, students then take part in a short-term practical course in one of eleven vocational fields during the second half of the school year. These practical courses, so-called orientation modules, are carried out in external educational institutions where students learn about activities, techniques, and materials typical for several professions of the respective vocational field. At the end of these courses students receive a certificate of participation and an evaluation of their performance by course leaders. A second, profession-specific, orientation module is carried out at the beginning of grade eight. In the course of grade eight and again in grade nine, students also make two apprenticeships in one or more companies. During grade nine a further profession-specific orientation module is optional, as are one further orientation module and one in-company internship in grade ten. In addition to the practical courses, schools and external partners organize additional courses (e.g., job application and job interview trainings) or events that inform about the vocational training market, different professions, and educational pathways. Apart from the extensive practical focus, a further rather unique component of BSP are the career orientation coordinators (Berufsorientierungskoordinatoren) who are the central coordinating and contact persons for students, teachers, companies, and the local Employment Agencies. In addition, they evaluate the results of the initial assessments and internships together with the students regarding adequate career prospects and their strategies for realization, and provide assistance in the individual career choice process. The key elements of BSP and their chronological order are summarized in Figure 2. An evaluation study that was conducted during the pilot phase (without a control group, program was called *Berufsstart* then) assessed implementation variables and the subjectively perceived use of the program by students, school staff and practitioners in the project. This study concluded that

Figure 2 Career Preparation Measures Currently Implemented in Thuringian Schools

	Grade 7	Grade 8	Grade 9	Grade 10
school curriculum	at least one **internship in a company** (2-4 weeks)			
	using **Berufswahlpass** to document and plan the career preparation process			
		visiting the **Vocational Guidance Center of the Federal Employment Office** (1-2 hours) introduction to the **vocational interests test** and information databanks by vocational counselor		
	optional (not in every school): information about companies and vocations, presentation by economy representatives, **visit to companies**, **job application/job interview training**			
BERUFSSTART Plus (BSP) (integrates and extends means of the regular curriculum)	**Vocational aptitude test** 1st internship in a chosen vocational field in an educational institution (1 week)	2nd profession-specific internship in an educational institution (1 week) two **internships in a company** (1 – 2 weeks)	*optional:* 3rd profession-specific internship in a chosen vocational field an educational institution (1 week) two **internships in a company** (1 – 2 weeks)	*optional:* 4th profession-specific internship in a chosen vocational field an educational institution (1 week) or *optional:* **internship in a company**
	career orientation coordinator *(Berufsorientierungskoordinator/in)*: - Contact person for students, teachers, companies, and the Federal Employment Office - evaluate career aptitude test internships together with students regarding adequate career prospects and strategies for realization - assistance in the individual career choice process			
	additional offers: information about companies and vocations, presentation by economy representatives, **visit to companies, job application/job interview training**			

students who took part in Berufsstart could increase social competencies and were better able to guide their search for a vocational training based on their interests and skills (based on subjective retrospective evaluations of school staff, qualiNETZ, 2007). In addition, a lower proportion of students who took part in Berufsstart dissolved their vocational training contract compared to the Thuringian average. A second and more thorough evaluation study is currently conducted by the Institute for Employment Research (Institut für Arbeitsmarkt- und Berufsforschung, IAB) that amongst other aspects investigates BSP effects on readiness for vocational training, realistic occupational goals, and the quality of the STWT in an intervention- and control group design (Kupka & Wolters, 2010).

Although BSP is only available in Thuringia, programs with a similar approach are also implemented in several of the other Federal States such as the *STARTKLAR!* project in North Rhine-Westphalia or the *BRAFO - Berufswahl Richtig Angehen Frühzeitig Orientieren* (Doing career choice right, start orientation early) in Saxony-Anhalt. The BMBF also started an own nationwide career orientation program in the context of the *Qualify and Connect* initiative (*Berufsorientierungsprogramm in überbetrieblichen und vergleichbaren Berufsbildungsstätten, BOP*) that comprises an analysis of students' potentials in grade seven and further practical courses in different vocational fields that are carried out in educational institutions.

Apart from these more comprehensive programs targeting all students, there are measures designed specifically for girls or boys to draw their interest to non-gender-stereotypical vocations such as the *Girls' Day* and the *Boys' Day*. The major aim of the Girls' Day and the Boys' Day, respectively, is to motivate the exploration of (and finally, decision for) professions or study subjects which are rather stereotypical for the opposite gender. For girls, attention should be drawn to the domain of technology, whereas vocations in the social and educational sector are more closely introduced to boys. For this purpose, separate activities for girls and boys from grade five to ten take place within and outside the school context at one day in April of each year. Especially companies, universities, and research institutes host open day presentations to provide insights in different professions or study subject. Furthermore, at these occasions students have the opportunity to get in contact with persons who are responsible for acquiring apprentices and trainees. There is also the nationwide initiative *Let's do MINT – more women in MINT-vocations* (Komm, mach MINT - mehr Frauen in MINT-Berufen) that coordinates and (co)funds several projects that foster girls engagement in so-called MINT subjects (mathematics, information technology, natural

science, and technology[1]). The initiative *New Ways for Boys* (Neue Wege für Jungs) comprises projects that make boys familiar with vocational fields, activities, and behaviors that are traditionally related to the female gender. The aim of this initiative is the gender-sensitive support of boys' life and career planning.

1.3.3 Programs That Target Adolescents and Young Adults with Difficulties and in Need for Assistance

In addition to the measures that are broadly directed to all students (of non-college bound school tracks), there are also several programs and initiatives that target youths who are expected to or actually experience difficulties during the STWT (including adolescents and young adults with learning or physical disabilities or a migration background). These measures cover a broad range of activities and initiatives that either set in already during regular schooling or target youths who aimed at but did not get a vocational training position after leaving school.

Among the measures that start during school time are two projects, namely the *special program career entry support* by the BMBF (as part of the *Qualify and Connect* initiative) and the *career entry support* by the Federal Employment Agency, that offer personal and individual support for students on lower educational tracks (including those on special schools for children with learning abilities) who are in need for additional assistance in the STWT. Although there are slight differences between the two programs[2], both are implemented by local Employment Agencies. In the year before their final school year students selected for participation are assigned to a so-called career entry supporter (*Berufseinstiegsbegleiter*) who elaborates an individually tailored plan for further development of students' competencies. The supporters work in close cooperation with teachers, parents, the local Employment Agencies, and local companies. Their task is to provide support and assistance in the several steps of the STWT process: Attainment of a general educational degree, career orientation and career choice, search for a vocational training position, and stabilizing the training relationship. Individuals who work as supporters usually possess life- and professional

[1] The English equivalent term for MINT is STEM – the acronym for science, technology, engineering, and mathematics.

[2] The BMBF project selects students with potential need for assistance based on a thorough analysis of students' potential in terms of aptitudes, strengths, and weaknesses; whereas the selection for the Agencies program is based on recommendation by school teachers and social education workers. In addition, support in the BMBF lasts somewhat longer than (i.e., 12 vs. 6 months after starting a vocational training) (for a comparison, see E-Mail-Info SGB III; 11.08.2010; available at http://www.arbeitsagentur.de/zentraler-Content/E-Mail-Infos/pdf/E-Mail-Info-2010-08-11-Anlage-6.pdf)

experience, especially regarding training, leading and/or social pedagogical work. Currently, neither of the two career entry support programs is implemented nationwide but it is intended to extend the Agency's program to all German schools.

Further measures for the support of disadvantaged youths with the aim of integrating them in the labor market is the *Strengthening Youth* (JUGEND STÄRKEN) initiative of the Federal Ministry of Family Affairs, Senior Citizens, Women, and Youth (Bundesministerium für Familie, Senioren, Frauen und Jugend – BMFSFJ). This initiative comprises four different projects: The first one (*JUGEND STÄRKEN: Aktiv in der Region*) aims at providing a comprehensive regional support system during the STWT for adolescents with difficulties that may not be reached by regular measures. The second program (*Schulverweigerung – Die 2. Chance*) was developed to reintegrate persistent truants into school life to secure the attainment of an educational degree by means of personal contact persons and individual plans for development that is adjusted to students' needs and life circumstances. The so-called *competence agencies* (Kompetenzagenturen), the third program, are comparable to the career entry support programs, but put a special emphasis on youths' personal and family contexts. Finally, the initiative also comprises a program that supports local action plans and projects with the goal of a social, educational, and work (re)integration of young people in urban areas with social problems and rural areas low in structure (*STÄRKEN vor Ort*).

In addition, there are also programs and projects that aim at promoting the integration of adolescents with a migration background as well as students with learning disabilities into the labor market by means of providing opportunities to gain practical work experience (e.g., *Berufspraxis erleben* in Thuringia) and establishing networks between all partners involved in the transition process (schools, parents, local educational institutions, companies) (e.g., the initiative *Regionales Übergangsmanagement* as part of *Perspektive Berufsabschluss* by the BMBF).

The last kind of measures may be those that aim at increasing chances for youths in the transitional system to transit in a regular vocational training, for example, by providing opportunities for further qualification and promoting basic (profession-specific) competencies required for a regular vocational training (e.g., the initiative *Abschlussorientierte modulare Nachqualifizierung* as part of *Perspektive Berufsabschluss* by the BMBF; *JOBSTARTER CONNECT*).

1.4 Shortcomings of Current Approaches and Alternatives

Taken together, the current efforts to facilitate the STWT either set in at a structural level (increasing the number of available training positions), target only individuals who seem to be especially in need for personal assistance in the process, or –as the most school-related activities– only focus on specific aspects or task related to the transition (e.g., making an occupational choice, job interview). Although these measures seem to be necessary, they may not be enough to prepare young people comprehensively for the STWT and later work life that increasingly require individuals to become active themselves in setting career goals and following up on them (e.g., Savickas, 2005) instead of relying on contextual support. Therefore, it has been argued that, in addition to already existing approaches, it might be promising to promote more generic skills and resources in all students that enable them to exercise individual agency during the STWT process and in later career, (e.g, Hamilton & Hamilton, 2000; Koch, 2006; Trilling & Fadel, 2009; Youniss & Ruth, 2002).

There are some programs available that actually pursue such a skills promoting approach but these programs often either lack a theoretical foundation, do target only individuals with special needs, or are hardly scientifically evaluated, especially with respect to career-related outcomes (cf. Weichold, 2009). One positive examples for such a skills promotion approach to the facilitation of the STWT represent the *Towards Working Life* (Vuori, Koivisto, Mutanen, Jokisaari, & Salmela-Aro, 2008) and the *School-to-Work group methods* (Koivisto, Vuori, & Nykyri, 2007) in Scandinavia. These intervention programs target adolescents facing the transition from basic education to upper secondary or vocational studies and young adults facing the transition from vocational studies to work, respectively. They aim at increasing the preparedness for and well-being during these specific transitions through fostering vocational exploration, career planning, and development of strategies to carry out plans. Evaluation studies that make use of randomized field trials have shown positive impacts of the program with respect to well-being, life goals, employment, and quality of employment (Koivisto et al., 2008; Vuori et al., 2007). With respect to Germany, two examples of manual-based, theory-driven programs for which evaluation results are available will be briefly addressed in the following. First, there is the *JobFit* program which is the school-based version of the *Training mit Jugendlichen* (training with adolescents) developed by Petermann and Petermann (2010). This program aims primarily at the promotion of social behavior but also targets intra-personal skills related to the career context such as dealing with failure and setbacks or reflection on career-related goals. The

effectiveness of this training program with regard to the improvement of social skills has been demonstrated in several evaluation studies with relatively low sample sizes (Koglin, Petermann, Heffter, & Petermann, 2010; Roos & Petermann, 2005; Schultheiß, Petermann, & Petermann, 2010). However, these studies did not investigate effects on any other variables that may be related to career development. A second German program is the *SMS* (self-reflection, motivation, and self-presentation) program that aims at promoting youths' perception of their strengths and opportunities, and strengthening behavioral competencies for career choice and job application as basics a successful STWT (Monigl, Amerein, Stahl-Wagner, Behr, 2011). However, the evaluation results available so far only to concern self-perceived but not objective changes regarding the outcomes.

To conclude, currently there are no theoretically sound skills promoting programs for students designed for fostering the STWT which are comprehensively evaluated also with regard to actual career-related variables available in Germany. For that reason, a new intervention program was developed whose design and evaluation is addressed in the current thesis.

II

The Development and Design of the Skills Promotion Program SCHuuuB for Facilitating the School-to-Work-Transition

According to Mittag and Hager (2000) the conception of a new intervention program needs to address the following aspects: The definition and description of the problem that should be tackled, the definition of a target group, the explicit definition of the intervention goals, the definition of methods, setting and implementing person, and the theoretical and empirical background from which goals, content, and methods are derived.

The specific problem that should be tackled with the current intervention program was already described in the previous chapter of that thesis: The school-to-work transition has become increasingly insecure and uncertain over the past decades and there is concern that youths may be not sufficiently equipped with the necessary skills and resources for actively mastering that transition. Therefore, a skills promoting intervention program with the major goal of facilitating the transition from education to work was developed. In the following the target group, timing, and implementation stetting of the intervention program are outlined. Afterwards, the theories and concepts from which the specific contents of the program were derived are presented. This section is then followed by the description of the methods and instruction techniques applied in the program. Finally, the program is described and results of a pilot evaluation study are provided.

2.1 Target Group and Timing

As outlined above, individuals with lower education seem to experience greater difficulties in the transition to work than those eligible for tertiary education (see Sections 1.1 and 1.2). For that reason, it was decided to develop the current intervention program for students on non-college bound school tracks (lowest and medium track).

A further decision concerned the timing of the intervention. According to Lerner's theory of developmental contextualism (e.g., Lerner & Castellino, 2002) as well as Baltes' life-span developmental psychology (e.g., Baltes, Lindenberger, & Staudinger, 2006), the potential for developmental change exists across the whole life-span. Thus, intervention and positive change is possible at any time in general. However, plasticity is relative and varies across ontogeny depending on past developments and contemporary contextual conditions.

Hence, there may be periods in the human life course which are more or less sensitive to specific interventions so that their timing has substantial consequences for program impact (cf. Schmitt-Rodermund, 1999). The time right before a transition is regarded as especially favorable for interventions because a transition usually sets the basis for the future positive or negative developmental trajectory so that later changes are more difficult to achieve (Ferrer-Wreder et al. 2004; Heckhausen & Schulz, 1999; Seidman & French, 2004).

In the German school system, students on non-college bound tracks graduate from school at the end of the ninth (lowest educational track) or tenth (medium educational track) grade, and for the most part start a vocational training. Furthermore, to be able to start a vocational training within a few a months after graduation they have to apply for a vocational training position in companies up to one year before. Most of the students are aware of the significance of this time period for their own vocational career and thus, are very sensitive to and interested in learning relevant information and acquiring support for the mastery of the forthcoming demands (Bertelsmann Stiftung, 2005; Kracke & Heckhausen, 2008, Peschke, 2010). Taking these considerations into account the current intervention program targets ninth grade students on non-college bound school tracks.

2.2 Setting and Implementing Persons

Another important issue for the design of interventions is the setting of program implementation. With respect to the current intervention program the school context may be the most appropriate one for several reasons. First, schools have the explicit task to prepare adolescents for their future work life (e.g., Thüringer Ministerium für Wissenschaft, Bildung und Kultur, 2011) and a proper intervention program could assist them in fulfilling that task (cf. Perry & Wallace, 2012). Second, the target group is easily accessible and the issue of vocational career is salient to all students facing the school-to-work transition. Third, individuals in need of intervention do not have to be separated and, thus, stigmatized from other students (Jerusalem, 1997). Finally, as the school is a place where many socialization and learning processes take place (Pekrun & Fend, 1991; Lent, Brown & Hackett, 1999) it represents a convenient setting for initiating behavioral changes and promoting positive youth development.

Furthermore, as in most school-based intervention programs, a train-the-trainer approach (i.e., trained practitioners implement the training instead of program staff) was taken here which has several advantages. First, the program can be carried out in many schools at

the same time. Second, the responsibility and expertise remain within the institution which promotes the sustainability of the program. Third, as teachers have continuous contact to their students their positive behaviors may be subject to reinforcement by teachers even after program termination to increase or maintain program effects over a longer period of time. Finally, the learning techniques teachers and students become familiar with during the program can be integrated into regular teaching.

2.3 What to Promote? Psychosocial Skills and Resources Related to a Successful STWT

When it comes to the decision which skills or resources should be promoted to facilitate a successful STWT, empirical evidence as well as theoretical considerations have to be taken into account. Unfortunately, there is no theory available that directly relates to the STWT process. However, there are several theories, concepts, and empirical findings regarding career choice and career development in general. Career behavior is too complex to be explained by only one theory or concept. Therefore, an intervention program with the aim of fostering skills and resources relevant for a successful STWT and later career development may fall short when it is based on only one theoretical approach. The aim of the following description is to identify the aspects most central to each theory and concept that should be addressed in career intervention programs. This section concludes with a summary of consequences regarding the contents of the current training program.

2.3.1 Theories of Career Choice and Development

Theories regarding career development for the most part either focus on individuals' personal characteristics or traits, their role in occupational choice and a fit between personal and occupation characteristics, or on the process of career development (e.g., Leung, 2008). Both approaches are useful for the current purpose as they identify necessary skills and resources for the transition process as well as later successful career development. The different approaches to career development will be outlined and their relevance for the contents of the current training program will be summarized at the end of each section.

Theory of Vocational Personalities in Work Environment

One of the most prominent career theories that focus on personal characteristics for work success and satisfaction is the *Theory of Vocational Personalities in Work Environment* by Holland (1985, 1997). It is primarily concerned with the principles underlying career choice and the fit between the person and the occupational environment. The theory by Holland offers a typology framework on career interest and job environments. Holland postulated that vocational interest is an expression of one's personality, and that vocational interests could be conceptualized into six typologies, which are Realistic (R, persons who see themselves as practical, mechanical, and realistic), Investigative (I, persons who see themselves as precise, scientific, and intellectual), Artistic (A, persons who see themselves as expressive, original, and independent), Social (S, persons who see themselves as helpful, friendly, and trustworthy), Enterprising (E, persons who see themselves as energetic, ambitious, and sociable orderly, and good at following a set plan), and Conventional (C, persons who see themselves as). In the same way, specific occupations can be grouped into the same six categories according to their work environment characteristics. According to Holland, a person chooses its occupation in a way that the occupational environment would match the personality profile. Furthermore, the match between the personality and the occupational characteristics (i.e., congruence) would later predict career success and satisfaction.

Similar ideas about the importance of a fit between the person and the work environment can also be found in other theories, although those do not (only) see personal interests but (cultural) values (Bordin, 1990; Brown, 2003) and a persons' abilities and aptitudes (Lofquist & Dawis, 1991; Parsons, 1909) as central personal characteristics for career choice.

Although these theories often use personality profiles that are not empirically derived and underestimate the fact that personal interests or values, occupations themselves, and with that the person-environment-fit may change over time (e.g., Patton & McMahon, 2006), these theories clearly provide a starting point for career interventions. What is essential to these theories is that in order to select or set a career or occupational goal, an individual has first to engage in career exploration, i.e., carrying out activities that are directed toward enhancing self-related (e.g., interests, strengths, weaknesses) and environmental knowledge (e.g., current labor market opportunities, knowledge about diverse occupations) in order to foster progress in career development (Blustein, 1992). Problems may emerge when individuals do not explore different options and their own personal characteristics (enough). Therefore, the training program should promote career exploration both in terms of the self and different

occupations as well as establishing links between an individual's interests and potential career options. In addition and with regard to the aim of imparting knowledge about different occupations, Holland's theory also provides a relatively comprehensible classification of occupation that provide students a basic structure and understanding from which they can further explore the variety of occupations.

Self-concept Theory of Career Development & Career Construction Theory

Contrary to Holland's and other matching theories that conceive individual vocational interests and values as rather static, the *Self-Concept Theory of Career Development* (Super, 1969, 1990) puts its emphasis on the process of career choice and development which is primarily driven by developing and implementing the individual self-concept. According to this theory, individuals are more satisfied with their occupational choice if the chosen occupation permits them to express their self-concept. Thereby, the vocational self-concept is not a static entity but develops in interaction with new experiences and the mastering of vocational developmental tasks posed at different life stages. Super (1990) distinguishes five life stages that are connected to the chronological age: *growth* (birth to 14 years, formation of personal attitudes, interests, and needs), *exploration* (15-24 years, try out different roles and explore occupational options through school, leisure, part-time work, and volunteering), *establishment* (25-44 years, occupational skill building and stabilization through work experience), *maintenance*/*management* (45-64 years, adjustment processes to improve position), and *disengagement* (65 years and older, preparation for retirement). Each life stage is characterized by a set of contextually defined vocational developmental tasks. From mid-adolescence to early adulthood, individuals encounter the three successive tasks of the exploration phase: Crystallization, specification, and implementation. Specifically, adolescents have to develop an understanding of their interests, skills, and values, and formulate and plan tentative occupational goals that are consistent with that understanding (crystallization). Following that, they need to make increasingly specific career choices (specification). After mastering that task individuals should be able to name specific preferred occupational options. At the end of the exploration stage, individuals actually transit to the world of work by actively implementing their choices through training and jobs (implementation). The degree to which adolescents are able to fulfil the vocational developmental tasks required in each developmental stage is referred to as *career or vocational maturity*. Career maturity, thereby, comprises five dimensions (Super, Thompson, Lindeman, Jordaan, & Myers, 1981): (1) Attitudes towards career planning, (2) career

decision-making skills, (3) career exploration (i.e., knowledge and use of information resources), (4) possession of general information about the world of work (5), and detailed information about the preferred occupations.

In a more recent approach, Savickas has refined and advanced Super's theory into the *Theory of Career Construction* (Savickas, 2002a; 2005) which takes changes in the world of work (e.g., restructuring of occupations, transformation of the labor force, economic instability, multiple demands of social and soft skills) into account. In his view, career development may not be described anymore as maturation through passing through a set of sequenced, closed stages to stability, but a process in which individuals actively and continuously construct their careers by making choices and expressing their (developing) self-concepts. Thereby, people re-cycle through the stages of orientation, exploration, establishment, management, and disengagement each time they encounter occupational transitions (e.g., from school to work, from job to job; Savickas, 2002a). In this context, he also suggested to exchange the concept of career maturity with *career adaptability* (Savickas, 1997) that is referred to as an "individual's readiness and resources for coping with current and anticipated tasks of vocational development" (Savickas, 2005; p. 156). This formulation implies that adaptability, as compared to maturity, does not only apply for anticipated developmental tasks but also for coping with unpredictable changes. According to Savickas (2002a, 2005), career adaptability comprises four dimensions. (1) *Career concern* reflects a positive future orientation and being aware of the importance of personal efforts regarding the own future career. (2) *Control* is the awareness of being responsible for the own vocational future as precondition for the initiation and regulation of intentional vocational behavior. (3) *Curiosity* refers to showing initiative in exploring possible selves and the world of work. Finally, (4) *confidence* describes a feeling of self-efficacy to pursue personal aspirations.

To summarize, these two theories do not only offer descriptions and explanations for vocational development but also starting points for the development of career interventions that aim at preparing youths for the STWT and future career development. It becomes clear that career choice and its implementation are processes and comprise several minor steps in which several skills or resources are needed. Problems may arise when the individual does not possess these skills and resources or does not engage in the tasks of the different steps. When students are about to leave school and enter the labor market they are in the stage of exploration. A training program for that age group should, therefore, comprise elements for the promotion of self-knowledge and knowledge about the labor market and occupations,

planning skills, and decision making skills, and psychological resources associated with adaptability (internal control beliefs, self-efficacy, future optimism).

Social Cognitive Career Theory

The *Social Cognitive Career Theory* (Lent, Brown, & Hackett, 1994) was developed as an application of Bandura's (1986) general Social Cognitive Theory to the context of career development (interests, choice, and performance). Thereby, it integrates basically three psychosocial competencies and characteristics, namely self-efficacy, outcome expectations, and goal mechanisms, into a process of self-regulative behavior of career development. According to that theory, the process of career development starts with the (1) formation of vocational interests, which are influenced by self-efficacy and outcome expectations that are based on personal learning experiences. Vocational interests, in turn, lead to an intent to do certain activities, and eventually, in the (2) formation of vocational goals that relate to these activities. Vocational goals, that are desired future states, are considered as precondition for conscious and active shaping of the own vocational career (e.g., Brunstein, Maier, & Dargel, 2007). The initiation of (3) goal-directed actions as well as its quality and persistence then depends on the individuals' beliefs in their efficacy to carry out the necessary actions (i.e., self-efficacy) and their beliefs that a desired outcome is related to these actions (i.e., outcome expectations). Brown and Lent (2006) noted that some people eliminate certain possible occupational alternatives due to erroneous outcome expectations in that they perceive barriers to an occupation that may not be there in actuality. In this regard, the provision of accurate information on diverse occupations and the identification of barriers along with possible ways to overcome them may be helpful. Finally, the (4) results of goal-directed behavior shape individuals' self-efficacy beliefs and outcome expectations, and thereby, the direction of future career behavior. Throughout the whole process of career development personal agency is shaped in relation to other factors related to personal (e.g., gender, physical characteristics), contextual (e.g., social support, economic conditions), and experiential factors.

From the perspective of the Social Cognitive Career Theory, an intervention program designed for fostering the STWT should comprise contents that target self-reflection on personal interests, knowledge related to the labor market, exploration of different occupations, realistic goal setting that is in line with personal interests, effective goal pursuit strategies including strategies to actively dealing with barriers, setbacks, or failures.

2.3.2 Concepts of Carer Development: Career Choice Maturity, Readiness for Vocational Training, and Employability

This sections aims at describing three interrelated but distinct concepts that are often referred to when it comes to explaining success or failure in the STWT and in the world of work in general: *Career choice competence, readiness for vocational training,* and *employability.* All three concepts refer to a set of skills and resources that a person more or less should possess to be successful in different stages of career development.

Career Choice Maturity

The concept of career choice maturity comprises a set of cognitive abilities, motivational orientations, and behavioral competencies that are needed to decide for a career or occupation (Driesel-Lange, Hany, Kracke, & Schindler, 2010). Based on current career theories and empirical findings the authors describe four phases that students should pass in order to plan and implement an informed and sound career choice: (1) *Preparing*, (2) *exploring*, (3) *deciding*, and (4) *reaching*. The necessary competencies that are involved in these sub-phases are: a) Cognitive competencies that comprise knowledge regarding the self, the world of work, different occupations, and requirements for different occupations; and planning and decision making competencies; b) motivational competencies that comprise personal involvement, acknowledging personal responsibility in career choice and planning, openness for different alternatives, and self-efficacy; c) behavioral competencies that comprise career exploration using different kinds of information sources, self-regulation competencies, problem solving strategies, and stress management. Although the different aspects of these competencies play different roles during the four phases (broad exploration, for instance, is more important in the beginning of the process than later; problem solving and stress management skills become more relevant during the decision and implementation phases), a student who could be described as ‘mature’ for career choice has to possess all of the above in order to make an adequate decision about her or his occupational or career goals.

To summarize, according to that concept, training programs designed for enhancing the STWT should promote knowledge regarding the self, the labor market and different occupations, planning and decision-making skills, career exploration behavior, and self-regulation (including problem solving and stress management skills).

Readiness for Vocational Training

The second concept which is specific to the vocational training and presumably to the German context, *readiness for vocational training* (Ausbildungsreife), is hardly defined in the literature but generally refers to a set of competencies (academic skills and soft skills) that are thought to be essential for successfully mastering a vocational training independent of occupation-specific skills (e.g., Ehrenthal, Eberhard, & Ulrich, 2005). According to a recent online survey of employers, a lack of readiness for vocational training is the main cause companies see responsible for difficulties with or even barriers to vocational training (about 75% of the companies experiencing difficulties with vocational training name 'lack of readiness for vocational training' as cause, Deutscher Industrie- und Handelskammertag, DIHK, 2012). As already stated, the specific competencies or skills that are comprised in the construct of readiness for a vocational training is not clear. For that reason, several efforts have been undertaken to establish a common understanding of the concept and develop criteria or indicators by which those involved in the STWT (adolescents, parents, employers, researchers) could decide whether or not a young person is ready to start a vocational training or which aspects would need further enhancement. In 2006 as part of the National Training Pact, the Federal Employment Agency published an official catalogue of defining criteria which was based on several expert opinions (Federal Employment Agency, 2006). According to that catalogue, readiness for vocational training comprises five aspects: (1) *Basic academic skills* (e.g., reading and writing, basic mathematic skills); (2) *psychological characteristics related to performance* (reasoning, vigilance, spatial ability, memory, speed); (3) *physiological characteristics* (age-appropriate development and acceptable health condition); (4) *psychological characteristics related to work ethics and personality* (reliability and sense of responsibility, ability to express and respond positively to criticism, communication skills, frustration tolerance and endurance, team skills, motivation to perform, good manners/conduct, conflict skills, autonomy and self-organization, diligence); and (5) *career choice maturity* (self-knowledge regarding own capabilities, interests, values, strengths and weaknesses; skills in seeking and processing information). However, although this catalogue summarizes a vast amount of competencies and skills – like all of the three concepts presented here – it does not state how much of these competencies are necessary or whether all competencies are needed to the same degree or some may be compensated by others. The concept of readiness for vocational training has also been criticised as lacking an empirical base (both in terms of necessity of these skills as well as evidence that youths nowadays lack or possess less readiness for vocational training than in earlier times) and may rather mirror

how employers wish their trainees to be. Furthermore, the critiques claim that the concept is often used to attribute failure in the attempt to get a vocational training position solely to young adults, or vice versa, as an excuse for companies why they could not fill all positions they offered, although alternative explanations may be available (e.g., lack of attractiveness of the position or the occupation; for a thorough critique of the concept see Dobischat, Kühnlein, & Schurgatz, 2012).

Nevertheless, even if the concept may not describe skills or competencies imperative for starting a vocational training, it comprises competencies that increase the chances for acquiring a training position as employers value these competencies high. Therefore, the career preparation efforts should tackle all five aspects of readiness for vocational training although the current program may not encompass the aspects of academic or cognitive performance, and physical characteristics which are hard to change by programs focussing on promoting general competencies.

