Being Smart is Not Enough

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Being Smart is Not Enough

The role of psychosocial factors in study success of ethnic minority and ethnic majority students

Marieke Meeuwisse

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Being Smart is Not Enough

The role of psychosocial factors in study success of ethnic minority and ethnic majority students

Slim zijn is niet voldoende

De rol van psychosociale factoren in relatie tot studiesucces van allochtone en autochtone studenten

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Chapter 1

Introduction

In the past decades, the student population in higher education in Western societies has become ethnically more diverse. Democratization of higher education, in combination with long-term effects of postcolonial and labor migration has led to an increasing number of students in higher education in general, and to an increase of ethnic minority students in particular (Severiens & Wolff, 2009). In the Netherlands for example the number of first year students of non-Western descent, who in the Dutch context are regarded as ethnic minority students, almost doubled up to a total number of 19,474 students from 2000 to 2010. This caused a relative increase from 10% of the total number of first year students in 2000 being from a non-Western background to almost 15% in 2010 (Statistics Netherlands, 2011).

These changes in ethnic background of the student population raise the question whether access to higher education means that chances for success are similar for ethnic majority and non-Western ethnic minority students. Several Dutch studies have demonstrated that students from an ethnic minority background on average are less successful academically than ethnic majority students in terms of study progress, grade point average (GPA) and drop out rates (Hofman & Van den Berg, 2003; Jennissen, 2006; Severiens & Wolff, 2008; Van den Berg & Hofman, 2005). International data confirm that study careers of ethnic minority students in general are less successful compared to study careers of ethnic majority students. Ethnic minority students earn fewer credits in the same amount of time (Swail, Redd & Perna, 2003) and they on average have lower completion rates in higher education compared to non-minority students (Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Just, 1999). The present dissertation explores possible reasons for differences in study success between ethnic majority students and non-Western ethnic minority students by focusing on psychosocial and study skills aspects as explanatory factors.

In their state of the art meta-analysis of predictors of college outcomes, Robbins et al. (2004) distinguish between the following types of predictors: Traditional predictors (e.g., secondary school grade point averages), demographic variables (e.g., socioeconomic status), and psychosocial and study skill factors (PSFs). On the basis of educational persistence and motivational theory models, Robbins et al. categorized the PSFs into the following nine broad constructs: Achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy, general self concept, academic-related skills and contextual influences. The importance of PSFs was confirmed showing their incremental contributions over and above the traditional predictors of socioeconomic status, standardized achievement tests and high school GPA in predicting college outcomes (Robbins et al.). In the present dissertation, therefore, the focus lies on PSFs in explaining possible differences in academic outcomes between ethnic majority and ethnic minority students. The studies in this dissertation include the following broad PSF

constructs: 1) social involvement (i.e., the extent to which students feel connected to the college environment; the quality of students' relationships with peers, faculty and others in college), 2) perceived social support (i.e., students' perception of the availability of social networks that support them in their study, such as family support), and 3) academic-related skills (i.e., cognitive, behavioral and affective tools and abilities (such as time management, study skills) necessary to successfully complete tasks, achieve goals, and manage academic demands) (Robbins et al.). The present dissertation focuses on social involvement, social support and academic-related skills because a number of studies (e.g., Herndon and Hirt, 2004; Thomas, 2002; Witkow, 2009) have shown their importance in general terms, but the details remain unclear as to how exactly they play a role in explaining differences in study success between ethnic majority and ethnic minority students. In attempting to clarify the role of the three PSFs, three theoretical frameworks are used to gain a more thorough understanding of differences in study success between ethnic majority and ethnic minority students. More specifically, social involvement fits in the framework of educational theory and learning environments (e.g., Braxton, Milem & Sullivan, 2000), social support is related to psychological theories of inter-role conflict and facilitation (e.g., Greenhaus & Beutell, 1985; Greenhaus & Powell, 2006), and academic-related skills are connected to psychological theories of time use and time management (e.g., Macan, 1994).

