MASTER THESIS

Researching the contribution of career guidance for career identity and self-directed learning in career processes (SDC).

University of Twente: Dr. R. van Veelen, Drs. M. Hendriks & Dr. N. Belo

Mentor Landstede: Drs. M. Lam

Commissioned by: Drs. N. Carbijn & Drs. T. van Geffen

Written by: Sandra Brandenburg
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UNIVERSITY OF TWENTE.

Landstede

Summary

The labour market is constantly changing, due to social, economical and technological transformations, resulting in an unstable and redefined workplace. Students need to be prepared for this new labour market, in which getting a job and holding on to a job has become more difficult. Therefore, the Dutch government implemented career guidance in vocational education. This helps students to develop career competences that are beneficial for functioning on the new labour market. Two career competences that are acknowledged as important in literature are: forming a career identity and self-directed learning. This research investigates whether the implemented career guidance at a secondary vocational education school contributes to the development of these career competences. This is measured with students' perception on career guidance. The career guidance system at this school consisted of a coach, coach meetings and a portfolio. The results showed that the coach, the coach meeting and the portfolio contributed positively to the level of self-directed learning. Furthermore, the coach and the coach meeting contributed positively to the career identity, whereas the portfolio did not. Finally, mediation analyses showed that the level of career identity partially mediated the relationship between the career guidance variables coach and coach meetings and self-directed learning. Specifically, those students who value a coach and/or coach meetings highly, experience a stronger career identity which in turn, enables them to become self directed in their careers.

Key words: *career guidance, career identity, self-directed learning*

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1. Introduction

The society is rapidly changing, due to economic, social and technological transformations. These transformations have an effect on the economic power of Western society, which are no longer determined by the means of production, capital or natural resources, but by the inherent knowledge of people (Drucker, 1993).

The new society asks for a new way of working. In the past workplace careers were stable and definable, which made it possible for employees to land in a working situation which could be exercised for the rest of their lives. Nowadays, transformations and trends define the direction of a company, resulting in unstable and constantly redefined careers. This means that jobs are more temporally, and employees move from contract to contract, based on the power of their own strengths and previous experiences (Arthur, 1994).

The changing labour market makes it difficult for people to get a job and to hold on to a job. People need to stay employable by improving and reinventing themselves. Therefore, the Organisation for Economic Cooperation and Development (OECD) decided in 2004 that people need help in this process by giving career guidance a central place in society. The OECD (2004, p.19) describes the following about career guidance: “Career guidance helps people to reflect on their ambitions, interests, qualifications and abilities. It helps them to understand the labour market and education systems, and to relate this to what they know about themselves. Comprehensive career guidance tries to teach people to plan and make decisions about work and learning.”

In the Netherlands, the Boekhoud Committee commissioned by the Ministry of OCW (Education, culture, science) decided in 2001 that career guidance needs to play a central role, especially in education. The Dutch government acknowledged that career guidance is needed to help students in their career development, in order to prepare students for the labour market. Career guidance in secondary vocational education mostly consists of a set of integrated instruments, such as writing a portfolio or a personal development plan, having regular conversations with a coach etc. (Mittendorff, Jochems, Meijers & den Brok, 2008). The career guidance is provided by a teacher with a coach role. It is assumed that career guidance has the potential to help students to find a suitable career and to keep up with this career (Wijers & Meijers, 1992), but also that it helps students to develop career competences that could be useful during the rest of their lives (Winters, Kuijpers & Meijers, 2008). Career competences help students to become responsible for their own careers and to achieve career progress in the future (Kuijpers, Schyns & Scheerens, 2006). Two important career competences in today’s labour market are: becoming a self directed learner and forming a career identity.

The first career competence is self-directed learning. Self-direction is necessary to steer and take responsibility for one’s own career in order to stay employable (Onderwijsraad, 2014). A self-directed learner is a learner who is able to decide what needs to be learned next and how this can be accomplished best (Jossberger, Brand-Gruwel, Boshuizen & van der Wiel, 2010). In this way, a self-directed learner knows which career activities need to be undertaken to achieve career-related goals in order to keep up with the dynamic labour market.

The second career competence, forming a career identity, is considered important because “the development of a [career] identity is more than ever before a project that people need to take in their own hands” (Onderwijsraad, 2014, p. 10). People become more individualistic and their identity is less influenced by their social context, such as churches and neighborhoods. In secondary vocational education a career identity is seen as “a structure or network of meaning where the individual connects his/her motivation, interests and capacities on a conscious level to acceptable professional roles (Mijers, 1995, p.3). According to Arthur, Kapova and Wilderom (2005) a strong career identity helps students to make decisions and to deal with nowadays labour market. Besides that, researchers also argue that a strong career identity enables students to become self-directed (Weijers & Meijers, 1996; Winters, Kuijpers & Meijers, 2009; Meijers & Wardekker, 2002). They argue that a strong career identity helps students to determine their careers, resulting in more self-

directedness to realize the aspired career. Therefore, in this research we not only expect that career guidance leads to a stronger career identity, but also that career identity is a mediating variable in the extent to which career guidance leads to self-directedness.

Although the Onderwijsraad (2014) and the OECD (2004) have a plea for career guidance and its influences on the career competences self-directed learning and career identity, there is less known about the actual relationship between career guidance and career identity and self-directed learning. The research presented here therefore investigates to what extent career guidance contributes to the development of the career competences self-directed learning and career identity. First, it describes whether career guidance influences the extent to which students develop the career competences self-directed learning and career identity. Second, it investigates whether students with a strong career identity also show more self-directedness, by investigating if career identity is a mediating variable. This will give insight in the importance of the assumed value of the career guidance variable career identity.

The concepts are measured with the perception of students about career guidance, and about their career identity and self-directed learning. This research considers the perception of students as important because students are the ones who need to feel enhanced by career guidance in order to strengthen the career competences (Howieson & Semple, 2000).

In order to reach the goal, this research starts with a theoretical framework, providing an overview of research on the career competences career identity and self-directed learning and career guidance (chapter 2). Chapter 3 formulates the research question, chapter 4 elaborates on the method used to collect data for answering the research question, chapter 5 describes the results of the collected data and finally, the conclusions are given in chapter 6.

2. Theoretical framework

Introduction

This section explains the concepts career competences and career guidance, which consist of students' perceptions on the coach, coach meetings and portfolio. Subsequently, the influence of career guidance on career competences known from previous research is described.

Career competences

More and more interest is shown for career development and career competences in secondary vocational education. This is because students are faced with a growing pressure to make career choices and taking responsibility for their own careers, due to the changing labour market (Kuijpers et al. 2006). Career development is described by Kuijpers (2005) as a continual process of evaluation and implementation of steering activities aimed at self-fulfilment through one's career. In order to realize the career development, students need career competences that help students in this process. Career competences are "a person's self-management of his or her working and learning experiences in order to achieve desired career development" (Kuijpers et al. 2006, p.169). Career competences help students to become responsible for their own careers and to achieve the desired career development in the future (Kuijpers et al. 2006).

There are numerous studies on which students' career competences are helpful for career development. For example, Meijers and Weijers (1997) describe three competences, which are: actor ability, transition ability, and professional ability. 'Actor ability' is about making a connection between education, the desired professional role and the desired course of life. 'Transition ability' refers to the competence of communicating with potential employers. The last competence, 'professional ability', is the capacity to be employable under varying circumstances. Also other authors defined their own career competences, such as Bom, Derks & Wijngaarden (1999), OECD (2004) and Jones, Bergmann & Lichtenstein (2000).

However, the most known and researched career competences in the Netherlands are developed by Kuijpers (2003). She developed five career competences, which are commonly known in Dutch vocational education. These are (cited from Kuijpers & Meijers, 2012, p.451):

1. "Capacity reflection (observations of capabilities that are important for one's career)
2. Motivation reflection (observations of wishes and values that are important for one's own career)
3. Work exploration (researching job possibilities)
4. Career directedness (making thoughtful decisions and taking actions that allow work and learning to correspond with one's capabilities and motivation and challenges at work)
5. Networking (building and maintaining contacts focused on career development)"

These career competences of Kuijpers (2003) are frequently researched by Kuijpers and her colleagues (for example: Kuijpers et al. 2006; Kuijpers, Meijers & Bakker, 2006). Most of these studies endorse the career competences of Kuijpers (2003). However, Kuijpers herself also mentions that the 5 career competences must help in the development of two other comprehensive and final career competences, which are forming a career identity and becoming a self-directed learner.

First, in Kuijpers (2003) and Kuijpers and Scheerens (2006), Kuijpers argues that her 5 career competences need to contribute to the development of self-directedness. Secondly, in Meijers, Kuijpers and Gundy (2013), Kuijpers, researches how three of her career competences contribute to the development of the career identity. Therefore, it can be concluded that Kuijpers also acknowledges self-directed learning and career identity as two important competences. Figure 1 positions the career competences of Kuijpers (2003) to career identity and self-directed learning.

But also the Dutch government states career identity and self-directed learning as two important competences (Onderwijsraad, 2014). First, the government argues that students

need to learn how to direct themselves, in order to find and hold on to a job in nowadays continually changing labour market. Second, the government argues that strong career identity must function as a compass that prevents students of 'getting lost', due to all possible career choices (Onderwijsraad, 2014).