Employability

The final concept presented here, *employability*, is the one most closely related to the world of work as it applies to individuals who already entered the labor market. Fugate and colleagues (Fugate, Kinicki, & Ashforth, 2004) define it as comprising personal characteristics that are needed to deal effectively with career-related changes. It is conceived as "psycho-social construct that embodies individual characteristics that foster adaptive cognition, behavior, and affect, and enhance the individual-work interface" (ibid., p. 15). Although the possession of employability does not assure actual employment, which is also dependent on external factors (e.g., employers' hiring criteria, years of work experience), it raises the likelihood of gaining employment.

The authors state that the term has been used widely in several domains (e.g., public policy, economics, vocational counseling) without a common understanding of the comprising elements, and provide a theoretically and empirically based framework. Employability encompasses three interacting dimensions: (1) Career identity, (2) social and human capital, and (3) personal adaptability.

The first dimension, *career identity*, refers to the way an individual defines itself in the work domain (e.g., "who I am", hopes, goals) and provides a subjective representation of past career experiences and future aspirations. Thereby, it comprises cognitive and affective aspects that motivate the realization of individuals' work-related plans.

The second dimension, *social and human capital*, represents resources that serve to implement work-related plans and goals. Social capital, thereby, refers to the benefits derived from the participation in social networks, for example, in terms of information and access to career opportunities. In this context, the benefits individuals can gain from these networks are dependent on the number and diversity of people in the personal network as well as the strength of ties to these persons. Whereas social capital addresses rather the personal benefit, human capital represents criteria by which employers evaluate applicants. It comprises a number of factors that influence an individual's career advancement such as age, education, work experience and training, or cognitive ability.

The third dimension, *personal adaptability*, refers to an individual's ability and willingness to change behavior and other personal factors to meet the demands of the situation. It comprises characteristics that predispose individuals to engage actively in adaptive efforts. In that regard, Fugate and colleagues (2004) identified five central constructs from the review of (empirical) literature: An internal locus of control, generalized self-efficacy, openness to change and new experiences, the propensity to learn, and optimism. With these characteristics, adaptable individuals are considered as being more successful in implementing vocational goals (e.g., Savickas, 1997) as well as more attractive to employers who seek for flexibility in their employees (Chan, 2000).

Taken together, from the perspective of the employability concept, interventions that aim at empowering young people to become more conscious and active producers of their own vocational career may promote the development of a career identity and the promotion of resources related to adaptability, as well as precursors of social and human capital. Specifically, adolescents are at the beginning of defining and refining their vocational identity and an intervention program could promote that development by fostering exploration of the self (i.e., interests, goals) and potential career options. With respect to the promotion of career adaptability the intervention may implement methods that enhance optimism, self-efficacy, and internal control beliefs. Furthermore, since employability also highlights the importance of social capital, an intervention program could include the training of social skills that enable individuals to built and sustain strong networks (e.g., communication skills).

2.3.3 Summary – Targeted Skills and Resources in the Training Program and Associations with the Life Skills Approach

Table 1 provides an overview of the main statements of each theory or concept outlined in the previous section along with the respective highlighted skills and resources considered as relevant for the STWT and later career development. Although the theories and concept reviewed in this section focus on different aspects, processes, and competencies involved in the STWT, it becomes clear that a thorough career preparation has to involve more than just acquiring practical work experience, knowledge about the labor market, different occupations, and the self and preparation for job applications/interviews. It rather requires more general skills to master the developmental task of successfully entering the labor market and later career development. In the following, the summary of the relevant skills and resources and its consequences for the contents of the current intervention program will outlined in relation to self-regulation process during the STWT and its sub-processes as it was described by Lent and colleagues (Lent et al., 2004) or Shanahan and Porfeli (2002): (1) Career exploration, (2) setting of vocational goals, and (3) devising and enacting a strategy to accomplish that goal (see Figure 3).

Before addressing the similarities regarding the skills and resources regarded as relevant for successfully engaging in the tasks of the STWT, it has to be stated that none of the considered theories and concepts make clear statements regarding the specific time, in terms of age or distance from STWT, the respective skills have to be developed. Furthermore, they, for the most part, do not address how the skills and resources may be fostered. The exception may be the Social Cognitive Career Theory that highlights the importance of social learning principles in the acquisition of the skills and resources. As a consequence, the timing and methods used in the current training program could only be loosely based on these theories and concepts.

Table 1 *Summary of Career Theories and Their Highlighted Skills and Resources*

Concept / Theory	Main Statements	Highlighted Personal Skills and Resources
Theory of Vocational Choice (Holland, 1997)	- people can be grouped according to their personality characteristics and vocational interests along the same dimensions as occupational environments can be categorized - occupational choice is an expression of personality - importance of the match between personal interests and occupational environments - satisfaction, occupational stability; and achievement depend on match (congruence) between personal and job characteristics	- knowledge of the self (vocational interests) - knowledge of occupations and world of work
Developmental Self-Concept Theory (Super, 1969, 1990) **Theory of Career Construction** (Savickas, 2002a, 2005)	- Vocational development is the process of developing and implementing a self-concept - self-concepts develop through the interaction of inherited aptitudes, physical make-up, and opportunities to observe - stages of vocational development: growth, exploration, establishment, management, disengagement (several stages may be re-iterated throughout life-span) - occupational success depends on the extent the individual finds adequate outlet in its work roles for their prominent vocational characteristics (ability personality traits, and self-concept) - satisfaction depends on degree the individual is able to implement its vocational self-concept	- self-reflection, knowledge of the self (needs, abilities, values and interests) - knowledge of occupations and world of work - decision-making and planning skills - psychological resources associated with adaptability (internal control beliefs, self-efficacy, future optimism)

Table 1 *Summary of Career Theories and Their Highlighted Skills and Resources (cont.)*

Concept / Theory	Main Statements	Highlighted Personal Skills and Resources
Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994)	- career development process comprises sub-processes: (1) vocational interest formation, (2) formation of career-related goals, (3) translation of goals into action - self-efficacy beliefs and optimistic outcome expectations are important throughout the whole process - personal attributes are based on previous mastery and performance experiences which in turn are influenced by personal and contextual factors	- self-reflection, knowledge of the self - knowledge about the labor market and different occupations - goal setting skills - goal pursuit skills, active coping with setbacks - personal resources: optimistic outcome expectation, self-efficacy
Career Choice Maturity (Driesel-Lange, Hany, Kracke, & Schindler, 2010)	- students should pass four phases in order to plan and implement an informed and sound career choice: (1) preparing, (2) exploring, (3) deciding, (4) reaching - necessary competencies involved in these sub-phases are: a) cognitive competencies (knowledge regarding the self, the world of work, different occupations; planning and decision making competencies b) motivational competencies (personal involvement, acknowledging personal responsibility, openness for different alternatives, self-efficacy) c) behavioral competencies (career exploration using different kinds of information sources, self-regulation competencies, problem solving strategies, and stress management)	- self-reflection, knowledge of the self - knowledge about the labor market and different occupations - decision-making and planning skills - career exploration - self-regulation (including problem solving and stress management skills)

Table 1 *Summary of Career Theories and Their Highlighted Skills and Resources (cont.)*

Concept / Theory	Main Statements	Highlighted Personal Skills and Resources
Readiness for Vocational Training (Ausbildungsreife) (e.g. Federal Employment Agency, 2006)	- = a set of competencies (academic skills and 'soft' skills) that are thought to be relevant for successfully mastering a vocational training independent of occupation-specific skills - comprises five aspects: (1) basic academic skills, (2) psychological characteristics related to performance, (3) physiological characteristics, (4) psychological characteristics related to work ethics and personality (reliability and sense of responsibility; ability to express and respond positively to criticism; communication skills, frustration tolerance and endurance; team skills; motivation to perform; good manners/conduct; conflict skills; autonomy and self-organization; diligence), (5) career choice maturity (self-knowledge regarding own capabilities, interests, values, strengths and weaknesses; skills in seeking and processing information).	- self-reflection and knowledge (own capabilities, interests, values, strengths and weaknesses) - information seeking and processing skills - social skills (giving and receiving feedback; team work skills; communication and conflict skills)
Employability (Fugate, Kinicki, & Ashforth, 2004)	- = individual characteristics that foster adaptive cognitions, behavior, and affect, and enable individuals to successfully react and adapt to changing demands in the work domain - importance of career identity (career-related goals, hopes, beliefs), social and human capital (social networks, education, work experience), and personal adaptability (optimism, openness to change, internal control beliefs, self-efficacy)	- self-reflection and knowledge (goals, hopes, beliefs) - resources related to adaptability (optimism, openness to change, internal control beliefs, self-efficacy)

Nearly all of the theories and concepts outlined above highlight that, in order to select or set a career or vocational goal, an individual has first to engage in career exploration, that is carrying out activities that are directed toward enhancing self-related (e.g., interests, strengths, weaknesses) and environmental (e.g., current labor market opportunities, knowledge about diverse occupations) knowledge in order to foster progress in career development (Blustein, 1992). The current intervention program, therefore, aims at promoting self-reflection on personal interests, the exploration of diverse occupations as well as imparting knowledge regarding the labor and vocational training market and information resources.

The next step in the process is the selection or setting of occupational goals as a precondition for actively engaging in shaping one's own vocational career (e.g., Lent et al., 1994). However, to be successful, the chosen vocational goal has to be realistic, i.e., attainable. Therefore, the individual has to possess the skills to match own interests and abilities with contextual opportunities and to adjust goals if a mismatch occurs (Driesel-Lange et al., 2010; Tomasik, Hardy, Haase, & Heckhausen, 2009). Thus, the current intervention programs further aims at the promotion of goal setting and goal adjustment skills.

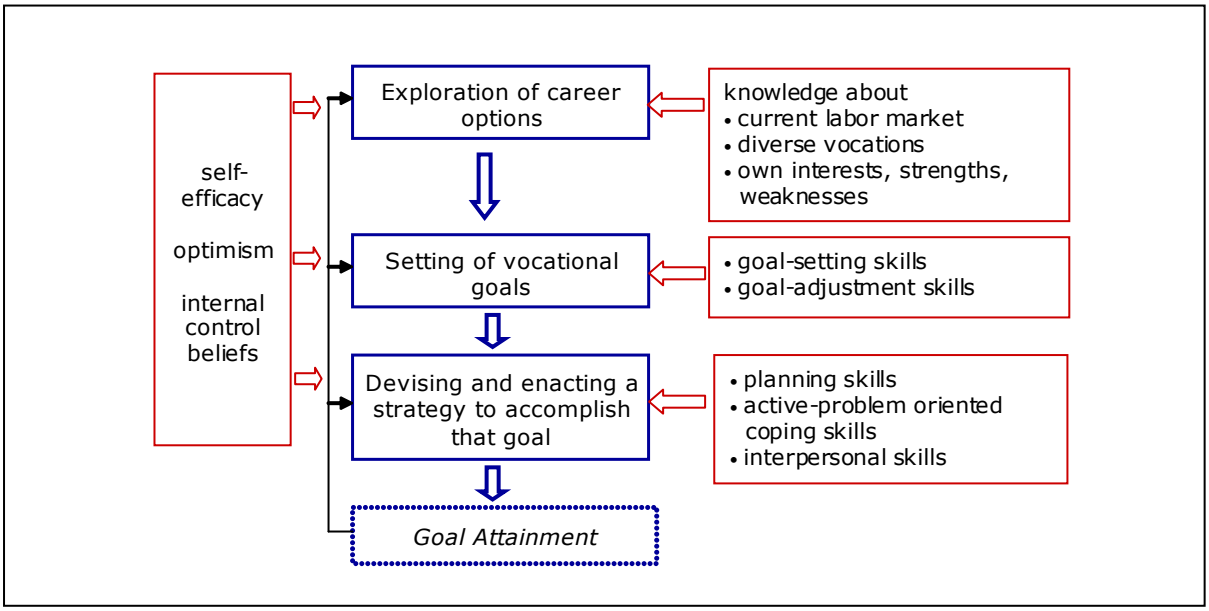
Setting an occupational goal alone often does not lead to goal-directed behavior. To accomplish the occupational goal (e.g., getting a vocational training position in the occupation preferred) an individual has to formulate a plan how to attain this goal and carrying it out in a third step. To succeed in that task several skills are needed. First, individuals should possess planning skills (e.g., Driesel-Lange et al., 2010) that enable them to decompose major goals into sub-goals, construct different ways to attain these sub-goals, thinking about consequences of specific plans, and deciding on the most appropriate strategy (Nurmi, 1991). Second, the individual has to possess active and adaptive goal pursuit or coping strategies and resources in order to deal with obstacles or problems that may emerge during the goal pursuit process (e.g., Driesel-Lange et al., 2010; Fugate et al., 2004; Lent et al., 1994; Savickas, 2005). Which coping strategies are adaptive in a given situation depends on the specific circumstances (Heckhausen & Schulz, 1995). Although it has been found that active and problem-oriented coping such as looking for alternative ways to attain the desired goal is generally adaptive in dealing with demands emerging from changes in the contexts (e.g., Pinquart & Silbereisen, 2008), it has also been shown that disengaging strategies have the potential to be adaptive in cases when constraints can not be individually mastered and the likelihood of goal attainment is very limited, especially when alternative options are available (Tomasik, Silbereisen & Heckhausen, 2010). Finally, interpersonal skills such as communication skills further foster the attainment of occupational goals, for example, through enhancing chances to succeed in a

job interview (Driesel-Lange et al., 2010; Federal Employment Agency, 2006; Fugate et al., 2004). Furthermore, these skills are increasingly expected in the domain of work and provide an essential base for social resources (e.g., social ties) which could be used to attain the desired vocational training position. Therefore, the current intervention program aims at promoting planning and goal pursuit skills, effective strategies for dealing with failure and setbacks, as well as interpersonal skills relevant in the work domain (communication skills, giving and receiving feedback, self-confident behavior, and self-presentation skills).

In addition, to the skills outlined above, several theories and concepts highlight the importance of optimism, self-efficacy, and internal control beliefs throughout the whole STWT process and further career development (Fugate et al., 2004; Lent et al., 1994; Savickas 2002a, 2005). Therefore, the experiences adolescents gain during the intervention program should contribute to the promotion of self-efficacy and internal control beliefs as well as positive outcome expectations.

Taken together, different career development theories and concepts share similar meanings they ascribe to several skills and resources relevant for actively and successfully mastering the tasks of the STWT process and later career development. As the current state of research does not allow for deciding whether one variable may be more important than another one, a broad variety of variables related to career choice, implementing career goals, and social skills were targeted in the SCHuuuB intervention program.

Figure 3 The Sub-Processes Involved in the STWT (blue) and the Respective Skills and Resources Targeted by the SCHuuuB Program (red)



A closer look at the skills and resources identified as relevant in several career theories and concepts evokes the impression that they may not be specific to the career context but also enhance the mastering of other adolescent (developmental) tasks. In this respect, they may also be regarded as so-called *life skills* (Taylor, 2005; Weichold, 2009). According to the definition of the World Health Organisation (WHO, 1997) life skills are "abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life" (p. 1). Also the list of ten intra- and interpersonal core life skills: decision making, problem solving, creative thinking, critical thinking, effective communication, interpersonal relationship skills, self-awareness, empathy, coping with emotions, and coping with stress shows a great overlap with the skills relevant in the STWT context (e.g., self-reflection, decision making, planning and problem solving, communication and social skills). To promote life skills, Botvin developed a specific and relatively successful intervention approach (Botvin, 1998; Botvin & Griffin, 2002). Life Skills programs have been evaluated extensively and have demonstrated effectiveness in different contexts and for various problem behaviors, such as drug use, teenage pregnancy, or violence (Botvin & Griffin, 2004). In recent years, they were also successfully applied in the field of vocational-related skills promotion (e.g., Petermann & Petermann, 2010; Schmitt-Rodermund & Schröder, 2004). The instruction techniques of Life Skills programs are based on social and active learning principles and comprise group work, brainstorming sessions with feedback, role plays, games, practice via homework assignments, and discussions (Botvin & Griffin, 2004). Through the application of these various interactive instructions instead of non-interactive and teacher-based instructions (i.e., presentation of information without peer interaction) implementers are able to foster participation and therefore improving the effectiveness of the program (Tobler et al., 2000). Given the effectiveness of Life Skills programs and the conceptual overlap of life skills and career-related skills, the current intervention program adopts the basic principle of Life Skills programs in that it focus on the promotion of generic skills, supplemented with career-specific knowledge, and career-specific skills. Furthermore, its structure follows the structure of Life Skills training programs in that comprises several units where participants are supposed to learn about and work actively on one selected topic or skill.

2.4 How Should These Skills and Resources be Promoted? Characteristics of Effective Skills Promotion Programs

To decide on how the current intervention program should be structured and taught in order to be effective, the following section provides an overview regarding of what is currently known about the characteristics of effective programs. Thereby, the focus is set on school-based intervention or training programs. The section concludes with the consequences of this research with regard to the current skills promotion program.

In the literature several characteristics of effective school-based intervention programs have been identified and, for the most part, they describe the features of Life Skills programs (see Section 2.3.3). In their review of several reviews and meta-analyses of studies on skills promotion prevention programs, Nation and colleagues (2003) could identify a number of characteristics of effective programs. With respect to the structure of such programs they name comprehensiveness (i.e., multiple interventions including different settings), a sufficient dosage (preferably with booster sessions), and a scientifically justified, theory-driven program conception as important factors. Furthermore, they highlight the importance of the developmentally appropriate timing of the intervention as well as well-trained implementing staff. Regarding the applied methods to teach skills they conclude that the application of varied teaching methods with a focus on interactive instructions (as opposed to non-interactive methods, see also, Tobler & Stratton, 1997) that provide participants with opportunities to built positive relationships (with teachers, peers and parents) and gain active learning experience are the most promising in the area. This list of characteristics are also broadly shared by Bond and Hauf (2004) who add the advantage of a resource-oriented instead of an deficit-oriented approach to prevention and of programs with clearly defined objectives. In the context of the social and emotional learning approach (Payton et al., 2008), which is comparable to the life skills approach but targets the academic area more directly, programs that follow four basic principles have been identified as especially effective in the school context (Durlak et al., 2011). These four principles are often referred to with the abbreviation SAFE for **s**equenced, **a**ctive, **f**ocussed, **e**xplicit and show a great overlap with the already mentioned characteristics above. In essence they suggest that skills promotion programs should comprise a planned set of activities to learn new behavior and more complicated skills in step-by-step way (sequenced); use active forms of learning that require participants to act on the material (active); focus on specific skills and spent sufficient time on

the improvement of these skills (focussed); and state clear and specific learning objectives (explicit).

These empirical findings and suggestions were taken into account in the design of the current skills promotion program. The theoretical foundation of the contents, goals, and timing of the SCHuuuB program were already introduced above (see Sections 2.1 and 2.3). With respect to the program's structure and teaching methods the recommendations derived from research on effective programs were also taken into account: The SCHuuuB program comprises ten sessions of 90 minutes duration each. Each session is dealing with one specific knowledge aspect or skill and the learning objectives are outlined in the beginning of each session. After a brief (often interactive) instruction phase the major part of each session consists of practical exercises which are often interactive in nature such as role plays, small group work, and group discussions to provide participants enough time to apply what they have learned to a specific situation or task.

Further attention was paid to the appropriate training of implementing teachers. Following the suggestions of the WHO (Hawks, Scott, & McBride, 2002) the training workshop was carried out by program staff. Apart from presenting the program and its theoretical foundation, a special emphasis was put on implementers' motivation and the application of resource-oriented teaching methods.

2.5 Integration: The skills promoting training program SCHuuuB

The goals, target group, and methods of the current school-based skills promoting program derived from theoretical considerations were presented in the previous sections. In the following, its structure and specific contents will be described.

As outlined in Section 2.2, it was aimed at promoting the skills and resources relevant for successfully and actively mastering the tasks during the STWT process and later career development in the school context. Therefore, the limited time schools can afford to conduct programs that are not related to specific a subject, limited the program time that could be dedicated to the training of each of these skills. The training program comprises ten sessions each of which is designed to target one specific topic, skill (domain), or knowledge component. Each session is scheduled for 90 minutes (i.e., the duration of two regular school lessons). This number of ten sessions was rather a maximum of what schools can afford for such programs according to teachers that were involved in the pilot testing of SCHuuuB. The

program can be carried out either in one or two sessions per week during regular school lessons or in the context of a school's Project Week with two sessions per day. Table 3 at the end of this section provides an overview of the ten sessions, the specific exercises, and targeted skills and resources.

Before implementation the facilitators, that is teachers or other school staff, receive a facilitator training. During that one-day workshop facilitators are provided with the programs' background and an overview of its structure. Facilitators are also made familiar with the various exercises and games as well as the learning principles underlying the program. They also receive the training materials (manual and workbooks for students) at the end of the training.

The structured training manual contains a short introduction into the topic and detailed descriptions for every session. At the beginning of the description of each session the theoretical background is briefly summarized and an overview of session goals and materials needed to carry out the session is given. This is followed by a detailed description of the session's exercises, games, and/or knowledge components. After that, the session's contents and estimated duration for each component are briefly summarized in a table (see Table 2 for an example) which is followed by the materials needed.

Each session follows a tripartite structure: (1) In the beginning, the central issues of the previous session are briefly recapitulated and the topic and the goals of the current session are introduced (usually by means of a short interactive exercise or game); (2) afterwards, the session's knowledge parts and exercises are carried out; (3) each session closes with a brief summary and conclusion. In three of the ten sessions homework for students is assigned that serves as preparation for the next session.

The ten sessions may be grouped into three groups according to their content. The first three sessions broadly deal with providing knowledge about the labor market, the exploration of diverse vocations, the own interests, strengths, and weaknesses, and information seeking. In the following three sessions, questions of goal setting and goal pursuit including problem solving are worked out. Sessions seven to nine comprise the training of social skills. In the final session students recap what they have learned during the program and think further about their vocational future.

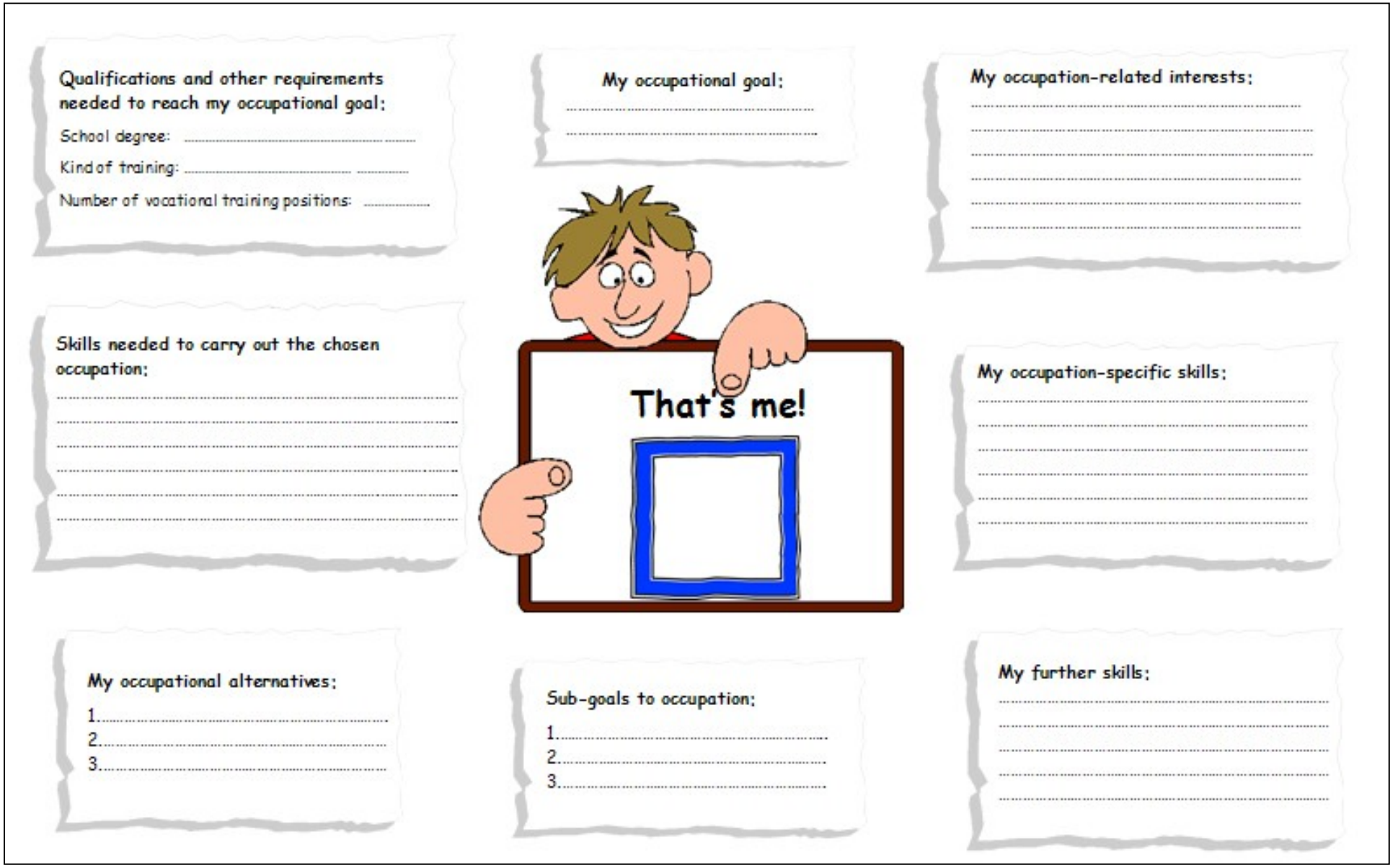
Table 2 *Exemplary Session's Overview (Session 6 'Dealing with failure and setbacks')*

Phase	Content	Method	Materials	Time
Knowledge 1: Cognitions, Feelings & Behavior	participants elaborate consequences of specific attributions for feelings and future behavior	group discussion	FOIL 6-1/ WORKSHEET 5-4/ MATERIAL 6-1: Cognitions, feelings & behavior	10 mins
Knowledge 2: Dealing With Failure and Setbacks	participants remember a specific personal failure and talk about how they have dealt with that event the facilitator explains a specific strategy for dealing with such situations	group discussion direct	FOIL 6-2/ WORKSHEET 6-1/ MATERIAL 6-2: Dealing with failure and setbacks	10 mins
Knowledge 3: **Coping Strategies**	participants collect several ways of coping with with failure, problems, and stress participants learn about several coping strategies and their functionality	group discussion	FOIL 6-3/ WORKSHEET 6-2: Coping strategies	15 mins
Exercise 1: Coping Game	participants are grouped (approx. 4 persons) by means of a card game participants learn to apply coping strategies appropriately to a specific situation the winning team receives a small price	small group work/ group discussion	MATERIAL 6-3: Game instructions MATERIAL 6-4a/b: Game solution MATERIAL 6-5: Strategy cards FOIL 6-4: Situations	35 mins
Exercise 2: Problems and Solutions	participants collect possible problems and difficulties which may occur during the process of finding a vocational training position and discuss several ways for dealing with these possible obstacles	small group work/ group discussion	WORKSHEET 6-3/ MATERIAL 6-6: Problems and Solutions	20 mins
Exercise 3: Breath!	participants learn a relaxation technique	direct	MATERIAL 6-7a/b: Breath! (instruction)	20 mins

The training program starts with an introductory session (**Session 1 'Introduction'**). After a short introduction to the program's aims and a brief outline of what will happen during the ten sessions, the participants are introduced to the 'That's me' collage that is thought to document the progress participants make during the training program and serves further as the base for the ninth session where participants present themselves to their group. The 'That's me' collage (see Figure 4) is a larger sheet of paper on which students collect important facts they need to know about themselves and their favoured occupation in order to make an adequate occupational choice and implement a strategy to reach their occupational goal (i.e., getting a vocational training position in the occupation chosen). Furthermore, the base for an effective group training is set in the first session in that participants discuss about and decide on the group rules they commit to during the program (e.g., 'we start and end our sessions punctually', 'we do not interrupt each other during discussions'). At the end of the first session participants elaborate the characteristics of today's labor market by means of a memory card game where they have to find matching pairs with one card describing earlier characteristics and the other today's equivalent (e.g., in earlier times: mostly staying at the same employer vs. today: usual to change jobs and even occupations several times during career). This game should highlight the enlarged room for choices and active shaping of the own career development and at the same time also the need for personal agency.

The second session aims at imparting more knowledge about today's labor and vocational training market (**Session 2 'Knowledge about the labor market and different occupations'**). In the beginning, participants play a trivia game that should primarily draw their attention to a number of facts that influence the chances to acquire a fitting vocational training position and later jobs (e.g., taking into account several options out of the large number of available occupations for training, choosing an occupation that is not prototypical for their gender and not under the most famous occupations, the importance of an educational degree and a vocational training). Afterwards, participants conduct a quiz where they have to guess a number of occupations based on pieces of information about typical work activities. The aim of that game is to encourage exploration of diverse and not so well known occupations. At the end of the session participants learn about Holland's classification of job environments and persons as bases of career choice. They also think about the kind of person they might be and in which type of occupations they are interested the most. In homework, participants should think about their dream job and about the reasons why they would like to work in that occupation.

Figure 4 Template for the 'That's me' Collage (Session 1 'Introduction'/Session 9 'Self-presentation')



The third session (**Session 3 'Self-exploration'**) targets self-reflection and the connection of interests with possible occupational alternatives. At the beginning, participants think about their personal strengths and general interests, they also reflect on the characteristics their future job should have. This is primarily done with short lists of characteristics. Following that, participants fill out and evaluate the results of a short occupational interest test. This interest test is oriented at Holland's typology of interests in that participants get a code out of the test results according to which several occupations are suggested to them (using a list containing codes and possible occupations). Alternatively, participants could also do the test on the website run by the Federal Employment Agency (planet-beruf.de) which follows the same principles. Afterwards, the group brainstorms on the kind of information they would need to gather (and how) about the suggested occupations, and what to take into account in order to make an informed decision about whether they would choose one or more of the occupational alternatives. At the end of the session, participants get the task to gather these pieces of information on the suggested occupations or the occupation they have already chosen for themselves, respectively. For that purpose participants also receive a list containing several websites and addresses where they could get the information.

Taken together, the content of the first three sessions is primarily referring to the bases of career choice that can be found in the theories of Holland and others, that is, knowledge about the self, about the labor and vocational training market, and about different occupations.