The present dissertation presents four empirical studies (described in five chapters) on students' academic outcomes and aims to examine similarities and differences between ethnic majority students and ethnic minority students as an explanation for differences in study success between these two groups of students. In this introductory chapter, first, past research regarding academic outcomes from the perspectives of the learning environment, social support and academic-related skills is discussed. Second, the research aims of the following five chapters of this dissertation are presented. Finally, an overall framework is given to put together the studies in this dissertation.

Academic outcomes from the perspective of social involvement: The role of the learning environment

Within research that has tried to explain the differences in academic outcomes between ethnic majority and ethnic minority students, Tinto's (1993) longitudinal and interactionalist model on the departure process of students from school is a key work. Tinto's model seeks to explain the process by which interactions among individuals (such as students, faculty) within the academic and social systems of the institution lead to withdrawal prior to degree completion.

Previous studies have shown that learning environments that can be characterized as learner centered, activating and (or) cooperative environments help students to integrate, and also to experience a sense of belonging and to achieve good study results (Yorke & Thomas, 2003; Zepke, Leach, & Prebble, 2006). Both Yorke and Thomas, and Zepke et al. found that learner-centered education improves retention and completion rates. Learner centeredness implies high quality teaching in general and catering to diverse learning preferences such as a preference for abstract thinking or learning by doing and hands-on activities. Other studies have demonstrated that the prevailing climate within an institution may have an impact on student outcomes. Studies investigating dropouts for instance have shown that feeling as if one does not belong to the university community life is an important reason for dropping out (Just, 1999; Swail et al., 2003; Zea, Reisen, Beil, & Caplan, 1997). Thomas (2002) stated that institutional culture can cause students to feel like fish in water but also like fish out of water. In other words, if students feel that they do not fit in, they may be more inclined to withdraw early (i.e., they feel like fish out of water). Similarly, Just claims that the fit between students and their environment is an important aspect of retention in higher education. Feeling that one is part of the campus community is important to all students, but ethnic minority students sometimes may face problems not experienced by students of the dominant culture such as the difficulty to adjust socially to a college environment that is predominantly White. Just argues that a good fit within the campus community, that is a sense of belonging, seems to be crucial to the academic persistence among ethnic minority students.

The main conclusion from researchers in this research domain is that the learning environment affects learning outcomes such as study results and students' decisions to continue studying. Activating learning environments may promote a sense of belonging as well as retention. The present dissertation firstly examines the extent to which students feel connected to the learning environment and the quality of their relationships with peers and faculty (cf., social involvement in the study of Robbins et al. (2004)). Secondly, it is investigated whether activating learning environments stimulate a sense of belonging in a similar way, or to a similar extent, in groups of students from different ethnic backgrounds. It is also investigated how activating learning environments and a sense of belonging relate to students' study success and whether this differs for students from different backgrounds. In that sense, the present study's added value is to examine the claim made by Just (1999) that a good fit is crucial to academic success.

Just (1999) also proposes that, next to the learning environment, students' attachment to significant people from home may assist adjustment to college, particularly for minorities. Therefore the role of students' family in relation to academic outcomes is examined as social support system in the next section.

Academic outcomes from the perspective of perceived social support: The role of the family

In their meta-analysis of predictors of college outcomes, Robbins et al. (2004) demonstrated that so-called perceived social support is a factor contributing to college outcomes. Perceived social support is defined as students' perceptions of the availability of social networks that support them in college. An important social network is students' family. Studies conducted after Robbins et al.'s meta-analysis on factors contributing to student success, indeed confirmed that students' family plays an important role in obtaining good study results (Herndon & Hirt, 2004; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Since family appears to be important in students' lives, the question may be asked in what way their family affects students' academic achievements.

