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Chapter 1

Introduction

A Bachelor's degree offers individuals long-term cognitive, social, and economic benefits that are passed down to future generations, enhancing the quality of life of the families of college-educated persons, the communities in which they live, and society at large (Kuh et al. 2008). Unfortunately, too many students who begin college leave before completing degrees. Only 60 per cent of US full-time students from entry cohort 2008 who enrolled at four-year institutions completed Bachelor's degrees within six years at the institutions where they started (U.S. Department of Education 2016). Furthermore, a survey by the Organisation for Economic Cooperation and Development (OECD) revealed that "on average across countries with true-cohort data (data on individual students), 41% of students who enter a Bachelor's or equivalent programme graduate within the theoretical duration of the programme, although sometimes from a different educational level. Within three years after the theoretical duration of the programme, the average completion rate increases to 69%." (OECD 2016). In the Netherlands, around 35 per cent of first-year students at Dutch universities of applied sciences leave or switch before or at the end of their first year (Netherlands Institute for Social Research 2016).

The consequences of so many students leaving higher education are not trivial, both for students and educational institutions as well as society:

- For students, student dropout has obvious psychological, economical, and social ramifications including, for instance, students who undergo loss of self-esteem due to the decision to leave college (Vallerand et al. 1997). These ramifications affect students differently according to their level of maturity, readiness for college, or personal feelings of belonging within a college. Whereas the decision to leave college may be permanent for some students, other students will take time off to clarify academic and career decisions, deal with external circumstances, or simply grow up (Barefoot 2004);
- For educational institutions, the consequences of high rates of student departure, though measured in different terms, are of no less concern (Tinto 1993). As Kamphorst (2013) argued, Dutch universities of applied sciences appear to have been successful in recent years in fulfilling the desirable societal aim of expanding education, as "they offer higher vocational education to a growing number of students, which has resulted in increased output in terms of the supply of educated professionals in labour markets. However, this quantitative growth has also been somewhat thwarted by a lack of efficiency, in terms of costs per student and lack of effectiveness, in the form of dropout rates and study delays." (Kamphorst 2013, p. 2);

- For society, the occupational, monetary and other societal rewards of higher education to individuals are largely conditional on being awarded a college degree (Tinto 1993). Therefore, dropping out of college is not only an educational problem but a significant social problem also (Vallerand et al. 1997, p. 1161).

From a financial point of view, student attrition implies considerable costs in various areas, both for students and educational institutions as well as society:

- Students ‘waste’ their study efforts by leaving without a degree, although what students gain by undergoing higher education for a limited time may occasionally outweigh the cost they incurred (Yorke and Longden 2004);
- Institutions lose their financial investments and have to face reduced financial resources when students leave. The experience of greatly reduced financial resources has led institutions to appreciate the necessity of retaining as many of their students as possible (Tinto 1993);
- Society faces a waste of money, low societal value from study efforts with high costs from the misuse of tax payers’ money and low completion rates. Therefore, the government or funding body is likely to be concerned that the funds it provides for the system are not being used to maximum effect (Yorke and Longden 2004). As student attrition implies considerable costs in various areas, enhancing student success is of utmost importance not only for students and educational institutions but also for society.

As one of several institutional actions that enhance retention and graduation, Tinto (1993) recommended that institutions should provide students with clear guidelines as to what they have to do to be successful. Following Tinto (1993), a growing number of vocational education and training institutions in the Netherlands are now implementing new vocational career guidance¹ practices in their competence-based approaches to learning. According to the OECD (2004), “career guidance refers to services intended to assist people, of any age and at any point throughout their lives, to make educational, training and occupational choices and manage their careers”. While personal interviews are still the dominant tool, career guidance comprises a wide range of other services such as group discussions, printed and digital information, vocational courses, structured experience, telephone advice and on-line help (OECD 2004, p. 19). Concerning vocational career guidance, Tinto (1993) argued that the need to use counselling and advisory programmes during the student’s career underlines the fact that not all students enter college with clearly set goals. For that reason, institutions have allocated substantial resources to advisory and counselling services that intend to guide individual students along

the path of goal clarification. According to Herr (2002), the institutional benefits of these services may be seen in increased student retention, thus maintaining governmental funding per student rather than losing such funding if a student drops out. Consequently, not only the institutional expenditures but also the institutional benefits of vocational career guidance need to be monitored, as public money could be spent in other ways to enhance student retention.

Unfortunately, international research so far is ambivalent about the benefits of vocational career guidance, particularly because the model for correctly evaluating vocational career guidance is very complex (Maguire and Killeen 2003). First, the potential effects of vocational career guidance manifest at three stages (OECD 2004, p. 33): immediate attitudinal changes and increased knowledge; intermediate behavioural changes, for example through improved search efficiency and persistence or entering a particular course, and longer-term outcomes such as success and satisfaction. Second, outcomes of vocational career guidance, both intended and unintended, behavioural and attitudinal, short- and long-term, can vary widely. According to the OECD (2004), "obtaining clear answers about impacts under these circumstances requires large-scale research with complex experimental designs and statistical controls". As such research is known to be lengthy and expensive, only limited studies have been conducted to date. Third, studies of behavioural outcomes require a follow-up plan, which raises a number of difficulties (OECD 2004). Not only may the effects not be visible for some time, but also the longer the time that elapses, the more other factors come into play. As indicated by the OECD (2004, p. 35), "studies with control groups are particularly difficult to sustain over extended periods: contact cannot be indefinitely extended, nor can guidance be indefinitely denied". To sum up, and as further illustrated hereafter, international evidence on the benefits of vocational career guidance in general is limited but positive (OECD 2004). Most of the existing evidence relates to learning outcomes, first of all because learning outcomes are immediate and therefore relatively easy and cheap to measure (OECD 2004, p. 34). Furthermore, learning outcomes directly represent the aims of vocational career guidance interventions, and can thus be appropriately measured. A review by Killeen and Kidd (1991) of 40 (mainly United States) studies, as reported by the OECD (2004), found positive results of vocational career guidance interventions in 30 of these 40 studies. Similar conclusions have been found in more extensive and more rigorous United States meta-analyses of good-quality controlled studies (OECD 2004). Among others, these studies concluded that (OECD 2004, p. 34):

- career interventions are effective with most age-groups;
- individual guidance has the biggest effect, followed by group counselling and classroom interventions;
- counsellor-free interventions have the least effect;
- computer-delivered interventions are the most cost-effective.

As career programmes in education have longer-term aims, “not all career guidance is designed to lead to immediate decisions” (OECD 2004, p. 35). However, evaluations of their impact have largely focused upon intermediate effects: on educational motivation, hence academic achievement (OECD 2004). In the United States, “career education programmes have shown some modest but positive effects on various measures of academic attainment” (OECD 2004, p. 35). Finally, the available evidence on long-term outcomes such as success and satisfaction is very limited. In particular, sample sizes in long-term studies “are not easy to sustain, and effect sizes inevitably decline as other factors intervene” (OECD 2004, p. 35). Long-term studies are therefore very costly to set up, and difficult to execute satisfactorily (OECD 2004).

As research so far has not reliably revealed the expected benefits of vocational career guidance at institutional level, the purpose of this study was to investigate the effectiveness of vocational career guidance to enhance student success in Dutch higher vocational education. As further illustrated hereafter, the medium-sized Dutch University of Applied Sciences (UAS) Windesheim served as a case study to explore this effectiveness of vocational career guidance at student and institutional level.

As an introductory Chapter to this thesis, the structure of this Chapter is as follows. The next section further illustrates the context of the study, including the specific circumstances that led to this research project. Subsequently, the rationale of the study is elucidated, followed by the conceptual framework. The core of this framework concerned Tinto’s (1993, 2012) interactionist model of student departure which we will elaborate upon, including some critical notes to this model. After the explanation of Tinto’s model, this section will elucidate student entry characteristics, student attrition, student success, student motivation and institutional return on investment in vocational career guidance respectively, as other important parts of our conceptual framework. The subsequent sections of this Chapter will present the research questions followed by an outline of the study. This outline discusses our research plan, the adopted research methods and the significance of the study respectively. A thesis overview will close this Chapter, introducing the subsequent Chapters of this thesis.

1. Context of the study

Dutch higher education has a binary system, which means that a distinction is drawn between research-oriented education and higher vocational education (Nuffic 2015). This difference in orientation continued to exist after the introduction of the Bachelor's/Master's degree structure in 2002 (Center for Higher Education Policy Studies 2008). Research-oriented education takes place primarily at research universities, and higher vocational education at universities of applied sciences. "As well as the different objectives, each of the two types of education has its own admission requirements, programme duration and titles" (Nuffic 2015, p. 5). According to the Netherlands Association of Universities of Applied Sciences (Netherlands Association of Universities of Applied Sciences 2015a), the mission of universities of applied sciences is to offer higher vocational education and applied research with a strong orientation towards professional practice. Therefore, every study programme of a UAS is based on a professional profile, established in close cooperation with the employers of the relevant field.