The fourth session (**Session 4 'Goal attainment'**) is concerned with adequate goal setting and adjustment. As a warm-up for that session participants are asked to write down one or more personal goals (not necessarily related to career planning). The participants then learn about characteristics of realistic and reachable goals and try to reformulate their goals in accordance with these characteristics. To practice goal adjustment they play a game in multiple rounds (either a cognitive speed task or a physical accuracy task) by which they should learn to set challenging yet reachable goals. They learn to successively adjust their goals to their actual performance. This game is also used to clarify how succeeding or failing in goal attainment relates to specific feelings and further behavior. Following that, students learn about a method to plan the solution of a problem or a greater task and apply that method in a typical problem solving task. The task also includes breaking down of the larger problem into the solution of several sub-tasks or goals, respectively, which is often necessary for the solution of a bigger task such as the attainment of a vocational training position. They are then encouraged to apply the breakdown into sub-goals to their own career planning process.

The fifth session (**Session 5 'Expectations'**) is primarily concerned with the recognition of personal influence in and responsibility for several events with the aim of increasing internal control beliefs. For that reason, participants brainstorm about the three possible sources of influence (person, others, and chance) and their contribution to several events (a specific failure situation and situations which seem to be chance events). Following that, participants discuss things they can and cannot influence before and during a job interview in order to attain a vocational training position or job (see Figure 5). The aim of this exercise is to show various points for personal influence but also to recognize that a failure in that situation may not be attributable to the self alone. Recognizing the own contribution but acknowledging other sources of influence is a prerequisite for (maintaining) active goal pursuit. In a homework assignment, participants should think about specific feelings and actions related to certain attributions after an experience of failure.

The sixth and final session of this block (**Session 6 'Dealing with failure and setbacks'**) primarily deals with the topic of handling setbacks and failures. First, the participants discuss about the strategies they apply when dealing with failure. At the closing of this discussion, it is highlighted that it is adequate to feel bad after a negative event but that these instances also bear an opportunity to learn, and that it is important to think about the reasons for the event and what the person could do differently the next time in the same or a similar situation. In this context and referring to their homework, participants elaborate the relationships between attributions, feelings, and subsequent behavior. Afterwards, they look into different coping strategies and their functionality. In the following card game, they learn to adequately apply these coping strategies to several general problem situations. This card game is played in teams. A specific problem situation is given and teams have to select the most appropriate coping strategy out of several general strategies (cards). Depending on the appropriateness of the chosen strategy teams receive points for their answers. Nevertheless, the crucial point in this is not giving the correct answer but to explain why one has chosen this strategy. At the end of this session, the strategies should be applied specifically to the career context. For that reason participants think about possible obstacles and setbacks that could occur in the course of searching and applying for a vocational training position and discuss possible solutions. The session closes with the impartment of a breathing technique for stress reduction.

Taken together, session four to six aim at imparting knowledge about strategies that help to attain or adjust a personal goal even in the face of setbacks or failure.

Figure 5 Example: Own influence on job interview outcome (Session 5 'Expectations')

Make the best of it!

Situation:
You were invited to a job interview next week by a company. You really want this job or vocational training position.

Question:
What could you do to make the best out of this situation?

Employer: *I want the best!*	
Before the interview: - has read the application - invites only suitable applicants	**During the interview:** - asks specific questions - listens very closely
Me: *I want that job!*	
Before the interview: collect information about the company prepare answers to the most likely questions think about questions I could ask about the company/ occupation during the interview neat appearance arriving on time …	**During the interview:** behaving frankly and friendly answering the questions precisely …

Things I cannot influence:

number of applicants

skills and abilities of other applicants

criteria employers apply to choose the „best" applicant

…

The seventh session (**Session 7 'Social competencies'**), as the following two sessions, is concerned with the training of social skills primarily through practical exercises. After a short game that introduces the empathy skill, the session continues with the related topic of active or so-called good listening. The importance of the rules for active listening are demonstrated by means of a group activity where one person needs to explain a picture to the group whereas the other participants have to draw that picture afterwards. This game is carried out in two phases: In the first phase, participants are not allowed to pose questions to the explaining person to make clear that they understood her or him correctly. In the second phase, they are allowed to do so. Usually the second picture is more accurate than the first one. In the second part of the session participants learn about the rules for adequately giving and receiving feedback. Afterwards, they practice the application of these rules in a role play where three persons discuss about a self-chosen topic from three different points of views and the other participants observe the behaviours of these three persons. In order to prepare the next sessions the participants get the homework to write down at least two positive things about themselves.

In the eighth session (**Session 8 'Self-confidence'**) the focus is on fostering participants' positive self-evaluation and self-confidence. In the warm-up exercise participants are asked to write down two positive things about one of their classmates on a card. The cards are then exchanged so that everybody gets to know which personal characteristics others may appreciate. After discussing the characteristics of self-confident (vs. unconfident and aggressive) and convincing behaviors these behaviors are practiced in two role plays with feedback. The first role play deals with the topic of a job interview in which one student take over the part of the employer (who is provided with a list of questions usually asked during job interviews) and the other one the role of the applicant. In addition to practicing self-confident behavior this role play should also prepare participants for that situation and the type of questions they may be asked. The second role play aims at practicing convincing behavior. For that reason participants take over the part of inventors who try to sell their fun products to the audience.

The ninth session (**Session 9 'Self-presentation'**) represents the integration of what has been learned during the training in that each participant presents her-/himself and her/his career plans to the group using the 'That's me' collage they worked on during the training. Furthermore, each participant receives a feedback on the presentation. The session closes with the reflection of feelings participants experienced during the presentation.

Table 3 *Overview of SCHuuuB Sessions*

	Session (≈ 90 mins)	Targeted Skills & Resources	Contents
1)	Introduction	Effective learning in groups // knowledge about the labor market	Overview // discussion and deciding on rules for group work // work-related knowledge I (characteristics of the current labor market, memory card game)
2)	Work-related knowledge	Knowledge about the labor market and occupational alternatives	Work-related knowledge II (characteristics of the current labor and vocational training market, trivia game) // occupational alternatives (quiz) // bases of career choice
3)	Self-exploration and self-reflection	Self-reflection // structured information seeking	Reflecting on personal strengths and work values // vocational interests and adequate occupations (test) // information seeking about occupation interested in
4)	Goal setting & goal pursuit	Goal setting & adjustment // problem solving and planning skills	Knowledge about realistic and attainable goals // goal setting and adjustment exercises // knowledge about a strategy // practicing breakdown of larger goals into sub-goals
5)	Competence expectations	Realistic causal attributions // internal control beliefs	Knowledge about different sources of influence (causal attributions) // recognizing personal control in several in different situations (e.g., job interview)
6)	Coping with failure	Active coping with setbacks and failures	Knowledge about the relationships between cognitions, emotions, and behavior (group discussion) // knowledge about and practicing the application of situation-appropriate coping strategies
7)	Social skills	Effective communication (good listening) // giving and receiving feedback	Good listening (execise) // knowledge about and practicing giving and receiving feedback (role play)
8)	Self-confidence	Positive self-evaluation // self-confident and convincing behavior	Knowledge about confident and convincing behavior // practicing such behavior in role plays
9)	Self-presentation	Positive self-presentation // self-reflection	Positive self-presentation in group (topic: my career plans)
10)	Conclusion & outlook	Future optimism	Reflection // transfer

After these three sessions aiming at promoting social skills relevant in the work context, the participants recap on what they have learned during the program and collect ways of applying the learned in the future in the tenth session (**Session 10 'Conclusion and outlook'**). This last session closes with a relaxation exercise where participants imagine the way to reach a long-term goal.

2.6 Results from the Pilot Study

Before conducting a larger evaluation study, an earlier version of the program (SCHuuuB!) was tested in a pilot study (Blumenthal, Weichold, & Silbereisen, 2010). The major aim of this pilot study was testing the program's feasibility in the school context. Furthermore, a first outcome evaluation was conducted. For that purpose, SCHuuuB! was implemented in two ninth grades and one tenth grade in three non-college bound schools. Implementing teachers received a facilitator training and were given the program's structured manual beforehand. Three additional classrooms (two ninth grades and one tenth grade) from three different non-college bound schools in the same administrative districts were sampled for the control condition. Students (N=125, n_{IG} = 51, n_{CG} = 74; M_{Age} = 15.1 years; 44.8% girls) were assessed via questionnaire before (pretest) and shortly after implementation (posttest; about 5.6 months apart; 86% retention rate). The implementing teachers were asked to rate each of the ten sessions along several dimensions.

The results of the process evaluation indicated that the program was feasible in the school context and was well accepted by teachers and students: Almost all content according to the manual could be implemented in a good quality. Furthermore, students liked the program and about 85% indicated that they would like to have SCHuuuB! further implemented in their schools. However, teachers' feedback indicated that some sessions needed revisions due to time management issues and difficulty of some knowledge and practice elements. The results of the first outcome evaluation were also promising: Students who participated in the program gained significantly more knowledge about the labor and vocational training market and more knowledge about adequate social behavior as compared to students in the control condition. The effects on other variables (e.g., career exploration, career choice uncertainty, coping with difficult career-related tasks) were also positive but did not reach significance due to the small sample size.

Although the results of the pilot study were promising with respect to the feasibility of the program and its effects, the sample size was too small to allow for general conclusions on

the effectiveness. Furthermore, the sample was not representative for the population of Thuringian non-college bound students as students were only recruited from rural but not urban regions.

Before conducting the larger evaluation study the manual was then revised in that too difficult exercises and knowledge parts were replaced with easier ones and less central elements were deleted in order to reduce temporal density (the revised program was called SCHuuuB-II). As teachers also remarked that the program would be more useful when implemented earlier than in the final, tenth grade it was decided to focus on ninth graders as target group.

III
Research Questions and Hypotheses

The SCHuuuB-II intervention program was developed based on recent theories on career development that identify several important competencies and resources relevant to a successful school-to-work transition (STWT). Furthermore, its methods and structure were derived from empirical research concerned with the characteristics of effective school-based, skills promoting intervention programs. The aim of the present study is testing whether the intervention has positive effects on students participating in the program.

3.1 Process Evaluation

Before testing the specific program effects, the first questions that are addressed are whether the program was implemented in a sufficient quality and quantity and whether students accepted the program well (process evaluation). Both questions are components of process evaluation (Mittag & Hager, 2000). As answering these questions in a positive way are necessary preconditions for further investigating program effects (Hager & Hasselhorn, 2000; Wolke, 1999), no specific hypotheses are formulated with respect to the process evaluation. Nevertheless, it is expected that teachers could implement most of the intended content in a good quality due to application of a structured manual and a facilitator training that implementing teachers received beforehand. Furthermore, it is expected that the students would like the program due to the applied interactive and active methods and the relevance of the topic of career preparation for all students. However, as students are confronted with a variety of other career preparation activities in school a final question of the process evaluation is whether students' program acceptance would differ as a function of other career preparation measures (i.e., the number of other career preparation activities they take part in and participation in larger more practical career preparation program BERUFSSTART Plus).

The main research questions address the effectiveness of the SCHuuuB-II intervention program (outcome evaluation). Specifically, the questions (I) address whether students improve in the training variables (career choice-related variables, goal pursuit variables, and social skills-related variables). Furthermore, it is (II) asked in how far program effects are influenced by other career preparation activities and programs. In the following the specific hypotheses for this evaluation part are derived.

3.2 Research Question I: Outcome evaluation

Based on Bandura's social learning theory (1986) individuals learn by practicing different behaviors and receiving feedback as well as by observing others that provide information on how different behaviors are carried out. Both learning principles are applied (e.g., through direct instruction, role plays, structured group discussions) in the SCHuuuB-II program in order to improve the targeted variables. Furthermore, it is supplemented with the impartment of knowledge and self-reflection. According to the goals of the program it is expected that SCHuuuB-II improves variables related to career choice, goal pursuit variables, as well as social skills. In the following the specific hypotheses are derived.

3.2.1 Career Choice-related Variables

One major goal of the intervention program is to improve variables related to career choice. More specifically it aims to impart knowledge about the labor market, broad and in-depth career exploration and as a more distal outcome also decrease uncertainty regarding career choice. It is hypothesized that:

> *1) Students in the intervention group show more improvement in variables associated with occupational choice between pre- and posttest compared to students in the control condition.*

The program incorporates components (a memory card game and a quiz) that aim at imparting knowledge about the labor and vocational training market in an interactive way. For that reason, it is expected that:

> *(1a) Students of the intervention group increase more in their knowledge about the labor and vocational training market than students of the control group.*

Furthermore, the program comprises several components that are designed to enhance career exploration: The students learn about different occupations and a way to categorize them (Holland, 1997). During a test, they learn more about their vocational interests and receive suggestions about possible fitting occupations. In addition, they explicitly receive the task to structurally collect information about at least one specific occupation. To facilitate that task they are provided with a list of information sources. Given that, it is hypothesized that:

> *(1b) Students in the intervention group show a steeper increase in broad and in-depth career exploration behavior than control group students.*

In the process of gaining knowledge about the labor market and different occupations paired with the reflection of their own vocational interests and goals, it is further expected that:

> *(1c) Students who take part in SCHuuuB-II decrease more in their uncertainty regarding career choice compared to students in the control group.*

3.2.2 Goal Pursuit Variables

The second major goal of the SCHuuuB-II training program is to facilitate goal pursuit skills by different measures. Generally it is expected that:

> *2) Students in the intervention group become more planful and engaging in the solution of career-related tasks between pre- and posttest compared to students in the control condition.*

In this regard, SCHuuuB-II aims at improving the application of planning strategies when faced with problems or difficult tasks. This is attempted by imparting knowledge about strategies in solving complex tasks or problems, and the application of this knowledge in an exemplary task. In addition, students practice the division of one larger goal into sub-tasks and work out different ways of solving this task. With respect to the effects of these knowledge and practice elements it is expected that:

> *(2a) Students in the intervention group become more planful in solving career-related tasks compared to students in the control group.*

In addition to the improvement of planning, the use of more active and engaging coping with career-related tasks was targeted in the current intervention. For that reason, students learn about various ways of coping with problems and difficult tasks in general in an interactive manner. In a second step, they work on applying adequate strategies in a variety of situations that are not necessarily related to the career context. In a final step, they think of different obstacles that may occur on their way to a vocational training position and discuss ways (including possible resources) of actively overcoming them. Following that, it is hypothesized that:

> *(2b) Students in the intervention group show a greater increase in the use of engaging strategies (i.e., selective control and compensatory primary control) to solve career-related tasks than students in the control condition.*

and

(2c) Students in the intervention group show a greater decrease in the use of disengaging strategies (i.e., compensatory secondary control) when being confronted with difficult career-related tasks than students in the control group.

3.2.3 Social Skills

Following the tradition of the Life Skills approach (Botvin & Griffin, 2004) SCHuuuB-II comprises several knowledge and practice elements that aim at enhancing interpersonal skills. The specific foci were social skills that are also relevant in the workplace such as self-confident behavior, giving and receiving feedback, and effective communication. This was practiced in various group works and role plays during three sessions. For that reason, it is expected that:

(3a) Students who take part in SCHuuuB-II increase more in their knowledge about the adequate behavior in social situations than students who do not participate.

and

(3b) Students in the intervention group show a greater increase in their perceived social competence than students in the control group.

3.3 Research Question II: Interaction with other career preparation measures

The second major research question addresses potential subpopulations for which the program may have stronger or weaker effects (i.e., moderation analysis). As the outline in Section 1.3 shows, students nowadays take part in different career preparation measures that are either rather single activities that are part of the regular school curriculum (e.g., internships, visit of the local employment office), or are organized in a comprehensive program, i.e., BSP, that comprise multiple components. These measures show at least partly a conceptual overlap with the SCHuuuB-II program in terms of their goals, although they differ in the applied methods. Originally, it was planned to evaluate the unique program effects independent of other career preparation measures. However, for the present study that would have meant to find and recruit schools with rather identical career preparation school curricula and exclude schools from the study that take part in other programs that target similar outcomes, such as BSP. This was not possible to accomplish due the large inter-school variance in career preparation curricula and the fact that most urban schools take part in BSP. Excluding these schools would have reduced the external validity of the study findings. Furthermore, simply controlling statistically for differences in participation in other career preparation measures

would not have been enough in the present study as interaction effects between these other measures and the SCHuuuB-II program are likely due to an overlap in their goals. More specifically, although these measures so far have been hardly evaluated in their effects, it may be that students already developed relevant skills and resources that are targeted by SCHuuuB-II through other measures, therefore no (additional) program effects would be expected for these students. For that reason it is hypothesized that:

> (4) *The effects of the current intervention program SCHuuuB-II are moderated by students' participation in other career preparation activities before and during program implementation.*

This question of interaction effects between several career preparation measures has never been addressed before but it is of relevance, and may help to identify active ingredients of the different approaches (Campbell et al., 2000). As stated before, the goals of the different career preparation measures also differ from those of the SCHuuuB-II program. The greatest overlap may be found in the domain of career exploration (exploration of different occupations and the world of work) and career choice as most of the current activities in school primarily target these aspects of career preparation (e.g., Thüringer Kultusministerium, 2001; Thüringer Institut für Lehrerfortbildung, Lehrplanentwicklung und Medien, 2000, 2004). Therefore, it may be that students who make more use of other career preparation measures and are involved in larger programs are already better in terms of career choice variables than those who do not. It is expected, that:

> *(4a) Students who do not take part in a larger career preparation program and have not shown much other career preparation activity will profit more from SCHuuuB-II in terms of career choice than students who take part in BSP and show a higher career preparation activity.*

Some career preparation measures do, at least to some degree, incorporate some kind of planning the steps toward the entrance into working life. The career orientation coordinators in the BSP program, for example, explicitly assist students in individual planning of the path to a vocational training position. Furthermore, the Berufswahlpass in Thuringia, the use of which is one career preparation activity, also contains working sheets that should facilitate the application and transition process. Those students who show more career preparation activities and are involved in the BSP program may already possess more knowledge and experience in planning, and may also possess more knowledge about human or material

resources that enhance the solution of career-related tasks and problems. Given that, the program will especially promote planning and goal pursuit skills in those with less experience in this regard. In sum, it is hypothesized that:

> *(4b) Students who do not take part in a larger career preparation program and have not shown much other career preparation activity will profit more from SCHuuuB-II in terms of dealing with career-related tasks than students who take part in BSP and show a higher career preparation activity.*

As the other career preparation activities do not target social skills or apply methods to explicitly improve them, it is expected that:

> *(4c) The effects of SCHuuuB-II with respect to social skills do not differ depending on students' participation in other career preparation activities or programs.*

In sum, the second research question addresses potential interaction effects between SCHuuuB-II and other career preparation measures. In that regard, it has to be highlighted that the current evaluation study was not designed, in terms of sample composition and assessed variables, to test the effects of each career preparation measure against each other.

The Hypotheses investigated in this thesis are summarized in Table 4.

Table 4 *Hypotheses of the Thesis*

No	Prediction
1	**Students in the intervention group show more improvement in variables associated with occupational choice between pre- and posttest compared to students in the control condition.**
	1a Students of the intervention group increase more in their knowledge about the labor and vocational training market than students of the control group.
	1b Students in the intervention group show a steeper increase in broad and in-depth career exploration behavior than control group students.
	1c Students who take part in SCHuuuB-II decrease more in their uncertainty regarding career choice compared to students in the control group.
2	**Students in the intervention group become more planful and engaging in the solution of career-related tasks between pre- and posttest compared to students in the control condition.**
	2a Students in the intervention group become more planful in solving career-related tasks compared to students in the control group.
	2b Students in the intervention group show a greater increase in the use of engaging strategies (i.e., selective control and compensatory primary control) to solve career-related tasks than students in the control condition.
	2c Students in the intervention group show a greater decrease in the use of disengaging strategies (i.e., compensatory secondary control) when being confronted with difficult career-related tasks than students in the control group.
3	**Students in the intervention group improve more in social skills between pre- and posttest compared to students in the control condition.**
	3a Students who take part in SCHuuuB-II increase more in their knowledge about the adequate behavior in social situations than students who do not participate.
	3b Students in the intervention group show a greater increase in their perceived social competence than students in the control group.
4	**The effects of SCHuuuB-II are (partially) moderated by students' participation in other career preparation activities before and during program implementation.**
	4a Students who do not take part in a larger career preparation program and have not shown much other career preparation activity will profit more from SCHuuuB-II than students who take part in BSP and show a higher career preparation activity.
	4b Students who do not take part in a larger career preparation program and have not shown much other career preparation activity will profit more from SCHuuuB-II in terms of dealing with career-related tasks than students who take part in BSP and show a higher career preparation activity.
	4c The effects of SCHuuuB-II with respect to social skills do not differ depending on students' participation in other career preparation activities or programs.

IV
Methods

The Methods chapter is structured according to seven major topics. First, the evaluation study design is briefly outlined. Second, detailed information about the sample and data collection procedure is provided. This is followed by a description of the measurement instruments and variables used in the present study. The fourth and fifth sections then address analyses regarding measurement equivalence/invariance across groups and time, and selective study attrition. Afterwards, the comparability of the intervention and control group at pretest is investigated. In the final section, the statistical procedure applied to test the hypotheses is described.

4.1 Study Design and Procedure

The study followed a quasi-experimental, pre-posttest design with one follow up and an intervention and a control group (i.e., non-randomized controlled trial). The sample comprised ninth graders from Thuringian Regelschulen. These non-college bound schools combine the lowest (school leaving certificate: Hauptschulsabschluss) and the medium German school tracks (school leaving certificate: Realschulabschluss). To increase external validity and to keep natural groups intact, assignment to intervention or control group did not take place at the individual but on the school level. Although assignment on class level within one school may be preferred in evaluation studies for school-based intervention programs to prevent systematic differences attributable to different school contexts, assignment in the present study took place at the school level for two reasons: First, some smaller schools did not have a second ninth grade. Second, it was aimed at avoiding spill-over effects between classrooms due to social contacts between students within the same grade as well as teachers' (unintended) transmission of teaching techniques or contents from intervention to control classrooms.

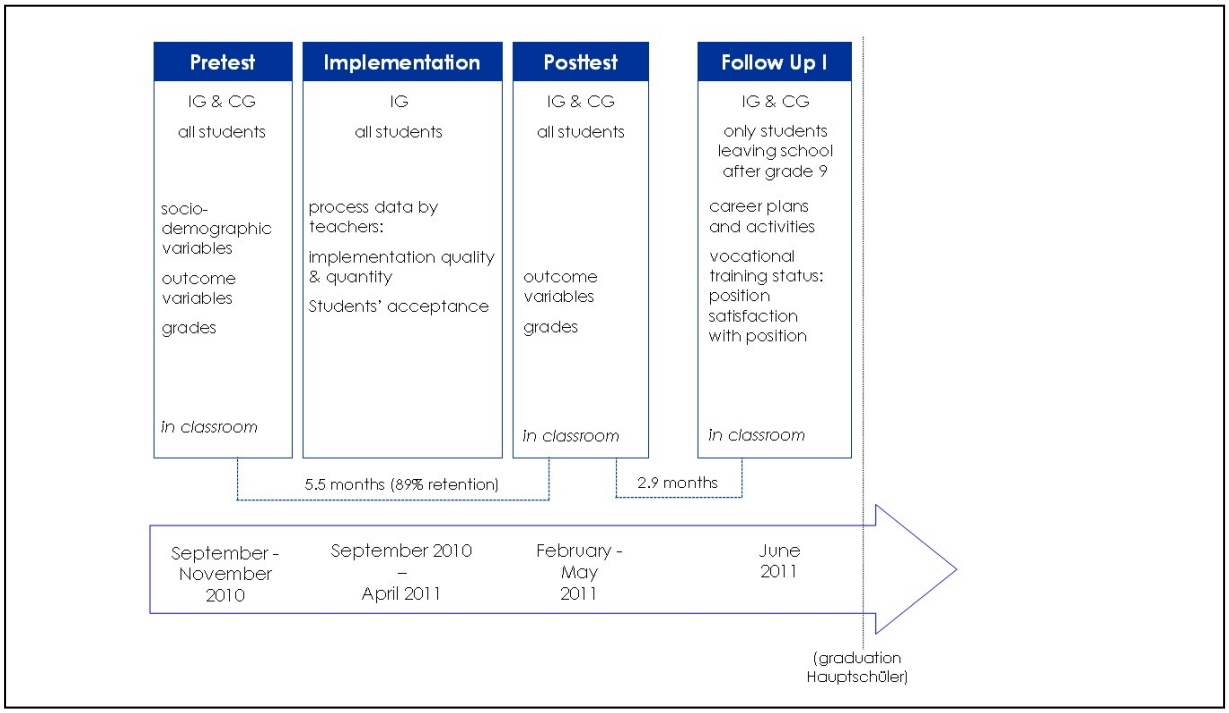
The pretest took place at the beginning of the school year 2010/2011. All intervention schools implemented the first SCHuuuB-II sessions within one week after the pretest. The program was then administered for the most part over several weeks during regular school lessons[3]. Students in the control condition did not receive an alternative intervention program but took part in the regular career preparation curriculum of their school. The posttest in the

[3] Only one school with two ninth grades conducted the program in a compact course as a school project week (two sessions at one day).

intervention group took place shortly after the final SCHuuuB-II session. Around the same time, the posttest for students in the control condition was assessed. The average time between pre- and posttest were five and a half months.

Furthermore, all students who were about to enter the labor market after grade 9, were assessed shortly before they graduated from school (follow up I). The follow up is not part of this dissertation thesis. The study design is summarized in Figure 6.

Figure 6 Evaluation Study Design



4.2 Sample

4.2.1 Power Analysis

Based on a meta-analysis on school-based prevention programs (Tobler et al., 2000) and the results of the pilot study only small effects of about d=.20 (i.e., the standard mean difference; Cohen, 1969) were expected in the present study. To estimate the ideal number of students needed in each condition to attain an effects of statistical significance given these small effect sizes, a statistical power analysis using the software program G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) was conducted. The statistical power refers to the probability that the null hypothesis will be rejected in a statistical test when the null hypothesis is false and is defined as 1-β with β being the probability of committing a Type II error (i.e., not rejecting the null hypothesis although it is false). According to the convention for effectiveness studies

in clinical areas (Cohen, 1992), β should be four times as high as α that is the probability of committing a Type I error (i.e., rejecting the null hypothesis although it is true).

Consequently, applying a conventional α-level of 5% the statistical power should be 1-β = 1-(4*0.05) = 0.80. Based on these values (*d*=.20; α = 0.05; 1-β = 0.80) the sample size needed to obtain a statistically significant mean difference between group would be *n*=310 persons per group. Therefore, a sample size of about 620 students was aspired.

4.2.2 Recruitment of Schools for the Intervention and Control Group

In order to recruit schools for the intervention group, the SCHuuuB-II program was first introduced to the heads of the regional education authorities in Thuringia during a meeting at the at the Thüringer Ministerium für Bildung, Wissenschaft und Kultur (TMBWK) in April 2010. Afterwards, they were asked to spread information regarding the SCHuuuB-II program together with invitations to an informative meeting to the principals of the schools they are responsible for. The aim of the meeting (in May 2010) was to inform school representatives who were interested in applying the program in their ninths grades about the program and the evaluation study. Representatives (principals or teachers) from eighteen schools attended that meeting which was conducted by members of the project team. Afterwards a total of thirteen schools agreed to implement SCHuuuB-II in their ninths grades and take part in the evaluation study. The main reason for rejecting the offer to receive the intervention program was that the school would have already enough career preparation measures implemented in their schools according to the representatives' opinion. The implementing teachers of the intervention group were then trained in a one-day workshop in August 2010 by project staff members.

The thirteen schools for the control group were recruited in a way that they would match the respective intervention schools by applying several criteria. First, potential control schools should be located in the same community as the respective intervention school. Second, if this was not possible because there was no further school available in the community, the school had to be administered by the same regional educational authority, and located in an area with a comparable community size. Finally, it was aimed at recruiting schools that would match the respective intervention schools' participation status in BERUFSSTART Plus (BSP), the larger more practical career preparation program implemented in Thuringia, (see Section 1.3.2). Potential control schools were approached with a letter inviting them to take part in a study about adolescents' career orientation and preparation followed by a phone call by project staff in order to clarify potential participation

and organizational questions. The main reasons that were indicated when participation was refused were time constraints and a lack of relevance of the study for the own school.

Although intended, it was not always possible to recruit a school that matched the respective intervention schools' participation status in BSP either because there was no school in a comparable community available that did and did not take part in BSP, respectively; or because schools that would have matched the respective intervention schools refused to take part in the study. BSP schools were slightly more likely to agree to participate in the study which may have been due to a greater salience of the topic to these schools and a confidence in the quality of their career preparation curriculum. As a result, BSP schools were overrepresented in the control compared to the intervention group (see Section 4.6). This fact was taken into account in the analyses.

4.2.3 Final Sample

The final sample comprised ninth graders from 35 classrooms in 25 Thuringian non-college bound schools with thirteen schools in the control and twelve schools in the intervention group. Seventeen of these schools were located in urban areas which resulted in a slight underrepresentation of students from rural areas. Of the original thirteen schools in the intervention group, one school dropped out from the study after the pretest due to problems of implementing the program because the teacher was ill for a longer period of time. However, students from the dropout school (n=16) did not differ from students in the final intervention group (n=311) at pretest with respect to age, gender, the aspired educational degree, educational performance (i.e., grades), and their families' financial situation (see Table A1). Students in the dropout intervention school were less likely to have at least one full-time employed parent compared to those in the final intervention group. In this regard it has to be stated that the drop out intervention school was located in an urban area aggregating families with lower socio-economic status which might explain the higher rate of non full-time employed parents.

A total of N=678 (n_{IG} =317, n_{CG}=361), students participated in the study, although not all took part in pre- and posttest. Information about the sample sizes at specific measurement occasions and for the longitudinal sample (i.e., taking part in pre- and posttest) can be found in Table 5. The retention rate was about 90% (570/637=0.895) which is comparable to other school-based intervention programs in Germany (e.g., Schröder, 2005).

Detailed description of the sample at T1 can be found in Table 10. At pretest participants were about 15 years old. The sample comprised slightly more boys (53%) than girls (47%).