Also other researchers endorse these assumptions of the Dutch government, such as Meijers and Wardekker (2002), Weijers and Meijers (1996), Winters, Kuijpers & Meijers, 2009, Winters, Meijers, Kuijpers and Baert, 2009, Savickas, 2001). Some of these researchers argue that the career competence career identity strengths the career competence self-directed learning (Weijers & Meijers, 1996; Winters et al. 2009, Meijers & Wardekker, 2002). For example, Wijers and Meijers (1996) concluded: "To be able to form one's own [career] identity is a condition for working on the second career competence: to determine one's own direction" (p.3). And Winters, Meijers, Kuijpers and Baert (2009) argue that students who have a strong career identity are more capable to name the personal and social meaning of learning, and are therefore more self-directed to make investments in their learning and development. Furthermore, Meijers and Wardekker (2002) cited by Geurts and Meijers (2009, p.7) describe the career identity as a condition for self-directed learning: "Becoming self-directed in the area of work and employment, means attaching meaning to one's own work, thereby developing a [career] identity".

Figure 1 gives a schematic representation of the relationship between the 5 career competences of Kuijpers (2003) and the career competences career identity and self-directed learning. It shows how the literature assumes that the career competences of Kuijpers (2003) have a positive influence on the career competences that are stated by the Dutch government and other researchers. All competences should lead to more career development. The arrow between career identity and self-directed learning gives a schematic representation of the mediating role of career identity that is expected by the above mentioned researchers.

Because the career competences forming a career identity and becoming a self-directed learner are acknowledged by many researchers, this research will focus on these career competences. Therefore, the term career competences will in this research refer to forming a career identity and becoming a self-directed learner. The following sections will elaborate these career competences further.

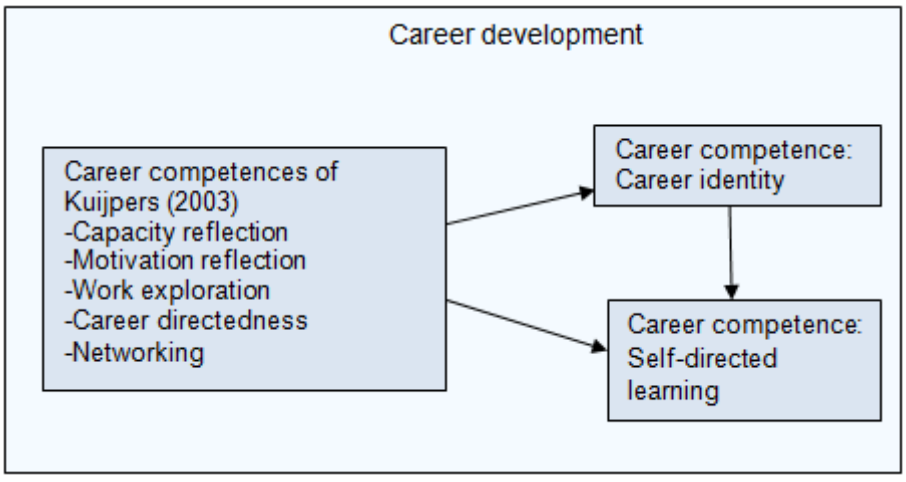

Figure 1. Schematic representation of literature about career competences

Self-directed learning

The first career competence investigated in this research is self-directed learning. The first definition of self-directed learning was written by Knowles (1975, p. 18). He defined self-directed learning as "a process in which individuals take initiative with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human

material resources for learning, choosing and implement appropriate learning strategies and evaluating learning outcomes". After Knowles his publication, the concept self-directed learning has become a subject of research for many years determining the characteristics of this concept. For example, Guglielmino (1973) focussed on personal characteristics which are on influence on self-directed learning, where as Spear and Mocker (1984) focussed on environmental determinants on self-directed learning. Besides that, self-directed learning has been research from lots of different domains, such as educational sciences, human resource management, psychology and so on (Raemdonck, 2006). This widespread interest makes it hard to give an unambiguous definition of self-directed learning. Therefore, in this research it is chosen to use the comprehensive definition of Jossberger, Brand-Gruwel, Boshuizen & Van der Wiel, 2010, p.419) who describe a self directed learner as "a student who is able to decide what needs to be learned next and how this can be accomplished best".

Two forms of self-directed learning are distinguished by Raemdonck (2006), namely: self-directedness in learning processes (SDL) and self-directedness in career processes (SDC). The first form (SDL) refers to self-directedness in order to realize learning-related goals. For example, mastering new tasks or updating knowledge. A secondary vocational education student will need SDL in order to receive a diploma. The second form (SDC) is defined as "a characteristic adaption to influence career processes in order to cope for one self on the labour market" (Raemdonck, 2006, p. 64). This means that students are self-directed in career processes when they undertake career activities which result in the achievement of career-related goals. A secondary vocational education student needs the competence SDC after receiving the diploma. This research focuses on career competences that are needed on for students' future. This means that this research will only focus on SDC. Therefore, in this research self-directed learning refers to self-directedness in career processes (SDC).

Self-directed learning becomes more important, due to the changing labour market. In order to get a job, and to hold on to a job, students need to undertake action to develop themselves (Crant, 2000). This asks for self-directed students, who are capable of taking responsibility for directing their own career. The importance of self-directed learning is supported by many researchers, for example Wijers & Meijers (1996) argue that self-directedness helps people to see work opportunities and realize these, Meijers & Kuijpers (2007 argue that the unpredictability of the labour market asks for students who can identify opportunities and avail oneself on, and Jossberger et al. (2010) describe self-directed learning as a key competence to keep learning and to achieve high performance.

It can be concluded that is been argued that students who are self-directed, will benefit from this competence during further life. There are empirical findings which support these argumentations. For example, empirical findings of Opengart and Short (2002) showed that self-directed learners paid more attention to their learning and development opportunities. Van Loo (2005) found that self-directed learners have more potential to find a new job in an external organization, in comparison with less self-directed learners, and findings of Raemdonck (2006) showed that self-directed learners were more able to realize future aspirations.

In this study, we consider self-directed learning as an important competence for nowadays labour market. We expect that students who value the perceived career guidance high, will also report a high degree of self-directedness.

Career identity

The second career competence is forming a career identity. The career competence career identity is defined as "the commitment a person has towards specific occupational activities or a specific career" (Weijers & Meijers, 1996, p.2). Students form their career identity by articulating, performing and negotiating career identity options. This process keeps continuing and becomes defined and redefined through the years. Therefore, Meijers and Lenglelle (2012) argue that students are 'doing' a career identity, instead of 'having' one. This process will not stop after graduating; however, the development of a career identity emerges especially during the preparation (study) of starting a career (Meijers & Lenglelle).

The interest for career identity has grown extensively during the last decades. The changing labour market and its increased amount of choices make it hard for people to form their career identity. People need to consider a wide range of possibilities, before they can make a decision. Thereby, they also need to explore what their own feelings and thoughts are about the possible career identity options (Meijers, 2002). According to Arthur, Kapova and Wilderom (2005) a well-developed career identity has the potential to help people to make decisions and to deal with nowadays labour market. And according to the Dutch government a career identity is beneficial for the career development, because it will help students to get a job and it will prevent them for dropping out of school (Boekhoud Committee, 2001).

The previous statements of Arthur et al. (2005) and the Boekhoud Committee (2001) are supported by research of Kuijpers & Meijers (2006). They showed that students with a strong career identity are more certain of themselves and their future, and are less tempted to drop out of school. Subsequently, Meijers et al. (2013) showed that students with a strong career identity feel more committed to their studies and make choices of learning tasks, internship and study that match their capabilities and motivation. In this research we assume that a well-developed career identity leads to better career choices, and therefore a stronger career development. We expect that students, who value the perception of career guidance high, also report a strong career identity.

Career guidance

It can be concluded that there are reasons to believe that a career identity and self-directed learning are important competences for secondary vocational education students and nowadays labour market. It is assumed that career guidance has the potential to stimulate the career competences (Winters et al. 2009). Meijers (2008) describes career guidance in secondary vocational education as guiding students in planning their personal development and supplying a context in which students can explore ambitions, strengths, and weaknesses, and spell out future plans. During career guidance students make previous experiences explicit, reflect on these experiences and learn more about their personality, ambitions, but also about the professional context (Peavy, 2000). The overarching goal of career guidance is to help students with the development of their career competences and therefore, also with their career development (Kuijpers et al. 2006). Van Deursen and Jansen (2006, p. 29) argue: “The more the student is guided in discovering and guiding his/her capacities and motives, the more the student uses and/or develops career competences”.

The career guidance as known nowadays in secondary vocational education is part of everyday practice (Mittendorff, den Brok & Beijaard. 2010), meaning that career guidance activities are implemented in the everyday curriculum and provided by a teacher who is given the responsibility to function as a coach. In the end, the resulting products will be evaluated and assigned by the coach (Van Deursen & Jansen, 2006). Students often have a fixed number of meetings with the coach, supplemented with extra activities or instruments, such career dialogues, portfolio, personal development plans and so on. This system of activities and instruments is called integral career guidance (Mittendorff, Jochems, Meijers & den Brok, 2008).

The following sections will explain the integral career guidance system used in this research, consisting of coach meetings and writing a portfolio. But before that, the role of the coach will be deliberated. This is because the coach plays a central role in career guidance by providing the career guidance activities and instruments. The relation of the coach, coach meetings and portfolio with the development of career competences will be explained.