Over recent decades, Dutch UAS's have been involved in institutional merging, concentration, scale enlargement, adoption of the major-minor structure, and several innovations. Although scopes and priorities vary, these innovations have several characteristics in common: integrating theory and practice, motivating students, giving them more responsibility for their own learning, and customising programmes for individual students (Schellekens 2004). To enable students to 'personalise' their study programme, the majority of Dutch UAS's have adopted a new approach to learning, commonly known as demand-driven education (Van Anandel 2012). Windesheim UAS, the institution where this study was conducted, adopted this approach in 2006 to stimulate students to take more responsibility for their learning process and enable them to customise their programmes (Windesheim University of Applied Sciences 2005a).

Since the early 1990's, Dutch higher vocational education (as well as tertiary education in other OECD countries) has experienced substantial increases in participation. These increases stemmed particularly from the fact that Dutch students are broadly free to enrol in whatever faculty and at whatever university of applied sciences they choose (apart from courses subject to a quota and courses at some particular faculties) (OECD 2004). Between 1995 and 1999 alone, enrolments rates of tertiary education grew by an average of 23% across the OECD (OECD 2001). This tremendous growth of enrolment in OECD countries was also encountered at Windesheim UAS during the last decade (see Table 1).

Table 1. Enrolment of Windesheim UAS taken by level of preliminary education

Cohort	Level of preliminary education				Total
	HAVO	VWO	MBO	Other	
2000	1543	316	783	184	2826
2001	1549	291	803	176	2819
2002	1549	300	772	219	2840
2003	1696	295	982	219	3192
2004	1634	264	1127	264	3289
2005	1876	254	1131	320	3581
2006	1970	263	1271	306	3810
2007	2284	325	1347	296	4252
2008	2740	326	1491	291	4848

Note. HAVO = higher general secondary education; VWO = pre-university education; MBO = secondary vocational education.

As Table 1 shows, the growth of total yearly enrolment from 2000 to 2008 exceeds 70 percent. In particular, this growth sets in markedly from the year 2003 and mainly concerns students from higher secondary general education and secondary vocational education, while enrolment at other levels remains relatively constant.

According to the OECD (2004), the increased influx of participants in OECD countries has been accompanied by change and diversification, which have created major challenges for vocational career guidance. As institutions become more differentiated, as the number of institutions and Bachelor programmes to choose from increases, and as Bachelor programmes become more differentiated in content between institutions (OECD 2004, p. 52), so does the need for information and advice increase, to help people decide what and where to study. This calls for a comprehensive approach, which vocational career guidance services in many countries' tertiary education systems are ill-equipped to handle (OECD 2004).

As a medium-sized UAS enrolling 19,908 students in the course 2014/2015, Windesheim UAS in Zwolle is the eleventh largest of thirty-seven universities of applied sciences in the Netherlands (Netherlands Association of Universities of Applied Sciences 2015b). Staffed in 2014 with approximately 2,000 employees, Windesheim UAS offers 68 Bachelor's degree programmes, 5 Master's degree programmes and 15 associate degree programmes which are brought together in ten different faculties.

In 2006, Windesheim UAS set up new educational standards, not only on which to build its required Bachelor-Master structure (Windesheim University of Applied Sciences 2005b), but also to facilitate demand-driven education, in which students direct their own learning process by setting up their personal learning goals. As the Dutch implementation of the Bachelor/Master structure started in 2002 (Center for Higher Education Policy Studies 2008), Windesheim UAS can be characterised as a late adopter: it was one of the last Dutch UAS's to implement this structure in 2006 and simultaneously adopt the concept of demand-driven education (Van Anandel 2012). Based on these new educational standards, the main changes from September 2006 included a stronger 'work-field orientation', a more applicative and multidisciplinary curriculum and a stronger orientation towards practice-based research (Te Wierik et al. 2014). In the view of Windesheim UAS, demand-driven education should enable students to be the designer, director and owner of their learning process and thus manage their own student careers (Windesheim University of Applied Sciences 2005a).

Regarding the arrangement of vocational guidance and student counselling, the emphasis in 2006 turned from supporting students who failed to meet expectations or even threatened to drop out, to guiding all students to design and direct their own learning career and preserving them from dropout. As Windesheim UAS attached great importance to teaching students to manage their own student careers, all students of Windesheim UAS acquired an extra, eleventh competence from 2006 onwards (Windesheim University of Applied Sciences 2005a) that was added to the generic ten core competencies of competence-based Dutch higher vocational education (Commissie Accreditatie Hoger Onderwijs 2001). These ten core competencies concerned, respectively, thorough professionalization, multidisciplinary integration, (scientific) practice, transfer and wide usability, creativity and complexity in acting, problem solving, systematic and reflective thinking and acting, social communication skills, basic management skills and social accountability. As determined by the new educational standards (Windesheim University of Applied Sciences 2005b), students were guided to acquire this eleventh competence called 'vocational career self-management', thus linking the personal learning process to the vocational career guidance process. To acquire this competence, students enrolled annually in a four-credits vocational career guidance course that aimed to provide students with all the necessary skills and attitude to self-manage their student career at Bachelor level. Furthermore, this course enabled students to adopt a more self-regulated approach to learning and at the same time foster their motivation to successfully attend higher education. Prescribed by faculty, the course was offered as a mix of individual, peer group

and class guidance. As a result, both the yearly amount of time spent at class versus individual guidance and the size of the peer group varied from one faculty to another. The main result of this course was the portfolio, in which the student had to prove that they held the eleventh competence. Vocational career guidance at Windesheim UAS was offered by a small professional staff together with a specially assigned faculty, as a comprehensive part of the Bachelor's curriculum that spanned the entire four years of student life from admission to graduation. As provided by teachers who had been allocated time for an extra task in vocational career guidance, teachers were made directly responsible for the supervision and assessment of students. At the end of the first year, assessment of vocational career guidance resulted in a vocational career guidance grade point and a total of four credits when passed (equal for all students). The vocational career guidance course had to be passed, otherwise the student was dismissed by virtue of a so-called binding study advice because of unsatisfactory first-year achievement (taking into account any impeding personal circumstances). In addition to passing the vocational career guidance course, the student had to achieve a minimum number of first-year credits in order to successfully pursue his or her study at the end of the first year. According to the educational standards of Windesheim UAS as implemented in 2006 (Windesheim University of Applied Sciences 2005b), this minimum stood at 45 credits in September 2006.

Finally, Windesheim UAS was determined to link the implementation of vocational career guidance to clear targets with respect to student attrition. More specifically, by introducing vocational career guidance Windesheim UAS aimed at an annual average decline of institutional attrition rates from 2007 of at least 15 percent (Windesheim University of Applied Sciences 2007a).

Considering the introduction of vocational career guidance at Windesheim UAS in September 2006, the first experiences of both students and teachers were mixed. Although, a year after the introduction, all ten faculties of Windesheim UAS indeed offered their students the prescribed amount of guidance and used the various instruments for guidance, first-year students were not always convinced of the effectiveness of vocational career guidance and how it had contributed to their study progress. A satisfaction survey among students of Windesheim UAS in 2007 showed that less than 50 percent of respondents valued the quality of vocational career guidance as adequate. In addition, students would have liked to have had more individual reflection during their first year, particularly with respect to their study progress (Windesheim University of Applied Sciences 2007b). This limited student satisfaction underlined the need to further investigate the effectiveness of

vocational career guidance at Windesheim UAS. Furthermore, existing research so far had not reliably revealed the expected benefits of vocational career guidance in Dutch higher vocational education. To fill this research gap and concurrently clarify the added value of vocational career guidance, this thesis investigated the effectiveness of vocational career guidance to enhance student success in Dutch higher vocational education. The next section further illustrates the motives to conduct this study into vocational career guidance at Windesheim UAS.

2. Rationale of the study

The motives to conduct this study into vocational career guidance at Windesheim UAS were twofold, and concerned educational as well as financial grounds.

Educationally, the question of how to best guide students in Dutch higher vocational education in order to enhance their student success has not yet been fully answered. Despite both national and international investigations of this issue in the past years, the evidence of positive benefits of vocational career guidance so far is sparse and ambivalent. To be discussed in detail as a part of the conceptual framework, international evidence on the benefits of vocational career guidance in general is limited but positive (OECD 2004). However, at national level Kuijpers and Meijers (2008) concluded that career guidance investments barely yield a profit. The Netherlands Association of Universities of Applied Sciences (2009) confirmed this by concluding that the intensity of career guidance in recent years has often been inadequate. In the view of this Association, “expectations with regard to the independent learning abilities of first-year students were high, often too high”. In addition, some students will require more or longer vocational career guidance than others (Netherlands Association of Universities of Applied Sciences 2009).

Furthermore, the aforementioned increased influx of participants in Dutch higher vocational education, which at the same time brought change and diversification, calls for further investigation of the specific roles that growth of enrolment and student entry characteristics (such as gender, age and preliminary education) play in optimising vocational career guidance in Dutch higher vocational education. Therefore, additional research was needed to further educationally clarify the added value of vocational career guidance in Dutch higher vocational education.

Financially, Dutch higher education institutions have allocated substantial resources to advisory and counselling services over the past few years, with a view to guiding individual students along the path of goal clarification. As one of these institutions, Windesheim UAS in 2006 determinedly implemented vocational career guidance in order to guide all students to design and direct their own learning career, preserve them from dropout and enhance their student success. As indicated earlier, institutional benefits of these resources may be seen in increased student retention, thereby maintaining governmental funding per student rather than losing such funding if a student drops out (Herr 2002). Consequently, not only institutional expenditures but also the institutional benefits of vocational career guidance need to be monitored, as public money could be spent in other ways to enhance student retention. Following Maguire (2004, p. 180), there is clearly a need to generate as much evidence as possible of the impact of vocational career guidance, “not least because of the need to support the case for sustaining, and even enhancing, the funding allocated to the activity”.