With respect to the socio-economic background, the family's financial situation was rated rather good (3.7 out of 5 points) and the majority of students (83%) had at least one parent in full-time employment. The majority of participants (60%) aimed at attaining a medium educational degree (i.e., Realschulabschluss), the others aspired either a lower (20% Hauptschulabschluss) or a higher degree (20% Abitur). At the beginning of the study about 8% have already applied for a vocational training position and 4% were already accepted for a position indicating that the majority of students was not involved in the application process yet. The comparability of intervention and control group is addressed in Section 4.6.

Table 5 *Sample Sizes at Specific Measurement Occasions*

Assessment occasion	CG	IG	Total
Prestest	326	311	637
Posttest	326	285	611
longitudinal sample			
Prestest and posttest	291	279	570

Note. CG = control group; IG = intervention group

4.3 Measurement Instruments and Variables

4.3.1 Assessment Procedure

All data were collected using questionnaires. Teachers' questionnaires were handed to facilitators at the time of the pretest with the request to answer session-specific questions regarding several implementation variables immediately after each session. To obtain adolescents' data, written consent was obtained from students' parents prior to assessment. Students received small incentives (e.g., bars of chocolate) for participation at pre- and posttest. Students' questionnaires were administered in the class room by project members. The completion of questionnaires took about 45 minutes (i.e., a regular school lesson) at pre- and posttest. In order to be able to match each individual's pretest to his/her posttest questionnaire and guarantee anonymity at the same time, students were asked to write an easy-to-reproduce code on each of their questionnaires. This individual code consisted of gender, month and year of birth, the first letter of the own forename, and the first two letters of the mother's forename.

4.3.2 Process Variables: Measures regarding program implementation and acceptance

Teachers' feedback

To obtain information about the implementation process teachers were asked to indicate how much of the session's content (i.e., *implementation quantity*) they were able to implement on a 10-point scale ranging from 1 - *10%* to 10 - *100%*. Furthermore, they were asked how well they implemented the session according to the manual (i.e., *implementation quality*) on a scale from 1 - *very bad* to 5 - *very good*.

In addition, teachers also provided information on *students' program acceptance* by indicating the share of students in the classroom who actively participated during the session (5-point scale; 1 - *0-20%* to 5 - *80-100%* of all students).

Students' feedback

Students' self-reported program acceptance was assessed using three different items that were included in the posttest questionnaire. First, students were asked to indicate how much they liked the program on a scale from 1 - *very bad* to 5 - *very good*. Furthermore, they were asked whether or not they would recommend the program to their friends and whether or not they would like to have the program further implemented in their school.

4.3.3 Socio-Demographic Variables

Apart from gender and age (in years), students indicated their aspired educational degree by crossing the degree they plan to attain from a list containing the following options: (qualifizierender) Hautschulabschluss (lowest), Realschulabschluss (medium), Abitur (highest), and other. For the analyses, the *highest aspired educational degree* was categorized into 1 - *lowest degree* [i.e., (qualifizierender) Hauptschulabschluss] and 0 - *higher*.

With regard to the socio-economic background, students were asked to provide information about their *mother's and father's employment status* by choosing from a list of options (full-time employed, part-time employed, self-employed, unemployed, maternal leave, retired, and other).

Finally, students rated their family's *financial situation* (1 - *very bad* to 5 - *very good*). All socio-economic variables were assessed at pretest only.

4.3.4 Outcome Variables

In the following the measurement instruments for the three major categories addressed in the outcome evaluation, namely, (a) career choice variables, (b) variables related to dealing with career-related tasks and problems, and (c) social skills are described. All measures rely on students' self-reports assessed at pre- and posttest via questionnaires. If not indicated else items were answered on a 4-point scale. Table 6 provides an overview of used scales, their source, together with sample items, and detailed information regarding reliabilities in terms of internal consistency.

Career choice-related outcomes

The SCHuuuB-II training program comprised several knowledge and practical components that aiming at facilitating the career choice process. These components directly addressed the promotion of knowledge about the labor and vocational training market and as well as the exploration of the self and different career options. To evaluate the success of the program three indicators were chosen: The amount of knowledge students possess regarding the labor and vocational training market, the degree of career exploration, and as a distal outcome career choice uncertainty.

To assess *knowledge about the labor and vocational training market* students were confronted with eight statements about labor market realities which were either true or false. The statements were formulated on the basis of what is taught in the first and second session

(e.g., ‘About the half of all school graduates apply for a vocational training position in the same ten vocations’). Students had to choose among three options: *True*, *false*, and *I don’t know*. The number of correct answers was taken as the indicator variable of knowledge about the labor market. At the pretest, the average number of correct answers was 4.5 out of 8 (*SD* = 1.4).

Career exploration, that is the investigation of occupational interests and opportunities, was assessed using the career exploration scales developed by Kracke, Dietrich, Noack, and Diener (2010). This instrument was chosen because it is the only one available in German language and differentiates between different types of career exploration. Furthermore, it has demonstrated good psychometric characteristics in several samples of (Thuringian) students. This instrument comprises three subscales: (a) Systematic and planful career exploration, (b) broad career exploration; and (c) in-depth career exploration. Thereby, the first dimension represents a rather stable characteristic of how systematically students search for career information in general. The intervention program primarily targets the other two dimensions. During SCHuuuB students are encouraged to explore their own interests and different options and to learn more about specific occupations in detail. For that reason, the program comprises several practice elements as well as sources of information. Therefore, only changes with regard to the broad and in-depth career exploration were of interest in the current evaluation study. For items of both subscales, students were asked to indicate how often they have done the activities the statements refer to within the last six months (1 - *not at all*; 4 - *very often*).

The *broad career exploration* subscale contains six items that indicate how often adolescents broadly explored their own vocational interests and different vocational and career options in the past (e.g., ‘I thought about which vocations would fit my strengths and weaknesses’). The reliability in terms of internal consistency of the scale (α_{pre}=.678, α_{post}=.736) could be regarded as acceptable referring to the conventional standard of Cronbach’s α being close to .700 (e.g., Bortz & Döring, 2002). The average score at pretest was 2.55 (*SD* = .54).

The *in-depth career exploration* subscale comprises six items and assesses how often adolescents gathered detailed information about the vocations they are interested in (e.g., requirements for vocational training, activities carried out) and weigh up whether these vocations would fit their personal goals and interests (e.g., ‘I thought about whether and how my career plans are in line with my plans regarding my personal life’). The reliability of the

scale (α_{pre}=.723, α_{post}=.792) was acceptable and the average score at pretest was 2.45 (*SD*=.64).

To assess the degree of *career choice uncertainty* eight items from the certainty/decisiveness subscale from the Questionnaire for Attitudes toward Career Choice and Professional Work (Seifert & Stangl, 1986) were applied. This instrument is the German adaptation of the Career Maturity Inventory (Crites, 1978) developed based on Super's theory of career development and is widely used in German-speaking areas also for the evaluation of career preparation and counselling measures. The instrument has demonstrated good reliabilities and validity in different samples of eighth and ninth graders (e.g., Seifert & Stangl, 1986).

The statements assessing career choice uncertainty addressed the degree adolescents have already a clear idea about different vocations, about which of these would fit their interests best as well as the degree they are already decided (e.g., 'I do not know which occupations would be a possibility for me at all'). Students were asked to indicate how much the items applied to them personally on a 4-point scale (1 - *does not apply at all*; 4 - *does apply very much*). Items were recoded in a way that higher values indicate greater career choice uncertainty. The scale showed good reliabilities at pre- and posttest (α_{pre}=.846, α_{post}=.859) that are comparable to those obtained in other studies using the complete version (e.g., Hirschi, 2010). At the beginning of the study the average career choice uncertainty was 2.00 (*SD* = .65).

Variables related to dealing with career-related tasks

With respect to the way students deal with career-related tasks, problems, or setbacks that might occur in the process of career planning, SCHuuuB-II at aimed teaching and practicing strategies for planful and engaging, problem-focussed coping. Two indicators were chosen to measure the impact of the program: career-related planning strategies and coping with difficult tasks and problems.

A five-item scale was chosen to assess *career-related planning strategies* address temporal and content-related characteristics of planning the completion of career-related tasks (e.g., 'I take some time for planning', 'I carefully think about how I could best solve the task'). The scale was adapted from the 'planning strategies' scale by Maag Merki (in Steinert, Gerecht, Klieme, & Döbricht, 2003) by adding the phrase 'When I have to solve a difficult

career-related task' at the beginning of the item complex in order to be specific to the career planning process. The scale was chosen as the statements address contents that are explicitly imparted in session four of SCHuuuB-II. Furthermore, the adapted scale was already applied in a study evaluating a parent-centered career intervention program and demonstrated good reliability in a sample of students in grades seven to nine (Mayhack, 2011). Students had to indicate how much each item describes their own way of dealing with career-related tasks (1 - *does not apply at all*; 4 - *does apply very much*). Reliabilities were acceptable at both measurement occasions (α_{pre}=.754, α_{post}=.760). At pretest the average score for career-related planning was 3.01 (*SD* = .50).

To assess *coping with difficult career-related tasks and setbacks* an instrument measuring rather general strategies that may be applied in a variety of career-related tasks and problem situations instead of specific strategies in specific situations was applied. The general measure was primarily chosen due to time constraints. The intervention program targets a number of career-related skills and resources and the questionnaire had to include several constructs in order to be able to conduct a thorough outcome evaluation. Therefore, single constructs had to be assessed in the most economic way. In addition, although the program also aims at preparing students for specific career-related problem situations, it aims at promoting active and engaging dealing with this group of tasks even in the face of setbacks in general. The program parts dealing with career-related task or problem solving were based on Heckhausen's Motivational Theory of Life-Span Development (e.g., Heckhausen, Wrosch & Schulz, 2010), therefore, and instrument was applied here that was developed in the context of that theory. More specifically, an adapted version of the Optimization in Primary and Secondary Control (OPS) scale (Heckhausen & Schulz, 1995; Tomasik & Pinquart, 2008) was used. The theory the scale is based on postulates two fundamental control strategies which are strategies that individuals use in their attempts to shape their own development: Primary control that is directed towards changing the environment, and secondary control that is related to internal motivational processes (cf. Heckhausen et al., 2010). In the current study, the scale was tailored to the career context and specifically to dealing with career-related difficult tasks, problems, or setbacks. The scale is comprised of five subscales of which three are related to engagement in the task or problem solving: (a) Selective primary control that is the investment of behavioral resources such as time and effort (three items, e.g., 'I am also prepared to make a big effort in order to find a good solution'); (b) compensatory primary control that is the search for others' assistance or using alternative means (three items, e.g., 'If

I get stuck then I think about who I could ask for help'); (c) selective secondary control that refers to the enhancement of motivation and commitment to the solution of the task or problem (two items, e.g., 'I imagine over and over again how happy I will be when I find a good solution'). The remaining two subscales are associated with disengagement from the task or the problem in case of (temporary or final) failure: (d) Self-protecting compensatory secondary control that are cognitions and attributions related to the avoidance of self-blaming (three items, e.g., 'If I can't handle these changes then I look for reasons not to have to give myself the blame'); and finally, (e) disengaging compensatory secondary control that is detaching from the solution of the task or problem (three items, e.g., 'If I can't find a solution then I put the problem to the back of my mind'). Students were asked to indicate how much the statements applied to them on a 4-point scale (1 – *does not apply at all* to 4 - *applies very much*).

However, a principal component analyses with VARIMAX rotation (e.g., Bortz, 2005) using all items at pre- and posttest, respectively, did not reveal five but only three factors (total variance explained: 51.7% at pretest; 47.5% at posttest). The loading patterns for the items suggested that the two subscales measuring selective control and the two subscales measuring compensatory secondary control should be collapsed into one scale each. This resulted in three subscales with acceptable reliabilities (selective control: α_{pre}=.681, α_{post}=.700; compensatory primary control: α_{pre}=.676, α_{post}=.753; compensatory secondary control: α_{pre}=.762, α_{post}=.813). At the beginning of the study, students showed more engagement in career-related task than disengagement (selective control: *M*=3.03, *SD*=.51; compensatory primary control: *M*=3.26, *SD*=.55; compensatory secondary control: *M*=1.92, *SD*=.60).

Social Skills

The SCHuuuB-II program comprises knowledge as well as practice elements that aim at fostering specific social skills such as effective communication, appropriate behavior in social situations and self-confident behavior. Two measures were chosen here to index adolescents' social skills: knowledge about appropriate behavior in social situations and perceived social competence.

Effective communication skills and appropriate behavior in social situations would be assessed preferably by observing individuals in social situations and rating their actual behavior along these dimensions However, such a procedure was not feasible in the context of

the present study due to time and personal constraints. For that reason it was decided to assess these skills in terms of *knowledge about appropriate behavior in social situations.* Therefore, twelve statements were formulated on the basis of what is taught in the seventh and eighth session and address the topics giving and receiving feedback and effective communication (e.g., 'When giving feedback to another person one should always start with something positive'). Students could choose between the options: *True*, *false*, and *I don't know*. The total number of correct choices was then taken as the indicator variable of knowledge about appropriate behavior in social situations. At the beginning of the study the average number of correct answers was 8.94 out of 12 (*SD* = 1.97) indicting that students knew already much about appropriate behavior in social situation at T1.

As a second indicator of social skills *perceived social competence* in terms of self-confident behavior was chosen. The assessment focussed on self-confident behavior as it is the main social skill targeted in sessions eight and nine. To assess perceived social competence the contact and relationship subscale from the widely used Frankfurt Self-Concept Scales developed by Deusinger (1986) was applied. This subscale comprises six items that measure in how far adolescents perceive themselves as competent and self-confident in interaction with other people (e.g., 'I am rather shy and unconfident in dealing with other people', reversed). Students were asked to indicate how much each of the statements applied to them on a 4-point scale (1 - *does not apply at all*; 4 - *does apply very much*). One item ('I should be more polite to other people') had to be deleted from the scale as it showed item-scale-correlations below .1 at pre- and posttest. After removing that item from the scale the reliability was acceptable (α_{pre}=.678, α_{post}=.725).

Table 6 *Measures Overview*

	Source	Sample items	N items	Cronbachs' α Pretest	Cronbachs' α Posttest
Variables related to career choice					
Knowledge about the labor and vocational training market	--	There are vocational training positions in more than 350 different vocations. About the half of all school graduates apply for a vocational training position in the same ten vocations.	8	-- (sum)	-- (sum)
Career exploration					
Broad exploration	Kracke, Dietrich, Noack, & Diener, 2010	I looked at different kind of jobs to find out what may be interesting to me. I thought about which occupations would fit my strengths and weaknesses.	6	.689 IG: .673 CG: .697	.723 IG: .733 CG: .715
In-depth exploration		I have thoroughly looked into the requirements to enter this occupation and thought about whether I am up to them. I thought about whether and how my career plans are in line with my plans regarding my personal life	6	.788 IG: .773 CG: .799	.792 IG: .782 CG: .801
Career choice uncertainty	Seifert & Stangl, 1986 (subscale *certainty/decisiveness* from the Questionnaire for Attitudes toward Career Choice and Professional Work)	I often vacillate between different occupational options. I do not know which occupations would be a possibility for me at all.	8	.844 IG: .849 CG: .835	.860 IG: .851 CG: .868

Table 6 *Measures Overview (cont.)*

Construct	Source	Sample items	No items	Cronbachs' α Pretest	Cronbachs' α Posttest
Dealing with career-related tasks					
Career-related planning strategies	Adapted from Maag Merki (in Steinert et al., 2003)	When I have to deal with a difficult career-related task I …	5	.757	.758
				IG: .748	IG: .737
		take some time for planning.		CG: .768	CG: .775
		carefully think about how I could best solve the task.			
		determine how I will solve the task beforehand.			
Coping with difficult career-related tasks and problems					
Selective control	Adapted from Tomasik & Pinquart, 2008	I am also prepared to make a big effort in order to find a good solution.	5	.681	.700
				IG: .633	IG: .699
		I imagine over and over again how happy I will be when I find a good solution.		CG: .724	CG: .704
Compensatory primary control		If I get stuck then I think about who I could ask for help.	3	.676	.753
				IG: .621	IG: .731
				CG: .727	CG: .775
Secondary control		If I can't handle these changes then I look for reasons not to have to give myself the blame.	6	.762	.813
				IG: .731	IG: .768
		If I can't find a solution then I put the problem to the back of my mind.		CG: .788	CG: .836
Social skills					
Knowledge about adequate behavior in social situations	--	When giving feedback to another person one should always start with something positive.	12	-- (sum)	-- (sum)
		During a conversation one should ask when something is unclear.			
Social competence	Deusinger, 1986 (Subscale *contact and relationship)*	I am rather shy and unconfident in communicating with other people. [R]	5	.678	.723
				IG: .708	IG: .739
				CG: .643	CG: .706

4.3.5 Career Preparation Activities

In order to assess the number of adolescents' *career preparation activities*, students were asked to indicate whether they already took part in or used different career preparation measures. Specifically, five different preparation measures that are usually offered to students (see Section 1.3) were assessed: Having done a vocational interest test, using the Berufswahlpass, having done an internship in a company, took part in a company visit, and took part in a job application training. At the beginning of the study, the majority of students already had done an internship in a company (85%) and were using the Berufswahlpass (73%). Fewer had taken part in a company visit (61%), a job application/interview training (53%), and had done a vocational interest test (48%). A composite score indicating the sum of activities already done was then built. At T1 students had already done three out of the five activities on average (*SD* = 1.20). At T2 students reported one activity more on average (*SD* = .93) which could be attributed primarily to the increased use of the vocational interest test (73% at posttest) and job application/interview training (75% at posttest).

4.3.6 Distribution of Variables

Analyses of distribution of all used continuous variables (i.e., Kolmogorov-Smirnov and Shapiro-Wilk test) indicated significant deviations from normality (see Table A2 in Appendix). However, visual inspections of the normal Q-Q-plots did not indicate serious deviations from normality. Furthermore, the skewness and the kurtosis values were between -1.0 and 1.0, except for knowledge about adequate behavior in social situations. In sum, all variables had distributions close to normal and statistical analyses assuming normally distributed outcome variables could be applied.

4.4 Measurement Equivalence/Invariance Across Groups and Time

A crucial point in evaluation research is the establishment of measurement equivalence/invariance (ME/I) that refers to the question whether a specific scale is measuring the same underlying construct across groups and time (e.g., Millsap & Hartorg, 1988). This is a necessary prerequisite in order to be able to interpret score differences between groups and changes across time in a meaningful way, that otherwise may be attributable to differences/changes in the instrument (Horn & McArdle, 1992; Lance & Vandenberg, 2000). There are several levels of ME/I: The prerequisite of testing further ME/I is (1) *configural invariance* which is given when the same items represent indicators of the same underlying

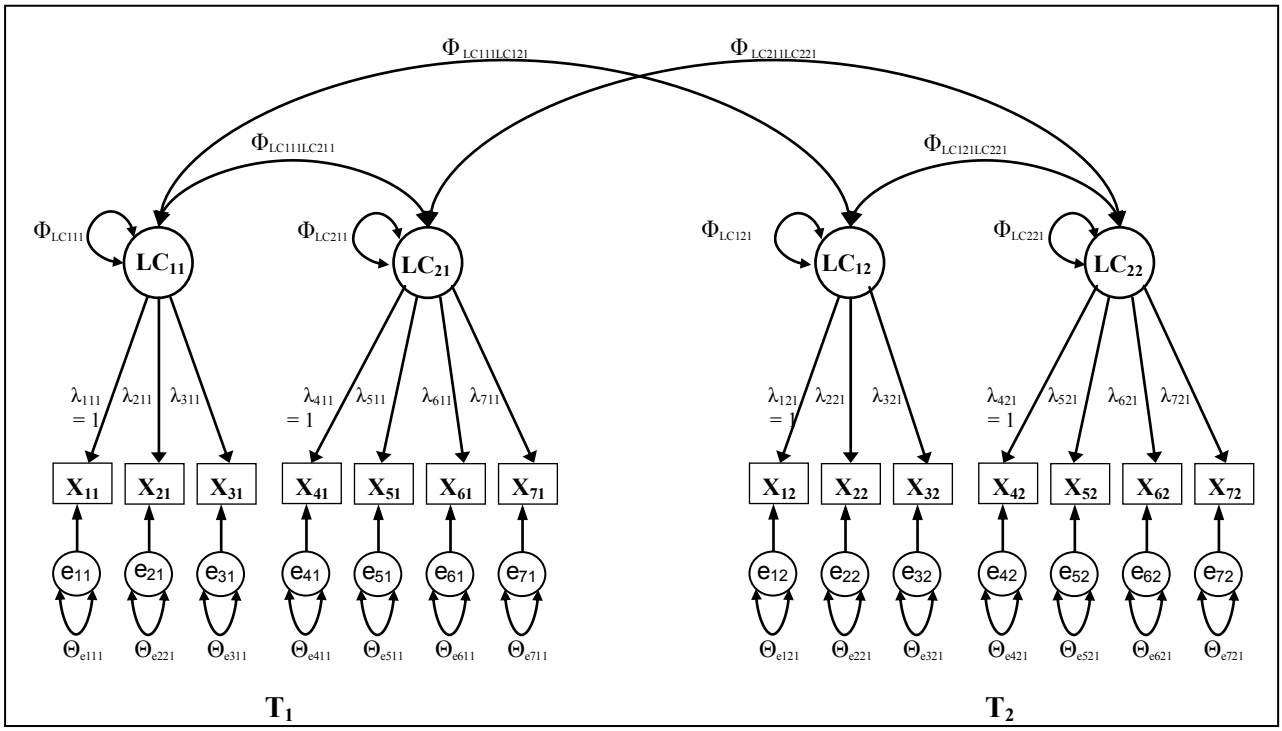
latent construct (Horn & McArdle, 1992). *Weak factorial invariance* (2) refers to the equality of factor loadings across groups and time. It implies that the manifest items measure the underlying latent construct in the same way under different conditions, or put differently, the construct has the same meaning in all groups and across time (Meredith, 1993). *Scalar invariance* (3) exists when intercepts of manifest items are the same across groups and time (Steenkamp & Baumgartner, 1998). Failing to establish scalar invariance would indicate systematic biases in the response to respective items. Finally, *invariance of factor (co)variances* (4) implies equality in the homogeneity of latent constructs across groups and time as well as equal associations between the constructs which has implication for the construct's meaning (validity, ibid.). As ME/I above the third level is not a necessary precondition for conducting mean comparisons (see Steenkamp & Baumgartner, 1998), ME/I is considered to be given when conditions for scalar invariance are met.

In order to test ME/I multi-group confirmative factor analyses via structural equation modelling was used here as it is the most widely used for that purpose (e.g., Milfont & Fischer, 2010). This method enables testing invariance by successively setting cross-group and cross-time constraints and comparing more restrictive models with less restrictive ones (e.g., Steenkamp & Baumgartner, 1998).

An exemplary measurement model for the case of two latent constructs per scale is provided in Figure 7. In a first step the baseline model (i.e., configural invariance model) was specified comprising all items of a scale with one item of each (sub)scale having an intercept of zero and a factor loading of 1 to indentify the scale for the latent construct(s). In the second step (i.e., weak factorial invariance model) the paths from the latent construct to the respective manifest items (i.e., factor loadings λ) were constrained to be equal across groups and time. In the third step (i.e., scalar invariance) the item intercepts (τ) were constrained to be equal across groups and time in addition. Finally, the factor (co)variances (Φ) were set equal in fourth model. An overview of successive model constraints is given in Table 7.

The nested models were then compared using the differences in their χ^2 – fit indices in relation to the number of degrees of freedom. If a given model (e.g., model 3) provided significantly worse fit to the data as compared with the previous model (e.g., model 2) the highest level of invariance was reached with the previous (i.e., less constrained) model (model 3) and the test ended, otherwise the procedure continued. These analyses were carried out using AMOS 19 for Windows (Arbuckle, 2010).

Figure 7 Exemplary Path Diagram for the Investigation of Measurement Invariance Over Time and Across Groups (example: two latent constructs with three and four indicators, respectively)



Note. LC = latent construct; Φ = latent construct (co)variances; Θ = error (co)variances. The first number in subscripted indices refers to the number of the construct, the second number to the measurement occasion (1=pretest, 2 = posttest), and the third one to the group [1=control group, 2 = intervention group (not shown here)]. Intercepts are set to zero for indicators whose factor loadings are constraint to 1 (i.e., for the item with the highest corrected item-total correlation; autocorrelation of the residuals over time are omitted for clarity.

Some researchers have argued that the baseline model should show a good fit to the data before proceeding with further invariance testing (see Vandenberg & Lance, 2000 for a review). The goodness of fit is usually evaluated referring to several indices (see e.g., Hooper, Coughlan, & Mullen, 2010 for standard cut-off values). The most widely used is the χ^2-value which reflects the magnitude of discrepancy of model implied data from the empirical data. A non-significant χ^2-statistic, thereby, indicates a good fit. However, this statistic is known to be very sensitive to sample size and requires assumptions to be fulfilled that are hardly met in practice (e.g., multivariate normality). For that reason, researchers make use of alternative χ^2-based indices to evaluate their theoretical model such as the ratio between the χ^2–value and its associated degrees of freedom. Recommendations about the maximum magnitude acceptable for that ratio range between 2.0 and 5.0. In the present study two additional indicators of

goodness-of-fit were considered: The comparative-fit-index (CFI) as an index of similarity, and the root mean square error of approximation (RMSEA) as an index of dissimilarity of model implied and empirical data. Following standard cut-off criteria good model fit is given with CFI being greater than .90 and RMSEA being smaller than 0.07.

Table 7 *Overview of Models' Constraints for the Investigation of Measurement Invariance*

	Metric invariance		
(1)	(2)	(3)	(4)
Configural invariance	Weak factorial invariance	Scalar invariance	Invariance of factor (co)variances
$\lambda_{111} = \lambda_{112} = \lambda_{121} = \lambda_{122} = 1$ $\lambda_{411} = \lambda_{412} = \lambda_{421} = \lambda_{422} = 1$ $\tau_{111} = \tau_{112} = \tau_{121} = \tau_{122} = 0$ $\tau_{411} = \tau_{412} = \tau_{421} = \tau_{422} = 0$	$\lambda_{111} = \lambda_{112} = \lambda_{121} = \lambda_{122} = 1$ $\lambda_{411} = \lambda_{412} = \lambda_{421} = \lambda_{422} = 1$ $\tau_{111} = \tau_{112} = \tau_{121} = \tau_{122} = 0$ $\tau_{411} = \tau_{412} = \tau_{421} = \tau_{422} = 0$ $\lambda_{211} = \lambda_{212} = \lambda_{221} = \lambda_{222}$ $\lambda_{311} = \lambda_{312} = \lambda_{321} = \lambda_{322}$ $\lambda_{511} = \lambda_{512} = \lambda_{521} = \lambda_{522}$ $\lambda_{611} = \lambda_{612} = \lambda_{621} = \lambda_{622}$ $\lambda_{711} = \lambda_{712} = \lambda_{721} = \lambda_{722}$	$\lambda_{111} = \lambda_{112} = \lambda_{121} = \lambda_{122} = 1$ $\lambda_{411} = \lambda_{412} = \lambda_{421} = \lambda_{422} = 1$ $\tau_{111} = \tau_{112} = \tau_{121} = \tau_{122} = 0$ $\tau_{411} = \tau_{412} = \tau_{421} = \tau_{422} = 0$ $\lambda_{211} = \lambda_{212} = \lambda_{221} = \lambda_{222}$ $\lambda_{311} = \lambda_{312} = \lambda_{321} = \lambda_{322}$ $\lambda_{511} = \lambda_{512} = \lambda_{521} = \lambda_{522}$ $\lambda_{611} = \lambda_{612} = \lambda_{621} = \lambda_{622}$ $\lambda_{711} = \lambda_{712} = \lambda_{721} = \lambda_{722}$ $\tau_{211} = \tau_{212} = \tau_{221} = \tau_{222}$ $\tau_{311} = \tau_{312} = \tau_{321} = \tau_{322}$ $\tau_{511} = \tau_{512} = \tau_{521} = \tau_{522}$ $\tau_{611} = \tau_{612} = \tau_{621} = \tau_{622}$ $\tau_{711} = \tau_{712} = \tau_{721} = \tau_{722}$	$\lambda_{111} = \lambda_{112} = \lambda_{121} = \lambda_{122} = 1$ $\lambda_{411} = \lambda_{412} = \lambda_{421} = \lambda_{422} = 1$ $\tau_{111} = \tau_{112} = \tau_{121} = \tau_{122} = 0$ $\tau_{411} = \tau_{412} = \tau_{421} = \tau_{422} = 0$ $\lambda_{211} = \lambda_{212} = \lambda_{221} = \lambda_{222}$ $\lambda_{311} = \lambda_{312} = \lambda_{321} = \lambda_{322}$ $\lambda_{511} = \lambda_{512} = \lambda_{521} = \lambda_{522}$ $\lambda_{611} = \lambda_{612} = \lambda_{621} = \lambda_{622}$ $\lambda_{711} = \lambda_{712} = \lambda_{721} = \lambda_{722}$ $\tau_{211} = \tau_{212} = \tau_{221} = \tau_{222}$ $\tau_{311} = \tau_{312} = \tau_{321} = \tau_{322}$ $\tau_{511} = \tau_{512} = \tau_{521} = \tau_{522}$ $\tau_{611} = \tau_{612} = \tau_{621} = \tau_{622}$ $\tau_{711} = \tau_{712} = \tau_{721} = \tau_{722}$ $\Phi_{LC111} = \Phi_{LC112} = \Phi_{LC121} = \Phi_{LC122}$ $\Phi_{LC211} = \Phi_{LC212} = \Phi_{LC221} = \Phi_{LC222}$ $\Phi_{LC111LC211} = \Phi_{LC112LC212}$ $= \Phi_{LC121LC221} = \Phi_{LC122LC222}$ $\Phi_{LC111LC121} = \Phi_{LC112LC122}$ $\Phi_{LC211LC221} = \Phi_{LC212LC222}$

It is known that with an increasing number of items, the likelihood of indices reflecting a good fit of the measurement model decreases (MacCallum, Widaman, Zhang, & Hong, 1999). For that reason, researchers often use item parcels (by combining raw items into sub-scales prior to analysis) instead of single items as indicators in order to significantly improve model fit (see Bandalos & Finney, 2001). However, with regard to ME/I analyses Meade and Kroustalis (2005) conducted several analyses using simulated data and recommend using items as indicators instead of item parcels as the latter procedure could mask a lack of invariance. Therefore, ME/I analyses were conducted with item indicators in the present study even when the baseline model reflect a suboptimal model fit.