Coach

The coach is the person who facilitates the career guidance. Because the coach is the facilitator of the complete career guidance system, it is important that the coach is competent in fulfilling its coach-role (Mittendorff et al. 2010). Earlier research of Gyllensten and Palmer (2007) showed that there are skills that characterize a well performing coach. The first skill of a well performing coach is being able to create an interpersonal relation with the coachee. The research showed that coachees perceived career guidance to be ineffective, when they

felt no connection with their coach. Moreover, other researchers found several skills that a well-performing coach possesses. For example, Spijkerman (2005) argues that a coach can structure and deepen conversations, can give advice, can provide information, can gather personal information, and can build a rapport and evaluate the development of the coachee.

It is assumable that performance of the coach has influence on the development of the career competences of the students. One might say the better the coach, the stronger students' career competences can develop. In this research, we investigate the relationship between the perceived quality of the coach and self-directed learning. We argue that when the perceived quality of the activities of the coach is high, this will enhance the level of self-directed learning of the students. In support of this claim, Vehvilainen argues that coaches have a great influence on self-directed learning, because they are the ones who can choose to respond to a question with a question in order to co-construct answers. This helps students to resolve their problems in a self-directed way, wherein the coach functions as a supporter. Moreover, Timmins argues that coaches need to function as a supporter, by helping students to diagnose their learning needs, formulate goals and plan their learning. By aksing and helping students with these subjects, the coach steers to developing self-directedness.

This research also investigates the relationship between the coach and the career competence career identity. We argue that a well-performing coach can influence the extent to which a learner develops a career identity. This argumentation is supported by empirical research of Meijers et al. (2013), who found that the strength of the career identity is influenced by what the coach chooses to discuss during career guidance. Their findings showed that the more the coach focuses on planning and preparing on students' work roles after school, the stronger the career identity developed. These findings of Meijers et al. (2013) give indications to believe that the coach is on influence of the development of the career identity by its actions and its personality.

Coach meetings

A traditionally used career guidance activity between the coach and the students is the coach meeting. There are two forms of coach meetings. Firstly, the coach and the students can have a private conversation, in which the coach only focuses on the individual student. This is called an individual coach meeting. During individual meetings students and the coach have a career dialogue. This conversation focuses on the future, skills, talents, ambitions and passions of the student. The career dialogue is defined as "a conversation between the student and the coach about the meaning of things the student experiences in real-life assignments in school and in practice, and about the impact on the student's life and professional career" (Winters et al. 2009, p.249).

Secondly, the coach can organize meetings, in which students collaboratively receive career guidance with their peers. This is called a collective coach meeting. During the collective coach meetings, the students develop themselves by articulating, performing, and negotiating real life experiences with others and the coach (Meijers & Lenglelle, 2012; Kuijpers, Meijers & Gundy, 2011). In this way, the career dialogue is constructed by the peers and the coach supports and facilitates this process. Because more people help the student in the process of career guidance, the collective coach meetings become communities wherein students can learn and get inspired by each other (Zubizaretta, 2004).

In this research, we investigate if the coach meetings can contribute to the career competences career identity and self-directed learning. Specifically, according to Kuijpers et al. (2011), coach meetings help students to become self-directed in their learning when these meetings are devoted to career goals. To illustrate this, coach meetings should give space to talk about what students want to learn in the future, and why they want to learn those things in order to facilitate self-directedness. With respect to career identity, Meijers et al. (2013) researched how a career dialogue influenced the career identity of students of 18 pre-vocational education schools and 17 secondary vocational education schools in the Netherlands. They found that students who had a career dialogue with the coach or with others during coach meetings contributed to the development of a career identity. This was

independent on whether the coach meetings were individual or collective. The more focus on future and career, in the form of a career dialogue, the stronger the career identity developed.

In this research we expect that coach meetings are on influence on the extent to which students report self-directedness and a career identity. We expect that students who value the perception of the coach meetings high, also report a high degree of self-directedness and career identity.

Portfolio

The last career guidance instrument discussed in this research is the portfolio. Portfolios are more and more used in secondary vocational education for the purpose of career guidance, because portfolios provide evidence of performance and the accomplishment of real-life tasks. A portfolio in education is a collection of documents and other evidence illustrating progress towards a goal (Larkin, Pines & Bechtel, 2002), and it focuses on the learning processes. By writing the portfolio, students are expected to reflect on accomplishments and the progress they have made. Therefore, the portfolio is an instrument to measure career development (Driessen, Beijaard, van Tartwijk & van der Vleuten, 2002).

The portfolio as used in secondary vocational education is mostly mandatory and used for an assessment purpose. By doing so, the portfolio must give insight into one's level of competence (Smith & Tillema, 2001). By reflecting on own capabilities insight should arise in what students learned, what this meant for them, and what and why they want to learn in the future (Kicken et al. 2009).

There are several forms of portfolios, such as mandatory or voluntary portfolio, portfolios with an assessment function, portfolios with a collecting or reflecting function and so on. Researchers point out some argumentations to consider when implementing a portfolio. For example, Smith & Tillema (2001) found in their research that mandatory portfolios encouraged superficial career development; whereas voluntary portfolio resulted in true career development. It seems that obligated portfolio not always lead to the wished results. Also the assessment function of portfolios is discussed. McMullan (2006) and Smith & Tillema (2001) argue that the assessment function of portfolios may lead to alterations on the contents of the development portfolio. The assessments standards could influence which materials are collected in the development portfolio. Students may be inclined to collect materials that fit the assessments standard, instead of collecting materials that they would like to add. This could give students the feeling that the development portfolio is not completely 'owned' by them, which decreases the learning effects (McMullan, 2006; Smith & Tillema, 2001).

Besides that, also other argumentations need to considered. For example, students mention that writing a development portfolio is very time consuming, due to the high amount of paper work (McMullan, 2006, Grant et al. 2007). Grant et al. (2007) show that this high time consumption decreases the students' motivation to work on the development portfolio. A proper use of the portfolio is also important, meaning that the portfolio needs to be discussed regularly and must stimulate reflection. Elshout-Mohr and Daalen-Kapteijns (2003) showed that the portfolio can be very effective as assessment- and career guidance instrument, but only when students receive clear guidelines on how to use the development portfolio and how it fits in the curriculum. When the portfolio is not used properly, this could give negative side effects. Mittendorff et al, 2008, p.77 argues "students who are forced to reflect, and at the same are not taken seriously by the coach will feel like reflection is a useless process" (Mittendorff et al, 2008, p. 77).

Although there are some practical implications a school needs to consider when implementing a portfolio, the portfolio could be a powerful instrument for stimulating self-directedness and a career identity. Earlier research of Kicken et al. (2009) research proved that students felt like the portfolio helped them to become self-directed. However the degree to which students already developed self-directedness needs be taken into account according to Kicken et al. (2009). They showed that students with low self-direction found the portfolio a structured approach to direct their own learning. Therefore, they were positive

about the portfolio in relation to self-directed learning. However, students who already showed self-direction felt like the portfolio was a burden, instead of an aid. They felt like the portfolio did not contribute to their self-directedness. Kicken et al. (2009) also showed that portfolios which were used weekly were experienced as the most effective.

Research of the portfolio and the relation to the career identity was executed in studies by Mittendorff et al. (2008; 2010) and Meijers et al. (2013). In both studies, career identity became stronger when the portfolio was used properly and initiated reflection. However, the case studies of Mittendorff (2008; 2010) also showed that in some cases the portfolio was rarely used to initiate a dialogue about what the students had written down and what did actually meant for them. As a consequence, students of these schools did not report that the portfolio helped them develop a career identity.

In this research, students used the portfolio to provided evidence of their learning progress and needed to reflect on the learning progress. The portfolio is mandatory and assessed after a school period (quarter of a year). We investigate if students' perceptions about the value of their portfolio influence both career competences. We expect that students, who value the use of het portfolio high, will also be more self-directed and have a stronger career identity, based on previous research.

3. Research question

This research investigates if students' perceptions about the value of career guidance influence the strength of the career competences career identity and self-directed learning. This results in the following research question:

Research question:
"To what extent does career guidance influence the development of students' career competences career identity and self-directed learning?"

The research question is translated into a research model (figure 2). The research model shows that career guidance will be measured with three variables: the quality of the coach (QC), students' perceptions of coach meetings (CM), and students' perceptions on the portfolio (PF). These variables give insight in the contribution of the separate career guidance variables on the career competences career identity (CI) and self-directed learning (SDL).

Besides the assumed relation between career guidance and the career competences, it is also assumed by many researchers that career identity is a mediating variable in the extent to which students become self-directed (for example: Meijers & Wardekker, 2002). Therefore, the research model displays career identity (CI) as a mediating variable.