Therefore, this thesis has not only adopted an educational focus on the effectiveness of vocational career guidance in Dutch higher education, but also a financial focus on this topic in order to clarify both the educational and the financial impact of vocational career guidance in Dutch higher vocational education. The next section will elucidate the conceptual framework involved.

3. Conceptual framework

As indicated above, this thesis focused on the effectiveness of vocational career guidance at Windesheim UAS. This effectiveness was investigated both educationally and financially in four empirical studies, which successively concentrated on the influence of vocational career guidance on student attrition, student success, student motivation, and the costs and benefits of vocational career guidance as an institutional action to enhance retention and graduation in Dutch higher vocational education.

As the core of the conceptual framework of this thesis, this section first discusses Tinto's (1993, 2012) interactionist model of student departure, including some critical notes on this model. Subsequently, this section will clarify student entry characteristics, student attrition, student success, student motivation and institutional return on investment in vocational career guidance respectively, which constitute other important elements of our conceptual framework.

3.1 Tinto's interactionist theory of student departure

As the extent to which students feel they belong to an institution both academically and socially is an important factor for success in higher education (Dutch Education Council 2008), the conceptual framework of this thesis was founded on Tinto's (1993, 2012) interactionist theory of student departure as depicted in Figure 1.

The two central concepts of Tinto's (1993, 2012) theory are social and academic integration, which determine persistence or dropout. Integration is "the extent to which the individual shares the normative attitudes and values of peers and faculty in the institution and abides by the formal and informal structural requirements for membership in that community or subgroups of it." (Pascarella and Terenzini 2005, p. 54). Social integration pertains to the extent of congruency between the individual student and the social system of a university (Hicks and Wood 2016). In other words, students experience social integration if they feel a sense of normative congruence and social affiliation with members of the social communities of a university (Yorke and Longden 2004). Academic integration reflects a student's experience with the academic systems and academic communities of a university. Such experience finds expression in a student's sense of normative congruence and affiliation with these academic systems and communities (Braxton et al. 2000). According to Hicks (2016), Tinto considers academic integration to consist of structural and normative dimensions. "Structural integration entails the meeting of the explicit standards of the university, whereas normative integration pertains to an individual's identification with the beliefs, values and norms inherent in the academic system" (Hicks and Wood 2016, p. 114).

Academic and social integration affect the subsequent commitments of students (Yorke and Longden 2004). Students come to a particular institution with a range of background characteristics (student entry characteristics such as secondary school experiences, academic aptitude, family background). These characteristics influence initial commitments, both to the institution attended and to the goal of graduation from college. Together with entry characteristics, these initial commitments influence not only how well the student will perform in college but also how he or she will interact with, and subsequently become integrated into, the institution's social and academic systems. The higher the degree of integration of the individual into the college system, the greater will be the commitment to the specific institution and to the goal of college completion leading to persistence.

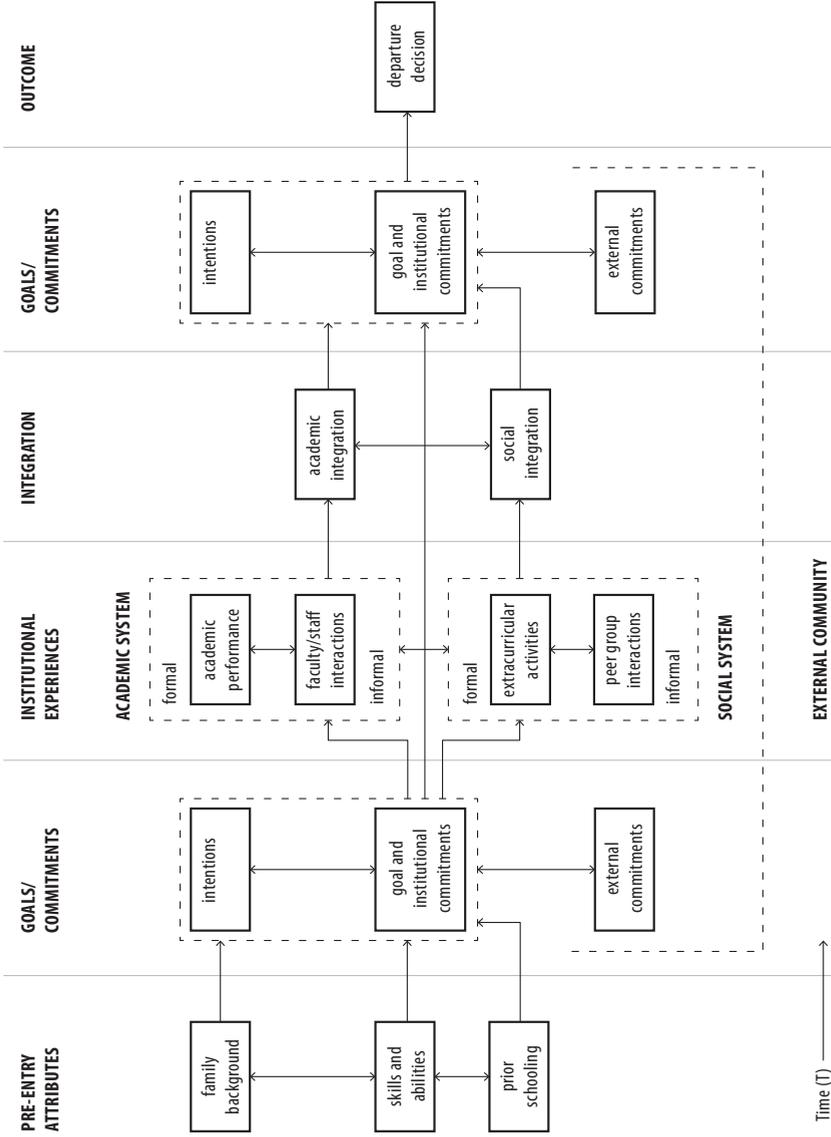


Figure 1. Tinto's model of student departure. Reprinted from *Leaving college: rethinking the causes and cures of student attrition* (p.114), by V.Tinto, 1993, 2nd ed., Chicago: University of Chicago Press. Copyright 1987, 1993 by the University of Chicago. Reprinted with permission.

As Tinto's (1993, 2012) model is derived from the US (campus) situation of higher education and therefore stresses the impact of both academic and social integration on student persistence, this model's implications for the (non-campus) situation of higher vocational education at Windesheim UAS should be considered carefully. In particular, as students in the Netherlands socialise to a great extent outside the educational institution, social integration is expected to play a considerably different role in student attrition compared to a US (campus) situation. Moreover, Dutch admission and selection policies in higher education differ from US policies. First of all, Dutch students are largely free to enrol at whatever faculty and at whatever university of applied sciences they choose (apart from courses subject to a quota and courses at certain faculties). Also since 1993, Dutch institutions of higher vocational education such as Windesheim UAS have been allowed to dismiss students at the end of their first year by virtue of a so-called binding study advice. Institutions that deploy this dismissal impose a binding study advice on students considered incapable of completing their study programme due to unsatisfactory study progress in their first year, taking into account any impeding personal circumstances. As a consequence, the institution may withdraw a student's enrolment in that particular study programme in which the binding study advice was imposed, consequently obliging the student to leave that study programme.

Concerning vocational career guidance, Tinto (1993) argued that the need to use counselling and advisory programmes during the student career is a consequence of the fact that not all students enter college with clearly set goals. For that reason, institutions have allocated many resources to advisory and counselling programmes with the intention of helping individuals along the path of goal clarification. According to Tinto, these programmes tend to be most effective when advice and counselling are obligatory for students, and when these programmes are systematically linked to other student services and programmes on campus such as a central student advisory centre that serves the advisory and counselling needs of students. Their effectiveness is further enhanced when advisory and counselling programmes are an integral part of the educational process that all students are expected to experience (Tinto 1993, p. 172).