In the following the level of measurement invariance for the scales used in the present study are addressed. A summary of the results is given in Table 8.

The baseline model for *career exploration* (i.e., configural invariance model) with a total number of twelve items for the two subscales broad and in-depth exploration showed a relatively poor model fit in terms of a significant χ^2 – value and CFI below .900. However, the χ^2/ *df* - ratio as well as the RMSEA were acceptable. The career exploration scale emerged to be invariant across groups and time at the fourth level (i.e., invariance of factor (co)variances).

The configural invariance models for *career choice uncertainty* indicated a good fit. In order to achieve weak factorial and scalar invariance the equality constraints for two out of the eight items had to be relaxed in that the factor loadings and intercepts were only set equal across groups but not across time. That means that the uncertainty scale was *partially* invariant. This concept was introduced by Byrne, Shavelson, and Muthén (1989). According to the authors, at least two indicators of a latent construct need to be invariant in order to make meaningful mean comparisons (see also Baumgartner & Steenkamp, 1989). This prerequisite was given for the uncertainty scale which also fulfilled conditions for invariance of factor (co)variances.

The fit indices of the baseline models for *career-related planning strategies* as well as *social competence* indicated a good fit. Furthermore, invariance of factor (co)variances could be established for both constructs scale, although the invariance across time constraint had to be abandoned for one indicator of the social competence scale.

With regard to *dealing with career-related tasks and problems* the configural invariance model showed only a relatively poor fit to the data in terms of the CFI, although the χ^2/ *df* - ratio ratio and the RMSEA were satisfying. The ME/I analyses revealed that the three constructs (subscales) of that measure are calibrated in the same way across groups and time with equivalent item intercepts. Invariance of factor (co)variances could not be testified for dealing with career-related tasks and problems.

Taken together, all scales used in the present study showed acceptable measurement equivalence/invariance between the two groups and across the two assessment occasions. Hence it can be concluded, that potential differences and changes in the scores are not attributable to differences or changes in the measurement instrument but can be interpreted as meaningful differences/changes.

Table 8 *Results for Testing for Measurement Equivalence/Invariance*

Construct	(1) Configural invariance (baseline model)	(2) Weak factorial invariance	(3) Scalar invariance	(4) Invariance of factor (co)variances	Remark
career exploration (12 items)					
χ^2 (*df*)	1159.089 (660)***	1194.479 (696) ***	1243.771 (732) ***	1254.078 (741) **	
χ^2 / *df*	1.756				
$\Delta\chi^2$ (*df*)	---	35.390 (36), ns	49.292(36), ns	10.307 (9), ns	
CFI	.889	.889	.886	.886	
RMSEA (90% CI)	.033 (.030-.036)	.032 (.029-.036)	.032 (.029-.035)	.032 (.029-.035)	
career choice uncertainty (8 items)					
χ^2 (*df*)	440.552 (190)***	458.241 (209) ***	486.463 (228) ***	494.746 (232) ***	Parameters (loadings and intercepts) for item 1 and 8 were only constrained to be equal across groups within each time point but not across time.
χ^2 / *df*	2.319				
$\Delta\chi^2$ (*df*)	---	17.689 (19), ns	28.221 (19), ns	8.283 (4), ns	
CFI	.931	.932	.929	.928	
RMSEA (90% CI)	.044 (.039-.050)	.042 (.037-.047)	.041 (.036-.046)	.041 (.036-.046)	
career-related planning strategies (5 items)					
χ^2 (*df*)	83.109 (58)*	102.164 (70) **	120.548 (82) **	121.441 (86) **	
χ^2 / *df*	1.433				
$\Delta\chi^2$ (*df*)	---	19.055 (12), ns	18.384 (12), ns	0.893 (4), ns	
CFI	.983	.978	.974	.976	
RMSEA (90% CI)	.025 (.011-.037)	.026 (.014-.036)	.026 (.015-.036)	.025 (.013-.034)	
dealing with career-related tasks and problems (control strategies)					
χ^2 (*df*)	1185.342 (642)***	1223.500 (675) ***	1269.855 (708) ***	1301.917 (726) **	
χ^2 / *df*					
$\Delta\chi^2$ (*df*)	---	38.158 (33), ns	46.355 (33), ns	32.036 (18) *	
CFI	.885	.884	.882	.879	
RMSEA (90% CI)	.035 (.032-.039)	.035 (.032-.038)	.034 (.031-.037)	.034 (.031-.037)	
social competence (5 items)					
χ^2 (*df*)	75.239 (58)	92.057 (69)*	106.008 (81)*	108.960(85)*	Parameters (loadings and intercepts) for item 5 were only constrained to be equal across groups within each time point but not across time.
χ^2 / *df*	1.297				
$\Delta\chi^2$ (*df*)	---	16.818(11), ns	13.915(12), ns	5.657 (4), ns	
CFI	.985	.980	.978	.976	
RMSEA (90% CI)	.021 (.000-.033)	.022 (.007-.033)	.021 (.007-.032)	.022 (.008-.032)	

4.5 Attrition Analyses

Not all students who took part in the pretest did also part in the posttest. Most of these students did not provide data at posttest because they were either absent at the day of assessment or changed school or class between pre- and posttest. To rule out selective attrition which might bias potential differences in change, it was investigated whether the dropout was selective by comparing the longitudinal sample to the dropout sample on socio-demographic as well as outcome variables at T1 (i.e., pretest). As can be seen in Table 9, the dropout rate did not differ by group. Furthermore, there were no difference between the longitudinal and dropout sample with respect to age, aspired school certificate, educational performance, and families' financial situation. However, significant differences emerged with regard to gender (share of females among dropouts was higher than in the longitudinal sample) and parental employment status. With respect to the latter, significantly more students in the longitudinal sample had parents with at least one parent being full-time employed compared to students in the dropout sample.

Taken together, it can be concluded that those who dropped out from the study after the pretest did not differ from those in a meaningful way.

Table 9 *Differences Between the Longitudinal Sample and Dropout at T1*

Variable		Longitudinal sample	Dropout	$p_{difference}$
N		570	67	
Group (intervention group)	%	48.9	47.8	ns
Age (objective)	*M*	15.06	15.07	ns
	SD	.64	.73	
Gender (female)	%	45.2	61.2	*
Highest aspired school leaving certificate				ns
(qualifizierter) Hauptschulabschluss (lowest)	%	19.4	27.3	ns
Realschulabschluss (medium)	%	60.6	60.6	ns
Abitur (highest)	%	19.7	12.1	ns

Table 9 *Differences between the longitudinal sample and dropout at T1 (cont.)*

Variable		Longitudinal sample	Dropout	$p_{difference}$
Grade point average (Math, German, English)	*M*	2.89	2.98	ns
	SD	.70	.63	
Family financial situation (1-5)	*M*	3.70	3.59	ns
	SD	.88	.94	
Work status parents (at least one parent full-time employed)	%	84.9	69.8	**
Career Preparation Measures				
Berufsstart Plus (yes)	%	63.0	55.2	ns
N individual career preparation activities (1-5)	*M*	3.21	3.11	
	SD	1.20	1.28	
Career choice-related variables				
Knowledge about the labor market (1-8)	*M*	4.48	4.49	ns
	SD	1.36	1.37	
Broad career exploration (1-4)	*M*	2.76	2.77	ns
	SD	.54	.53	
In-depth exploration (1-4)	*M*	2.45	2.44	ns
	SD	.64	.65	
Career choice uncertainty (1-4)	*M*	1.99	1.92	ns
	SD	.65	.58	
Career-related goal pursuit				
Career-related planning (1-4)	*M*	3.01	2.98	ns
	SD	.49	.59	
Selective control (1-4)	*M*	3.04	2.97	ns
	SD	.49	.66	
Compensatory primary control (1-4)	*M*	3.27	3.15	ns
	SD	.53	.71	
Compensatory secondary control (1-4)	*M*	1.92	1.98	ns
	SD	.59	.59	
Social skills				
Knowledge about adequate behavior in social situations (1-12)	*M*	8.96	8.83	ns
	SD	1.97	1.92	
Social competence (1-4)	*M*	3.01	3.08	ns
	SD	.57	.55	

Note. ** $p<.01$

4.6 Pretest Equivalence of Intervention and Control Group

As the group assignment was not random a crucial part is to assure that students in the intervention and control condition are comparable and do not differ from each other in a significant way. As shown in Table 10, students from the intervention group were comparable with regard to the socio-demographic variables. However, with regard to career preparation measures students of the control group compared to those in the intervention group were more likely to take part in BSP and had already used more career preparation activities. As this evaluation study is interested in the additional effect of SCHuuuB-II over and above other career preparation measures both variables will be included in the analyses. Furthermore, although not significant in the overall test, the intervention group comprised slightly more students who aspired the lowest educational degree compared to the control group. This may be explained by the fact that two intervention schools administered the program only in courses for those who aimed at obtaining the lowest degree whereas only whole classrooms were assessed in the control group. As the aspired degree is also associated with the temporal distance to graduation (lowest degree: < 1 year; higher degree: > 1 year), and therefore, may be related to the individual career preparation process and career choice certainty, potential confounding effects of educational degree will be controlled for in the analyses. However, no differences emerged for the any of the outcome variables.

Table 10 *Sample Characteristics at Pretest*

Variable		CG	IG	Total	$p_{difference}$
N		327	310	637	
Socio-demographics					
Age (objective)	*M*	15.07	15.06	15.07	ns
	SD	.60	.70	.65	
Gender (female)	%	48.0	45.8	46.9	ns
Highest aspired school leaving certificate					ns
(qualifizierter) Hauptschulabschluss (lowest)	%	17.7	22.8	20.2	
Realschulabschluss (medium)	%	64.2	56.7	60.6	
Abitur (highest)	%	18.0	19.9	18.9	
Grade point avarage (Math, German, English)	*M*	2.83	2.98	2.90	**
	SD	.68	.71	.70	
Family financial situation (1-5)	*M*	3.71	3.66	3.69	ns
	SD	.84	.92	.88	
Work status parents (at least one parent full-time employed)	%	83.9	82.1	83.0	ns

Table 10 *Sample Characteristics at Pretest (cont.)*

Variable		CG	IG	Total	$p_{difference}$
Career Preparation Measures					
Berufsstart Plus (BSP)	%	71.9	51.9	62.2	***
N individual career preparation activities (1-5)	*M*	3.44	2.97	3.21	***
	SD	1.18	1.17	1.20	
Career choice-related variables					
Knowledge about the labor market (1-8)	*M*	4.48	4.47	4.48	ns
	SD	1.34	1.38	1.36	
Broad career exploration (1-4)	*M*	2.77	2.52	2.55	ns
	SD	.55	.52	.54	
In-depth career exploration (1-4)	*M*	2.50	2.40	2.45	ns
	SD	.64	.65	.64	
Career choice uncertainty (1-4)	*M*	1.94	2.05	2.00	ns
	SD	.62	.67	.65	
Career-related goal pursuit					
Career-related planning (1-4)	*M*	3.02	3.00	3.01	ns
	SD	.50	.50	.50	
Selective control (1-4)	*M*	3.03	3.03	3.03	ns
	SD	.51	.51	.51	
Compensatory primary control (1-4)	*M*	3.26	3.26	3.26	ns
	SD	.55	.55	.55	
Compensatory secondary control (1-4)	*M*	1.92	1.92	1.92	ns
	SD	.61	.58	.60	
Social skills					
Knowledge about adequate behavior in social situations (1-12)	*M*	9.02	8.87	8.94	ns
	SD	2.00	1.93	1.97	
Social competence (1-4)	*M*	3.01	3.02	3.01	ns
	SD	.53	.60	.57	

Note. * $p<.05$; *** $p<.001$

4.7 Statistical Method

Before presenting the results regarding the intervention effects the statistical analysis strategy, namely true change score analyses using structural equation modelling (SEM), is described in the following paragraphs.

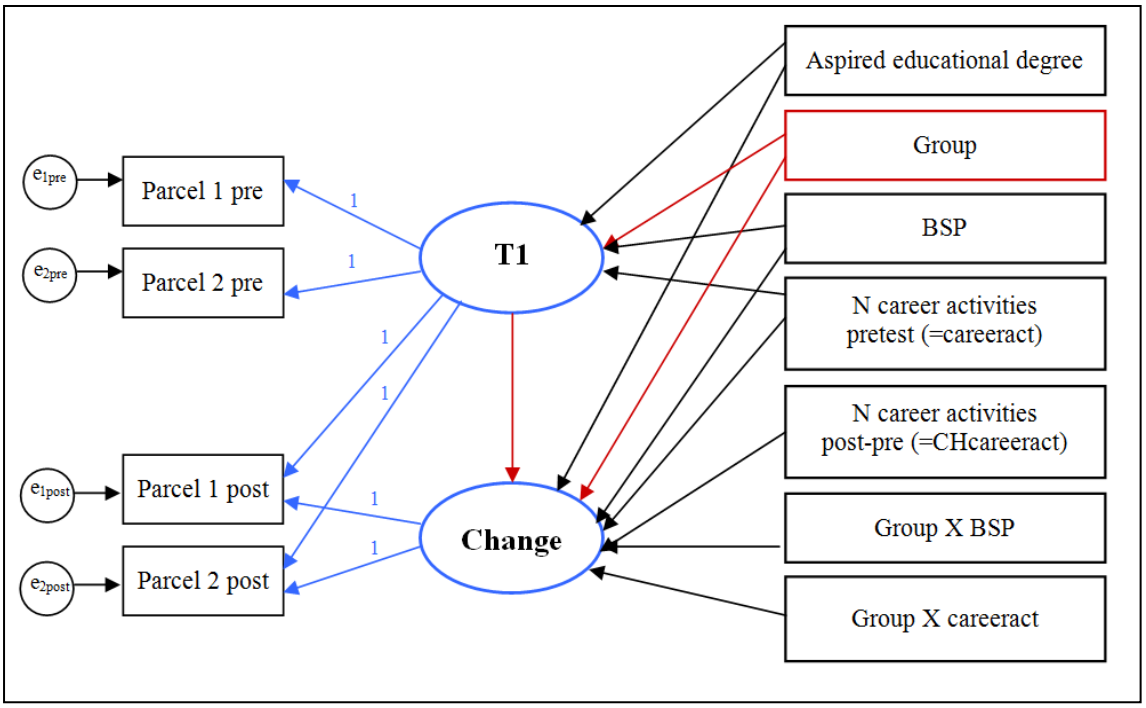
A regression analytical approach with SEM was pursued in the current study due to its advantage over standard multiple regression analyses (e.g., Kline, 2010) in at least three regards. First, in the present study the predictors of change in the outcome variables seem to be correlated (e.g., group membership and taking part in BSP, see Table 10). This multi-collinearity is a problem in standard multiple regression analysis, whereas it can be explicitly modelled and assessed in SEM. As a consequence the relationships between the predictors and the dependent variables are partial derivatives, meaning that the influence of one predictor on another is held constant when estimating the effects of a predictor on a dependent variable. This yields a more valid predictor–dependent coefficient. Second, when using latent variables in SEM measurement error is eliminated, and thus, the change in constructs actually represents true intra-individual change (e.g., Steyer, Eid & Schwenkmezger, 1997). Finally, by using the full-information maximum likelihood estimation of parameters, SEM is able to handle missing data. Therefore, data from all participants could be used in the analyses instead of only data from individuals with complete data at pre- and posttest.

4.7.1 Procedure

The software package MPlus Version 7 (Muthén & Muthén, 1998-2012) was used to carry out the analyses. The analyses regarding the program effectiveness were carried out in four steps. First, a baseline true change score model for each outcome was set up to investigate average initial status at the pretest and the average change between pre- and posttest (model 0, highlighted in blue in Figure 8). Thereby, the manifest items of each construct are aggregated into to parcels that represent equivalent tests of the same underlying construct. Parcels instead of single items are used here in order to reduce the number of estimated parameters and increase the fit of the measurement model (Little, Cunningham, Shahar, & Widaman, 2002). The validity of the measurement models with single items has already been shown in Section 3.4. The loadings of all (pretest and posttest) parcels on the pretest score are set to one, additionally the loadings from the posttest parcels to the change score are set to one. Trough that procedure, the shared variance in all parcels is aggregated in the latent true pretest score,

whereas the shared variance of the two posttest parcels that is not shared with the pretest parcels is aggregated into the true latent change score (e.g., Steyer et al., 1997).

Figure 8 Exemplary True Change Score Model Diagram for the Investigation of Hypotheses



Note. The true change model is highlighted in blue, the predictor (of change) model in black. Parcels instead of raw items were used as indicators in order to increase measurement model fit. Additional paths for model 1 are highlighted in red.

In the next step, the pretest score and group membership (CG vs. IG) were added as predictors of change to assess the average program effect on the outcome, that is the group effect on changes scores controlled for the pretest scores (model 1, highlighted in red). In addition, potential group differences at pretest were estimated by setting a path from group to the pretest score in model 1.

In the next step (model 2), the aspired educational degree, taking part in BSP, the number of career preparation activities until pretest, and the number of career preparation activities between pre- and posttest were included as predictors of differences in the pretest (with the exception of change in activities) and the change score. These variables were included for two reasons. First, as can be seen in Section 4.6, intervention and control group students differed with regard to taking part in other career preparation measures as well as the aspired educational degree. A potential program effect or a lack thereof, may then be due to

different sample compositions. Therefore, these variables were added as predictors of differences in pretest and change scores to test the program effect independent of potential confounding effects of other career preparation measures and the aspired educational degree. Second, the second research question addresses potential interaction effects between SCHuuuB-II and other career preparation measures. Including the variables that are part of an interaction term in a regression analysis is necessary to obtain an adequate estimation of interaction effects (Aiken & West, 1996). In addition, the unique effects of other career preparation measures could also be obtained.

Additionally, the interaction terms needed to test interaction effects of group membership and other career preparation measures, namely group by taking part in BSP (groupXBSP), and group by the number of career preparation activities until pretest (groupXCareeract) were included in the second model; but their effects (paths) on the change score were set to zero.

In the next step (model 3), these paths were set free in the final model. In that way, the interaction effects and their overall contribution to the prediction of change could be tested. Similar to the change in R^2 used in standard regression analysis, the overall contribution of the interaction terms was tested by comparing the fit of model 2 against model 3. If the model fit did not improve by setting the paths from interaction terms to the change score free (as indicated by a significant $\Delta\chi^2$ (Δdf) – value, see Section 4.4), the interaction terms did not contribute significantly to the prediction of the change score and model 2 represented a better description of the data.

All predictor variables with scale levels higher than dichotomous were centred to the mean prior to the analyses to enhance interpretation of Beta coefficients. The effect sizes reported in the present study refer to the standard mean difference *d* as introduced by Cohen (1992). It is calculated as the raw group effect, which is the difference in change between the intervention and control group, divided by the standard deviation of the initial scores (Feingold, 2009).

4.7.2 Clustering of Data

As the sample comprises students from whole classrooms/schools the issue of nested or clustered data needs to be addressed here. Most statistical analyses, amongst others also regression analysis, are based on the assumption of independence of observations. However, the individual scores on any outcome variable may be more similar within one classroom/school than across due to shared contextual (classroom- or school-level) influences

such as teachers' motivation or shared learning experiences. Due to that intra-class correlation the assumption of independence of observations is violated in nested designs and may lead to an underestimation of coefficients' standard errors, and eventually increases the probability of making a Type I error (e.g., Bryk & Raudenbush, 2002).

Except for simply ignoring clustering, there are two ways to approach this issue. The first one, namely multilevel modelling or hierarchical linear modelling (Bryk & Raudenbush, 2002), does not only take into account the nested nature of the data and provides unbiased estimations of standard errors but at the same time allows for the partition of variance across and investigate relationships between the different aggregate levels. This approach is especially useful when researchers are interested in cross-level interactions (e.g., the effects of an intervention program depending on the classroom size) and also have gathered a sufficient amount of observations at each level. The common rule of thumb provided by Kreft (1996) is a minimum of 30 observations on the group level comprising at least 30 observations on the individual level each to provide accurate estimates of parameters and standard errors.

In the present study, neither the sample does suffice this requirement in terms of number of observations nor were specific hypotheses formulated regarding potential cross-level interactions effects. Therefore, the second approach, which is the adjustment of standard errors using statistical methods, was chosen here. The statistical software package used, MPlus, provides the analysis TYPE=COMPLEX which computes standard errors and a chi-square test of model fit that take the non-independence of observations due to cluster sampling into account using a sandwich estimator. As a result of that estimation method the standard procedure of model comparisons using the simple difference in the χ^2 - values in relation to the difference in degrees of freedom by cannot be applied here. For that reason, the Satorra-Bentler scaled chi-square difference test was used in the present study (the formula is reported in Appendix A3).

V
Results

In this chapter the findings of the current study are presented. First, results for the process evaluation are provided. Second, the findings for all hypotheses regarding the outcome evaluation are shown.

5.1 Process Evaluation

In the following, findings concerning process evaluation are presented. The first section addresses the implementation quality and quantity over all ten session. The second section deals with students' program acceptance as reported by teachers and participating students. Finally, findings concerning the prediction of characteristics of program implementation and acceptance are outlined. Table A4 in the Appendix provides descriptive statistics of variables related to process evaluation for all intervention schools.

5.1.1 Implementation Quantity and Quality

Overall, almost all program content was implemented in the given time (*implementation quality*: *M*=89%; *SD*=13%, see Figure 9). A repeated measures analysis of variance (ANOVA) did not reveal significant differences between sessions [F(9,72)=1.239, *ns*]. However, there were significant differences between schools regarding the average implementation quantity [F(9,133)=11.849, p<.001]. Adjusted post-hoc comparisons (Scheffé test) showed that teachers of one school (school 1, two classrooms) significantly reported less implementation quantity. Teachers of this school also reported implementation issues due to severe general discipline problems in the classrooms (not related to the administration of the program) at the beginning of the school year.

The *implementation quality* according to the manual was rated as good on average (*M*=4.03, *SD*=.72). Although a visual inspection of the respective graph in Figure 9 may suggest better implementation quality in sessions concerned with social skills training (sessions 7 and onwards), compared to the first six sessions there was no significant effect of session in the repeated measures ANOVA [F (9,81)=1.616, *ns*]. Again, significant differences between schools were evident [F (9,134)=5.940, p<.001]. Post-hoc comparisons using the Scheffé test indicated that teachers in school 2 and 11 reported a significantly better

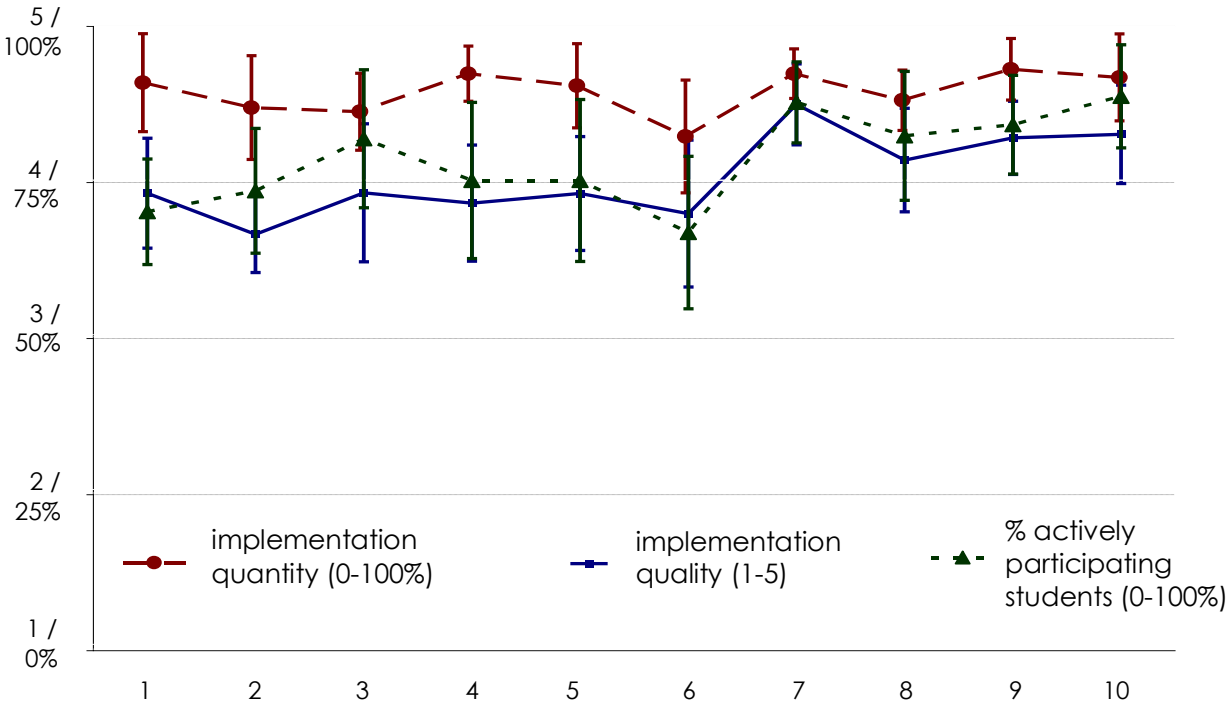
implementation quality than teachers in school 1. The differences between other schools were insignificant.

5.1.2 Students' Program Acceptance

Students' program acceptance in terms of teacher-reported proportion of actively participating students was high (M=4.12, SD= .84; 5-point scale 1-*0-20%*, 5-*80-100%*). There were no differences in active participation with regard to sessions [F(9,81)=1.400, *ns*] but between the schools [F(9,134)=11.546, p<.001]. Adjusted post-hoc analyses revealed that teachers in school 1 and 6 reported a significantly lower share of actively participating students than most other schools (exceptions are school 9 and 12). The sixth school comprised only a total of seven students who all aspired the lowest educational degree. The teacher of that group also reported that her students do not show a motivation for taking part in any career preparation activity at all.

Students themselves rated the program good on average (see Table A4) with about 90% rating the program as okay or better (3 or better). Sixty-three percent would recommend the program to their friends, and 71% wish to have the program further implemented in their schools. However, there was considerable variance in self-reported students' acceptance between schools. For the overall program rating the school averages ranged between 2.93 and 4.03. These differences were statistically significant [F(18,264)=6.489, p<.001]. The share of students who would recommend the program to their friends as well as wish to have the SCHuuuB-II further implemented in their school showed considerable variance between schools [recommend to friends: 36%-100%, $\chi 2$ (11)=49.420, p<.001; wish for further implementation: 37%-100%, $\chi 2$ (11)=45.511, p<.001]. Post-hoc comparisons between schools showed that students in school 1 and 9 rated the program worse and less often would recommend the program to their friends than students in the other intervention schools. Students of school 9 also were less likely to wish the program further implemented compared to those in other schools.

Figure 9 Average Teacher Ratings Across the Ten Program Sessions



5.1.3 Associations between Program Implementation Variables and Students' Acceptance

There were strong association between variables describing the implementation process and students' program acceptance. As can be seen in Table 11, the average implementation quantity, implementation quality, and the average share of actively participating students during the sessions were strongly positively related to each other. The same applies for the indicators of students' reported program acceptance (overall program rating, recommendation to friends, and wish for further program implementation). Furthermore, a higher implementation quantity and quality was significantly associated with better students' acceptance.

Table 11 *Correlations Between Implementation Variables and Students' Acceptance*

		1	2	3	4	5
1	Average implementation quantity	--				
2	Average implementation quality	.680	--			
3	Average share of actively participating students	.786	.792	--		
4	Overall program rating	.292	.341	.284	--	
5	Would recommend program to friends	.274	.349	.316	.724	--
6	Wish for further program implementation	.176	.305	.257	.625	.687

Note. All correlation coefficients are significant at the p<.001 level

5.1.4 Correlates of Program Implementation Variables and Students' Acceptance

As shown in the previous section, implementation quantity/quality as well as students' program acceptance differed between schools. One question was whether taking part in other career preparation measures (i.e., taking part in BSP, number of career preparation activities) would influence program implementation variables and students' program acceptance. Table 12 provides the correlations between the variables of implementation characteristics, students' program acceptance, and the involvement in other career preparation measures. As can be seen, taking part in BSP is significantly negatively associated with all indicators of acceptance as well as implementation characteristics. The number of career preparation activities did show negative associations with implementation quality, positive associations with quantity, and no association to average active participation or any other variable indicating students' program acceptance.

Table 12 *Correlations Between Implementation, Acceptance, and Taking Part in Other Career Preparation Measures at Individual level*

	BSP	N career preparation activities at pretest	average quality	average quantity	active participation
Overall program rating	-.240	-.078	.341	.292	.284
Would recommend program to friends	-.202	-.071	.305	.176	.257
Wish for further program implementation	-.197	-.063	.349	.274	.316
BERUFSSTART Plus	--	--	-.632	-.499	-.358
N career preparation activities at pretest	-.134	--	-.155	.134	.014

Note. All correlation coefficients above .110 have a probability level below $p<.05$

5.2 Outcome Evaluation

In the following sections the results concerning the intervention effects on variables related to career choice, to dealing with career-related tasks, and social skills obtained from structural equation models will be reported. Beforehand, the characteristics of the predictor model are presented.

5.2.1 Predictor Model

Before analyzing the data according to hypotheses, the true change score models for each of the outcome variables (excluding the knowledge variables for which manifest variables were entered in the model) and the predictor model (for models 2 and 3) were fitted separately.

The predictor model included gender (0 - *male*, 1 - *female*), aspired educational degree (dichotomized: 1 - *lowest educational degree*, 0 - *higher*), group (0 - *control*, 1 - *intervention*), taking part in BERUFSSTART Plus (BSP: 0 - *no*, 1 - *yes*), the number of career preparation activities at pretest (careeract, centered), the number of career preparation activities between pre- and posttest (CHcareeract, centered), and the interaction terms of groupXBSP and groupXcareeract. Covariances were admitted between a) group and the three career preparation measures predictors (BSP, careeract, CHcareeract), b) the two variables indicating the number of career preparation activities at pretest and between pre- and posttest, respectively, and c) the predictors and the interaction terms they are a constitutive part of. Pairwise parameter comparisons indicated that three further covariances had to be included for a good model fit (BSP with groupXcareeract, the two interaction terms with each other, and the change in the number of career preparation activities with groupXcareeract). All other covariances were set to zero. The specific parameters for the predictor model are provided in Table A5 in the Appendix. The final predictor model indicated a very good fit [χ^2 (10) = 6.476, *ns*; CFI =.999; RMSEA = .000 (.000-.029)].