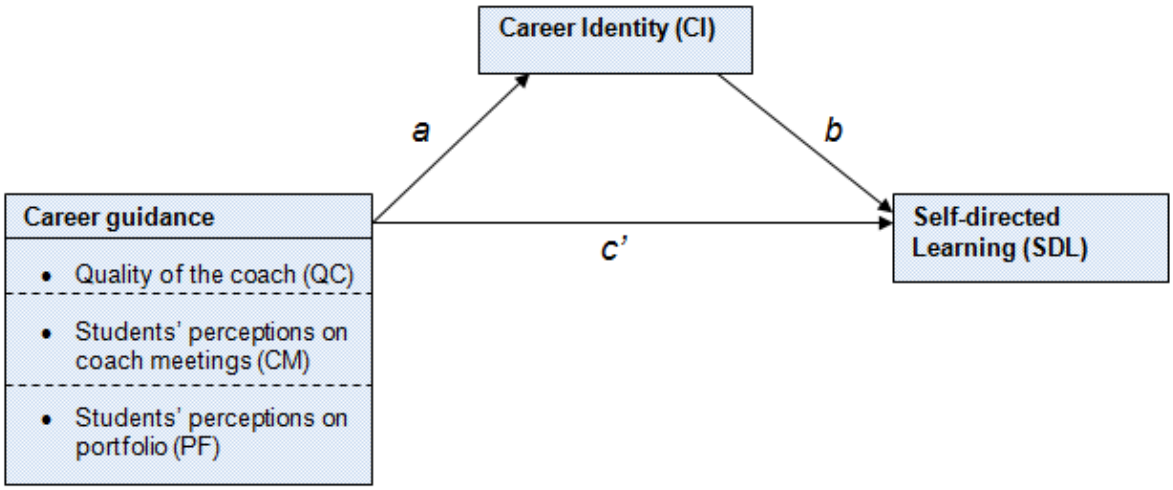

Figure 2: research model

The research question is answered by exploring the following hypotheses:

H1: Self-directed learning is positively influenced by the career guidance variables: quality of the coach (H1a), students' perceptions on coach meetings (H1b) and students' perceptions on the portfolio (H1c; path c)
H2: Career identity is positively influenced by the career guidance variables: quality of the coach (H2a), students 'perceptions on coach meetings (H2b), and students' perceptions on the portfolio (H2c; path a)
H3: The career competence career identity mediates the positive relationship between career guidance variables [quality of the coach (H3a), students' perceptions on coach meetings (H3b) and students' perceptions on the portfolio (H3c)] on the career competence self-directed learning (path c' = c + ab).

4. Method

Context

This research is conducted at a secondary vocational school in the Netherlands, called Landstede. Landstede integrated career guidance in their school system in the form of collective coach meetings, individual meetings and portfolios. These are implemented in all four study years of the study. The students follow collective coach meetings with their classmates. These meetings are scheduled every 3 weeks and are carried out by a teacher, who functions as a coach. This coach also facilitates individual meetings. These are scheduled once per period (8-10 weeks). The meetings are accompanied by a portfolio. The portfolio contains students study materials to prove personal growth. The portfolio is assessed every period with a mark. The coach meetings and the portfolio are provided by the coach. Landstede labels a coach 'qualitative' when: (1) the coach takes students seriously (2) discusses students' personal and/or study-related problems, (3) is at all times available for students, (4) knows how students perform at school and internships, (4) motivates students for their study and (5) gives support during the study.

Respondents

The respondents of this research were students of Landstede. There is little known about how students perceive the career guidance system in the Netherlands, because most research is about the design of the instruments and activities of career guidance, or it analyzes how coaches carry out the career guidance system (for example: Mittendorff et al. 2010; Winters et al. 2009, etc). Nevertheless, students' perceptions can give interesting insights about career guidance and its effectiveness for future career success. Firstly, students receive the career guidance. This means that students are the ones who need to feel enhanced by career guidance in order to strengthen the career competences and to realize career development. Secondly, students' perspectives could differentiate from that of coaches and/or teachers, who mostly decide how the integral career guidance system needs to look like in their schools (Howieson & Semple, 2000). Therefore, this research considers the perception of students as important.

Sample

All secondary vocational education students of Landstede were included in this research. This means that all students, independent on gender, age, study, etc. were invited to participate in this research. Excluded are students of Landstede who follow other forms of education than secondary vocational education. This led to a total number of 9817 students who were invited to fill in the survey. 3264 students started filling in the survey. The number of complete filled in questionnaires is 2726, which is a response rate of 27,8%. Of these 2726 students, 2284 students possessed a portfolio.

Measures & Instruments

The applied data instrument was a cross-sectional online survey. The average time to fill in the survey was 35 minutes[1]. The amount of questions could differ from 37 to 41 questions, based on whether a student possesses a portfolio or not. The survey started with 2 items about demographic characteristics (gender and study year), and was followed up by items about career guidance at Landstede (coach, coach meetings and portfolio), career identity and self-directed learning. Appendix A shows the survey items used in this research. The following sections explain how career guidance, career identity and self-directed learning were measured.

[1] This time average is based on the complete survey about career guidance at Landstede. This research selected questions out of the complete questionnaire, in order to answer the research question as proposed in this master thesis. The complete questionnaire exists out of 81 questions.

Demographics.

Demographics were used as control variables, because some researchers argue that gender and study year influence the career competences of students. For example, Brief, van Sell and Aldag (1979) argue that women are more seriously working on their career identity than men, and Meijers et al. (2013) think it is assumable that students from a senior study year are further in their development of a career identity, because seniors followed more classes to base their career choices on in comparisons to junior students. Based on previous research it may also be expected that women are more self-directed than man (MacDermid, Lee, Buck & Williams, 2001; Philiphs & Imhoff, 1997).

In this research 35,5% of the respondents were man, 64,5% were women. Most students are first years (48,5%), followed by second years (32,3%), third years (13,5%) and fourth years (3,7%). 1,9% of the students did not belong to a study year, because they fastened their study.

Measuring career competences

Self-directed learning in career processes. Self-directed learning was measured with 14 items from Raemdonck (2006) using the SDC scale. SDC is defined as "a characteristic adaption to influence career processes in order to cope for one self on the labour market" (Raemdonck, 2006, p. 64). The developed scale was based on two other personality constructs, namely the proactive personality scale of Bateman and Crant (1993) and the personal initiative scale of Fay and Frese (2001). The scale uses a five point Likert-scale. The items were rewritten from Belgian to Dutch, to a school context, and in easy understandable language. An example item is: "I know where I can find information about the job I would like to do in the future".

Career identity. Career identity was measured with 5 items selected from Kuijpers et al. (2006; 2008). The original scale consisted out of 10 items, but not all items were applicable to the context of Landstede. Therefore, the researcher selected 5 items which suited the context of Landstede. In this study, career identity is defined in terms of "the commitment a person has towards specific occupational activities or a specific career" (Weijers & Meijers, 1996)". An example item is: "My heart lies with the work for which I am learning". Answers were given on a 5 point Likert scale.

Measuring career guidance

The total amount of items measuring career guidance was 20. These items are based on the initial survey about career guidance at Landstede which was designed by a researcher of Landstede in 2011. The questions in the initial survey were designed based on literature and interviews with managers, coach specialists and coaches. The concepts that resulted from this initial survey, were pilot tested. Based on this pilot, the items were simplified, shortened, given more answering possibilities and provided with a clear lay-out. Career guidance was measured as follows:

Quality of the coach. The quality of the coach was measured with 9 items. The coach in this research was defined as "the professional who helps students in their career development during the school- and professional career of students (Landstede, 2009)". This research is interested in how students perceive the quality of their coach. An example item was: "My coach helps me well in my study". Answers could be given on a 5 point Likert scale.

Students' perceptions on coach meetings. The concept coach meetings was measured with 6 items in total, using a 5 point Likert-scale. Coach meetings are defined as: "Meetings in which students meet the coach, in order to work on the career competences and career development, by discussing and reflecting on the current and future situation" (Landstede, 2009). Coach meetings could be individual with the coach or collective with the coach and peers. This research focuses on how students' value those meetings. An example item is "I think the individual meetings with my coach are useful".

Students' perceptions on portfolio. Portfolio was measured by 5 items. The first item asked participants if they have a portfolio "I have a digital or written portfolio". When answered positive ('yes'), the survey presents 4 questions on a 5 point Likert scale about the portfolio. The portfolio is defined as: "a collection of documents and other evidence illustrating progress towards a goal (Larkin et al. 2002). An example item is: "I think it is useful to collect new materials for my portfolio".

Procedures

Before distributing the online survey, the managers Career guidance and Learning of Landstede presented the guidelines for using the survey during meetings with team leaders. During these meetings, the managers informed the team leaders about the goals of the research, the method used and gave instructions on how and when to fill in the survey. The team leaders were asked to spread this information to their teachers. On the opening day of the survey (March 3rd), teachers received an email with a hyperlink to the survey. They were instructed to forward the hyperlink to their students during a collective class moment. In this way, filling in the survey became a classroom activity during school time. This procedure was chosen to increase the response rate of 2011 (26,2%) and to fasten the run time of the survey (which was 5 months in 2011). Another procedure implemented to generate a higher response rate was the raffling of Ipads and a diner voucher. After 2 weeks, a reminder was sent to those students who had not yet filled in the survey. The survey was distributed with the program NetQ and closed on 8 April 2014.

The quality of the instrument and the procedures is guaranteed by the Ethic Commission of University of Twente. This commission guaranteed that the research is executed following the rules and norms that University of Twente states. Therefore, the survey contained an Informed Consent, which informed students about the goal of the survey, methods, time estimation to fill in the survey, and it explained the guarantee of anonymity and privacy participating in this research. After accepting the Informed Consent by clicking on the crosses: "I have read the terms and conditions" and "I agree to the terms", the participant had access to the questionnaire. The Informed Consent also informs participants that they do not get access to their own data, once completing the survey. This is because the data is collected anonymously and not retrievable on a personally identifiable way.