Although Tinto's (1993) model of student departure is most often cited in and associated with student persistence research (Metz 2002), researchers have drawn up some critical notes to this model over recent years. According to Barefoot (2004, p. 11), Tinto's theory has been "the subject of much revision and various debates that revolve around: (a) which element - social integration or academic integration - is more important for what types of students; (b) whether Tinto's model actually

includes all the variables needed to understand student dropout, especially for non-traditional students; or (c) whether today's students should be expected to achieve Tinto's three stages of a successful higher education career - separation, transition, and incorporation". For example, by empirically and conceptually assessing Tinto's theory in 1997, Braxton, Sullivan and Johnson focused on the degree of support for the 13 primary propositions postulated in Tinto's 1975 foundational theory. Empirical tests robustly support only 5 of the primary 13 propositions (Braxton et al. 2000). 4 out of these 5 propositions are logically interconnected (Yorke and Longden 2004) and take the following narrative form. "Students enter college with various characteristics that influence their initial level of commitment to the college or university that they chose to attend. This initial level of institutional commitment also affects their subsequent commitment to the institution. Social integration also affects subsequent institutional commitment. The greater a student's degree of social integration, the greater the student's subsequent commitment to the institution. The greater the degree of a student's subsequent commitment to the institution, the greater the student's likelihood of persisting in college" (Yorke and Longden 2004, pp. 91-92). Empirical support of the other 8 propositions of Tinto's model is low, in particular with respect to the academic integration construct. For example, "only 8 of the 11 multi-institutional studies that attempted to link academic integration and persistence provided support for the relationship. Single institution studies examining the relationship between academic integration and persistence are less clear" (Kuh et al. 2006, p. 12). An important reason for the absence of empirical support for the academic integration construct is that "the model artificially separates student experiences that may be part of one broad social integration construct" (Kuh et al. 2006). In recent years, the social integration construct of Tinto's model has been reconceptualised. Braxton and Hirschy, as reported by Yorke and Longden (2004), proposed a revision of Tinto's theory that particularly focuses on identifying factors that influence student integration into the social communities of universities. By reviewing the findings of 62 studies, using students of traditional age and identifying factors that affect social integration in a statistically significant manner, they indicated three important concepts by which Tinto's (1993) model should be extended. As an antecedent to social integration that shapes student perception of their extent of social integration, these concepts were institutional commitment to the welfare of students, institutional integrity and communal potential respectively (Yorke and Longden 2004). As Yorke and Longden (2004, p. 93) indicate, "institutional commitment to the welfare of students manifests itself in an institution's abiding concern for the growth and development of its students. An institution committed to the welfare of its students clearly communicates that it greatly values students

in groups as well as individuals. Students attending an institution that exhibits such a commitment perceive that they, like administrators, faculty and staff, also have a stake in membership in the communities of the institution". Concerning institutional integrity, Yorke and Longden (2004, p. 94) indicate that "a university exhibits institutional integrity if the actions of its administrators, faculty and staff are congruent with the mission and goals it promulgates. Institutional integrity also entails institutional action that is congruent with such academic values as academic freedom and the principle of merit". Finally, communal potential refers to "the degree to which a student perceives that a subgroup of students exists within the college community with which that student could share similar values, beliefs and goals. Communal potential looms are particularly important for students whose cultures of origin are different from the predominant culture of a given university" (Yorke and Longden 2004, p. 95). Based on these three concepts, Braxton and Hirschy formulated the following three individual theoretical propositions to Tinto's (1993) theory: the greater the level of institutional commitment to the welfare of the student, the greater the level of institutional integrity or the stronger the student's perception of the communal potential on campus respectively, the more likely it is that the student will achieve (higher levels of) social integration (Yorke and Longden 2004). Although the aforementioned criticism has added some relevant remarks to Tinto's (1993, 2012) model, the level of a student's integration into the social and academic systems of the college is still of great value in research on student persistence or dropout. Therefore, the core concept of Tinto's (1993, 2012) interactionist theory of student departure is nevertheless still highly valuable as the basis of empirical research into student success.

3.2 Student entry characteristics

Numerous studies have examined the factors that influence academic success in and dropout from higher education (Bean 1980; Bean and Metzner 1985; Beekhoven 2002; Bijleveld 1993; Bruinsma 2003; Jansen and Bruinsma 2005; Pascarella and Terenzini 1983; Prins 1997; Spady 1970; Tinto 1987, 1993, 2012; Van den Berg and Hofman 2005). The interactive approach (Bean and Metzner 1985; Pascarella and Terenzini 1983; Spady 1970; Tinto 1987) is interpreted as an empirical research stream in which study progress or dropout is explained in terms of the students' individual characteristics and characteristics from their social environment, as well as interaction between the two (Van den Berg and Hofman 2005). In view of this stream, study progress is interpreted as a particular form of the more general term 'student success' (Van den Berg and Hofman 2005, p. 416). Due to the direct focus on explaining student success, instead of considering student success as part of the broader concept of 'social success', Van den Berg and Hofman (2005) consider

the interactive approach as a valuable addition to social theories on study progress. In addition, Bean and Eaton (2000) contended that personality traits such as self-efficacy help a student persevere when faced with academic and social challenges (Kuh et al. 2006). Furthermore, Tinto (2000) emphasised that theoretical models should also encompass classroom, faculty and pedagogy in the discussions of student persistence. In the Netherlands, several recent studies have investigated the relationship between a number of student-based and contextual variables and student success (Zeegers 2004). Bijleveld (1993) and Jansen (1996) focused their research on curriculum effects on student success. Bijleveld (1993) specified a conceptual model that aimed at explaining differences in dropout between departments. As Bruinsma (2003) indicated, Bijleveld's model (not empirically tested) focused on the effects of departmental characteristics such as the amount of problem-based learning, the number of interactive teaching methods, spread of the study load and the spread of tests. These effects of departmental factors were mediated by student entry characteristics determined by demands of the department and by self-selection (Bruinsma 2003). Instead of dropout, Jansen (1996) investigated the academic achievement of students. In her conceptual model as explained by Bruinsma (2003), both student characteristics and curricular characteristics affected the students' effort, which was determined by time and motivational aspects. Furthermore, both effort and student characteristics determined the level of academic achievement (Bruinsma 2003). The model, which was empirically tested, "included the student characteristics gender, age and ability and the curricular characteristics as explanatory factors. Numerical returns after one and two years and attainment in terms of total credits obtained in the first year were included as outcome variables. This study showed that female students, younger students and students with a higher ability had a higher achievement. In addition, achievement was influenced by measures that affected the student planning behaviour and encouraged a positive attitude to the study. For instance, scheduling fewer subjects simultaneously, scheduling the regular assessments more evenly and scheduling resits less spread over the curriculum resulted in a higher achievement" (Bruinsma 2003, p. 10).

Finally, Van den Berg and Hofman (2005) investigated factors at student level, course/institute level and government level that determine study progress and numerical success rate in higher university education. Their results showed the relative importance of student level and institutional factors on study progress. More specifically, their research indicated that "95% of the total variance in study progress is due to student factors, where 5% of the total variance is due to course factors" (Van den Berg and Hofman 2005, p. 436). At student level, "no differences

were found in study progress between students with university-educated parents and students with less educated parents” (Van den Berg and Hofman 2005, p. 437). In addition, they concluded that “paid jobs alongside the study do not harm study progress, provided that the job only requires a moderate time investment of about one day per week. Master’s phase students who spent between 8 and 12 hours per week in paid jobs obtained only slightly fewer course credits than students who did not perform paid jobs, whereas study progress was significantly reduced if students spent more than 12 hours per week in paid work”. At course level, students tended to show less study progress in curricula that offered more subjects in the same study period. Furthermore, the number of study periods per academic year tended to be negatively associated with study progress within the master’s phase student group (Van den Berg and Hofman 2005, p. 438).

This thesis particularly considered student entry characteristics of gender, age and preliminary education as important predictors of student success. Gender is proven to be an important predictor of student success, as male students are less successful in Dutch higher vocational education than female students (Jansen 1996; Kusrkar et al. 2013; Netherlands Institute for Social Research 2016). Regarding age, Eppler and Harju (1997) examined the relationship between achievement motivation and academic performance of 262 undergraduate students. Results showed that older students (who had taken a year or more away from college before continuing their studies) are more intrinsically motivated to acquire knowledge and develop competence in skills, while freshmen are more externally oriented toward forming social relationships, receiving external rewards and living up to others’ expectations (Eppler and Harju 1997). In addition, Fazy and Fazy (2001) investigated the extent to which first-year undergraduates, on arrival at university, displayed autonomy-related characteristics, and how these characteristics varied according to age. Whilst mature students scored higher than younger students on all the subcomponents of intrinsic motivation, younger students scored significantly higher on identified regulation (which, according to Deci et al. (1991) differs from intrinsic motivation only in that the action is not initiated by the individual) and on external regulation (Fazy and Fazy 2001). Moreover, Kusrkar et al. (2010) showed that strength of motivation increases with age, between the ages of 18 to 24 years. After the age of about 24 years the strength of motivation is more or less constant (Kusrkar et al. 2010, p. 310). To sum up, age considerably influences first-year student motivation in higher education. In comparison, mature students display a higher level of intrinsic motivation that is more or less constant, while younger students show a higher level of identified and external regulation that increases up to the age of 24 years. Finally, preliminary education is also considered to be

an important predictor of student success. As attrition rates of first-year students from secondary vocational education in the Netherlands are considerably higher than those of students from higher general secondary education and pre-university education (Netherlands Association of Universities of Applied Sciences 2009), the level of preliminary education of new entrants determines to a considerable extent the probability that students in higher vocational education will complete their studies successfully. In recent years, it has become clear that many students have considerable deficiencies (Netherlands Association of Universities of Applied Sciences 2009, p. 14). Universities of applied sciences therefore “offer additional tuition on a large scale, sometimes in the first year and sometimes to pupils in their final year of secondary education, in close cooperation with the secondary education institution”. According to the Netherlands Association of Universities of Applied Sciences, the importance of this cannot be overestimated (Netherlands Association of Universities of Applied Sciences 2009). Recently, important steps were taken as the Dutch government set out reference levels for language proficiency and arithmetic for the various types of education. Furthermore, institutions underscore their role as more of them carry out diagnostic tests. As indicated by the Netherlands Association of Universities of Applied Sciences (2009, p. 14), Dutch universities of applied sciences assume that this will result in a gradual reduction in deficiencies, although the actual effects of government policy will only become visible after several years. For this reason, “Dutch universities of applied sciences will continue to invest in providing additional tuition”. Finally, the Netherlands Association of Universities of Applied Sciences points out a so-called *trilemma* as an urgent challenge facing universities of applied sciences, in the sense that not only should the level of the Bachelor’s programmes be upgraded, but at the same time the level of preliminary education of new entrants is under pressure and completion rates must be improved (Netherlands Association of Universities of Applied Sciences 2009).