Results for the true change score models with group effects (model 1) for each outcome variable are reported in the respective sections below (for an overview, see Table A7 in the Appendix), an overview of the true change score models is provided in Table A6.

5.2.2 Variables Related to Career Choice

Knowledge about the labor and vocational training market

The simple change model with the manifest variables for knowledge about the labor and vocational training market at pretest and change (i.e., posttest - pretest score) showed that the average knowledge score at pretest was M_{pre} = 4.48 (SD_{pre} = 1.36) and the average change was M_{change} = .30 (SD_{change} = 1.52). The pretest score and the change score were significant, had significant variances, and were correlated with r = -.515, p<.001.

In model 1 (i.e., only group as predictor of pretest score and change, see Table A7 in the Appendix), group membership did not predict differences in the initial score (B=-.022, p>.05) but had a significant effect on change (B=.235, p<.05; d = .173) indicating that students in the intervention group – although starting at the same level – could improve their knowledge about the labor and vocational training market compared to students in the control group. However, when adding the other predictors to the model except for the interaction effects (model 2, see Table 13), this effect became insignificant (B=.180, p>.05). Furthermore, the aspired educational degree was the only predictor that was significantly associated differences in the pretest score (B=-.445, p<.001). Students who aspired the lowest educational degree, knew less about the labor market compared to those who aspired a higher educational degree. None of the predictors could significantly explain differences in the change scores.

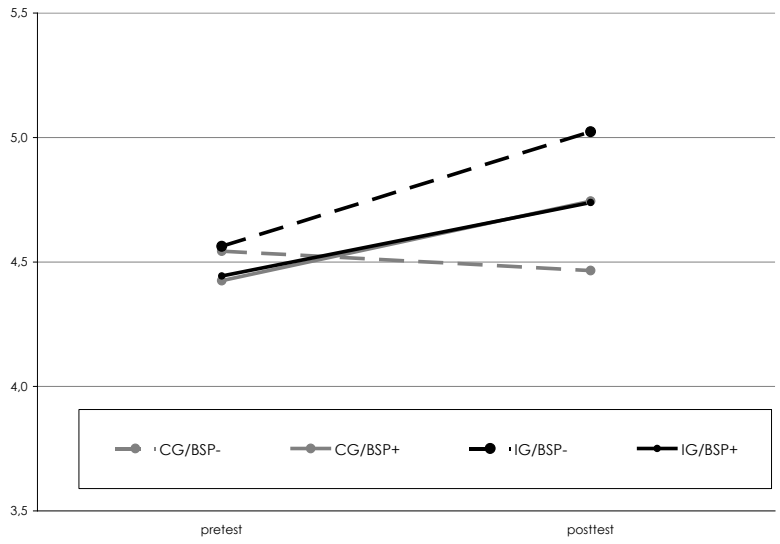
When adding the two interaction terms in model 3 (i.e., groupXBSP; groupXcareeract) by setting their paths free, the model fit improved significantly ($\Delta\chi2$ (2) = 8.496, p<.05) indicating that the interaction terms contribute significantly to the prediction of change. A significant group (B=.536, p<.01) and groupXBSP effect (B=-.555, p<.05) indicated that SCHuuuB-II did have a significant positive effect on change in those without the BSP program but no effect in those who participated in BSP (see Figure 10). Although the effect is not significant, taking part in BSP seems to promote knowledge about the labor market, too (B=.228, p<.10). Only those students who did not receive any career intervention program did not increase in knowledge.

Table 13 *Knowledge About the Labor and Vocational Training Market*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.587***	.040	-.521	--	--	--	-.600***	.039	-.526
Group	.016	.133	.006	.180	.132	.059	.016	.133	.006	.536**	.209	.175
Educational degree	-.445**	.132	-.329	-.214	.152	-.141	-.445**	.132	-.329	-.181	.156	-.118
BSP	-.102	.145	-.037	.028	.131	.009	-.102	.145	-.037	.228t	.168	.102
Careeract	.104	.075	.077	-.034	.071	-.022	.104	.075	.077	.051	.089	.033
CHcareeract	--	--	--	.050	.082	.033	--	--	--	.061	.079	.040
Group by												
BSP	--	--	--	--	--	--	--		--	-.555*	.226	-.157
Careeract	--	--	--	--	--	--	--		--	-.070	.134	-.031
R^2	.025			.278			.025			.290		
model fit												
χ2 (df)	10.638 (15)						7.871 (13)					
$\Delta\chi$2 (Δ df)	--						8.496 (2), $p<.05$					
CFI	1.000						1.000					
RMSEA (90% CI)	.000 (.000 - .026)						.000 (.000 - .022)					

Note. t$p<.10$; *$p<.05$, *$p<.01$, *$p<.001$; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

Figure 10 Group effect on Knowledge About the Labor Market Depending on Taking Part in BSP (model implied estimates)



Note. IG = intervention group, CG=control group; BSP+ = taking part in BERUFSSTART Plus, BSP- = not taking part in BERUFSSTART Plus

Career exploration

All models for career exploration showed good fit. In the simple true change model without predictors the average latent score for *broad career exploration* at pretest was M_{pre} = 2.37 (SD_{pre} = .44) and the average true change score was M_{change} = .10 (SD_{change} =.48). Both variables differed significantly from zero, had significant variances, and were negatively associated with each other (r = -.484, p<.001).

The first model (see Table A7 in the Appendix) did not reveal any significant group effect neither on the pretest score (B=-.049, p>.05) nor on the change score (B=.021, p>.05; d =.048). Model 2 (see Table 14) did not indicate a significant group effect either. The only predictor of differences in initial broad career exploration was the number of career preparation activities students had done at pretest (B=.073, p<.001), no significant effects on any of the predictor variables was evident for change in broad career exploration. The interaction terms did not significantly contribute to the model fit ($\Delta\chi2$ (2) = .038, p>.05). For that reason, model 3 is not addressed further.

Table 14 *Broad Career Exploration*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.509***	.081	-.467	--	--	--	-.510***	.081	-.468
Group	-.030	.033	-.034	.013	.039	.014	-.030	.033	-.034	.010	.086	.011
Educational degree	-.046	.051	-.105	.036	.054	.075	-.046	.051	-.105	.037	.054	.077
BSP	-.042	.035	-.046	.024	.051	.024	-.042	.035	-.046	.023	.052	.024
Careeract	.073***	.020	.166	.049	.040	.102	.073***	.020	.166	.053t	.032	.112
CHcareeract	--	--	--	.058t	.034	.123	--	--	--	.059t	.033	.123
Group by												
BSP	--	--	--	--	--	--	--	--	--	.006	.098	.005
Careeract	--	--	--	--	--	--	--	--	--	-.009	.052	-.013
R^2	.034			.228			.034			.229		
model fit												
$\chi2$ (df)	35.813 (32), ns						35.043 (30), ns					
$\Delta\chi2$ (Δ df)	--						.038 (2), ns					
CFI	1.000						1.000					
RMSEA	.014						.016					
(90% CI)	(.000 - .033)						(.000 - .036)					

Note. tp<.10; *p<.05, *p<.01, *p<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

With respect to *in-depth career exploration* the average latent score in the simple true change model was M_{pre} = 2.34 (SD_{pre} = .57) and the average true change score was M_{change} = .11 (SD_{change} =.50). Both variables differed significantly from zero, had significant variances, and were negatively associated with r = -.513, p<.001.

The first model (see Table A7 in the Appendix) did not reveal any significant group effect neither on the pretest score (B=-.086, p>.05) nor on the change score (B=.046, p>.05; d = .081). Group did not emerge as a significant predictor of initial or change score in model 2 (see Table 15), either. Only the number of career preparation activities at pretest could significantly predict differences in the initial status (B=.119, p<.001). Change in in-depth exploration was predicted by the number of career preparation activities at pretest (B=.094, p<.05) and the change therein (B=.112, p<.05). The interaction terms in model 3 did not significantly contribute to the model ($\Delta\chi2$ (2) = 3.004, p>.05).

Table 15 *In-Depth Career Exploration*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	-	--	-.418***	.055	-.471	--	--	--	-.419***	.052	-.470
Group	-.055	.060	-.049	.036	.051	.049	-.055	.060	-.049	.107	.083	.106
Educational degree	-.082 t	.046	-.144	.001	.057	.001	-.082	.046	-.144	.010	.057	.019
BSP	-.099 t	.055	-.084	-.037	.053	-.035	-.099	.055	-.084	.034	.064	.033
Careeract	.119***	.029	.210	.094*	.037	.186	.119***	.029	.210	.131*	.053	.259
CHcareeract	--	--	--	.112*	.046	.223	--	--	--	.114*	.044	.226
Group by												
BSP	--	--	--	--	--	--	--	--	--	-.104	.096	-.089
Careeract	--	--	--	--	--	--	--	--	--	-.056	.050	-.076
R^2	.060			.243			.060			.249		
model fit												
$\chi2$ (df)	31.562 (33), ns						29.185 (31), ns					
$\Delta\chi2$ (Δ df)	--						3.004 (2), ns					
CFI	1.000						1.000					
RMSEA	.000						.000					
(90% CI)	(.000 - .027)						(.000 - .027)					

Note. tp<.10; *p<.05, *p<.01, *p<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

Table 16 *Career Choice Uncertainty*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.376***	.044	-.462	--	--	--	-.375***	.044	-.461
Group	.076	.069	.064	-.055	.050	-.057	.076	.069	.064	-.092	.061	-.095
Educational degree	.043	.069	.072	-.114*	.047	-.237	.043	.069	.072	-.121*	.047	-.251
BSP	.000	.063	.000	.091*	.043	.091	.000	.063	.000	.049	.061	.049
Careeract	-.092***	.026	-.154	.003	.034	.006	-.092***	.026	-.154	-.028	.043	-.058
CHcareeract	--	--	--	.013	.027	.028	--	--	--	.011	.026	.024
Group by												
BSP	--	--	--	--	--	--	--	--	--	.052	.089	.047
Careeract	--	--	--	--	--	--	--	--	--	.052	.045	.074
R^2	.033			.243			.033			.247		
model fit												
χ2 (df)	24.761 (32), ns						23.042 (30), ns					
$\Delta\chi$2 (Δ df)	--						1.900 (2), ns					
CFI	1.000						1.000					
RMSEA	.000						.000					
(90% CI)	(.000 - .019)						(.000 - .019)					

Note. $^{t}p<.10$; $^{*}p<.05$, $^{*}p<.01$, $^{*}p<.001$; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

Career choice uncertainty

All models for career choice uncertainty showed good fit. There was a high negative association between initial career choice uncertainty (M_{pre} = 1.91, SD_{pre} = .60) and change (M_{change} = -.17, SD_{change} =.48) over time (r = -.461, p<.001) in the simple change model. Both variables differed significantly from zero and had significant variances.

In model 1 (see Table A7 in the Appendix), group had a significant effect on pretest uncertainty (B=.121, p<.05) indicating that students in the intervention group had a higher level of uncertainty in the beginning of the study. Taking part in SCHuuuB-II could not significantly reduce uncertainty over time (B=-.072, p>.05; d = .122) as compared to the control condition. In model 2 (see Table 16), the number of career preparation activities at pretest had a significant negative effect on uncertainty regarding career choice at pretest (B=-.092, p<.001). Only the aspired educational degree (B=-.114, p<.05) and BSP (B=.091, p<.05) emerged as significant predictors of change, indicating that those who are likely to leave school in the current school year decreased more whereas students who took part in BSP

decreased less in career choice uncertainty over the study time. Adding the interaction effects in model 3 did not significantly contribute to the model improvement ($\Delta\chi2$ (2) = 1.900, p>.05).

Table 17 *Career-Related Planning Strategies*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.524***	.083	-.519	--	--	--	-.524***	.083	-.519
Group	.016	.043	.019	-.011	.035	-.012	.016	.043	.019	.046	.073	.053
Educational degree	-.146**	.048	-.335	.026	.052	.060	-.146**	.048	-.335	.033	.053	.076
BSP	.009	.040	.010	-.036	.039	-.040	.009	.040	.010	.019	.058	.021
Careeract	.048*	.022	.111	.059t	.035	.134	.048*	.022	.111	.085t	.051	.193
CHcareeract	--	--	--	.053t	.030	.123	--	--	--	.054t	.030	.125
Group by												
BSP	--	--	--	--	--	--	--	--	--	-.083	.071	-.082
Careeract	--	--	--	--	--	--	--	--	--	-.039	.062	-.060
R^2	.030			.280			.030			.284		
model fit												
$\chi2$ (df)	23.748 (33), ns						22.377 (31), ns					
$\Delta\chi2$ (Δ df)	--						1.344 (2), ns					
CFI	1.000						1.000					
RMSEA	.000						.000					
(90% CI)	(.000 - .015)						(.000 - .016)					

Note. tp<.10; *p<.05, *p<.01, *p<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

5.2.3 Variables associated with career-related goal pursuit

Career-related planning strategies

All models for *career-related planning strategies* fitted the data very well. The average score at pretest was M_{pre} = 3.03 (SD_{pre} =.44) and there was no significant average change over time in planning strategies (M_{change} = -.04, SD_{change} =.44). Nevertheless, the initial as well as the change score were characterized by significant variances as well as a strong association between each other (r = -.496, p<.001).

No group effect emerged in model 1 (see Table A7 in the Appendix), neither for the pretest (B=-.009, p>.05) nor for the change score (B=-.005, p>.05; d = -.011). When adding

the other variables in model 2 (see Table 17), apart from aspiring a lower educational degree (B=-.146, p<.01) and the number of career preparation activities at pretest (B=.048, p<.05), none of the predictors were significantly associated to initial career planning. The number of career preparation activities at pretest and between pre- and posttest marginally predicted more change over time. None of the other predictors was associated with change in planning. The addition of interaction terms in model 3 did not significantly contribute to the model ($\Delta\chi 2$ (2) = 1.344, p>.05).

Table 18 *Selective Control*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.380***	.077	-.461	--	--	--	-.380***	.077	-.461
Group	.031	.050	.036	-.060	.038	-.083	.031	.050	.036	-.029	.038	-.040
Educational degree	-.186**	.059	-.425	.040	.046	.112	-.186**	.059	-.425	.042	.045	.118
BSP	.013	.044	.014	-.087**	.028	-.117	.013	.044	.014	-.061t	.034	-.082
Careeract	.053**	.018	.122	-.002	.026	-.005	.053**	.018	.122	.003	.035	.007
CHcareeract	--	--	--	.000	.028	.004	--	--	--	.001	.027	.004
Group by												
BSP	--	--	--	--	--	--	--	--	--	-.047	.057	-.056
Careeract	--	--	--	--	--	--	--	--	--	-.003	.040	-.005
R^2	.043			.240			.043			.241		
model fit												
$\chi 2$ (df)	33.671 (32), ns						32.180 (30), ns					
$\Delta\chi 2$ (Δ df)	--						.495 (2), ns					
CFI	.997						.996					
RMSEA (90% CI)	.009 (.000 - .031)						.011 (.000 - .033)					

Note. tp<.10; *p<.05, *p<.01, *p<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

Coping with difficult career-related tasks and problems

All models for the three coping variables showed good fit. The simple change model for *selective control* indicated a significant average score at pretest of M_{pre} = 2.95 (SD_{pre} = .43) and no significant change over time (M_{change} = -.03, SD_{change} =.36). However, both variables had significant variances and were negatively correlated (r = -.466, p<.001).

Group had no significant effect neither on the pretest score (B=-.003, p>.05) nor on the change over time (B=-.047, p>.05; d = -.108) in the first model (see Table A7 in the Appendix). Furthermore, group membership did not predict differences in model 2 (see Table 18). When taking the other variables into account only educational degree (B=-.186, p<.01) and the number of career preparation activities at pretest (B=.053, p<.05) emerged to be significant predictors of differences in the initial scores. Change in selective control was only predicted by taking part in BSP. Students who took part in BSP significantly decreased in selective control over time (B=-.087, p<.01). The addition of interaction terms in model 3 did not significantly contribute to the model ($\Delta\chi 2$ (2) =.459, p>.05).

In the simple change model for *compensatory primary control* the average score at pretest was M_{pre} = 3.31 (SD_{pre} = .47) and the average change score was slightly negative with M_{change} = -.08 (SD_{change} =.42). Both variables were significant with significant variances. The correlation between the pretest and the change score was r = -.383, p<.001.

SCHuuuB-II did not have an effect in the first model (see Table A7 in the Appendix), neither on the initial level nor on change over time (B=-.009, p>.05 and B=-.032, p>.05, d = -.068; respectively). In model 2 (see Table 19), only the aspired educational degree (B=-.102, p<.05) and the number of career preparation activities at pretest (B=.055, p<.05) were significantly associated with the initial level of compensatory primary control. Thereby, students who aspire the lowest degree and students who have engaged in fewer career preparation activities also show less compensatory primary control strategies. Neither group nor any of the predictors were significantly associated to change in compensatory primary control. Adding the interaction effects to the model did improve the model fit significantly ($\Delta\chi 2$ (2) = 34.346, p<.001). Furthermore, there were two significant interactions effects on change over time. The groupXBSP effect (B=-.202, p<.05) indicated that only the students who took part in SCHuuuB-II but not in BSP did show a less steep decrease in the use of compensatory primary control strategies compared to all others (see Figure 11). As Figure 12 depicts, the significant interaction effect groupXcareeract (B=.113, p<.05) indicated that individuals who already engaged in more career preparation activities could profit from taking

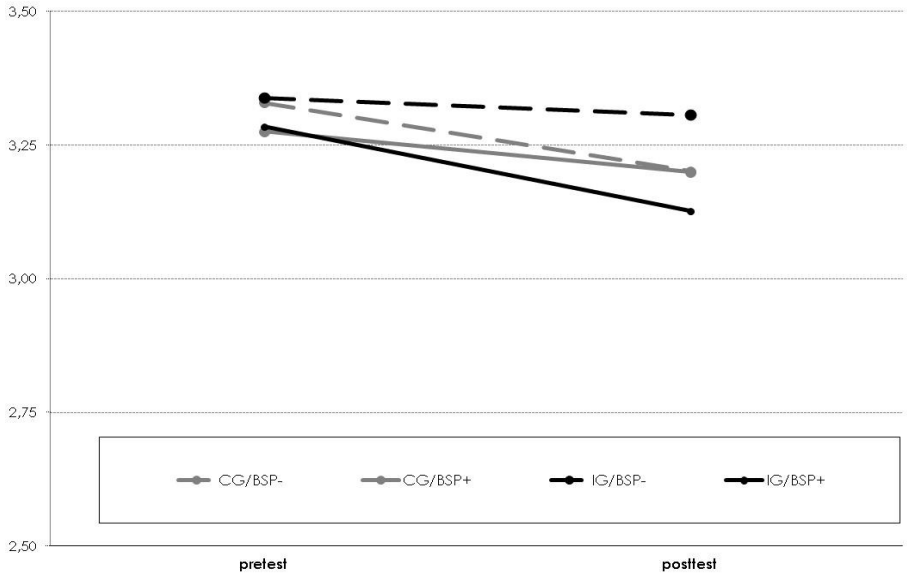
part in SCHuuuB-II in terms of a maintenance of the level of compensatory primary control compared to all others who showed a decrease.

Table 19 *Compensatory Primary Control*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.348 ***	.066	-.381	--	--	--	-.348***	.066	-.381
Group	.009	.042	.009	-.026	.050	-.033	.009	.042	.009	.100	.070	.116
Educational degree	-.102*	.043	-.217	-.015	.047	-.040	-.102*	.043	-.217	-.018	.050	-.042
BSP	-.054	.037	-.056	-.027	.043	-.028	-.054	.037	-.056	.058	.079	.065
Careeract	.055*	.022	.116	.005	.034	.015	.055*	.022	.116	-.043t	.044	-.099
CHcareeract	--	--	--	.017	.027	.040	--	--	--	.011	.031	.026
Group by												
BSP	--	--	--	--	--	--	--	--	--	-.202*	.103	-.205
Careeract	--	--	--	--	--	--	--	--	--	.113*	.053	.181
R^2	.024			.146			.024			.168		
model fit												
χ2 (df)	35.038 (34), ns						27.498 (32), ns					
$\Delta\chi$2 (Δ df)	--						34.346 (2), p<.001					
CFI	.998						1.000					
RMSEA (90% CI)	.007 (.000 - .030)						.000 (.000 - .023)					

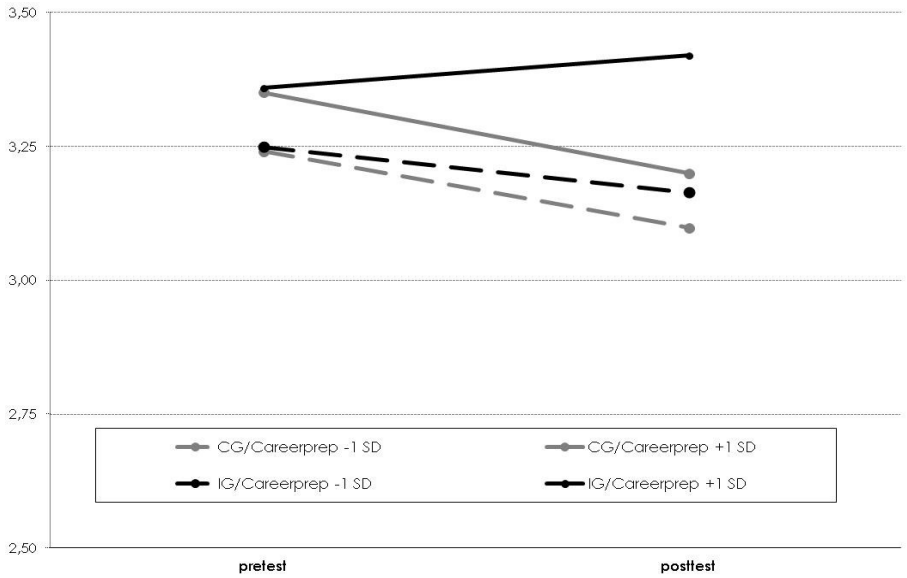
Note. tp<.10; *p<.05, *p<.01, *p<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

Figure 11 Group Effect on Compensatory Primary Control Depending on Taking Part in BSP (model implied estimates)



Note. IG = intervention group, CG=control group; BSP+ = taking part in BERUFSSTART Plus, BSP- = not taking part in BERUFSSTART Plus

Figure 12 Group Effect on Compensatory Primary Control Depending on the Number of Career Preparation Activities at Pretest (model implied estimates)



Note. IG = intervention group, CG=control group; CareerPrep + 1SD = number of career preparation activities 1SD above mean, CareerPrep - 1SD = number of career preparation activities 1SD below mean

The results from the simple change model of *compensatory secondary control* indicated an average pretest score of M_{pre} = 1.87 (SD_{pre} = .53). The average change score did not differ significantly from zero (M_{change} = .04, SD_{change} =.57). There was a significant variance around the average initial score and the correlation between pretest score and change was negative (r = -.475, p<.001).

Table 20 *Compensatory Secondary Control*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.536 ***	.065	-.495	--	--	--	-.536***	.065	-.495
Group	-.010	.073	-.009	.018	.061	.010	-.010	.073	-.009	-.121	.108	-.105
Educational degree	.110	.086	.208	.094	.057	.159	.110	.086	.208	.087	.058	.152
BSP	.020	.078	.019	.060	.071	.051	.020	.078	.019	-.050	.112	-.042
Careeract	-.008	.032	-.015	-.044	.038	-.065	-.008	.032	-.015	-.046	.043	-.080
CHcareeract	--	--	--	-.026	.033	-.040	--	--	--	-.024	.029	-.043
Group by												
BSP	--	--	--	--	--	--	--	--	--	.212	.138	.160
Careeract	--	--	--	--	--	--	--	--	--	-.021	.062	-.025
R^2	.008			.243			.008			.258		
model fit												
χ2 (df)	23.507 (33), ns						20.647 (31), ns					
$\Delta\chi$2 (Δ df)	--						4.175 (2), ns					
CFI	1.000						1.000					
RMSEA (90% CI)	.000 (.000 - .014)						.000 (.000 - .010)					

Note. ^{t}p<.10; $^{*}p$<.05, $^{*}p$<.01, $^{*}p$<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

When considered as only predictor of pretest score and change in compensatory secondary control (model 1, see Table A7 in the Appendix), SCHuuuB-II did not have an effect neither on the initial nor on the change score (B=.000, p>.05 and B=.030, p>.05, d = .057, respectively). In model 2 (see Table 20) none of the predictors was associated with the initial status or change over time. Adding the interaction effects to the model did not improve the model fit significantly ($\Delta\chi$2 (2) = 4.175, p>.05).

5.2.4 Social Skills

Knowledge about adequate behavior in social situations

The average knowledge score at pretest was M_{pre} = 8.94 (SD_{pre} = 1.96) and the average change was M_{change} = .28 (SD_{change} = 2.01). Again, the pretest and change score were negatively associated with r = -.586, p<.001. When considered as only predictor of pretest score and change in knowledge (model 1, see Table A7 in the Appendix), SCHuuuB-II did not have an effect (B=-.150, p>.05 and B=.147, p>.05, d = 147, respectively). In model 2 (see Table 21), aspiring the lowest educational degree significantly predicted less knowledge about adequate social behavior at pretest (B=-.768, p<.001) as well as less gain in knowledge over time (B=-.637, p<.01). Adding the interaction effects to the model did improve the model fit significantly ($\Delta\chi^2$ (2) = 8.326, p<.05).

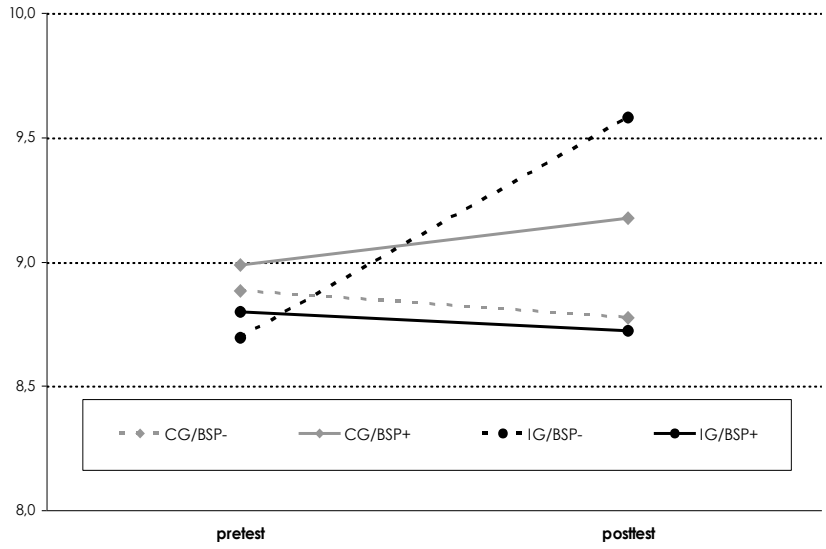
Table 21 *Knowledge About Adequate Behavior in Social Situations*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.619***	.038	-.604	--	--	--	-.611***	.038	-.600
Group	-.027	.268	-.007	.127	.220	.032	-.027	.268	-.007	.875***	.204	.218
Educational degree	-.768**	.238	-.390	-.637**	.227	-.316	-.768**	.238	-.390	-.582**	.227	-.290
BSP	.102	.274	.025	-.267	.213	-.064	.102	.274	.025	.336t	.176	.079
Careeract	.148	.095	.075	.064	.127	.032	.148	.095	.075	.114	.122	.057
CHcareeract	--	--	--	.103	.125	.052	--	--	--	.098	.113	.049
Group by												
BSP	--	--	--	--	--	--	--	--	--	-1.151**	.126	-.249
Careeract	--	--	--	--	--	--	--	--	--	.044	.045	.015
R^2	.031			.368			.031			.380		
model fit												
χ2 (df)	15.202 (15), ns						8.166 (13), ns					
$\Delta\chi$2 (Δ df)	--						8.326 (2), p<.05					
CFI	.999						1.000					
RMSEA (90% CI)	.005 (.000 - .038)						.000 (.000 - .024)					

Note. tp<.10; *p<.05, *p<.01, *p<.001; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

In model 3, a significant groupXBSP effect (B=-1.281, p<.001) indicated that SCHuuuB-II did have a positive effect on gain in knowledge (B=.856, p<.001) only in those who did not take part in the BSP program whereas the rest remained relatively stable with respect to knowledge (see Figure 13). Although there was a marginally positive effect of BSP on the gain in social knowledge in those who did not take part in SCHuuuB-II (B=.336, p<.10).

Figure 13 Group Effect on Knowledge About Adequate Behavior in Social Situations Depending on Taking Part in BSP (model implied estimates)



Note. IG = intervention group, CG=control group; BSP+ = taking part in BERUFSSTART Plus, BSP- = not taking part in BERUFSSTART Plus

Social competence

The models for *social competence* all provided very good fit to the data. The average true score at pretest was M_{pre} = 2.94 (SD_{pre} = .48). The average change was slightly negative (M_{change} = -.03; SD_{change} =.43) but did not differ significantly from zero. However, there was significant variance around the change score. The association between the initial and change score was r = -.369, p<.001.

When considered as only predictor (model 1, see Table A7 in the Appendix), SCHuuuB-II did not have an effect neither on the initial nor on the change score of social competence (B=.008, p>.05 and B=.072, p>.05, d = .149, respectively). In model 2 (see Table 22), those who aspired a lower educational degree had lower social competence scores compared to others (B=-.217, p<.01). With regard to change in social competence no

predictor was significant. The addition of interaction terms in model 3 significantly contributed to model improvement ($\Delta\chi2$ (2) = 8.783, $p<.05$), although none of the interaction terms actually made a significant contribution alone. However, a significant group effect (B=.158, $p<.01$) and a marginally significant groupXcareeract term (B=.089, $p<.10$) indicate that SCHuuuB-II is effective in fostering social competence in students who engage in more career preparation activities.