Data-analysis

Validity and reliability

The data was analyzed using the program SPSS 20. To ensure the validity and reliability of the instruments, factor analyses and reliability analyses were conducted. The factor analyses were used to examine the underlying structure among the variables and the construct validity (Field, 2009). All items of the scales quality of the coach, students' perception on coach meetings, students' perceptions on portfolio, career identity and self-directed learning were entered together in the factor analyses. To investigate the factor structure of the items measured in this study, a principal component analyses with oblique rotation was used, as in behavioral science we assume that variables are related to each other. An eigenvalue of >1 (Kaiser-normalization) and a critical value of .40 was used, which is advisable for large sample sizes, such as the sample in this research (Stevens, 2002). After this, and orthogonal rotation (varimax) was performed to compare the solutions. The orthogonal rotation produced a similar, but simpler structure in comparison to the oblique rotation. Therefore, the researcher chose to use the principal component analysis with varimax rotation and Kaiser-normalization. The scree plot showed 5 components, these components explained 57% of the variance. The KMO measure of overall sampling adequacy was .922, which supports the factor analysis to be appropriate (Field, 2009). Barlett's test of sphericity was found significant (X^2 (630) = 40028,987, p<0.01). The complete factor analysis can be found in Appendix B.

In addition, reliability analysis (Cronbach's alpha, α) were used to investigate the reliability of the developed scales. This means that items truly reflect a single, reliable construct (Field,

2009). When items needed to be deleted due to a low α, the factor analysis was run over again without this item, this in order to develop valid and reliable scales.
The following sections will explain the validity and reliability of the scales used in his research.

Self-directed learning. The principal component analysis with varimax rotation and Kaiser Normalization found a loading higher than the critical value of 0.40 on more than one component. Therefore, the item: "I think it is important to talk with people from my study about the steps I need to undertake in order to find a nice job" was excluded from the research to prevent bias. After excluding this item, a loading between .50 and .74 was found, explaining 17,5% of the variance. The scale turned out reliable with a Cronbach's alpha higher than .70 (α=.89). The 13 item scale was constructed by averaging the items of the scale.

Career identity. Principal component analysis with varimax rotation and Kaiser Normalization, excluding items below the critical value of .40, confirmed a latent construct (eigenvalue>1). The scale showed a reliability higher than .70 (α=.81). When deleting the item "My ideas about my future job/work are continually changing", the reliability analysis could show a Cronbach's alpha even higher than .81(α=.84). However, because the scale only consists out of 5 items, having a solid α, this item will not be deleted. The five item scale has a factor loading between .59 and .82, explaining 8,3% of the variance of the research model. Based on these findings, a scale was constructed by averaging the items of the scale.

Quality coach. The principal component analysis showed that one item loaded on more than one component. Therefore, the item "I have a coach who motivates me for my study" was deleted to prevent bias. After the exclusion of this item, the factor analysis showed a latent construct (eigenvalue>1, critical value >.40) with a factor loading between .66 and .76 explaining 13,1% of the variance. Reliability analysis showed a Cronbach's alpha higher than .70 (α=.88). Based on these findings, a scale was constructed by averaging the items of the scale.

Coach meetings. The principal component analysis showed that the factor load of this scale was between .63 and .77, explaining 10,6% of the variance. Reliability analysis on the scale showed a α=.87), which proved the scale to be reliable. The 6-items scale was constructed by averaging the items.

Portfolio. This scale, consisting of 6 items, showed factor loadings between .53 and .87 explaining 7,3% of the variance. The four item scale showed a Cronbach's alpha higher than .70 (α=.79) confirming the reliability of the developed scale. The reliability could be higher (α=.85) when deleting the item: "School regularly looks trough my portfolio". However, because the scale only consists out of 4 items, having a solid α, this item will not be deleted.

Exploring the data

A frequency analysis was used to explore the data, giving the means and the standard deviations of the variables (see Table 1.) Besides that, the data was tested on whether the distribution of the data was normal. According to Kline (2005) data are normally distributed when the skewness and the kurtosis of the variables are between +2 and -2. In this research, the skewness and Kurtosis of the variables are satisfactory.

Gender and study year were entered in SPSS as dummy coded, in order to use them as control variables during the further analyses. Gender is coded as 1=male, study year is coded as 1=seniors. Seniors are students from the third and fourth year.

Multicollinearity

Multicollinearity could be a problem during multiple regression analyses that will be carried out to test the research model. When there is a high level of multicollinearity it becomes impossible to obtain unique estimates. This is because, in case of multicollinearity, there are more combinations that would work well (Field, 2009). To prevent for multicollinearity in the regression model, Bivariate Pearson's correlations, variance inflation factors (VIF) and tolerance statistics were determined.

First, Bivariate Pearsons's correlation was used to find significant relations, and to check for multicollinearity. According to Field (2009) correlations higher than .80 indicate multicollinearity. Therefore, this research checks for correlations higher than .80.

Second, multiple hierarchical regression analyses were performed in order to examine the relation the relationship between the independent and dependent variables as proposed in the research model. During the regression analyses, multicollinearity was checked by VIF's and tolerance statistics. In all regression analyes (a, b and c path), these statistics were in line with the standard norms, meaning that the VIF's were close to one, no smaller than 0.1 and no greater than 10 (Myers, 1990; Bowerman & O'Connell, 1990). The tolerance statistics were not below 0.2 (Menard, 1995). Suggesting that there is no multicollinearity in this research.

Mediation analyses

The research model hypothesizes (H3) that the career competence career identity will be a mediating variable in the relationship between career guidance and the career competence self-directed learning. Therefore, multiple mediation analyses were conducted for testing the mediating role of career identity, using the bootstrapping method of Preacher and Hayes (2004; 2008).

5. Results

Bivariate Pearson's Correlation

Pearson's Bivariate Correlation was used to explore the relationship between the variables (Table 1). According to Cohen (1988, 1992) a correlation (r) of ≥0.1 is a small effect, a correlation (r) of ≥0.3 is a medium effect, and a correlation (r) of ≥0.5 is large effect.

	Mean	SD	Gender	Study year	CM	QC	PF	CI	SDL
Gender	.35	.47	1						
Study year	.17	.37	.016	1					
CM	3.18	.77	.045*	.077**	1				
QC	3.98	.74	.0,25	.048**	.512**	1			
PF	3.18	.93	.007	-.127**	.304**	.225**	1		
CI	3.50	.81	-.081**	.039*	.193**	.165**	.078**	1	
SDL	3.64	.57	-.047*	.086**	.328**	.282**	.243**	.368**	1

Note (1) **correlation is significant at the 0.01 level (2-tailed), *correlation is significant at the 0.05 level (2-tailed).
Note (2) Gender (men=1), Study year (seniors=1).
CM: Students' perceptions on coach meetings (N=2726), QC=Quality Coach (N=2726), PF=Students' perceptions on the portfolio (2284), CI=Career Identity (N=2726), SDL=Self-Directed Learning (N=2726)

Table 1. Mean, standard deviation and Pearson's bivariate correlation between research variables.

From Table 1, it can be noted that the expected positive relationships between the variables measuring career guidance and career competences emerge. Specifically, using the guidelines of Cohen (1988, 1992) significant small to medium positive correlations were found between coach meetings (r=.328, p<0.01), quality coach (r =.282, p<0.01), portfolio (r =.243, p<0.01) and the career competence self-directed learning. Small positive correlations were found between coach meetings (r =.193, p<0.01), quality coach (r =.165, p<0.01), portfolio (r =.078, p<0.01) and the career competence career identity. The research model also shows that career identity is expected to be a mediating variable on self-directed learning. The correlation matrix provided enough evidence (r =.368, p<0.01) to investigate this hypothesis (H3) further in a mediation analysis.

Multiple regression analyses with bootstrapping

The Bivariate Pearson's Correlations gave enough evidence to test the hypotheses (H1 & H2) in the research model further using multiple regression analyses. In addition, a mediation analysis was conducted to assess whether the career competence career identity is a mediation variable as assumed in the research model (H3).

Baron & Kenny (1986) give three conditions for explaining a mediation model as used in this research. First, there needs to be a significant effect between the independent variable and the dependent variable (path c). In this research, the career guidance variables were independent, and self-directed learning was the dependent variable. Second, the mediating variable needs to relate significant to the independent variables (path a). In this research, the mediating variable was the career competence career identity. Third , the mediating variable needed to relate significant to the independent variable (path b), which means that the career competence career identity needs to relate significant with the career competence self-directed learning. It is called 'full mediation' if the effect of the independent variables on the dependent variable becomes insignificant when including the mediator in regression analyses. When there is a significant effect, the mediation is called 'partial mediation'. This path, which explains the full model, is called path c'.