3.3 Student attrition

Students leave college for a mix of individual and institutional reasons: change of major, lack of money, family demands and poor psycho-social fit, among others. More recent theoretical formulations of student persistence underscore the critical role played by institutional characteristics and context in influencing student persistence (Kuh et al. 2008). For example, the first year of study can be characterised as a year in which students have to make a transition from the (more protected) secondary school context to the (more open) context of college. As part of this transition, the first six months of college are an especially important period in student persistence. Therefore, completing the first year is more than half way

to persistence for the Bachelor's degree (Tinto 1988). Students who do not succeed in their first year have far less chance of completing a Bachelor's degree on time (Seidman 2005).

In exploring student attrition, an important distinction must be drawn between institutional and system attrition, as the former refers to the attrition of persons from individual institutions of higher education whereas the latter refers to attrition from the wider higher educational system. Institutional attrition often results in the migration of persons to other institutions. From an institution's point of view, a student who transfers to another institution is a non-completer. Yet the student may well progress to a degree with no loss of time: viewed from the perspective of the higher education system as a whole, it would be inappropriate to count such a student as a non-completer (Yorke 1999).

3.4 Student success

Student success can be elementary when understood as getting students into and through college to a degree or certificate (Ewell and Wellman 2007). There are many different aspects of student success, ranging from *student flow* across the entire educational chain (high school graduation, college enrolment, retention, and degree completion), to the *quality and content* of learning, to *outcome variables* such as skills achieved as a result of going to college, to positive *educational experiences* (such as student engagement, satisfaction or post-college performance). A broad definition of student success is given by Kuh et al. (2006), who defined student success as academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of educational objectives, and post-college performance. Each of these dimensions has implications for the way in which student success could be measured and for strategies to change behaviour to improve performance. As such, student success is a complex construct which can be measured by quantifiable 'hard outcomes' such as retention and completion, and gauged by 'soft outcomes' such as student engagement and distance travelled by learners towards their personal and programme goals (Zepke et al. 2010).

Considering student success, evaluating vocational career guidance properly is very complex (Maguire and Killeen 2003). First, the potential effects of vocational career guidance manifest at three potential stages (OECD 2004, p. 33): immediate attitudinal changes and increased knowledge; intermediate behavioural changes, for example through improved search efficiency and persistence or entering a particular course; and longer-term outcomes such as success and

satisfaction. Second, outcomes of vocational career guidance, both intentional and unintentional, behavioural and attitudinal, short- and long-term, can vary widely. According to the OECD (2004), “obtaining clear answers about impacts under these circumstances requires large-scale research with complex experimental designs and statistical controls”. Since such research is known to be lengthy and expensive, limited studies have been conducted to date. Third, studies of behavioural outcomes require a follow-up design, which raises a number of difficulties (OECD 2004). Not only may the effects not be visible for some time, but also the longer the time that elapses, the more other factors come into play. As indicated by the OECD (2004, p. 35), “studies with control groups are particularly difficult to sustain over extended periods: contact cannot be indefinitely extended, nor guidance indefinitely denied”.

Since learning outcomes are immediate and also relatively easy and cheap to measure, most of the existing evaluation evidence on vocational career guidance relates to learning outcomes (OECD 2004, p. 34). A review by Killeen and Kidd (1991) of 40 (mainly United States) studies as reported by the OECD (2004) divided the learning outcomes from vocational career guidance into six main categories:

- precursors: attitudinal factors which facilitate rational decision-making such as reduced decision-anxiety;
- self-awareness: learning about self;
- opportunity-awareness: learning about opportunities and options;
- decision-making skills: learning rational decision-making skills and strategies;
- transition skills: learning skills for implementing decisions (including job-search skills and interview skills);
- certainty of decision.

As indicated by the OECD (2004), “out of the 40 studies, only four reported no gains in the categories identified, 30 reported wholly positive results, and gains were reported in each category more often than null results. Also, positive results were reported for each main type of guidance intervention: classes and courses, workshops and groups, individual guidance, test interpretation and feedback, experience-based interventions, and multi-method interventions” (OECD 2004). Similar conclusions have been found in a more extensive meta-analysis of Whiston et al. (1998) as reported by the OECD (2004). This analysis concluded that (OECD 2004, p. 34):

- career interventions are effective with most age-groups;
- individual guidance has the biggest effect, followed by group counselling and classroom interventions;
- counsellor-free interventions have the smallest effect sizes;
- computer-delivered interventions are the most cost-effective.

To sum up, international evidence on the benefits of vocational career guidance in general is limited but positive (OECD 2004). “Evidence for its positive impact upon short-term learning, motivational and attitudinal outcomes can be treated with a high degree of confidence, and in the case of its impact upon actual behaviour with moderate confidence. However evidence on its impact upon long-term individual outcomes, and hence upon economic outcomes, is very limited” (OECD 2004, p. 36).

3.5 Student motivation

Motivational variables play a key role in predicting success in college (Harackiewicz et al. 2002). Over the years motivational theorists have offered various perspectives on motivation, which have led to different operationalisations of this construct (Ning and Downing 2011). One long-standing perspective on motivation is expectancy-value theory (Wigfield and Eccles 2000). Following this theory, motivation is defined as the tendency to undertake an activity when (a) the intended result is valued positively and (b) there is a good chance that the result can be achieved (Beishuizen and Asscher 2001). In view of this theory, people start a task when they value this task as important, interesting or useful (positive value of the result), and when they are hopeful that they can fulfil this task successfully (positive expectancy for success) (Rotter 1954). The value of the result is determined by:

1. interest in achieving the result. Interest can be aroused by curiosity (intrinsic motivation) or by expected positive results of completing the task successfully (extrinsic motivation). Interest raises the state of internal activity (arousal, tension). Course material is more interesting when the student already knows a lot about the subject matter involved. In general, practical course material is more interesting than abstract course material. Interest can be aroused by including episodic information (personal adventures, anecdotes) in the course material or by including original, illogical, contradictory or paradoxical propositions in this material.
2. relevance of the result. Students have to realise that the learning outcome is of personal value to them, and is important and useful. Upon gaining this insight, learning becomes purposeful behaviour that is directed at change and the student's personal growth.

The student's expectation of success is determined by the student's self-confidence. In particular, the student's feeling that he or she is able to perform as required provides the student with a sense of control (Beishuizen and Asscher 2001). This feeling is determined by the student's attributional style as the way the student attributes success and failure to internal and external causes. Providing students with insight into their attributional style can influence student motivation positively. When pursuing a certain result, a student should therefore obtain a positive expectation of it, and realise that he or she has achieved this result him- or herself. In this way, a positive expectation of success may actually lead to success, resulting in the so-called "Pygmalion effect" (Rosenthal and Jacobson 1968).

Atkinson (1974) predicted that an experimental subject with high motivation to achieve success will put most effort into a task of average difficulty, with a 50 percent chance of success. His reasoning was that a task with a great chance of success has small intrinsic value, while less effort will put into a task with a small chance of success, even if there is a great chance of success. The experimental subject with high motivation to fail will show the opposite reaction. His fear will be highest at a 50 percent chance of success, causing him to avoid fairly difficult tasks and particularly select very easy or very difficult tasks. Atkinson (1974) tested his prediction in an experiment in which male students were playing quoits. The students were free to choose the distance (between land 15 feet) from which to throw the quoits. The middle distance was hypothesised as being the most preferred distance, in particular most preferred by students with high achievement motivation and a low level of fear. The expected order was: high achievement motivation and low level of fear, high achievement motivation and high level of fear, low achievement motivation and low level of fear, and finally low achievement motivation and high level of fear. The experiment's success depended on proper measurements of both achievement motivation and fear of failure, and was based on the assumption that playing quoits activates achievement motivation. The results of the experiment supported the assumptions of Atkinson.

Regarding learning, two distinguished kinds of goal orientation are (a) learning- or task-orientation and (b) performance- or ego-orientation (Boekaerts and Simons 1995). Learning-oriented students consider learning as a goal in itself. Performance-oriented students wish to demonstrate their ability and preferably receive favourable judgements from others. When asking students about the goal they are pursuing, various answers will be given. Students may for instance study because of interesting course material, to acquire a job in line with the study, or to prove oneself. Goals highly determine the effort that is put into learning.

Learning-orientated students generally hold a positive view of their own skills and a dynamic view of knowledge and intelligence. They assume that knowledge and skills can be acquired by one's effort and that intelligence is a non-permanent talent (Dweck and Leggett 1988). In the view of these students, learning enhances competencies. Learning-oriented students are intrinsically motivated; they learn because they are inquisitive. They generally select challenging learning assignments and prefer deeper learning. Their attributional style is marked out as highly steerable (Boekaerts and Simons 1995).