Table 22 *Social Competence*

	Model 2						Model 3					
	Pretest Score			Change Score			Pretest Score			Change Score		
	B	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß	*B*	SE (*B*)	ß
direct effects												
Pretest score	--	--	--	-.335***	.060	-.377	--	--	--	-.335***	.060	-.377
Group	.046	.056	.047	.063	.063	.073	.046	.056	.047	.158**	.056	.183
Educational degree	-.216**	.064	-.446	-.012	.057	-.027	-.216**	.064	-.446	-.013	.058	-.031
BSP	.051	.046	.051	-.029	.055	-.033	.051	.046	.051	.029	.057	.033
Careeract	.051	.027	.106	-.006	.033	-.014	.051	.027	.106	-.044	.044	-.102
CHcareeract	--	--	--	-.012	.023	-.028	--	--	--	-.016	.026	-.039
Group by												
BSP	--	--	--	--	--	--	--	--	--	-.150	.098	-.152
Careeract	--	--	--	--	--	--	--	--	--	.089^{t}	.047	.142
R^2	.045			.148			.045			.165		
model fit												
$\chi2$ (df)	26.410 (33), ns						21.933 (31), ns					
$\Delta\chi2$ (Δ df)	--						8.783 (2), $p<.05$					
CFI	1.000						1.000					
RMSEA	.000						.000					
(90% CI)	(.000 - .020)						(.000 - .015)					

Note. $^{t}p<.10$; $^{*}p<.05$, $^{*}p<.01$, $^{*}p<.001$; group (0=control group, 1=intervention group); educational degree (1=lowest degree aspired, 0=higher degree aspired); BSP (0=not taking part in BERUFSSTART Plus, 1 = taking part in BSP); careeract=number of career-related activities at pretest (z-standardized); CHcareeract =change in the number of career-related activities between pre- and posttest (z-standardized)

5.3 Summary of Findings

The results of the process evaluation showed that the program was implemented well on average with regard to quantity and quality. Furthermore, it was well accepted although students' acceptance differed as a function of taking part in BSP with students taking part in that program rated SCHuuuB-II less well than those who did not take part in BSP.

Contrary to what was expected according to the hypotheses (H1 to H3) for the outcome evaluation, there was only one overall effect of the SCHuuuB-II program on change in the outcome variables. There was a positive significant program effect on knowledge about the labor and vocational training market in that students who took part in the program knew more after participation. Therefore, Hypothesis 1a was be supported in the present study. No overall program effects were found with respect to the other variables related to career choice (i.e., exploration, and career choice uncertainty), variables related to vocational goal pursuit (i.e., planning, and strategies for dealing with problems and difficult tasks), and social skills (i.e., knowledge about adequate behavior in social situations, and perceived social competence). As a consequence, Hypotheses 1b and 1c as well as all hypotheses subsumed under Hypothesis 2 and Hypothesis 3 were rejected in the present study for the whole group.

The effects of SCHuuuB-II looked differently when other career preparation measures were taken into account. Broadly speaking, students who did not take part in BSP profited from SCHuuuB-II in terms of increasing knowledge about the labor and vocational training market (Hypotheses 4a partly supported), less decrease in the use of compensatory primary control strategies over time (Hypothesis 4b partially supported), and increasing knowledge regarding adequate behavior in social situations (contrary to Hypothesis 4c). Contrary to that, students who already engaged in a greater number of career preparation activities prior to the current intervention program, profited from SCHuuuB-II in terms of less decrease in the use of compensatory primary control strategies over time (contrary to Hypothesis 4b) and an increase in perceived social competence. Taken together, Hypothesis 4a which stated that students who are not involved in BSP and have already undertaken a number of activities for career preparation would profit from SCHuuuB-II more in terms of variables related to career choice compared to those who take part in BSP and with more career-related activities was partially supported (for BSP and knowledge about the labor and vocational training market). Hypothesis 4c which predicted that the effects of SCHuuuB-II will not differ depending on other career preparation measures had to be rejected. Finally, the obvious opposite interaction effects of BSP and the number of other career preparation activities with SCHuuuB-II

regarding the compensatory primary control strategies complicate the decision for or against Hypotheses 4b. Hypothesis 4b postulated that students who are involved in BSP and already engaged in a greater number of career preparation activities will profit less from SCHuuuB-II in terms of dealing with career-related tasks than students who do not participate in BSP and have done fewer activities. The finding indicating no effect of SCHuuuB-II in students who are involved in BSP regarding compensatory primary control supports Hypothesis 4b, whereas the finding that a program effect is only found in students who have already done more career preparation activities is contrary to Hypothesis 4b.

VI
Discussion

The major aim of this dissertation thesis was to present the design and evaluation of a skills promoting training program for fostering a successful transition into the labor market in students on non-college bound school tracks. Currently, there are several programs implemented on the regional as well as the federal level in Germany that aim at assisting adolescents and young adults in mastering the school-to-work transition (STWT), one of the most important developmental tasks. However, most of these programs and measures only set in at a structural level, target adolescents with special needs, or focus only on very specific tasks in the transition process (job application and interview training, occupational choice). For the most part, these programs aim at assisting in the process by providing knowledge about the labor market and different occupations and practical work experience. What has been rather neglected in career preparation programs so far is the training of generic skills that enable adolescents and young adults to become active themselves throughout the whole transition process but also to navigate through their later work career. Although there are also a few programs with that approach available these programs mostly either lack a sound theoretical base and/or lack a scientific evaluation of effects on career-related outcomes. The newly developed training program SCHuuuB presented in this work is a first step to fill this gap in Germany with respect to both criteria.

The major goal of the training program is to foster skills and resources that are needed to succeed in the STWT. The program was evaluated with regard to its effect on these skills and resources under real life conditions that is in intact school classes and in addition to other career preparation measures in schools.

In the final chapter of this dissertation thesis the most important findings from the process and outcome evaluation will be summarized and discussed first. Second, methodological strengths and weaknesses of the study will be addressed. The discussion chapter closes with conclusions about the design of school-related intervention programs aimed at fostering positive youth development and an outlook on relevant future research is provided.

6.1 Summary and Discussion of Main Findings

In the following sections the findings of the evaluation study are summarized and discussed. Before turning to the results explicitly related to the program effectiveness on career-related variables, the program's implementation and acceptance are addressed.

6.1.1 Results on Program Implementation and Acceptance

Important prerequisites for an evaluation of program effects are that the program was implemented as intended and is accepted by facilitators and students (Domitrovich & Greenberg, 2000; Wolke, 1999). This is especially important if the program is not implemented by program staff but trained third persons (Lipsey, 1999). In the present study implantation quality and acceptance were assessed explicitly using teachers' and students' feedback. The results showed that nearly all contents of the sessions according to the manual were conducted in a good quality. The reasons for the finding of high implementation fidelity are probably the elaborated training manual that contains detailed descriptions on knowledge and exercise parts, time and materials need to carry out the parts training manual, and the facilitator training at the beginning of the study (e.g., Mihalic, 2010).

Furthermore, teachers indicated that in most of the sessions almost all students participated actively in the program. Also the students themselves rated the program well and for the most part would recommend it to their friends and wish to have it implemented in their school. This is in line with findings from other programs based on the Life Skills approach (e.g. Weichold, 2012) and probably due to the interactive nature of the program that deviates from the regular school education in terms of instruction techniques and students' active involvement. Furthermore, acceptance may also be high due to the relevance of the topic of career choice and planning to all students in the classroom (e.g., Kracke & Heckhausen, 2008).

However, schools as well as students are different with respect to the characteristics they bring into the program. On the school level, there may be differences in school climate or teachers' self-efficacy and motivation to carry out the program. On the students' side, there are differences in the degree to which they are already engaged in the career preparation process and how far they have progressed with respect to occupational choice and the application process. All these difference may also influence program acceptance and implementation quality. In fact in the present study it was shown, that taking part in another larger career preparation program (BSP) was not only associated with a lower implementation

quality and quantity but also with differences in students' program acceptance. The number of career preparation activities students already had done, on the other hand, were only weakly associated with program implementation, and not at all with students' acceptance. The worse implementation and less positive program acceptance may be explained in two ways. First, schools who take part in the BSP program are equipped with a person who is responsible for the coordination and organization of career preparation measures in the respective school (career orientation coordinator). That person is also the main contact person for students with respect to career questions. Therefore, teachers in BSP schools may be not that familiar and concerned with topics related to career orientation as teachers in schools without these coordinators. As a consequence, the teachers in BSP schools may have experienced more difficulties in implementing the program, which in turn, also reduced the students' motivation and acceptance of SCHuuuB-II. However, the training manual explicitly contained all the information relevant to carry out the program without further knowledge of the subject. Second, students in schools that take part in BSP are exposed to an organized set of career preparation activities that includes internships, several career orientation events, and personal conversations with the coordinators each year from grade seven onwards, and the additional career preparation program, although different in setting and learning methods, may cause a repletion with respect to the topic of career preparation. Alternatively, students who have an explicit reference to a more practice-oriented program may perceive the SCHuuuB-II as too theoretical compared to their other experiences. Either way, students who take part in BSP may be less motivated to actively participate in SCHuuuB-II which would result in implementation difficulties for trainer as well as in lower acceptance of the program in students.

Regardless these differences, the overall implementation quality can still be regarded as good and allows for a further evaluation of program's effectiveness.

6.1.2 Results on Program Effectiveness

In the following the study's findings related to the hypotheses are addressed. Thereby, the general program effects on the career-related variables are summarized and discussed together with the interaction effects with other career preparation measures. A short summary of that discussion is given at the end of this section.

Effects on variables related to career choice

The current intervention program comprised several knowledge and practice components that intended to increase (1) knowledge about the labor and vocational training market, and (2) career exploration as preconditions of an informed and deliberate career choice (e.g., Driesel-Lange et al., 2010; Holland, 1997; Super, 1990). In the present evaluation study, it was investigated whether SCHuuuB-II reached these goals, and further would also contribute to a reduction in (3) career choice uncertainty.

Regarding *knowledge about the labor and vocational training market* a general intervention effect was found. Therefore, the interactive learning methods applied in the program proved to be appropriate and effective in imparting relevant facts about the current labor and vocational training market. However, an interaction effect with BSP indicated that intervention and control group students who participate in BSP gain in knowledge about the labor market approximately to the same degree and rather students who did not take part in BSP profited from SCHuuuB-II. Students who did not receive any of the programs remained stable in knowledge. That suggests that SCHuuuB-II does not provide additional knowledge for those who are involved in a more practical program but has the potential for compensation when such a program is absent. This may be especially relevant against the backdrop that BSP is relatively cost-intensive[4] and cannot be implemented in all Thuringian schools.

With respect to *career exploration* no intervention effect was found, neither with regard to broad nor in-depth exploration. Students of the intervention and control group increased slightly in the intensity of explorative behavior. The amount of other career preparation activities before and during the study were the only significant predictors of change in in-depth career exploration over time. However, this finding is rather self-evident as the career preparation activities are actually means for career exploration. It may be that not the program itself increased career exploration per se but motivated the use of further career preparation activities such as doing a vocational interest test or using the Berufswahlpass more extensively. This effect may be stronger than the average program effect as it is more closely related to actual behavior. This interpretation is in line with the finding that students in the intervention group reported a smaller number of career preparation activities at the pretest but not at the posttest indicating that they intensified their career preparation activities.

[4] Between 2011 and 2014 the Federal Ministry of Education and Research (BMBF) provided five million Euro to support that project (http://www.berufsstartplus-thueringen.de/index.php/aktuelles; January 2013)

Nevertheless, the lack of a direct program effect suggests that SCHuuuB-II in order to further promote a more thorough examination of occupational alternatives should more strongly focus on initiating the structured use of available career resources.

When evaluating the program effects on career exploration, it has to be kept in mind that the scale referred to a specific range of time (i.e., frequency of exploration activities carried out in the last six month). Since exploration efforts are dependent on the progress already made in the occupational choice process by definition and the degree of decisiveness (Noack, Kracke, Gniewosz, & Dietrich, 2010, Savickas, 1997) a lack of career exploration could indicate two opposite things: The person already made a commitment to one or more possible future occupations or the person has not yet started. For that reason, it seems to be crucial to take the degree of occupational choice certainty into account when evaluating the program effects. In an additional analysis of the data of the current study, it was found that the program indeed evoke a greater intensity of broad career exploration but only in those who were less certain regarding their career choice (Blumenthal, Weichold, & Silbereisen, 2011).

Furthermore, in the present study, intensity of career exploration was investigated, that is how often students engaged in specific explorative behavior, and thus, no conclusions can be drawn with regard to the effectiveness of career exploration. For example, one adolescent may get the same amount of information from searching only once in one information database as another one who consults several sources of information more often. As SCHuuuB-II provides several helpful resources for career information it may be that it improved the effectiveness but not the intensity of individual career exploration. However, this is an empirical question that may be answered in future studies.

Finally, the program had no effect on *career choice uncertainty*. Students in the intervention condition became more certain to the same extent as students in the control group. With regard to that finding it has to be stated that on average students were not very uncertain about their future career from the beginning on. Furthermore, students who aspired the lowest educational degree (and would leave school at the end of the school year) gained in certainty over time compared to their classmates aspiring higher educational degrees. This finding suggests that career choice certainty -as career exploration- is dependent on the individual position in the STWT process. Therefore, program effects on uncertainty may become evident when all students approach the completion of compulsory schooling. Furthermore, committing oneself too early to an occupational choice may result in

inflexibility in adjustment of occupational goals and may also mirror a lack of exploration in students who do not *have* to decide yet (Gelatt, 1989; Savickas, 1997).

Effects on variables related to goal pursuit

The current intervention program aimed at improving goal pursuit skills that have been highlighted as being important in the STWT and later career development by several career theories and concepts (e.g., Driesel-Lange et al., 2010; Lent et al., 1994). Therefore, it included knowledge and practice components that aimed at imparting knowledge regarding setting realistic goals and promoting skills that enable active goal pursuit (i.e., strategies for an effective coping with career-related tasks, setbacks, and problems). In the present evaluation study it was investigated whether SCHuuuB-II can contribute to (1) better planning and (2) to the use of more active and engaging goal pursuit or coping strategies.

With respect to the first question, no program effect on career-related planning strategies, a construct that refers to temporal and content-related characteristics of planning the completion of career-related tasks, was found. This result mirrors the findings of an evaluation study of a career preparation program that -amongst others- also targets planning strategies (Mayhack, 2011). This intervention program, that is primarily designed to involve parents more in school-based career preparation activities, comprises a part were students reflect on their internship and plan the next steps in career development (e.g., planning the next apprenticeship, writing job applications etc.) with the assistance of their teachers (and parents). In the related evaluation study, Mayhack (2011) did not find a significant intervention effect on planning. Taken together, these two studies suggest that students do not profit from practicing planning in only one or two exemplary tasks (as it is in both programs) but probably need more opportunities to practice and apply planning strategies. In the context of the current program this could be implemented by homework assignment for several sessions.

Regarding *selective control,* that is active efforts towards producing changes in the environment and activating motivational resources, no intervention effect was found. Students started on a relatively high level on average at the beginning of the study, and only taking part in BSP was a significant predictor of change. BSP students significantly decreased in selective control over time. Furthermore, no intervention effect was found for *compensatory secondary control*, that is cognitions and attributions related to the avoidance of self-blaming and disengagement from a goal or task the face of failure or a blocked goal. In the SCHuuuB-

II students primarily learn *when* to use the general goal pursuit strategies (i.e., engagement vs. disengagement) but not directly practice the application of specific strategies in specific situations. It may be that students become quite motivated to be active in goal pursuit and the solution of career-related task but may still lack the resources to implement that intention. In that regard, the program seems to have to include more practical applications of strategies in specific situations to provide students actually with the means for active goal pursuit. Furthermore, although they are prepared to use specific strategies in critical situations (e.g., not finding any vocational training positions in the chosen occupation, receiving a letter of refusal), these situations so far have only concerned a minority of students who are in the actual application process (at posttest only about 19% of the sample already applied for a vocational training position). Thus, effects of the training on the use of more engaging and less disengaging goal pursuit may become evident only later when all students approach the STWT.

The finding of decreasing selective control in BSP students may be explained by taking the timing of pre- and posttest into account. The pretest was conducted at the beginning of the school year, the posttest in the midst of it. In the meantime, BSP students took part in several career preparation measures such as a further internship and a conversation with the career orientation coordinator. As a consequence, the motivation to (further) engage in career-related topics, they may have possessed in the beginning of the school year, could have been reduced in the course of it. However, this did not mean that they preferred disengaging strategies instead.

Although no general intervention effect was found for *compensatory primary control*, significant interaction effects suggest differential effectiveness of SCHuuuB-II depending on other career preparation measures. There was an overall slight decrease between pre- and posttest in the application of compensatory primary strategies, that is the use of alternative means and others' assistance for reaching a goal or solving a difficult task when original and individual efforts do not lead to the desired result. It may be that students declined in these strategies over the school year because they became less motivated to engage in career-related tasks or problems at all. In the course of a school year, subject-related achievements become more relevant, and students therefore, may postpone the issue of career preparation in favour of the more proximal tasks.

However, with respect to the effects of SCHuuuB-II it was found that only intervention students who did not take part in BSP and those who have already undertaken a higher number of career activities showed reduced or no decline on that variable compared to

the control group. This raises two questions. The first one is: Why was SCHuuuB-II not able to prevent a decline in compensatory primary control in BSP students? In that regard, the process evaluation indicated that the program in BSP schools was implemented not in the same quality and quantity as it was in non-BSP schools. In addition, BSP students evaluated the program less positive as compared to non-BSP students. As a consequence, students did not receive the program as it was intended, and probably were less motivated to engage in program activities, which would explain a lack of learning effects in BSP students (e.g., Dane & Schneider, 1998; Domitrovich & Greenberg, 2000). The second question is: Why was SCHuuuB-II not able to prevent a decline in compensatory primary control in students who are less engaged in the career preparation process as indicated by the number of career preparation activities? In that regard, it has to be stated again, that SCHuuuB-II primarily employed knowledge and practice components that are related to the question when to use general control strategies but to a less extend specific strategies. Having stated that, it may be that students with a higher number of career preparation activities possess more knowledge of alternative ways of approaching a task as well as resources (e.g., other persons) for assistance. Therefore, these students had actually the means to exercise compensatory primary control, whereas these means may have not been available to the same extend for the others. This interpretation suggests that SCHuuuB-II should incorporate the impartment of knowledge regarding sources of assistance as well as exercises that train specific and alternative goal pursuit strategies.

Taken together, the program had no effects on career-related goal pursuit skills with the exception of compensatory primary control. In addition to what has been discussed in relation to each variable, it has to be kept in mind that students already perceived themselves as rather planful and active with respect to the solution of career-related tasks and goal pursuit at the beginning of the study. In the present investigation, standardized scales were applied to assess planning strategies and dealing with difficult tasks and setbacks. These were rather unspecific in that they did not refer to specific and defined situations that may occur to adolescents and young adults in the career choice and application process. In this sense, such scales invoke generalized and prototypical answers. It may well be that students know about what should be the optimal way of proceeding (and thus, provide answers in that direction). However, this does not automatically mean that students apply that knowledge appropriately in a given situation – especially if one takes into account that most of the students were not yet exposed to many situations yet were they could apply the strategies. In essence, such strategies should be assessed with presenting a specific situation and obtaining free answers

from participants (or even behavior observations). In that way, the chance of generalized and biased answers is reduced. However, the aim of the present study was to evaluate the program's effectiveness on a variety of skills and resources so that would have been too hard to accomplish given the limited time and participants' willingness to participate in inquiry.

Apart from these methodological considerations, the training program should be improved in a way that it provides participants with more opportunities to practice planning and goal pursuit in various situations in order to facilitate the development of skills that transferable to a number of problems and tasks.

Effects on social skills

Social skills have been identified as a crucial resource in career development especially with regard to the changes in the labor market during the past decades (e.g. Driesel-Lange, 2010; Federal Employment Agency, 2006; Fugate et al, 2004). For that reason, SCHuuuB-II comprised knowledge and practice components that aimed at fostering interpersonal skills, e.g., effective communication, giving and receiving feedback, and self-confident behavior. In the current study, it was investigated whether SCHuuuB-II improves *knowledge about adequate behavior in social situations* (comprising rules for effective communication and giving and receiving feedback) as well as *perceived social competence*. However, no overall program effects were found with respect to both variables. This is contrary to what was found in evaluation studies concerning the JobFit program (Petermann & Petermann, 2010). JobFit is a school-based program that aims at preparing students for the work life and proved to be effective with regard to the improvement of social behavior (e.g., Koglin et al., 2010). However, this program comprises ten sessions (90 minutes duration each) that are almost exclusively dedicated to the training of social adequate behavior in social situations. Following that, the findings suggest that SCHuuuB-II currently may provide students too few opportunities to practice social behavior in different situations and needs revision in that regard. Furthermore, Life Skills programs usually set in at an earlier age when group dynamics may be more variable (Botvin, 1998). The interactive methods applied in SCHuuuB-II to promote (social) skills diverge from the usual teacher-centred learning and are rather unfamiliar to the students. Therefore, they may have been rather reluctant in engaging in role plays and group work (some students also reported difficulties in that regard) and could not gain as much from these exercises as would be expected based on the literature on interactive teaching techniques (Tobler et al., 2000). However, it has also to be kept in mind that there was a relatively short time span between the pre- and the posttest and social skills

are acquired over a longer period of time. Therefore, it may be that intervention effects on perceived social competence become only evident after a longer period of time when participants had the chance to apply their knowledge and newly learned skills and acquired security in their application.

Although no overall group effect was apparent in the present study with respect to the social skills variables, two differential effects became evident depending on other career preparation measures. This finding was unexpected because the other career preparation measures investigated here do not target social skill development directly. First, participants could improve in their knowledge regarding adequate behavior in social situations only if they were not taking part in BSP. Again, this finding may be explained by the differences in program implementation and acceptance, and the related reduced opportunity for learning from the program in BSP students (see above). Nevertheless, it can be concluded that SCHuuuB-II is able to improve knowledge regarding social adequate behavior -at least in a subgroup of students-, and thus provides an antecedent of behavior and attitude change (Fabrigar, Smith, Petty, & Crites, 2006).

Second, students who had already done more career preparation activities could (although this effect was only marginally significant) profited from taking part in SCHuuuB-II in terms of an increase in perceived social competence. This finding may be explained by differences in the motivation for career preparation. The students, who actively engage in the career preparation process as indicated in a higher number of related activities, may perceive SCHuuuB-II an additional activity that addresses aspects of the work life that are not targeted in other measures. Therefore, their motivation to engage in the program tasks that target social skills may be higher than other students' motivation.

6.1.3 Summary of the Discussion of General Program Effects

In sum, the current evaluation study of the newly developed theory-based, skills promotion program SCHuuuB-II revealed only relatively few and small effects (effect sizes $d<.2$). However, several considerations have to be taken into account when evaluating the program's effectiveness. First, universal intervention programs like SCHuuuB-II as compared to indicated interventions accomplish only relatively low effects in general (e.g., Rapee et al., 2006). Second, the majority of students showed relatively high levels in the investigated outcome variables already at the beginning of the study. Although this is a positive finding with respect to career preparation in Thuringia, a higher starting level reduces the likelihood of further major increments (Bortz & Döring, 2002). Third, the current study was conducted

under real life conditions in intact social groups with specific learning and interaction histories (i.e., classrooms), and with differential implementation quality and acceptance. These factors external to the program represent confounds that reduce the maximum effects that can only be obtained in a randomized controlled trials (e.g., Wolke, 1999). Finally, the present study showed that SCHuuuB, although not being effective for all students, did not have any iatrogenic effects. More specifically, BSP students did not profit from the program at all, but also did not decrease in variables relevant during the STWT due to program participation.

Taken together, it can be concluded that the present study revealed positive effects of the skills promoting program SCHuuuB-II on some of the variables that have been identified as relevant during the STWT and future career development (i.e., knowledge about the labor market, active goal pursuit, and social skills). Nevertheless, there is need for further program revision in order to increase program effects, especially with regard to enhancing career exploration, career choice certainty, as well as career-related planning strategies. The topic of revision will be addressed in Section 6.3.1.

6.1.4 Summary of the Discussion of Interaction Effects with Other Career Preparation Measures

The present study revealed several interaction effects of SCHuuuB-II with other career preparation measures in school with respect to the targeted outcome variables. Contrary to the expectations, these were not related to the possibility that students, who are involved in a larger organized career preparation program or have undertaken already a greater number of other career preparation activities, would be rather well off regarding skills and resources relevant for the STWT. Actually, the BSP program was not associated with any of the investigated career-related outcome variables at pretest. Although, the current study was not designed for evaluating the BSP program, and therefore, does not represent a fair test of its effects. The lack of BSP effects is still surprising as it explicitly aims at enhancing career exploration, reducing career choice uncertainty, as well as promoting planning the steps towards the implementation of a chosen occupational goal. Furthermore, the larger evaluation study on BSP currently undertaken also addresses students' readiness for vocational training (that includes social skills), realistic occupational goals, and the quality of the STWT (Kupka & Wolpers, 2010). That indicates that there is an overlap in the targeted (and investigated) variables of SCHuuuB-II and BSP and the findings regarding the effects of BSP may be valid for the program to some degree. However, the results of the BSP evaluation study are needed

to answer this question. Furthermore, with respect to the change over the study period, taking part in BSP was even related to less decrease in career choice uncertainty and a steeper decrease in engaging coping with career-related tasks and problems (selective control). In addition to that, taking part in BSP diminished the effects of the SCHuuuB-II program with regard to compensatory primary control and knowledge about adequate behavior in social situations.

Contrary to that, the number of career preparation activities students have already done was positively related to the initial level of a number of variables related to career choice (i.e., career exploration, and career choice certainty) and goal pursuit (i.e., planning, and selective and compensatory control). Additionally, these preconditions rather increased the SCHuuuB-II effects than decreasing them with regard to compensatory primary control and perceived social competence.

The differential impact of the two career preparation measures on SCHuuuB-II effects may be explained referring to students' motivation to engage in career preparation. BSP is a larger program with several career preparation elements in each year from grade seven onwards. Students start with a vocational aptitude test in grade seven and take part in at least two practical internships in educational institutions and companies until grade 9. Furthermore, they have personal conversations with a career orientation coordinator to plan their further steps. Given the mandatory character of these elements, students may feel somewhat replete and urged externally to engage in career-related topics. This could explain the decreasing selective control efforts and also the low acceptance of an additional program as SCHuuuB-II (and related to that, the lower implementation quality) as it was the case in the current study. Furthermore, taking part in BSP was not associated with the number of other career preparation activities in the present study (r=.002, p>.05) indicating that it does not enhance further career exploration and preparation by the additionally offered means. At this point it has to be stated that BSP students may not feel *replete* with regard to career preparation but as prepared *sufficiently* so they may perceive additional measures as unnecessary. However, such a subjective perspective is not mirrored in higher levels of individual variables that have been identified as being associated with a more positive career development in the literature. It may be that the participation in BSP affects the STWT in a positive way but more through external guidance and deepened practical experiences with the demands and structures of workplaces than through fostering skills and resources that enhance individual agency in the transition process and later career progress. Yet this question cannot be answered without a thorough

evaluation of the BSP program. In this regard the ongoing study concerned with the effects of BSP (Kupka & Wolters, 2010) may provide more valid insights in the future.

On the other hand, the career preparation activities investigated in the present study (doing a vocational interest test, using the Berufswahlpass, doing job application training, taking part in a company visit, and doing an internship in a company), with the exception of the internship, represent offers by schools and the Federal Employment Agency, and students are relatively free to decide whether they use them or not. In this regard, a higher number of career preparation activities indicate a higher motivation to engage in the preparation for work life. Consequently, students who are more concerned with their vocational future may have perceived SCHuuuB-II as an additional opportunity to learn about new topics and acquire new skills that are not tackled by other activities. Eventually, they profited more from the program than students with fewer preparation activities.

Following the findings on the interaction effects of SCHuuuB-II with other preparation measures, it cannot be recommended to implement SCHuuuB-II further in BSP schools – at least if no further efforts are directed towards increasing students' motivation for a new program with a different approach and ensuring the same implementation quality in BSP schools as in those without. On the other hand, (not only) to enhance the effects of the current skills promoting program, students should further be motivated to take part in career preparation activities offered during school time.

Taken together, the results regarding the interaction effects highlight the importance of implementation quality and participants' acceptance for program effects as well as the necessity of including other parallel career preparation activities when evaluation a new program in that domain.

6.2 Methodological Strengths and Weaknesses

The current evaluation study was conducted under real life conditions with no randomization of participants. Due to the lack of a scientifically controlled design several potential threats to internal validity (Cook & Campbell, 1979; Campbell & Stanley, 1963) are addressed in the following. This study was conducted with intact school classes of Thuringian ninth graders. Testing the program in intact classrooms instead of randomizing program (i.e., applying a quasi-experimental instead of an experimental design) was chosen here to increase external validity as the program is designed to be implemented in classrooms with teachers or other school staff the participants already know. Furthermore, creating an artificial random context

would have been also too difficult to organize. However, the non-randomized allocation of students to the control and intervention condition entails the risk that differences in changes that were observed in the study may not be attributable to the program but to differences between these groups with regard to several aspects. In the evaluation study several efforts were undertaken to rule out that possibility. First, in order to reduce differences in the context, control schools were sampled in the same regional area as the respective intervention schools. Second, differences between intervention and control students with respect to socio-economic background and the outcome variables were explicitly tested. These analyses revealed only minor differences between these groups: Students in the control condition were more likely to visit schools that are involved in BSP and reported a higher number of career preparation activities. Both variables were taken into account in the analyses. Third, to rule out the possibility that groups differ with respect to the conception of applied assessment instruments, tests of measurement equivalence were carried out. The results indicated that all measures applied in the evaluation study proved to be invariant between the two groups. Taken together, although the current evaluation study does not follow the gold standard, that is the randomized controlled trial, internal validity seems to be given nonetheless.

The statistical procedure applied in the present study also contributed to increase the validity of the statistical conclusions that refers to whether the appropriate statics were used to determine whether and how strong the independent and dependent variables are related (Cook & Campbell, 1979). Major threats to that type of validity in the context of the current study were (1) the underestimation of standard errors due to clustered data, and (2) the potential unreliability of measures that lead to overestimating or underestimating change. Both could be ruled out in the current study. First, the estimation algorithm used to estimate parameters adjusted for clustered data. Second, the true change score model with SEM allowed for investigating changes in the latent constructs which means that measurement errors that contribute to an instrument's unreliability did not influence the change scores. In addition, the analyses regarding measurement invariance mentioned above revealed no changes in the measurement instruments over time, and thus, ruled out the possibility that observed changes in the construct may be attributable to changes in the instruments.