In recent decades, many studies have been conducted on the combination of people's roles in life. The most important life roles are family, work, study and leisure. These studies have predominantly investigated aspects of combining work and family roles, which can result in conflict between roles (Byron, 2005; Ford, Heinen, & Langkamer, 2007; Frone, Russell, & Cooper, 1992; Greenhaus & Beutell, 1985) but also can facilitate these roles (Carlson, Kacmar, Wayne, & Grzywacz, 2006; Greenhaus & Powell, 2006). In the present dissertation two studies will be described concerning role interface. The first study investigates whether processes of conflict and facilitation also operate between the family domain and the study domain. As previous research has demonstrated that the family ties of non-Western ethnic minorities are often stronger than those of ethnic majorities (Hays & Mindel, 1973; Heard, 2007; Sarkisian & Gerstel, 2004; Schans, 2008) and that the families of non-Western ethnic minorities seem to place higher value on extended kin relationships (i.e., blood relationships extending beyond the nuclear family) (Hays & Mindel; Staples, 1986) differences may occur between these two groups of students in how family and school relate to each other. Therefore, it is investigated in a second, separate study whether possible differences between these two groups of students in how family and school relate to each other (the so-called family-study interface) may be able to explain differences in academic success between ethnic minority and ethnic majority students.

As a third theme, this thesis attempts to explain differences in study success by examining academic skills more thoroughly by focusing on time use and time management.

Academic outcomes from the perspective of academic-related skills: The role of time use and time management

In the past decade(s), the lives of students have changed. Next to school, which is an important realm of students' lives, student jobs have become a major activity as well (Butler, 2007; Derous & Ryan, 2008; Fox, Connolly, & Snyder, 2005). For example, 77% of the US college students who were enrolled at four-year institutions in 2000, had a job, working an average of 27 hours per week (U.S. Department of Education, 2002). Besides work, students also spend time with their families and are involved in leisure activities (e.g., spending time with friends, sports).

Research on students demonstrates that, apart from pre-entry qualifications and motivation, one of the strongest and systematic predictors of academic success is the time which students spend on studying (Dolton, Marcenaro, & Navarro, 2003; George, Dixon, Stansal, Gelb, & Pheri, 2008). In terms of the relationship between time spent on working and academic performance, most researchers did not find a significant relationship. That is, the amount of time that students are employed and their academic performance do not seem to be related (Bennett, 2003; Dolton et al., 2003; Nonis & Hudson, 2006; Svanum & Bigatti, 2006). Given the variety of activities which students are involved in nowadays, a recent development in student time use studies is to look at all student time instead of only looking into the time spent studying or the time spent working (Kolari, Savander-Ranne, & Viskari, 2008; Nonis, Philhours, & Hudson, 2006; Witkow, 2009).

Aside from the *amount* of time students spend studying, the *way* they spend their time, that is their time management behavior, also seems to affect academic success. Claessens, Van Eerde, Rutte and Roe (2007) define time management as "behaviors that aim at achieving an effective use of time while performing certain goal-directed activities" (p.262). In this definition the focus is on some goal-directed activity, such as performing an academic duty, which is carried out in a way that implies an effective use of time. Students' time, especially the time of the present day student who combines studying, working, spending time with friends and family and so on, is a limited resource which can be more or less effectively managed. Previous research mainly shows that better time management skills are associated with higher academic performance (Britton & Tesser, 1991; George et al., 2008; Macan, Shahani, Dipboye, & Philips, 1990; Trueman & Hartley, 1996). In other words, students' time management skills appear to be important contributors to their study success.

Only a few studies until now have examined whether there are differences in time use between ethnic groups (DesJardins, McCall, Ott, & Kim, 2010), or whether the relationship between achievement and time use is similar for individuals from different ethnic backgrounds (Witkow, 2009). DesJardins et al. showed that of the minority groups in their study, Asian

American students report studying most hours per week (24.5 hours), followed by African American and Latino/a students (22.2 hours per week) and Native American students (18.7 hours per week). Witkow found that the association between GPA and average study time was stronger for Asian students than those from European American backgrounds. These findings suggest that possible differences in time use and time management may exist between students from different ethnic backgrounds. Therefore, the present dissertation aims to shed light on the daily time use and time management of students, in particular the time use by ethnic majority students in comparison to the time use by non-Western ethnic minority students.