By conducting multiple regression analyses, the above mentioned conditions were assessed for path a, b and c. The multiple regression analyses can be found in table 2. First it was found that career guidance variables were positively associated with self-directed learning (path c). All variables measuring career guidance and control variables were significant related to self-directed learning. For gender (=male), the relation was significant negative. This path explained 16.1% of the variance. Second, it was found that the career

guidance variables were positively related to career identity (path a). However, the variable portfolio did not show a significant relation. Also on this path, the control variable gender (=male) showed a negative significant relation, whereas the control variable study year (=seniors) showed a positive significant relation. The a-path explained 4,4% of the variance. Third, results indicated that career identity was positively associated with self-directed learning (B=.198, t (n-2)=15.105, p <0.01) (path b). This path explained 14% of the variance.

Because all conditions of Baron & Kenny (1986) are met, it can be concluded that the research model in this research is a mediation model. To test the effect of the mediation model (path c'= c + ab), mediation analyses were tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon, Lockwood & Williams, 2004; Preacher & Hayes, 2004). In the present study, the 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples (Preacher & Hayes, 2008). Results of the mediation analysis confirmed the mediating role of the career competence career identity in relation between career guidance and self-directed learning. However, the variable is portfolio is not significant; this was not unexpected since the a-path was insignificant[2]. The insignificance is also shown by the confidence intervals containing a 0 (LLCI=-.002; ULCI=.013). All results are shown in Table 2.

The control variable study year (=seniors) showed a positive significant relation on the c'-path (B=.121, t (n-2)=4.309, p<0.01). The control variable gender (=male) showed an almost negative significant relation on the c'-path with a p-value of .0542 (B=-.042, t (n-2)= -1.926, p>0.05).

The results indicated that the direct effect of career guidance on self-directed learning stayed significant (c'-path), when controlling for career identity, thus suggesting partial mediation. The explained variance of the c'-path is 23,7%.

[2] Baron and Kenny (1986) argue that when a and/or b is insignificant, so will be the indirect effect. Hayes (2009) does not support this statement. Therefore, when using the mediation analysis of Preacher and Hayes (2004; 2008) the career guidance variable 'students' perceptions on portfolio' was included in het mediation analysis, despite the fact that the a-path for this variable was insignificant using the method of Baron and Kenny (1986).

	Path a Effect of career guidance on career identity		Path b Effect of career identity on self-directed learning		Path c Effect of career guidance on self-directed learning		Path c' Effect of career guidance on self-directed learning mediated by career identity		Bootstrapping results		
Predictor	B	SE	B	SE	B	SE	B	SE	Effect	LL 95 CI	UL 95 CI
Career guidance											
Coach meetings	.111**	.026	.198**	.013	.144**	.017	.122**	.016	.022	.010	.034
Portfolio	.029	.019	.198**	.013	.098**	.012	.092	.012	.006	-.002	.013
Quality coach	.099**	.026	.198**	.013	.118**	.017	.099**	.016	.020	.009	.321

**$p < 0.01$

Note: N=2726 for coach meetings, quality coach, career identity and self-directed learning, N=2284 for portfolio
Coach meetings = students' perceptions on coach meetings, Portfolio = students' perceptions on portfolio, Quality coach = Quality of the coach

Table 2. Mediation analyses using bootstrapping of Preacher & Hayes (2004; 2008).

Hypotheses
Based on the results of the regression analyses and the mediation analyses, the hypotheses as assumed in this research can be confirmed or rejected.

Influences of career guidance on the career competence self-directed learning
Hypothesis 1a predicted a positive influence of career guidance variable quality of the coach on the career competence self-directed learning, explained by path c. The results confirmed this hypothesis. This indicates that students, who perceived the quality of their coach high, also reported more self-directedness.

Hypothesis 1b predicted a positive influence of the career guidance variable students' perceptions on coach meetings on the career competence self-directed learning, explained by path c. The results confirmed the hypothesis. These results suggest that students, who valued their coach meetings high, also reported more self-directed than students who perceive the meetings low.

Hypothesis 1c predicted a positive influence of the career guidance variable students' perceptions on portfolio on the career competence self-directed learning. Results of path c confirmed this hypothesis. This indicates that students, who valued the portfolio high, also reported more self-directedness.

Influences of career guidance on the career competence career identity
Hypothesis 2a predicted that the career competence career identity was positively influenced by the career guidance variable quality of the coach. This hypothesis was confirmed by the results. These results suggest that students who perceived their coach as qualitative reported a stronger career identity.

Hypotheses 2b predicted that the career competence career identity was positively influenced by the career guidance variable students' perceptions on coach meetings. Results of path a confirmed the hypothesis. These results suggest that students, who reported a high value on the coach meetings, had a stronger career identity.

Hypothesis 2c predicted a positive influence of the career guidance variable portfolio on the career competence career identity, explained by path a. This hypothesis was not confirmed based on the results. The p-value did not met the significance criteria of $p<0.05$. No influence was found between students' perceptions of the portfolio and the career competence career identity.

Mediating role of the career competence career identity
Hypothesis 3a predicted a mediating role of the career competence career identity in the extent to which the career guidance variable quality of the coach influences the career competence self-directed learning, explained by path c' (path c' = c + ab). The results showed that the career competence career identity is a mediating variable between the career guidance variable quality of the coach and self-directed learning. There was no 0 found in the confidence intervals, therefore the hypothesis was confirmed.

Hypothesis 3b predicted a mediating role of the career competence career identity between coach meetings and self-directed learning. This hypothesis was explained by path c'. The results of the bootstrapping confirmed the hypothesis. Because there was no 0 found in the confidence intervals, this hypothesis was confirmed.

Hypothesis 3c predicted a mediating role of career identity in the relationship between the career guidance variable students' perceptions on portfolio and self-directed learning. The confidence intervals of the bootstrap showed a 0 (LLCI=-.002; ULCI=.013), indicating insignificance. Therefore this hypothesis was rejected. This means that the effect of students' perceptions on portfolio on the career competence self-directed learning is not mediated by the career competence career identity.

6. Conclusion and discussion

In this research, the relation between career guidance (consisting of students' perceptions on the quality of the coach, coach meetings and portfolio) and the career competences self-directed learning and career identity was examined. Besides that, it was researched whether career identity was a mediator in the extent to which career guidance contributed to self-directed learning. This section will elaborate on the most important findings of this research, the strengths and limitations of the research and suggestions for further research. Furthermore, theoretical and practical implications will be discussed.

Career guidance and the career competence self-directed learning

It was found that the students' perception of the quality of the coach, the coach meetings and the portfolio have a positive influence on the career competence self-directed learning. These relationships were expected, based on previous literature and research. To begin with, Vehvilainen (2003),Timmins (2008) and Jossberger et al. (2010) assumed that the quality of the coach influences self-directed learning. According to these researchers, the coach can steer students to self-direction by asking reflective questions, and to function as a facilitator. The research presented here supports these assumptions and gives indications that the quality of the coach plays a role in the extent which a student becomes self-directed.

Furthermore, assumptions were made by Kuijpers et al. (2011) that coach meetings help students to become self-directed. According to Kuijpers et al. (2011) students get the time during coach meetings to formulate learning goals (alone or with others), which gives students a starting point to think about what they want to learn in the future, and why they want to learn those things, resulting in more self-directed learning. This research is in line with the assumptions of Kuijpers et al. (2011) and gives empirical evidence. Following this, research of Verbruggen and Sels (2003) showed that adults who perceived career guidance (measured in general) reported more self-directedness after they had career guidance. This study adds support to the findings of Verbruggen & Sels from a different population, namely secondary vocational educational students, and showed which career guidance activities contributed the most to self-directed learning.

Subsequently, this research showed that the use of the portfolio did contribute to self-directed learning. This is in line with research of Kicken et al. (2009), who showed that the use of a (online) portfolio during career guidance also helped students in the process of becoming self-directed. Just as in this research, Kicken et al. (2009) found that students who used the portfolio felt like they had become more self-directed. However, the effect of the portfolio was relatively small in this research. This could be explained by a finding of Kicken et al. (2009) who also found that students who already were self-directed reported that the portfolio did not helped them in this process even further. It is possible that the students participating in this research already were self-directed. Furthermore, Kicken et al. (2009) found that portfolios, which were used weekly and gave enough space for reflection and formulating learning goals, were the most effective. At Landstede, the portfolio is assessed and discussed after a school period (quarter of a year) instead of a weekly basis such as in the research of Kicken et al. (2009), which could be an explanation for the small effect of the portfolio on self-directed learning.

Career guidance and the career competence career identity

The relationship between the career guidance variables quality of the coach and students' perceptions on coach meetings were significantly, positively related to the career competence career identity. This research therefore indicates that students with a qualitative coach and a high value on the coach meetings feel like they have a strong career identity. Similar results were found by Meijers et al. (2013). They found that the coach could influence the career identity, by focussing on future orientation. To be more precise, in the research of Meijers et al (2013), a higher career identity was reported by students, when their coaches organized the coach meetings in light of future careers and ambitions. Although the career guidance variables quality of the coach and students' perceptions on coach meetings related

significantly positively in this research to the career identity, the variable students perceptions on portfolio did not. This finding is in contrast with findings in previous research. For example, Mittendorff et al. (2008) and Meijers et al. (2013) showed that the use of a portfolio helped students in developing a career identity. And also many vocational education schools implemented the portfolio, with the idea that the portfolio should help students to picture the future, by reflecting on learning experiences. It can be concluded that the role of the portfolio on the career identity differs from what may be expected based on previous research. However, a later case study of Mittendorff et al. (2010) found that some schools do not use the portfolio properly. At these schools, the portfolio was rarely used in practice to initiate a dialogue about what students had written down and what this actually meant for them. At these schools, the portfolio stimulated little reflection, and were used in order to complete the study. This information could explain why the career guidance variable students' perception on portfolio did not lead to a career identity and only in a little way to self-directed learning. The portfolio used at Landstede is also mandatory and assessed; according to Smith & Tillema (2001) and McMullan (2006) this could influence the effect of the portfolio. The use of the portfolio at Landstede needs to be investigated further to explain why the portfolio did not meet the hypotheses, elements such as the assessment function, the mandatory use, and the extent to which the portfolio stimulates reflection need to be taken into account.