Performance-orientated students consider that knowledge and aptitude to learn (intelligence) are stable and unchangeable (Dweck and Leggett 1988). Following Pintrich (2000a), an important distinction with respect to performance orientation has to be made between approach performance goals and avoidance performance goals. "Students who are focused on approach performance goals are oriented to doing better than others and to demonstrating their ability and competence, in other words, approaching tasks in terms of trying to outperform others. In contrast, under an avoidance performance orientation, students are attempting to avoid looking stupid or incompetent, which leads them to avoid the task" (Pintrich 2000a, p. 544). If students visualise their own skills negatively, they perceive learning as an ongoing struggle to prevent personal failure in the view of others. Therefore, their motivation to learn mainly serves to demonstrate how well they perform and to cover mistakes. They feel happy when others appreciate them, which subsequently raises their status. They generally select assignments that offer them the opportunity to demonstrate how well they perform. If possible, they perform very poorly (a good grade without much effort is rated higher than a good grade that required a great deal of effort). They handle learning assignments by absorbing the offered course material as well as possible, without establishing new relationships between concepts or linking concepts to concrete experiences. Their attributional style is marked out as not particularly steerable (Boekaerts and Simons 1995).

A final perspective on motivation to be discussed here is the concept of self-regulated learning. Following Pintrich (2000b, p. 453), self-regulated learning, or self-regulation, is "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features in the environment". As Zusho et al. (2003, p. 1083) indicated in their general model of motivation and self-regulated learning, "certain personal characteristics such as age, gender, ethnicity, and prior knowledge, along

with classroom contextual factors, help to shape how an individual approaches, engages, and responds to an achievement task, which in turn influences students' level of cognitive processing and, ultimately, outcomes such as choice, effort, persistence, and academic achievement". In terms of motivational processes, Zusho et al. (2003) distinguish four motivational components in their model. The first is self-efficacy, defined by Zusho et al. (2003) as "students' judgments of their capabilities to perform a task, as well as their beliefs about their agency in the course". Generally, researchers have shown that it is more adaptive to have higher beliefs of efficacy. According to Zusho et al. (2003), "Students who believe that they are capable of adequately completing a task and have more confidence in their ability to do so typically display the highest levels of academic achievement, and also engage in academic behaviours that promote learning (Bandura 1997; Schunk 1991)". The second motivational component is task value beliefs, or students' beliefs about the utility and importance of a course (Zusho et al. 2003). As indicated in our earlier discussion of the expectancy-value theory, it is believed that having higher task value beliefs is favourable; typically, researchers have demonstrated positive relations of task value beliefs to deeper levels of cognitive processing and performance (Pintrich 1999). Goal orientation represents the third motivational component in the model of Zusho et al. (2003). As explained earlier, goal orientation can be briefly defined as individuals' purposes when approaching, engaging in, and responding to achievement situations. In particular, "goal theorists commonly identify two primary achievement goals – mastery and performance goals – as being important determinants of students' motivation and performance (Zusho et al. 2003, p. 1083). Endorsement of a mastery goal, or the goal to develop competence and task mastery, has been found to be positively related to various learning and motivational indices. In contrast, adoption of a performance goal, or the goal to validate one's competence in relation to others, is generally thought to have a negative effect on students' achievement motivation and academic performance (Dweck and Leggett 1988)". The last motivational component in the model of Zusho et al. (2003) is affect, defined in terms of interest and anxiety. Interest, defined as personal interest in course material or general liking of subject matter, has been linked with deeper cognitive processing as well as higher levels of achievement (Pintrich 1999). Anxiety, or general worry and negative emotions about doing well in class, has been found to have negative consequences on cognition and performance (Zeidner 1995).

As regards to first-year student motivation, difficulties in the transition from secondary school to university have been of great concern to researchers internationally. As Tinto (2010) argued, the expectations established by the

institution for the quality or level of effort required for successful performance highly influence first-year student motivation and performance. As data from the US National Survey of Student Engagement indicate, student expectations of the amount of work or effort they have to invest in order to succeed tend to decline over the course of the first year. Consequently, students appear to expend less effort in their studies than the faculty might expect or desire, especially during the critical first year of college (Tinto 2010). As the German scientist Busse (2011) concluded, one of the consequences of this transition is the significant decrease in intrinsic motivation experienced by students over the course of the first year. Drawing on incidental evidence indicating motivational loss among first-year students of modern foreign languages at two major English universities, different motivational attributes of first-year students studying German as a foreign language were measured, including students' perceived level of intrinsic motivation and perceived level of effort expended on German. Student motivation waned most in the middle stages of the academic year and somewhat recovered towards the end of the year (Busse 2011). During the course of the academic year, lack of engagement was a recurrent topic, especially within the university curriculum. One reason for this loss of engagement was that the perceived level of challenge that students were exposed to at university was inappropriate. Furthermore, first-year students might at first not be aware that they can adjust this level of challenge posed by university classes (Busse 2011).

Concerning vocational career guidance, different potential effects of vocational career guidance to foster student motivation can be considered. As Conti (2000) argues, the provision of appealing course offerings, inspiring tutors, exciting social and extracurricular activities, comfortable living arrangements, and emotional support for students could facilitate the intrinsic motivation and adjustment of new students (Conti 2000). Furthermore, Haarala-Muhonen et al. (2011) investigated factors affecting the study pace of law students during their first academic year and concluded that novices need study counselling to interpret disciplinary knowledge and clarify course requirements for them (Haarala-Muhonen et al. 2011).

3.6 Institutional return on investment in vocational career guidance

Considering institutional return on investment in vocational career guidance, vocational career guidance can play a valuable economic role in providing individuals with better information on available career opportunities and their aptitude to successfully and speedily pursue them in higher education, given their existing skills and abilities. According to Mayston (2002a, 2002b), it can help to add value to the individual's human capital beyond what it would have been without

vocational career guidance. The OECD (2004) confirmed this valuable economic role of vocational career guidance by arguing that the potential benefits of vocational career guidance at micro-level could result from people being better able to manage their choices of learning and work, thereby maximising their potential. In addition to micro-level, potential benefits of vocational career guidance are likely to be generated at meso- and macro-level as well. At macro-level, benefits could result from securing jobs for individuals rather than being unemployed, or securing a better paid job rather than a low paid job, thus increasing tax yields and saving unemployment and other social security payments, all in favour of the Exchequer. At the meso-level to which this study is dedicated, vocational career guidance could fulfil the needs and aspirations of students (OECD 2004) in particular by improving the experience and retention of first year students and by increasing their graduation rate (Dutch Education Council 2008).

At this meso-level, institutions have allocated substantial resources to advisory and counselling services that intend to guide individual students along the path of goal clarification. According to Herr (2002), the institutional benefits of these services may be seen in increased student retention, thus maintaining the governmental funding per student rather than losing such funding if a student drops out. Consequently, not only institutional expenditures but also the institutional benefits of vocational career guidance need to be monitored, as public money could be spent in other ways to enhance student retention. Following Maguire (2004), there is clearly a need to generate as much evidence as possible of the impact of vocational career guidance, not least because of the need to support the case for sustaining, and even enhancing, the funding allocated to the activity.

4. Research questions

As indicated earlier, this study concentrated on the effectiveness of vocational career guidance at Windesheim UAS with respect to reducing student attrition, and enhancing student success and student motivation, while considering the balance between increased expenditures and potential benefits of vocational career guidance. This effectiveness was investigated both educationally and financially in four empirical studies, which successively concentrated on the influence of vocational career guidance on student attrition, student success, student motivation and the potential benefits of vocational career guidance at Windesheim UAS. In particular, this study addressed the following research questions (in corresponding order of the four empirical studies):

1. Does vocational career guidance push back *first-year attrition rates* of Windesheim UAS? And how can the influence of vocational career guidance on *first-year student attrition* of Windesheim UAS be explained, given other known influences on *student attrition* such as growth of enrolment, binding study advice, gender, preliminary education and the switching behaviour of students?
2. Does vocational career guidance significantly affect *first-year student success*, given other known influences such as prior academic performance, faculty and gender? And if so, in what way does vocational career guidance affect *student success*?
3. Does *first-year student motivation* benefit from vocational career guidance, given other known influences of gender, age, preliminary education and initial student motivation? And do differences in vocational career guidance scenarios influence *first-year student motivation*?
4. To what extent should student dropout of Windesheim UAS be reduced in order to receive an *institutional return on investment* of vocational career guidance?

As approximately three-quarters of all dropouts leave at some time before or at the end of the first year (Elkins et al. 2000), all four empirical studies focused on first-year students in particular. The next section describes the outline and methodology of the study in further detail.