The studies described in this thesis

As described in the previous paragraphs, important questions still remain regarding possible explanations for the less successful study careers of ethnic minority students compared to ethnic majority students. This dissertation presents four empirical studies comparing the study success of ethnic majority with ethnic minority students using the framework of Robbins et al. (2004) (see Figure 1 for conceptual model). The results are described in five chapters. Chapter 2 focuses on social involvement factors in relation to the learning environment. Chapters 3 and 4 focus on the perceived social support by addressing the multiple roles which students in present society need to combine and the extent to which they are supported by the family in being a student, and whether this interface is the same for ethnic majority and ethnic minority students, respectively. Finally, chapter 5 focuses on academic-related skills by addressing students' daily time use and time management behavior. In contrast to chapters 2 to 5 – which focus on factors contributing to study success in samples of students – chapter 6 addresses all three psychosocial and study skill factors (social involvement, perceived social support and academic skills) as possible reasons for withdrawal from higher education in a sample of non-completers. An overview of the specific research purpose of each chapter is presented below.

In **chapter 2** the learning environment plays a central role in explaining differences in study success between ethnic majority and ethnic minority students. The study described in this chapter tests a model of the relationships between the extent to which learning environments are activating on the one hand and students' interaction with teachers and peers, sense of belonging, and study success on the other hand. The chapter examines whether the observed model holds true for both ethnic majority students and non-Western ethnic minority students.

Expanding on family-work and work-study models (Butler, 2007; Ford et al., 2007; Frone et al., 1992; Markel & Frone, 1998), in **chapter 3** we investigate a model for family-study

conflict and family-study facilitation. The focus of the study is on the relationship between family-study conflict and family-study facilitation on the one hand and students' effortful behaviors and academic performance on the other hand. **Chapter 4** extends chapter 3 by examining possible differences and commonalities in family-study conflict and family-study facilitation between ethnic minority and ethnic majority students. The question will be answered whether differences in the family-study interface are able to explain differences in study results of ethnic minority and ethnic majority students.

In **chapter 5** we focus on students' time use and academic skills factors, in particular the ability to cope with 'time' constraints and time management, in relation to academic success. This study investigates at the micro level how students use and manage their time in relation to their ethnic cultural backgrounds.

In **chapter 6** reasons for withdrawing from higher vocational education are examined, in particular psychosocial reasons such as one's social involvement in relation to the learning environment, (lack of) support, and academic skills. The question will be answered whether students from minority backgrounds drop out for different reasons compared to students from native Dutch backgrounds.

Finally, in **chapter 7** the findings of the different chapters are summarized and important theoretical and practical implications are discussed. This chapter presents the limitations of the empirical studies and provides suggestions for future research. It also gives practical advice for improving higher education practice for students from diverse backgrounds.

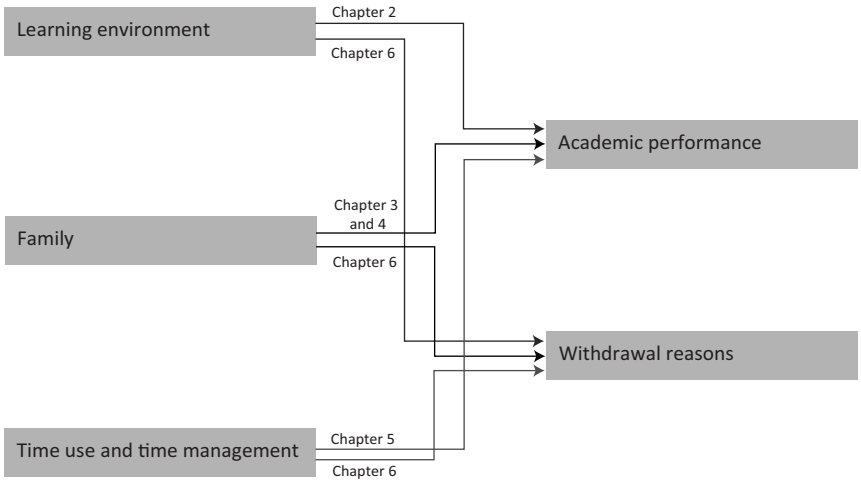

Figure 1 | Visualizing the linkages between the studies in the present dissertation