The mediating role of the career competence career identity

At last it was found that the career identity mediated the extent to which the career guidance variables quality of the coach and students' perceptions on coach meetings contributed to self-directed learning. This indicates that students reporting high on these two career guidance variables, report more self-directedness when they also report a strong career identity. Therefore, career identity can be called a mediating variable in this research (Preacher & Hayes, 2004; 2008). This result was expected based on our assumption that career identity would be a mediating variable. It was expected that students who have a strong image of their career identity, are more self-directed in reaching the visualized career. This assumption was also made by many other researchers, such as Wijers & Meijers (1996), Winters, Kuijpers & Meijers (2009) and Meijers & Wardekker (2002). This research gives empirical evidence that supports the assumptions made. Besides that, this finding is also in line with earlier research of Verbruggen and Sels (2008), which already gave indications for the assumed relation between career identity and self-directed learning as found in this research. However, Verbruggen and Sels (2008) did not measure career identity, but self-awareness. This was defined as "having an accurate view of one's strengths weaknesses, motives and values of whom one wants to become" (Verbruggen & Sels, 2008, p. 319). This definition lays close to the definition of career identity as used in this research. However, other survey items were used to measure this concept and they focussed on an adult population. They expected that self-awareness helped students to find a career direction, and argued that people therefore would become willing to invest in their careers resulting in self-directedness. In the research of Verbruggen and Sels (2008), the self-awareness did contribute to self-directedness. However, Verbruggen and Sels (2008) considered self-awareness as a predictor which positively contributed to training participation, job mobility and career satisfaction, whereas this research considers the career identity as a mediator in the extent to which career guidance help students to develop career competences.

Strengths, limitations and suggestions for further research

By conducting this research, the research was subject to some strengths, and also limitations, resulting in suggestions for further research.

A first strength of this research is the use of the mediation analysis with bootstrapping (Preacher and Hayes 2004; 2008), which is one of the latest techniques for measuring a mediation model. An advantage of this method is that it measures the effects of the full research model, instead of separate paths of the mediation model like Baron and Kenny

(1986). Another advantage of mediation analysis with bootstrapping is the high statistical power, meaning that bootstrapping is a very valid and powerful method.

A second strength of this research is the big sample size and response that was generated. Therefore, it may be expected that the respondents gave a representative image of the population. Besides that, the respondents were students out of a lot of different fields of study, giving a broad image of the opinions of students about career guidance.

A third strength is that this research not only gives an image of how students perceive the career guidance instruments, but it also gives an image of the power of the career guidance instruments for the development of their career competences. To do so, measurement instruments were especially adapted for an educational setting. This resulted in knowledge about self-directedness and a career identity in secondary vocational education, whereas most researches focused on these competences in higher secondary vocational education or in a professional environment (Verbruggen & Sels, 2008; McMullan, 2006).

Having considered the strengths of this research, the limitations of this research also need to be taken into account. These limitations can give guidelines for improvement during further research.

A first limitation is that the items measuring career guidance are designed by a researcher of Landstede. This gives several disadvantages. First of all, the items were only designed for the purpose of Landstede. The results are therefore hard to generalize to other schools and contexts. During further research, it is recommended to use existing and well-validated items that are proven reliable for measuring career guidance, so that they are easier to generalize. A second disadvantage of using items developed by Landstede is that these items only ask for information about the career guidance instruments used at Landstede. Therefore, other career guidance instruments, such as personal development plans (PDP) are disregarded. During further research, more career guidance instruments could be included to gain a more complete picture about career guidance.

A second limitation of this research is that the research model needs more clarification before the research model can be called correct. Although a high student perception of career guidance leads to self-directedness and a career identity, this does not mean that this influence also counts the other way around, saying that a student reporting career identity and self-directness high, also reports a high perception of students about career guidance. These paths need to be researched further.

A third limitation is that the items about self-directed learning and career identity only asked students how they report their own self-directedness and career identity, but not specifically if this self-report is influenced by career guidance in a direct way. This could influence the power of the research model. During further research, it is recommended to use more items to measure career guidance, that also make a direct relation between career guidance and the career competences. This recommendation especially counts for the scale students' perception on portfolio. This research only measured how students value working with the portfolio. More items (for example about: how the portfolio is embedded in career guidance, how portfolios are discussed during coach meetings, and what the focus of the portfolio is, etc.) could help to give a more complete picture of the portfolio (Kicken et al. 2009). Besides that, the items about portfolio should ask for information about the portfolio in relation to the influence on the career competences. In this way, the striking role of the portfolio in this research model could be investigated again in a more precise way. It could be interesting to find out whether the results of this mediation model stay stable, when using valid and reliable items measuring the right constructs, as recommend here.

A fourth limitation of this research is that the results are based on self-reports of the students. This research considers the opinion of students as an important source of information, because students are the ones who need to feel enhanced by the career guidance. However, these self-reports may be biased. Students may perceive themselves differently than the behaviour that they are actually showing. To give a more precise image of career guidance, it is recommend using other research methods, such as qualitative research in the form of observations and/or interviews. Furthermore, more target groups,

such as coaches and expertise in career guidance, could be included in the research to get a broader image of career guidance and its influences on career competences.

Although this research did not tend to investigate the role of demographics, it could be a limitation that only study year and gender were used as control variables. This research controlled for gender and study year because many previous researches gave indications that these variables had an effect on career guidance and the career competences (Brief, van Sell & Aldag,1979; MacDermid, Lee, Buck & Williams, 2001; Philiphs & Imhoff, 1997). The results indeed showed that these variables influenced the research model in a small way. However, it is likely that more control variables play a role in the research model, and that more variance could be explained. When researchers want to give insight in which control variables influence the research model it could be recommendable to include field of study and internships. This is because previous research of Kuijpers et al. (2006; 2011) gave indications that students out of technical and economical field have a less strong career identity, whereas students who followed more internships had a stronger career identity and were more self-directed. Also gender and study year could be included again, given the fact that these variables did influence the research model of this research in a small way.

Theoretical and practical implications

The results of this research give some theoretical and practical implications. The results of this research can be compared to other researchers about career guidance, self-directed learning or career identity. Most of these researchers in the Netherlands focused on researching how career guidance contributed to the career competences of Kuijpers (2003). They described how career guidance helped students to develop the career competences of Kuijpers (2003), or how the career competences of Kuijpers (2003) influenced the career identity (Kuijpers et al. 2011). However, some researchers explored the relation between a career guidance instrument and a career competence, such as Kicken et al. (2009) who wrote about the extent to which a portfolio helps students to become self-directed. But in the end, the overall picture of career guidance and the career competences career identity and self-directed from the perspective of students was still unexplored. This research hopes to make an early contribution to the exploration of the career competences that are acknowledged by the Dutch government. As said previously, further research using a mixed method approach could give a more extensive image of the influence of career guidance on career competences.

A practical implication of this research is that the research gives insight in which separate parts of career guidance contribute to the career identity and self-directed learning. This knowledge can help schools decide which of the career guidance instruments they would like to implement. Besides that, this knowledge can also help schools to determine the design of the career guidance instruments. According to this research, students' perception on coach meetings is the highest predictor for the career competences. Schools could therefore decide to put emphasis on the career competences during the coach meetings. For example by providing conversations that focus on reflection, questioning and giving a feeling of direction (Meijers et al. 2013). The portfolio seemed to give the least contributions to the research model. Landstede, or other vocational schools, could see this information as a reason to evaluate the portfolio at their schools, thereby focussing on whether the portfolio leads to a career identity.

A second practical implication for secondary vocational education is that the results of this research draw attention for the importance of working on a career identity. This research indicates that a strong career identity helps students to become self-directed. Therefore, it seems to be beneficial to put a strong emphasis on this career competence during career guidance. According to previous research of Meijers et al. (2013,) schools can help students to develop a career identity by focussing on students' aptitudes, motives and future careers. Furthermore, Meijers et al. (2013) argue for curricula must be practice based, so that students get the chance to get familiar with professions and can give meaning to work experiences, already during school.

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Appendix A – Survey items

The survey items and answering possibilities were written in Dutch, because the respondents of this research were Dutch.

Demographics

1. Geslacht:
   - Man
   - Vrouw

2. In welk jaar van je studie zit je?:
   - Jaar 1
   - Jaar 2
   - Jaar 3
   - Jaar 4
   - Kopjaar
   - Bij mijn opleiding werken we niet met jaargroepen
   - Anders namelijk:….

Coachbijeenkomsten - Hoe denk je over de coachbijeenkomsten in je coachgroep? Antwoordmogelijkheden: Klopt helemaal niet, Klopt niet, Klopt ongeveer, Klopt, Klopt helemaal.