Taken together, it can be concluded that the present evaluation study broadly satisfies the requirements of internal and statistical conclusion validity. Consequently, further interpretation of the study finding was granted. The efforts that were undertaken to ensure

both represent the strengths of the current study. Especially the efforts with regard to the latter are still often neglected in evaluation studies.

With respect to external validity, a major advantage was that this study was conducted under real life conditions with intact school classes of Thuringian ninth graders. The study findings, therefore, may be generalized to the application of the program to other Thuringian schools with similar contexts. With respect to the generalization to other German Federal States, it has to be noted that the have somewhat different school systems and also different programs for career preparation. For that reason, the effectiveness of the SCHuuuB-II program in other Federal States may be different. Based on the current study, larger effects would be expected in areas with no comprehensive career preparation programs.

6.3 Implications

In the following, the implications of this thesis are discussed and avenues for further research are outlined. Thereby, three major points are addressed. The first one concerns further evaluation efforts and revisions in the SCHuuuB-II intervention program. Second, the implications for career preparation in schools are discussed. Finally, the role of basic research in designing effective career preparation intervention programs is highlighted.

5.3.1 Further Evaluation Questions and Implications for the Program

One major research question of the present thesis addressed the average effects of the SCHuuuB-II program on variables considered to be relevant during the STWT and in later career development. With respect to this question, the analysis of the changes between the pre- and posttest revealed nearly no general program effect. This raises three additional questions: 1) Are there intervention effects that become evident over time and do immediate effects persist?; 2) Are there subgroups that profit more the program whereas others do not?; 3) What can be done to improve the program and increase the effects? Some possible ways to approach these questions in future research are addressed in the following.

Follow up assessments

The immediate effects of the SCHuuuB-II intervention program were rather scarce especially concerning the variables related to planning, goal pursuit, and social skills. The measures applied in this evaluation study to assess these skills primarily asked for rather general strategies in dealing with career-related tasks or general perceived social competence. Having

stated that, it may be that effects on skills assessed that way may become only evident after some time when students actually had the chance to apply what they have learned in real life tasks and situations. In a similar vein, SCHuuuB-II participants may increase in their broad and in-depth career exploration efforts more than students in the control group when they approach the developmental deadline of actually having to choose an occupation and apply for vocational training before they graduate from school. In the current study, only a minority already applied for a vocational training position at posttest assessment. To answer these questions, a follow up assessment which should take place shortly before participants leave school (i.e. at the end of grade 9 or 10, respectively) would be needed. Also, such a follow up assessment would shed light on the persistence of the program effects found in the current evaluation study. In the present study, a follow up was only conducted with students from the lowest school track who were likely to leave school after grade 9. Unfortunately, these students were only asked about variables regarding their application progress and whether they already obtained a vocational training position. Due to time constraints, it was not possible to include the psychological variables as well.

Apart from a follow up at the end of school time, there should be a second follow up that allows for clarifying whether the SCHuuuB-II program reaches its ultimate goal of fostering a successful STWT. Ideally, such a second follow up should be conducted when adolescents already entered the labor market (e.g., one year after students left school) and assess subjective as well as objective indicators of the transition quality. These could include the satisfaction with occupational choice or job satisfaction as subjective measures, and the time until obtaining a vocational training position or job performance as objective measures.

Taken together, in a future evaluation of the (revised, see below) SCHuuuB-II program at least two follow up assessments should be included in order to investigate potential long-term effects on the targeted psychological variables as well as effects on the quality of the STWT.

Moderator analyses

In the present study, moderator effects of other career preparation measures were found regarding the SCHuuuB-II effects. As the number and kind of things students already do in order to prepare for their future work life are only one aspect that influences the effect of a career preparation program, future studies have to address other potential moderators.

One potential moderator could be the individual status in the career choice and application process. In the present study, students already started at a high level regarding the

career-related and goal pursuit variables on average. However, as indicated in the variances around the initial means, some students showed less career exploration, were more uncertain about their occupational choice and/or were less engaged in career-related tasks. In this respect, these students may be regarded as a risk group that could profit from taking part in SCHuuuB-II that explicitly targets these variables.

In a similar vein, parents are major partners for adolescents in exploring their career options and deciding for an occupation (e.g., Dietrich & Kracke, 2009). Therefore, students who receive less support from their parents may especially profit from the program as they receive support from other sources (i.e., peers and teachers) and learn about strategies and information databases in the course of the program.

Finally, students' program acceptance was good on average but some participants liked the program more than others. Program acceptance is related to extent to which students are engaged and involved in program activities (Dane & Schneider, 1998), and thus, also influences the extent to which students learn from these activities (e.g. Bandura, 1986). Consequently, program acceptance emerges as a further potential moderator of program effects on the targeted outcomes. Of course, investigating the latter would have to include an analysis of individual and contextual factors influencing students' evaluation of the program in order to increase program acceptance in the future.

Testing these potential moderator effects is beyond the scope of this thesis which was primarily concerned with the analysis of overall effects of the as well as moderator effects of other career measures. Nevertheless, analyzing other potential moderators of program effects will be the next step in the evaluation of the SCHuuuB-II program. Identifying subgroups of students who will especially profit from the program will also help practitioners in schools to decide whether the program would be a useful addition to their regular career preparation activities. However, it is not suggested to apply the program only in groups of students who seem to be in special need for a career intervention program. This procedure would counteract the principles of universal Life Skills programs as it would stigmatize those students as well as take them the opportunity to learn from more experienced students who already proceeded in their career choice and have taken action to implement their career goals.

Program revision

The SCHuuuB-II intervention program aimed at increasing skills and resources relevant for the STWT and later career development in ninth graders. Thereby a Life Skills approach was followed in that the promotion of general life skills was supplemented with the impartment of

career-specific knowledge and career-specific skills. Furthermore, the program's structure and methods were derived from research on the characteristics of effective school-based skills promoting programs. However, the rather scare effects found on the targeted variables suggest that the program needs revision. Two general suggestions for program improvement are outlined in the following.

First, it is suggested that, especially with respect to the promotion of skills, the program should include more exercises that give participants the opportunity to practice the application of what they have learned in different situations. The program as it is, comprises usually one and sometimes two practice components following an instruction phase which may not be enough to facilitate the development of transferable and sustainable skills. For example, with respect to the promotion of planning skills the participants practice to apply a general step-wise procedure within the context of one problem-solving task. Furthermore, they practice the division of one major goal (i.e., getting a vocational training position) into sub-goals and think about several ways to approach the sub-tasks and to overcome potential barriers. With regard to the improvement of goal pursuit strategies participants learn about several general strategies and practice the choice of adequate goal pursuit strategies in different problem situations or tasks but not their direct application. Taken together, the exercises may be too few and too theoretical to evoke behavioral changes with respect to planning and goal pursuit skills. Therefore, the revision of SCHuuuB-II needs to include tasks that need to be planned and solved more actively by participants. These tasks may be related to an everyday (e.g., the implementation of a personal goal) or a career-related topic (e.g., applying for a vocational training position). Ideally, it would comprise both to maximize the training effect. These exercises could be included as additional tasks in the sessions or as homework assignments.

In a similar vein, regarding the promotion of broad and in-depth career exploration the program as it is now comprises one exercise where students learn more about their vocational interests and an additional task to gather information about an occupation that may fit these interests. Based on the evaluation findings, these tasks do not seem to be enough to motivate more career exploration than students already showed prior to program participation. Thus, SCHuuuB-II should include more exploration exercises. For example, participants could get the task to gather information about two or three additional occupation that fit their interests and present these occupations to their classmates. Apart from the side effect that other participants learn more about different occupation, this task would also represent an additional

mean for practicing social skills (e.g., presentation skills, self-confident behavior, and giving and receiving feedback).

Apart from adding more practice elements that require participants to become more active, it is, second, suggested to start the program earlier than in grade 9 and with additional sessions in subsequent years. The target group of ninth graders was originally chosen due to the notion that the developmental task of actually having to chose a future occupation becomes increasingly urgent as the STWT approaches, and the ninth grade would represent a critical period in which students are particularly sensitive to career intervention programs. However, the findings show that the program as it is does not evoke much change in career-related skills and resources. Furthermore, the study showed that students already have undertaken activities in order to prepare for their future work life. Thus, it seems that the program may be implemented too late. For that reason, it is suggested to implement the program – or at least parts of it – in earlier grades with additional sessions in the following years.

Starting earlier would have three major advantages. First, it would provide more time for practicing the targeted skills in two senses. The program now is restricted to ten sessions of 90 minutes duration each which translates into a total of 20 school lessons. The implementing teachers and the principals of the respective schools indicated that this is a maximum of time that could be invested in a program that is not directly related to the impartment of subject-specific knowledge. Therefore, adding practice elements as it is suggested above would result in a program that is too time consuming to be feasible in the course of only one grade. Apart from the aspect of time management and more importantly, starting earlier would also provide participants the opportunity to apply what they have learned in different situations before the task of having to choose an occupation and apply for a vocational training position becomes urgent. In this regard, the early promotion of skills that foster the adaptive dealing with tasks of everyday life (i.e., life skills) would also account for empirical evidence highlighting that competence in the achievement of earlier age-typical developmental tasks in one domain such as the social and academic domain affects the success in later emerging domains such as the work domain (e.g., Masten & Coatsworth, 1998). Masten and colleagues (Masten, Desjardins, Mccormick, Kuo, & Long, 2010), for instance, could show that work competence in emerging and early adulthood was forecasted by childhood social adjustment in terms of social competence with peers.

Second, starting the program or parts of it in earlier grades would provide the opportunity to synchronize the activities of SCHuuuB-II with other career preparation

measures – a wish that was also expressed by some implementing teachers in the present study. For instance, the components for self-reflection and exploration of different occupational alternatives could be conducted before students choose and search for an internship in a company.

Finally, expanding the program over several years would be in line with the optimal three-level procedure in the promotion of life skills suggested by the WHO (1997). Thereby, level one includes the promotion of basic components of the core life skills practiced in relation to common everyday situations. Translated to SCHuuuB-II this would comprise, for example, self-reflection on general interests, planning the implementation of personal (non-career-related) goals, and basic communication skills in the first year. The second level is intended for the application of life skills to topics that are related to the target area. With respect to the SCHuuuB-II program that could involve the reflection of vocational interests, the exploration of possible occupational alternatives, and planning and implementing an internship in a company in the second year. Finally, at the third level the life skills should be applied to 'risk situations' that can give rise to problems. The program in the third year, thus, may involve the training of behavior in critical situations specific to the career context such as practicing a job interview, or conducting role plays in which adequate strategies for dealing with setbacks (e.g., no training position is available in the chose occupation, receiving a letter of refusal for a vocational training position) are practiced.

Thinking a step further, instead of solely focussing on career development, the program could be combined with other life skills programs implemented in schools. Although these programs have different target areas (e.g., promotion of health behavior), they share the broad goal of promoting abilities that help individuals to adapt and behave positively so they can deal effectively with the challenges of everyday life. Therefore, they could share one basic program to promote basic intra- and interpersonal skills such self-reflection and communication skills in the first year and comprise different additional content-specific units (e.g., career preparation, substance use, sexual risk behavior) in later years. In this sense, instead of being implemented for the main purpose of the prevention of problems in several domains of functioning, such combined programs could contribute to positive youth promotion in general as it is has been claimed by several researchers in the past (e.g., Lerner, Dowling, & Anderson, 2003).

Taken together, it is suggested to include more practical exercises in SCHuuuB-II and to start its implementation earlier than in grade 9 in to provide students enough opportunity to develop the relevant skills and resources before the task of mastering the STWT becomes

urgent. The actual starting point for the introduction of the program and its relevant contents would have to be decided based on the timing of other career preparation measures in schools as well as guided by the findings of basic research regarding the normative and ideal skill development. The topic of the synchronization with other career preparation measures in schools is addressed in the following, the implications for basic research in the section after that.

6.3.2 Implication for career preparation measures in general

As outlined above (see Section 1.3) there are several measures currently implemented in Germany with the aim of facilitating the school to work transition during school time. Until today these measures have been hardly evaluated regarding their effects on adolescents' and young adults' transition from education to work. This clearly indicates a research gap which needs to be addressed in the future to provide policy makers and practitioners with the necessary information they need in order to decide which approaches deserve further funding, application, and development (e.g., Huston, 2005).

In order to do so would require more than the evaluation of single measures like the study of the present thesis. Given that current approaches are designed by several different agents such as psychologists, politicians, and networks built of individuals from economy, school, and policy as well as target different levels of intervention from the individual to the number of available training position, the total of career interventions could be regarded as a complex intervention with the overarching aim of improving the STWT and the different measures as components (Petticrew, 2011). According to Campbell and colleagues (Campbell et al., 2000), the development of an effective and efficient complex intervention should follow different iterative phases. Although their framework has been developed in the health domain it may also be applied in the context of career preparation and development. In the first phase, the potential components, which are ideally developed based on recent theories and empirical evidence, and the underlying mechanisms by which they influence outcomes need to be identified. In the context of current career preparation measures this would require an explicit definition of goals for each measure that allow for deriving testable hypotheses in an evaluation study in a first step. Second, the effects of these measures on the defined outcomes would have to be evaluated along with the identification of their active ingredients. Third, the potential interactive effects between several measures that often share the same goals such as increasing career exploration have to be investigated. Currently, with several measures implemented in parallel it seems to be assumed that the effects of these measures simply add

up. However, as the findings of the present study there are interactive effects between different measures. For example, with respect to dealing with career-related task more active and engaging strategies could only be fostered in those students who have already undertaken more in order to prepare themselves for the transition. Similarly, Mayhack (2011) found that students who participated in a program designed to facilitate career choice preparation through parents' involvement in school evaluated the personal use of their internship in a company more positive than those who did not. In the phases following the identification of effective components and their potential interactive effects, Campbell and her colleagues (ibid.) suggest the description of the complex intervention's constant and variable components (Phase II) as basis for the test of its effects in a (randomized) controlled trial (Phase III). In a final phase, the implementation as well as the effects of the complex intervention should be investigated outside a controlled setting.

Taken together, although the development of one complex intervention for career preparation may not be the major goal, it is suggested that current measures in this field need to be studied with regard to their unique and interactive effects as well as their active components in order to inform policy makers and practitioners about the most promising approaches to the facilitation of the STWT. In this way, school staff could restrict career preparation activities that are not perceived as part of the core curriculum to a minimum based on evidence, students may be prevented from having to take part in too many, sometimes ineffective, career preparation measures that may overburden them and cause reactance in the end.

6.3.3 Implications for Basic Research

Apart from the need for evaluation of existing measures in the field of career preparation, the development of effective measures needs to go hand in hand with basic research (Coie, Miller-Johnson, & Bagwell, 2000). In the following, the main topics that need to be addressed in order to improve skills promoting intervention programs are outlined.

The contents of SCHuuuB-II were derived from current career development theories and concepts. However, empirical evidence related to these theories and concepts is rather eclectic and the role of the skills and resources highlighted have not been clarified sufficiently yet. Specifically, until today it is not clear which specific skills and resources are really necessary and sufficient for a successful STWT, or may reduce the impact of potential risk factors. In this regard, longitudinal studies that follow participants from education to work life and assess a great variety of individual and contextual variables are needed in order to identify

promotion and risk factors (e.g., Savickas, 1997). In addition, such longitudinal studies should also make an effort to determine how much of relevant skills and resources are necessary for a successful STWT and specify a time frame indicating their normative development and when they actually have to be developed (grade, age etc.). Providing such longitudinal findings, would assist prevention researchers in their decisions regarding the content and timing of interventions (Lerner & Steinberg, 2004) and provide them with criteria that allow for testing the effectiveness of a program based on the degree of reaching a defined goal state as compared to the sole amount of change they may induce (Hager & Hasselhorn, 2000). In addition, the provision of explicit criteria would also help practitioners involved in adolescents' career preparation to identify potential need for further development in their students. As longitudinal studies can only provide first insights into potential causal mechanisms due to the lack of experimental manipulation, it is the task of further intervention research to explore in how far and how the identified skills are subject to change, and whether the changes in these skills actually improve the quality of the STWT. The results of this intervention research, in turn, should initiate the refinement of career development theories and concepts (Coie et al., 2000; Kellam, 1994).

A further task for future basic research, that is suggested here, is concerned with the development of appropriate assessment methods for the targeted skills. In the current study, rather general strategies (engagement vs. disengagement) for dealing with career-related tasks were assessed. The findings indicated that students perceive themselves as rather active in approaching these tasks over the whole study. However, it did not become clear what students actually do and how appropriate the respective strategy would be in a given situation. In this regard, the development of measures that confront students with actual tasks or problem situations and determine their specific strategy to solve the specific problem would provide more insight in students' problem- and task-solving skills as well as the effects of SCHuuuB-II. With regard to career exploration, students were asked to indicate how often they have carried out specific activities in the present study. This kind of assessment leaves open the question of how effective these activities actually are. Therefore, future studies should also develop measures that allow for determining the effectiveness of individual career exploration. This could be done, for instance, by asking adolescents to provide a number of occupations that fit their interests and answering questions regarding these occupations. Finally, the assessment of social competence relied on students' perception of how well they interact with other people in general and leaves open how the adolescents actually behave and how their behavior is perceived by others. In this regard it is suggested that comparable data

assessed from other informants in different social contexts (e.g., peers, teachers, employers during an internship) should be included in order to determine individual social competence.

In sum, it is suggested that future basic research is needed to identify the skills and resources actually necessary and sufficient for a successful STWT along with the further development of appropriate measures to assess these skills.

6.4 Conclusion

The current thesis presented the design and evaluation of a new skills promoting program for facilitating the STWT. The program's contents and methods were derived from current career theories and concepts as well as evidence regarding the characteristics of effective school-based intervention programs. Thereby, the Life Skills approach proved to be a valid venue to the promotion of career-related skills and resources. Although the program was not equally effective in all groups and with respect to all variables, SCHuuuB-II has the potential to improve skills and resources that contribute to a successful transition from school to work. However, as much the program focuses on personal characteristics and agency it has to be kept in mind, that preparing adolescents for the challenges of a continuously changing labor market and providing them opportunities for positive career development is an endeavour that can only be approached by conjoint activities of developmental scientists, policy makers, schools, people from the economy, and not least the adolescents themselves.

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Appendix

Table A1 *Differences Between the Final and Dropout Intervention Group at T1*

Variable		Intervention Group		Difference
		Final	Dropout	
N		311	16	
Age	M	15.06	15.01	ns
	SD	.70	.54	
Gender (female)	%	45.7	56.3	ns
Highest aspired school leaving certificate				ns
(qualifizierter) Hauptschulabschluss (lowest)	%	22.9	37.5	
Realschulabschluss (medium)	%	57.2	43.8	
Abitur (highest)	%	19.9	18.8	
Grade point avarage – maths, german, english	M	2.98	3.07	ns
	SD	.71	.77	
Family financial situation (1-5)	M	3.66	3.79	ns
	SD	.92	.80	
Work status parents (at least one parent full-time employed)	%	81.8	56.3	X^2= 6.360; p<.05

Table A2 *Results From Tests for Normality*

	Shapiro-Wilk				
	Statistic	df	*p*	Skewness	Kurtosis
Knowledge labor market - pre	.952	625	.000	.05	-.10
Knowledge labor market - post	.954	598	.000	-.04	-.52
Broad exploration - pre	.971	635	.000	-0.49	0.45
Broad exploration - post	.963	598	.000	-0.41	0.78
In-depth exploration - pre	.992	635	.001	-0.20	-0.22
In-depth exploration - post	.993	598	.006	-0.02	-0.25
Uncertainty - pre	.962	634	.000	0.59	-0.17
Uncertainty - post	.952	602	.000	0.66	0.06
Planning strategies - pre	.976	634	.000	-0.33	0.49
Planning strategies - post	.975	595	.000	-0.29	0.70
Selective control- pre	.969	629	.000	-0.29	0.60
Selective control -post	.977	584	.000	-0.11	-0.06
Compensatory primary control - pre	.916	629	.000	-0.68	0.97
Compensatory primary control - post	.927	583	.000	-0.39	-0.14
Compensatory secondary control - pre	.960	629	.000	0.60	0.49
Compensatory secondary control - post	.964	583	.000	0.43	-0.22
Knowledge social behavior - pre	.906	619	.000	-1.14	1.75
Knowledge social behavior - post	.902	579	.000	-1.17	1.90
Social competence - pre	.976	618	.000	-0.24	-0.17
Social competence - post	.975	589	.000	-0.31	-0.18

A3 *Satorra-Bentler Scaled Chi-squared Difference Test*

In the following, the formula for the adequate statistic *T* to compare nested models estimated with the COMPLEX procedure in MPlus is provided (see Satorra & Bentler, 2001). *T* is distributed chi-squared with Δ df = d0 - d1 degrees of freedom. For reasons of clarity, the T (Δ df) is termed Δ χ2 (Δ df) the results tables.

T = (T0 * c0 - T1 * c1)/cd

With

cd = (d0 * c0 - d1 * c1)/(d0 - d1)

c0 = scaling correction factor for the null model
c1 = scaling correction factor for the alternative model
d0 = degrees of freedom for the null model
d1 = degrees of freedom for the alternative model
T0 = Satorra-Bentler scaled chi-squared value for the null model
T1 = Satorra-Bentler scaled chi-squared value for the alternative model

Table A4 *Teachers' and Students' Feedback*

School	*N* students	*N* classrooms	Teachers' feedback: Implementation quantity (0-100%)		Implementation quality (1-5)		Actively participating students (1-20% -5-80-100%)		Students' feedback: Overall programrating (1-5)		Would recommend program to friends	Wish for further program implementation
			M	SD	M	SD	M	SD	M	SD	%	%
1	32	2	66.30	17.08	3.44	.73	3.06	1.00	2.93	.77	35.71	57.14
2	33	2	96.00	6.81	4.40	.50	4.40	.50	3.78	1.24	69.70	72.73
3[a]	24	1	--	--	--	--	--	--	3.83	.64	72.73	78.26
4	37	2	92.00	6.96	4.20	.41	4.20	.41	3.36	.78	50.00	67.86
5[a]	23	1	--	--	--	--	--	--	3.56	.51	68.75	87.50
6	9	1	86.00	14.30	3.40	.84	3.10	.74	4.38	.52	10.00	10.00
7	8	1	97.80	4.41	4.44	.53	5.00	.00	3.67	.52	10.00	10.00
8	37	2	93.50	5.87	4.30	.66	4.35	.59	4.03	.54	96.88	96.88
9	42	2	88.90	1.54	3.60	.52	3.90	.88	3.02	.87	35.71	36.59
10	29	2	95.00	5.27	4.50	.53	4.80	.42	3.59	.89	62.50	65.38
11	12	1	91.00	8.76	4.00	.67	4.00	.82	3.42	.79	75.00	83.33
12	31	2	86.80	13.36	3.79	.79	4.37	.68	3.39	.92	60.71	75.00
Total	317	19	89.10	13.26	4.03	.72	4.12	.84	3.51	.90	62.45	70.61

Note. a – data on process evaluation was not available from teachers of these schools

Table A5 *a) Predictor Model: Estimates for means and variances*

	M	Var
Group (0 = control, 1 = intervention)	.468	.251
Educational degree (1 = lowest degree, 0 = higher)	.201	.161
BSP (0 = not taking part in BSP, 1 = taking part in BSP)	.624	.232
Number of career preparation activities at pretest (careeract)	.005	.972
Change in number career preparation activities betwee pre- and posttest (CHcareeract)	.004	.967
GroupXBSP	.240	.183
GroupXCareeract	-.098	.443

Table A5 *b) Predictor Model: Estimates for correlations (r) and covariances*

			r	Cov	*p*
Group	<-->	BSP	-.213	-0.052	ns
Group	<-->	Careeract	-.213	-0.105	***
Group	<-->	CHcareeract	.156	0.078	***
Group	<-->	GroupXBSP	.600	0.129	***
Group	<-->	GroupXCareeract	-.164	-0.055	*
BSP	<-->	GroupXBSP	.437	0.090	**
BSP	<-->	GroupXCareeract	.204	0.066	***
Careeract	<-->	GroupXCareeract	.693	0.455	***
Careeract	<-->	CHcareeract	-.692	-0.683	***
CHcareeract	<-->	GroupXCareeract	-.441	-0.294	***
GroupXCareeract	<-->	GroupXBSP	.092	0.026	ns

Note. All other possible covariances were set to zero in the model. $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Table A6 *Overview of True Change Score Models for Outcome Variables*

Variable	Model Fit	Pretest score		Change score		$r_{T1change}$
		M	*SD*	*M*	*SD*	
Knowledge about the labor and vocational training market	--	4.48 ***	1.36***	.30 ***	1.52***	-.515
Broad exploration	χ^2 (df) =4.555 (3), ns CFI =.996 RMSEA [90% CI] =028 [.000-.076]	2.37 ***	.44***	.10 **	.48***	-.453
In-depth exploration	χ^2 (df) =4.932 (4), ns CFI =.999 RMSEA [90% CI] =.019 [.000-.064]	2.34 ***	.57***	.11 **	.50***	-.445
Career choice uncertainty	χ^2 (df) =4.227 (3), ns CFI =.999 RMSEA [90% CI] =.025 [.000-.075]	1.91 ***	.60***	-.17 ***	.48***	-.461
Planning strategies	χ^2 (df) =1.910 (4), ns CFI =1.000 RMSEA [90% CI] =.000v[.000-.040]	3.03 ***	.44***	-.04 ns	.44***	-.496
Selective control	χ^2 (df) =4.048 (3), ns CFI =.998 RMSEA [90% CI] =.023 [.000-.073]	2.95 ***	.43***	-.03 ns	.36***	-.466
Compensatory primary control	χ^2 (df) =4.442 (5), ns CFI =1.000 RMSEA [90% CI] =.000 [.000-.051]	3.31 ***	.47***	-.08 **	.42***	-.383
Compensatory secondary control	χ^2 (df) =2.340 (4), ns CFI =1.000 RMSEA [90% CI] =.000 [.000-.045]	1.87 ***	.53***	.04 ns	.57***	-.475
Knowledge about adequate behavior in social situations	--	8.94 ***	1.96***	.28 *	2.01***	-.586
Social competence	χ^2 (df) = 3.229 (4), ns CFI = 1.000 RMSEA [90% CI] = .000 [.000-.053]	2.94 ***	.48***	-.03 ns	.43***	-.369

Note. $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Table A7 *Group Effects on Outcome Variables (Model 1)*

	Pretest score			Change score			Model Fit
	B	SE (B)	ß	B	SE (B)	ß	
Knowledge about the labor and vocational training market							
Pretest score	--	--	--	-.574***	.037	-.514	--
Group	-.022	.128	-016	.235*	.116	.173	
Broad career exploration							
Pretest score	--	--	--	-.490***	.078	-.452	χ2 (df) = 5.680 (6)
Group	-.049	.040	-.113	.021	.050	.045	CFI =.998
							RMSEA (90% CI) = .014 (.000 - .057)
In-depth career exploration							
Pretest score	--	--	--	-.392***	.048	-.442	χ2 (df) = 4.277 (6)
Group	-.086	.065	-.152	.046	.050	.092	CFI =1.000
							RMSEA (90% CI) = .000 (.000 - .041)
Career choice uncertainty							
Pretest score	--	--	--	-.366***	.039	-.454	χ2 (df) = 8.093 (5)
Group	.121*	.062	.202	-.072	.056	-.149	CFI =.998
							RMSEA (90% CI) = .030 (.000 - .067)
Career-related planning strategies							
Pretest score	--	--	--	-.504***	.083	-.496	χ2 (df) = 3.609 (6)
Group	-.009	.044	-.020	-.005	.038	-.012	CFI =1.000
							RMSEA (90% CI) = .000 (.000 - .036)
Selective control							
Pretest score	--	--	--	-.384***	.072	-.383	χ2 (df) = 8.905 (6)
Group	-.003	.052	-.006	-.047	.037	-.074	CFI =.993
							RMSEA (90% CI) = .034 (.000 - .070)
Compensatory primary control							
Pretest score	--	--	--	-.348***	.065	-.383	χ2 (df) = 4.770 (6)
Group	-.009	.049	-.019	-.032	.054	-.074	CFI =1.000
							RMSEA (90% CI) = .000 (.000 - .037)
Compensatory secondary control							
Pretest score	--	--	--	-.516***	.070	-.475	χ2 (df) = 3.613 (6)
Group	.000	.068	-.001	.030	.059	.052	CFI =1.000
							RMSEA (90% CI) = .000 (.000 - .037)
Knowledge about adequate behavior in social situations							
Pretest score	--	--	--	-.600***	.035	-.585	--
Group	-.150	.277	-.077	.147	.227	.073	
Social competence							
Pretest score	--	--	--	-.330***	.057	-.370	χ2 (df) = 3.924 (6)
Group	.008	.050	.017	.072	.051	.168	CFI =1.000
							RMSEA (90% CI) = .000 (.000 - .039)

EHRENWÖRTLICHE ERKLÄRUNG

Ich erkläre hiermit, dass mir die Promotionsordnung der Fakultät für Sozial- und Verhaltenswissenschaften der Friedrich-Schiller-Universität Jena bekannt ist.

Ferner erkläre ich, dass ich die vorliegende Arbeit selbst und ohne unzulässige Hilfe Dritter angefertigt habe. Alle von mir benutzten Hilfsmittel, persönliche Mitteilungen und Quellen sind in der Arbeit angegeben. Weitere Personen waren an der inhaltlich-materiellen Erstellung der Arbeit ebenfalls nicht beteiligt. Insbesondere habe ich hierfür nicht die Hilfe eines Promotionsberaters in Anspruch genommen und Dritte haben weder unmittelbar noch mittelbar geldwerte Leistungen von mir für Arbeiten erhalten, die in Zusammenhang mit dem Inhalt der vorliegenden Dissertation stehen.

Die Arbeit wurde weder im In- noch Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt.

Weder früher noch gegenwärtig habe ich an einer anderen Hochschule eine Dissertation eingereicht.

Ich versichere, dass ich nach bestem Wissen und Gewissen die reine Wahrheit gesagt und nichts verschwiegen habe.

Jena, den 25. April 2013

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Anja Blumenthal