Chapter 2

Learning environment, interaction, sense of belonging and study success in ethnically diverse student groups*

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Meeuwisse, M., Severiens, S.E., & Born, M. Ph. (2010). Learning Environment, Interaction, Sense of Belonging and Study Success in Ethnically Diverse Student Groups. *Research in Higher Education*, *51*(6), 528-545.
The study in this chapter was also presented at the 13th biennial conference of the European Association for Research on Learning and Instruction (EARLI), Amsterdam, the Netherlands, August 2009.

Abstract

The purpose of this paper was to investigate a model for describing the relationships between the extent to which learning environments are activating and students' interaction with teachers and peers, sense of belonging, and study success. It was tested whether this model holds true for both ethnic minority students and ethnic majority students. A total of 523 students from four different universities completed a questionnaire. Structural equation modeling (Amos) was used to test the model. The model that best describes the relationships in the group of ethnic minority students (N = 145) was shown to be different than the model that best fits the group of majority students (N = 378). Ethnic minority students appeared to feel at home in their educational program if they had a good formal relationship with teachers and fellow students. Ethnic minority students' sense of belonging to the institution nevertheless did not contribute to their study progress. On the other hand, in majority students, informal relationships with fellow students were what led to a sense of belonging. In these students, the sense of belonging did further academic progress.

Introduction

In the past decade(s), higher education in Western societies has become ethnically more diverse. Democratization of higher education, in combination with long-term effects of postcolonial and labor migration have led to an increasing number of students in general, and to an increase of ethnic minority students in particular (Severiens & Wolff, 2009). In the Netherlands for example the number of first year students of non-Western descent, who in the Dutch context are considered as ethnic minority students, more than doubled up to a total number of almost 16.000 students from 1997 to 2006. This caused a relative increase from eight percent non-Western influx of the total number of first year students in 1997 to thirteen percent in 2006 (Statistics Netherlands).

These ethnic changes in the student population raise the question how well this group of minority students is performing. Does access to higher education also mean that chances for success are more or less the same for both ethnic majority and non-Western ethnic minority students? International data generally show that study careers of ethnic minority students are less successful. They earn less credits in the same amount of time (Hofman & Van den Berg, 2003; Severiens & Wolff, 2008; Swail, Redd, & Perna, 2003) and they on average have lower completion rates in higher education compared to non-minority students (Crul & Wolff, 2002; Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Jennissen, 2006; Just, 1999; Van den Berg, 2002; Van den Berg & Hofman, 2005). The present study explores a possible reason for differences in study success.

Quality of interactions

In international literature on academic progress and student attrition Tinto's model on student retention (Tinto, 1975, 1993, 1997, 1998) is very important. Tinto considers the educational institution to consist of an academic system and a social system, and makes a distinction between academic and social integration. In Tinto's original theory (1975) academic integration is seen as grade performance and students' intellectual development during the college years. Social integration refers to informal peer group associations, semi-formal extracurricular activities and interaction with faculty and administrative personnel within the college. Within the years Tinto extended and revised his theory of student departure. In his revised model on student retention Tinto (1993) distinguishes between formal and informal forms of integration. He also revised the determination of academic and social integration. Academic integration is now seen as academic achievement (formal academic integration) and interaction with the faculty (informal academic integration). Social integration refers to extracurricular activities (formal social integration) and contact with peers (informal social integration). Tinto's concepts of academic and social integration are important concepts in the research area examining diversity in higher education (Tinto,

1993; see also Severiens & Wolff, 2009). A certain level of academic and social integration is required of students who wish to persist in college and to graduate successfully (Tinto, 1993). Tinto's model posits that, all other things remaining equal, the higher the degree of integration into the academic and social communities of the institute, the greater the likelihood of persistence.