5. Outline and methodology of the study

This study particularly investigated the effectiveness of vocational career guidance of Windesheim UAS, at student and institutional level. Following the OECD (2004), potential benefits of vocational career guidance at these levels could result from students being better able to manage their choices of learning and work. In addition, vocational career guidance could fulfil the needs and aspirations of students, in particular by improving the experience and retention of first year students and by increasing their graduation rate. Following Whiston et al. (1998) as reported by the OECD (2004), vocational career guidance in general could be classified as a classroom intervention with relatively low empirical impact on learning outcomes. However, vocational career guidance at Windesheim UAS was a closely interwoven part of the Bachelor's curriculum that spanned all four years of student life from admissions to graduation. As explained earlier, students at Windesheim UAS were guided to acquire an eleventh competence called 'vocational career self-management'. This course aimed to provide students with all the necessary skills and attitude to self-manage their Bachelor's student career. Based

on existing literature on the benefits of vocational career guidance as reported above, we therefore expected vocational career guidance at Windesheim UAS to play a valuable educational and economic role in providing students with better information on available career opportunities and their aptitude to successfully and speedily pursue them in higher vocational education at Windesheim UAS. To answer the research questions presented above, this study was subdivided into four separate empirical studies. The next section presents our research plan.

5.1 Research plan

Following Tinto's (1993, 2012) interactionist theory of student departure, the research plan of this thesis is depicted in Figure 2. The Roman numerals in this Figure correspond to the four empirical studies embedded in this thesis.

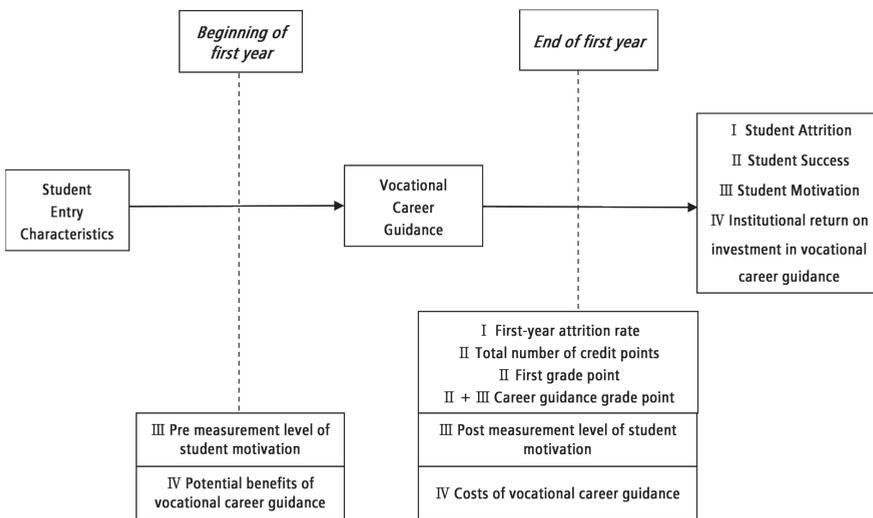


Figure 2: Research plan based on Tinto's (1993; 2012) model of student departure

(Source: Adapted from Yorke and Longden, 2004, p. 90)

As Figure 2 indicates, students come to a particular institution with a range of student entry characteristics such as gender, age, preliminary education, family background and academic aptitude. As the impact of these characteristics on student success differs among students during their student career (Eppler and Harju 1997; Fazey and Fazey 2001; Kusurkar et al. 2013), these characteristics

were important variables to include in the investigation of first-year student success. From the beginning of their first year, all students at Windesheim UAS were vocationally guided to design and direct their own learning career, thereby preserving them from dropout. Investigating this guidance at Windesheim UAS, vocational career guidance therefore constitutes the core of the research plan. Questioning the educational as well as financial effectiveness of vocational career guidance at Windesheim UAS, this plan incorporates four empirical studies, the first three of which had an educational focus, and the fourth had a financial focus. The first empirical study investigated the influence of vocational career guidance on student attrition, concentrating on first-year attrition rates of cohorts from 2000 to 2008 at Windesheim UAS. The second empirical study investigated the influence of vocational career guidance on first-year student success, concentrating on the total number of credits that students obtained at the end of the first year of study which represented progress towards completion. Furthermore, this study focused on both the first grade point and the vocational career guidance grade point as important predictors of student success that so far have rarely been included in relevant Dutch higher educational research. The third empirical study investigated the influence of vocational career guidance on first-year student motivation, concentrating on the level of student motivation at the beginning and end of the first year of study. The fourth and final empirical study investigated the institutional return on investment in vocational career guidance, while focusing on the costs and potential benefits of vocational career guidance as an institutional action to enhance retention and graduation in Dutch higher vocational education. The next sections will elaborate upon the four empirical studies depicted in Figure 2.

The first empirical study investigated the effectiveness of vocational career guidance in terms of pushing back attrition rates, elaborating upon Tinto's (1993, 2012) model of student attrition. As this study particularly investigated student attrition from Windesheim UAS, this study focused on institutional attrition. In particular, this study aimed to answer the following research questions: Does vocational career guidance push back first-year attrition rates at Windesheim UAS? And how can the influence of vocational career guidance on first-year student attrition at Windesheim UAS be explained, given other known influences on student attrition such as growth of enrolment, binding study advice, gender, preliminary education and the switching behaviour of students? Obtained from the student administration offices, our data contained individual records from the entire population of full-time students of nine entry cohorts between 2000 (academic year 2000/01) and 2008 (academic year 2008/09). In the first step of this quantitative study, the broad trend in first-year student attrition of the cohorts 2000 to 2008 was investigated.

Differences between cohorts were analysed using logistic regression, in which attrition was regressed on cohort as a dummy variable. In the second step, the influence of vocational career guidance and other known influences of student attrition (i.e. age, cohort, faculty, gender, growth of enrolment and preliminary education) was investigated by using logistic regression. In the third and final step, possible disturbing influences of other known predictors of student attrition (i.e. binding study advice and the switching behaviour of students) were investigated using time-series analysis in SPSS.

The second empirical study investigated vocational career guidance in terms of enhancing student success, elaborating upon Tinto's (1993) model of student attrition. This study investigated student academic achievement in the first year first and foremost, as this is the year in which success rates in Dutch higher education are traditionally low and attrition rates high (Dutch Education Council 2008). Furthermore, completing the first year is more than half the battle in terms of persistence to the Bachelor's degree (Tinto 1988). In particular, this study aimed to answer the following research questions: Does vocational career guidance significantly affect first-year student success, given other known influences such as prior academic performance, faculty and gender? And if so, in what way does vocational career guidance affect student success? Obtained from the student administration offices, the first part of this study was based on a data set containing individual records of full-time first-year students of entry cohort 2008 (course 2008/09). Adopting a quantifiable focus on student success, dependent variable student success was measured by the total number of credit points that students obtained in their first year, which represent progress towards completion. The influence of vocational career guidance on student success was examined by regressing student success on both the first grade point and vocational career guidance grade point in course 2008/09, as well as on student characteristics of gender, age and preliminary education. The second part of this study was a cohort analysis, based on individual records including the same individual student entry characteristics compared to the first part of this study. As the two year period before and after vocational career guidance was implemented, the included cohorts were 2004, 2005, 2007 and 2008. At these cohort levels, we first analysed the average number of total credits that students obtained at the end of their first year. As this average number of total credits turned out to increase significantly after vocational career guidance was introduced in 2006, we extended our analysis to faculty level by analysing the same number of credits for the individual faculties involved. To exclude alternative explanations, this study controlled for possible disturbing influences of other known predictors of student success.

Subsequently, the third empirical study focused on the motives that enhance first-year student success. As vocational career guidance at Windesheim UAS enabled students to assume a more self-regulated approach to learning and at the same time foster their motivation to successfully attend higher education, this study investigated the influence of vocational career guidance on extrinsic motivation, intrinsic motivation, achievement motivation and self-efficacy. Following the aforementioned findings of Busse (2011), this study expected a decrease in intrinsic motivation experienced by students over the course of the first year. In particular, this study investigated the influence of vocational career guidance of Windesheim UAS on first-year student motivation, taking into account the specific role played by the transition from secondary school to university with respect to first-year student motivation. Furthermore, student background variables of gender, age and preliminary education were taken into account, as these variables proved to have a considerable impact on the motivation of first-year students in higher education also. This study aimed to answer the following research questions: Does first-year student motivation benefit from vocational career guidance, given other known influences of gender, age, preliminary education and initial student motivation? And do differences in vocational career guidance scenarios influence first-year student motivation? This study adopted a quantitative approach to determine the influence of vocational career guidance on first-year student motivation at Windesheim UAS. Based on a series of questionnaires on competencies, skills, motivation, learning style and choice of future profession that all first-year students at Windesheim UAS had to complete, data were collected at the beginning (pre-measurement) and end (post-measurement) of the first year, and were analysed in three steps. In the first step, the composition of the pre-measurement data was analysed by using descriptive statistics. In the second step, the pre- and post-measurement data were compared by using multilevel descriptive statistics to trace any possible faculty differences in the development of first-year student motivation. In the third and final step, the influence of vocational career guidance on first-year student motivation was investigated by using multilevel regression analyses in SPSS.