3. Door de coachbijeenkomsten leer ik mijzelf beter kennen.

4. Ik vind de coachbijeenkomsten in een coachgroep (leergroep) nuttig.

5. De coachbijeenkomsten zorgen ervoor dat ik gemotiveerd bezig ben met mijn opleiding.

Individuele gesprekken - Helpt individuele coaching jou? Antwoordmogelijkheden: : Klopt helemaal niet, Klopt niet, Klopt ongeveer, Klopt, Klopt helemaal.

6. Door de individuele gesprekken met mijn coach leer ik mijzelf beter kennen.

7. Ik vind de individuele gesprekken met mijn coach nuttig.

8. De individuele gesprekken met mijn coach zorgen ervoor dat ik gemotiveerd bezig ben met mijn opleiding.

Kwaliteit van de coach - Wat vind je van de vaardigheden van je coach? Antwoordmogelijkheden: Klopt helemaal niet, Klopt niet, Klopt ongeveer, Klopt, Klopt helemaal.

9. Mijn coach begeleidt mij goed bij mijn opleiding.

10. Ik heb een coach die mij weet te motiveren voor mijn opleiding.

11. Wanneer ik vastloop met schoolwerk, kan ik bij mijn coach terecht

12.Mijn coach is goed op de hoogte van mijn prestaties op school.

13. Als ik mijn coach nodig heb dan maakt hij/zij voldoende tijd voor mij vrij.

14. Mijn coach neemt mij serieus.

15. Ik kan bij mijn coach terecht wanneer er persoonlijke problemen zijn.

16. Mijn coach spreekt mij aan wanneer het niet goed gaat op school.

17. Ik merk dat mijn coach zijn/haar begeleiding aanpast aan mijn (leer)loopbaan. (o.a. wat je mee maakt, je interesses, je leerdoelen, je ontwikkelwensen, etc.)

Portfolio

18. Ik heb een digitaal of schriftelijk portfolio (verzamelmap):
    - Ja → ga verder met vraag 19
    - Nee → ga verder met vraag 23

Wat vind je van het gebruik van het portfolio? Antwoordmogelijkheden: Klopt helemaal niet, Klopt niet, Klopt ongeveer, Klopt, Klopt helemaal.

19. Ik vind het nuttig om mijn portfolio (verzamelmap) regelmatig aan te vullen met nieuwe materialen.

20. Mijn portfolio (verzamelmap) helpt mij om na te denken over studiekeuze en beroepsmogelijkheden.

21. Mijn portfolio helpt mij om na te denken over mijn eigen ontwikkeling.

22. Er wordt regelmatig naar mijn portfolio (verzamelmap) gekeken door school.

Arbeidsidentiteit- De volgende stellingen gaan over je toekomst. Antwoordmogelijkheden: Klopt helemaal niet, Klopt niet, Klopt ongeveer, Klopt, Klopt helemaal.

23. Mijn hart ligt bij het werk waarvoor ik leer.

24. Ik weet hoe mijn toekomst als vakman/vakvrouw eruit gaat zien.

25. Ik weet zeker welk werk ik wil gaan doen.

26. Mijn ideeën over mijn toekomstige baan/werk veranderen steeds weer.

27. Ik weet zeker dat het beroep waarvoor ik leer, goed bij mij past.

Zelf gestuurd leren. Antwoordmogelijkheden: Klopt helemaal niet, Klopt niet, Klopt ongeveer, Klopt, Klopt helemaal.

28. Ik vind het belangrijk om na te denken over wat ik de komende jaren wil bereiken in mijn toekomstige werk.

29. Ik weet waar ik informatie kan vinden over het type werk dat ik zou willen doen.

30. Ik denk regelmatig na over het soort werk dat het beste mij past.

31. Ik vraag mensen om advies om mijn kansen op het vinden van werk dat ik leuk vind te vergroten.

32. Ik vind het belangrijk om na te gaan of mijn opleiding een goede voorbereiding zal zijn op het werk dat ik later wil gaan doen.

33. Ik weet waar ik naar toe wil in mijn loopbaan.

34. Ik vind het belangrijk om na te denken over mijn toekomstige loopbaan.

35. Ik houd mijzelf op de hoogte van de mogelijkheden om mijn kansen op de arbeidsmarkt te vergroten.

36. Ik praat regelmatig met mensen die mij zouden kunnen helpen in mijn loopbaan.

37. Ik vind het belangrijk om na te denken over wat mij motiveert voor mijn toekomstige werk.

38. Ik denk goed na over stappen die ik na mijn opleiding moet zetten om te bereiken wat ik wil in mijn loopbaan.

39. Ik zal zeker proberen om mijn toekomstige werk goed aan te laten sluiten op mijn eigen sterke punten.

40. Ik vind het belangrijk om contact te hebben met mensen die iets kunnen betekenen voor mijn toekomstige werk.

41. Ik vind het belangrijk om met mensen van mijn opleiding te praten over stappen die ik moet zetten om een leuke baan te vinden.

Appendix B – Outcome factor analysis item loading on scale

Rotated Component Matrix[a]

	Components				
	SDL	QC	CM	CI	PF
SDL- Ik vind het belangrijk om na te denken over wat mij motiveert voor mijn toekomstige werk	,746				
SDL- Ik vind het belangrijk om na te denken over mijn toekomstige loopbaan:	,745				
SDL- Ik vind het belangrijk om contact te hebben met mensen die iets kunnen betekenen voor mijn toekomstige werk	,715				
SDL- Ik denk goed na over stappen die ik na mijn opleiding moet zetten om te bereiken wat ik wil in mijn loopbaan	,697				
SDL- Ik zal zeker proberen om mijn toekomstige werk goed aan te laten sluiten op mijn eigen sterke punten	,694				
SDL- Ik vind het belangrijk om na te gaan of mijn opleiding een goede voorbereiding zal zijn op het werk dat ik later wil doen:	,670				
SDL- Ik vind het belangrijk om na te denken over wat ik de komende jaren wil bereiken in mijn toekomstige werk	,665				
SDL- Ik praat regelmatig over mijn loopbaaninteresses met mensen die mij zouden kunnen helpen in mijn loopbaan	,651				
SDL- Ik denk regelmatig na over het soort werk dat het beste bij mij past	,650				
SDL- Ik vind het belangrijk om met mensen van mijn opleiding te praten over stappen die ik moet zetten om een leuke baan te vinden	,650				
SDL- Ik houd mezelf op de hoogte van de mogelijkheden om mijn kansen op de arbeidsmarkt te vergroten	,646				
SDL- Ik vraag mensen om advies om mijn kansen op het vinden van werk dat ik leuk vind te vergroten	,577				
SDL- Ik weet waar ik informatie kan vinden over het type werk dat ik zou willen doen	,499				
QC- Ik kan bij mijn coach terecht wanneer er persoonlijke problemen zijn		,762			
QC- Als ik mijn coach nodig heb dan maakt hij/zij voldoende tijd voor mij vrij		,756			
QC- Mijn coach neemt mij serieus		,755			
QC- Wanneer ik vastloop met schoolwerk, kan ik bij mijn coach terecht		,747			
QC- Mijn coach spreekt mij aan wanneer het niet goed gaat op school		,719			
QC- Mijn coach is goed op de hoogte van mijn prestaties op school		,704			
QC- Ik merk dat mijn coach zijn/haar begeleiding aanpast aan mijn (leer)loopbaan (o.a. wat je mee maakt, je interesses, je leerdoelen, je ontwikkelwensen, etc.)		,670			
QC- Mijn coach begeleidt mij goed bij mijn opleiding		,660			
CM- Door de individuele gesprekken met mijn coach leer ik mijzelf beter kennen			,774		
CM- Door de coachbijeenkomsten leer ik mijzelf beter kennen			,762		
CM- De coachbijeenkomsten zorgen er voor dat ik gemotiveerd bezig ben met mijn opleiding			,761		
CM- De individuele gesprekken met mijn coach zorgen ervoor dat ik gemotiveerd bezig ben met mijn opleiding			,723		
CM- Ik vind de coachbijeenkomsten in een coachgroep (leergroep) nuttig:			,703		

CM- Ik vind de individuele gesprekken met mijn coach nuttig			,635		
CI- Ik weet zeker welk werk ik wil gaan doen:				,821	
CI- Ik weet hoe mijn toekomst als vakman/vakvrouw eruit gaat zien				,796	
CI- Mijn hart ligt bij het werk waarvoor ik leer				,786	
CI- Ik weet zeker dat het beroep waarvoor ik leer, goed bij mij past				,784	
PF- Mijn portfolio (verzamelmap) helpt mij om na te denken over studiekeuze en beroepsmogelijkheden					,870
PF- Mijn portfolio (verzamelmap) helpt mij om na te denken over mijn eigen ontwikkeling					,858
PF- Ik vind het nuttig om mijn portfolio (verzamelmap) regelmatig aan vullen met nieuwe materialen					,800
PF- Er wordt regelmatig naar mijn portfolio (verzamelmap) gekeken door school					,540

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Note. KMO measure of sampling aquadecy =.922, Barlett's test of sphericity: X^2 (630) =40028,987, p< 0.01

SDL=self-directed learning, QC= Quality of the coach, CM= student's perceptions of Coach Meetings, CI=career identity, PF= student's perceptions of Portfolio