Beekhoven, De Jong and Van Hout (2002) demonstrated that there is some conceptual inconsistency regarding academic and social integration. In part, this might be a result of the revision of Tinto's theory. Beekhoven et al. argue that while Tinto (1993) defines 'interaction with faculty' as academic integration, others still define it as social integration (Berger & Milem, 1999; Braxton, Milem, & Sullivan, 2000). Some authors (Pascarella, Duby, & Iverson, 1983) make a distinction between two kinds of faculty contacts: on the one hand, contacts with faculty that involve discussion and advice are seen as academic integration; on the other hand, non-classroom interaction with faculty and informal social contacts with faculty are seen as social integration. The measurement of the concepts academic and social integration also seems to be different in various studies according to Beekhoven et al. Cabrera, Castanada, Nora and Hengstler (1992) for example measured academic integration by students' academic experience and performance. In other studies academic integration is measured by questions on students' estimation of their academic and intellectual development and their perception of faculty concern for teaching and student development (Berger & Milem), academic involvement and success (Eimers & Pike, 1997) or an extensive indicator including grades, intellectual development, quality of education and contacts with faculty concerning discussion and advice (Pascarella et al.). The indicators used for social integration are also diverse as outlined by Beekhoven et al. For example, Cabrera et al. used two questionnaire items concerning friendship with other students. In a later study Nora and Cabrera (1996) used a nine-item scale measuring overall satisfaction with the social life of the students at campus, an easiness in making friends, and the influence of such relationships on students' intellectual growth. Both Berger and Milem and Braxton et al. estimated social integration by measuring peer groups relations and out-of-class interactions with faculty members. Eimers and Pike used questions focused on the amount of time students spent on campus and the strength of their peer acquaintances to measure social integration, and Pascarella et al. measured social integration as the frequency and quality of a student's relationship with peers, the quality of their non-classroom faculty interactions, and the frequency of their informal social contact with the faculty.

These differences in measurement of the concepts academic and social integration can be a possible explanation for the variety of results in terms of differences in integration levels, sometimes with majority students scoring higher (Beekhoven, 2002; Eimers & Pike, 1997), sometimes with no score differences (Berger & Milem, 1999) occurring, and sometimes with minority students scoring higher (Nora & Cabrera, 1996). Similarly, while

some studies found a relationship between integration and study progress (Berger & Milem), others did not (Nora & Cabrera) or found only a weak relationship (Beekhoven; Beekhoven et al., 2002).

In an earlier qualitative study conducted in the Netherlands (Severiens, Ten Dam, & Blom, 2006)[1], 138 students (ethnic minority as well as majority students) were interviewed and asked about their social and academic experiences in different periods during their study. The results showed that quality of interactions among peers and between peers and teachers were important to obtain good study results. Similar to Tinto's (1993) formal and informal integration a distinction could be made between formal and informal interaction between peers and between peers and teachers. On the basis of the interviews scales were constructed measuring formal interaction with teachers, informal interaction with teachers, formal interaction with peers and informal interaction with peers.

These interaction scales were used in a study (Severiens & Wolff, 2008) in which we examined differences between ethnic minority students and their majority counterparts in terms of their interaction with teachers and peers and related these to their quality of learning. Quality of learning was defined as the number of credits earned in the first year of the study program, students' average grades and students' approaches to learning. Based on the reports of minority and majority students, they were equally satisfied with the formal and informal relationships they had with peers and equally dissatisfied with the relationships they had with teachers. However, the relationship between interaction and study progress (i.e., the number of credits earned in the first year of the study program) as one of the indicators of quality of learning varied according to ethnic background. In the group of minority students, no significant links were observed between interaction and number of credits, indicating that study progress could not be predicted based on the quality of interaction. In the group of majority students on the other hand, formal relationships with teachers and formal relationships with peers positively affected study progress and informal relationships with teachers negatively affected study progress.

In this study, however, the model only explained a relatively small degree of variance in study progress. In order to improve the explanatory power of the model, it obviously needs to include additional factors. In the present study, therefore, two factors that may be important in explaining differences in study progress between ethnic minority and majority students have been added to the model. These factors are 'sense of belonging' and the 'learning environment'. In the remainder of this introduction, these factors will be described in more detail.