Finally, the fourth empirical study concentrated on the institutional return on investment in vocational career guidance, as an institutional action to enhance retention and graduation in Dutch higher vocational education. In particular, this study aimed to answer the following research question: To what extent should student dropout at Windesheim UAS be reduced in order to receive an institutional return on investment in vocational career guidance? To answer this question, we constructed a model that confronted the total costs of vocational career guidance

with its potential benefits. In particular, this model was based on a cost-benefit analysis of vocational career guidance at Windesheim UAS, which compared the actual costs and potential benefits of vocational career guidance. By virtue of the funding model of Dutch higher vocational education that was valid during the years when we collected our data (2004 - 2008), Dutch UAS's received a lump-sum budget from the Dutch Ministry of Education for the operation of their accredited study programmes. Although the lump sum comprised funds for labour, material and housing expenses, institutions were free to allocate this lump sum. As regards the actual costs of vocational career guidance, four expense categories were particularly important to assess the institutional return on investment in vocational career guidance. First, start-up costs were incurred in order to develop vocational career guidance courses. Second, labour costs were incurred to pay the teachers providing vocational career guidance courses. Third, pre-measurement costs were incurred to collect data on competencies, skills, motivation, learning style and choice of future profession at the beginning of the first year, as a starting point of vocational career guidance at student level. Fourth, training and certification costs were made to professionalise and certify vocational career guidance teachers and thus enhance and monitor vocational career guidance quality. To sum up, the fourth empirical study distinguished start-up costs, labour costs, pre-measurement costs and certification costs as costs of vocational career guidance. Concerning these costs, one relevant distinction is between fixed and variable costs. For instance, the start-up costs at institutional level were necessary fixed costs in order to develop the vocational career guidance courses. In contrast, pre-measurement costs were mainly variable costs, depending on the number of first-year students from whom the data were collected. As the actual benefits of vocational career guidance could not be reliably investigated due to other contributory factors, this fourth study concentrated on potential rather than actual benefits of vocational career guidance. These potential benefits were calculated by using the aforementioned funding model of Dutch higher vocational education, which allocated public funds to Universities of Applied Sciences partly on the basis of the number of students that completed and dropped out of college. More specifically, a course duration of 1.35 years was funded by virtue of this model in the case of a student dropping out. Likewise, a course duration of 4.5 years was funded in the case of a graduating student. Expecting vocational career guidance to result in an increased number of students graduating instead of dropping out of college, public funding at Windesheim UAS consequently increased as the graduates were funded for an extra 3.15 years (calculated as the difference between funding periods of 4.5 and 1.35 years in the case of graduation and dropout respectively) compared to dropouts. Confronting total costs of vocational career guidance with its total potential

benefits, the fourth empirical study assessed the break-even point of vocational career guidance in order to conclude whether vocational career guidance at Windesheim UAS could be a good investment to reduce student dropout.

5.2 Methods

The first empirical study concerned a quantitative study, the first step of which investigated the broad trend in first-year student attrition of the cohorts 2000 to 2008. In the second step, the influence of vocational career guidance and other known influences of student attrition (i.e. age, cohort, faculty, gender, growth of enrolment and preliminary education) was investigated by using logistic regression. In the third and final step, possible disturbing influences of other known predictors of student attrition (i.e. binding study advice and the switching behaviour of students) were investigated by using time-series analysis in SPSS.

The second empirical study concerned a quantitative study also, the first part of which examined the influence of vocational career guidance on student success by investigating both the assessment and distribution of vocational career guidance grade points. The second part of this study was a cohort analysis of the average number of total credits that students obtained at the end of their first year. To exclude alternative explanations, this study controlled for possible disturbing influences of other known predictors of student success.

In the third study, a quantitative approach was used to determine the influence of vocational career guidance on first-year student motivation at Windesheim UAS. Based on a series of questionnaires on competencies, skills, motivation, learning style and choice of future profession which all first-year students at Windesheim UAS had to complete, data were collected at the beginning (pre-measurement) and end (post-measurement) of the first year, and analysed in three steps. In the first step, the composition of the pre-measurement data was analysed by using descriptive statistics on age. In the second step, the pre- and post-measurement data were compared by using multilevel descriptive statistics to trace any possible faculty differences in the development of first-year student motivation. In the third and final step, the influence of vocational career guidance on first-year student motivation was investigated by using multilevel regression analyses in SPSS.

The fourth and final study aimed to construct a model to evaluate to what extent student dropout should be reduced in order to receive an institutional return on investment in vocational career guidance. This model was based on a quantitative break-even analysis that confronted the total costs of vocational career guidance

with its potential benefits. The breakdown of vocational career guidance costs comprised start-up costs, labour costs, pre-measurement costs and certification costs. The potential benefits of vocational career guidance were calculated by using the Dutch funding model, which allocates public funds to Universities of Applied Sciences partly on the basis of the number of students who complete and drop out of college. By comparing the total costs of vocational career guidance with its total potential benefits, the break-even point of vocational career guidance was assessed in order to conclude whether vocational career guidance at Windesheim UAS could be a good investment to reduce student dropout.

5.3 Significance of the study

Having both theoretical and practical relevance, the significance of this study is twofold. Theoretically, the proper evaluation of vocational career guidance is known to be very complex (Maguire and Killeen 2003). Emphasis in discussion of vocational career guidance is frequently still on input (e.g. resources, equipment) and process (e.g. guidance interviews, group counselling) rather than output (e.g. retention) (Herr 2002). There is clearly a need to generate as much evidence as possible of the impact of vocational career guidance (Maguire 2004). In order to fill these research gaps, this study had a multi-faceted focus in which both the educational and financial effects of vocational career guidance were investigated at institutional and programme level. Exploring the influence of vocational career guidance on student success, student attrition and student motivation in Dutch higher vocational education, this study answered some of the aforementioned critical notes to Tinto's (1993, 2012) interactionist theory of student departure. In particular, this study met the remarks of Kuh et al. (2006) that concerned the difficulty of teasing out the effects of advising delivered by professional advisors or faculty members. Our study sought to disentangle these effects by conducting three separate but interwoven empirical studies into the educational influence of vocational career guidance on student success, student attrition and student motivation at Windesheim UAS. By focusing on vocational career guidance at one Dutch UAS, we disposed of the aforementioned problem of complexity in properly evaluating vocational career guidance. In addition, this study once again confirmed Tinto's social and academic integration as valuable concepts upon which to base research on student persistence or student dropout. Financially, this study presented a model to evaluate to what extent student dropout should be reduced in order to receive an institutional return on investment in vocational career guidance. As research so far has not reliably revealed the expected benefits of vocational career guidance at institutional level, the financial focus of this study adds to the monetary impact of vocational career guidance in Dutch higher

vocational education. In addition, policy makers of Dutch UAS's at institutional level can tailor this model to calculate the required reduction of student dropout in order to receive an institutional return on investment in vocational career guidance at their particular institution, depending for instance on their educational context and particular student population characteristics.

Practically, the multifocal approach of this study offered a wide perspective on the educational value that vocational career guidance adds to student success in Dutch higher vocational education. More importantly, this study sought to provide some valuable educational recommendations to improve the arrangement of vocational guidance and counselling of students in Dutch higher vocational education. Financially, the study enables Dutch UAS's to conduct similar cost-benefit analyses of vocational career guidance in their specific educational contexts. To sum up, this study has considerable significance both theoretically and practically, and is relevant for both researchers and policy makers at institutional as well as governmental level.

6. Overview of the thesis¹

This thesis comprises the following six Chapters. As an introductory Chapter, Chapter One explains the context and rationale of the study, expounds the conceptual framework and research plan including research questions, and clarifies the outline, applied research methods and significance of the study. Chapter Two expounds on empirical study I (as depicted in Figure 2), thus providing a first description of what happened to first-year student attrition when Windesheim UAS introduced vocational career guidance in its courses, taking into account the challenges Windesheim UAS faced because of the growing enrolment and declining level of preliminary education of new entrants. The aim was to establish the influence of vocational career guidance on first-year student attrition at Windesheim UAS. Subsequently, Chapter Three expounds on empirical study II, thus seeking to determine the influence of vocational career guidance on first-year student success at Windesheim UAS, taking into account other known predictors of student success. As academic and social integration might be increased by guiding students in their educational and professional careers (Dutch Education Council 2008), this Chapter investigated this guidance in terms of enhancing student success, elaborating upon Tinto's (1993) model of student departure. Chapter Four

¹ The chapters in the thesis are included as they have been submitted or published, and therefore differ in reference style and the use of US and UK English.

expounds on empirical study III, thus investigating the influence of vocational career guidance at Windesheim UAS on first-year student motivation, taking into account the specific role played by the transition from secondary school to university with respect to first-year student motivation. Furthermore, student background variables of gender, age and preliminary education were taken into account, as these variables proved to have a considerable impact on the motivation of first-year students in higher education also. Chapter Five expounds on empirical study IV, thus concentrating on the costs and benefits of vocational career guidance as an institutional action to enhance retention and graduation in Dutch higher vocational education. This Chapter presents a cost-benefit analysis of vocational career guidance, comparing the actual costs with the potential benefits² of career guidance. Finally, Chapter Six provides a summary of the major findings of the various studies and reflects on these findings in terms of the conceptual framework as presented in Chapter One. Furthermore, the theoretical and practical implications of these findings are discussed. In addition, both the limitations of this study and a possible direction for future research are addressed. Finally, an epilogue closes this thesis by suggesting an important lesson that could be learned on the basis of this thesis.

Notes

1. This thesis refers to 'career guidance' rather than 'career counselling', which is more common in the USA and Canada (Lundahl and Nilsson 2009)
2. In this Chapter we use the potential benefits of vocational career guidance as a proxy for the real benefits, because it is difficult to determine a strong causal relationship between vocational career guidance and the real (economic) benefits (Herr 2002)

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