[1] In our former work the term 'integration' was used. The present paper uses the same operationalization, but a different term ('interaction') in order to be more explicit about our specific interpretation of the Tinto concepts of integration.

Sense of belonging

Previous research has shown that ethnic minority students generally feel less at home in their educational program compared to their fellow students from the dominant culture. For example, various US studies demonstrated that African American students and Asian Pacific or Hispanic/ Latino students feel less strongly that they belong in a program than white American students (Hurtado & Carter, 1997; Johnson et al., 2007). In another study, Hurtado (1994) found that many Hispanic students feel that they do not 'fit in' on their campus. A study by Read, Archer and Leathwood (2003) focused on the extent to which ethnic minority students actually do fit in at universities and the degree to which 'academia' is foreign to them. They reported that the presence of students of a similar age, class, gender or ethnicity was not necessarily sufficient to make them feel comfortable in the university environment, and thus to make them feel like they 'belong'. Moreover, in this study the 'non-traditional' students in terms of class, maturity and ethnicity felt most alienated by academic culture itself. Apparently, students who come from backgrounds where there is little history of participation in higher education can find academic culture particularly bewildering, and may lack the support and guidance that comes from having friends or family that have been through the experience of attending university. Zepke and Leach (2005) argue that these students often experience 'a lack of socialization', 'alienation', 'difficulty making friends', and 'feeling homesick', which causes them to feel that they do not belong.

It has been demonstrated that the prevailing climate within an institution has an impact on student outcomes. Studies investigating drop-outs have shown that for ethnic minority students in particular, feeling like one does not belong (often referred to in terms of 'not fitting in') is an important reason for dropping out (Just, 1999; Swail et al., 2003; Zea, Reisen, Beil, & Caplan, 1997). Hurtado and Carter (1997) found that a hostile climate had a negative influence on Latino students' sense of belonging. Just also argues that the perception of a hostile climate on campus can directly affect minority students' sense of belonging, which subsequently can have an impact on their performance.

In studies which have investigated students' sense of belonging in relation to their study progress and persistence in higher education, the theoretical framework has often been based on the concept of *institutional habitus* (Berger, 2000; Thomas, 2002; Zepke, Leach, & Prebble, 2006). According to Berger each campus is composed of students who generally share a common habitus which to some extent is congruent with the organizational habitus of that institution. Berger theorizes that students who already share routinized behavior preferences, or who are particularly adept at reading normative cues, are more likely to easily make the adjustments necessary to fit in with the dominant peer group(s). The similarity of shared backgrounds, aspirations, and attitudes among students who constitute the dominant majority on campus probably makes it easier for these students to

adapt to campus life, whereas adaptation is likely to be more difficult for those who come from different backgrounds. Thomas states that institutional culture can make learners feel like fish in water or fish out of water. In other words, if students feel that they do not fit in, that their social and cultural practices are inappropriate, and that their tacit knowledge is undervalued, they may be more inclined to withdraw early (i.e., they feel like fish out of water). This line of thinking is confirmed in the previously mentioned study by Zepke et al., in which students reported that feeling they did not belong was an important reason for considering withdrawal.

The conclusion from this area of research is that ethnic minority students appear to feel less at home in their educational programs compared to majority students, and that this feeling may result in negative student outcomes, such as poor study progress and early withdrawal.

The link between a sense of belonging and interaction

Given these two theoretical frameworks (i.e., the work of Tinto (1993, 1997, 1998) and the literature on sense of belonging) and their respective empirical support, the question can then be asked as in what ways the concept of sense of belonging on the one hand and quality of interactions on the other hand are interrelated. In their study on sense of belonging, Johnson et al. (2007) argued that positive peer and faculty interaction influences students' sense of belonging by making complex environments feel more socially and academically supportive. The results of their study, however, did not confirm this argument. On the other hand, Hoffman, Richmond, Morrow and Salomone (2003) were able to identify a positive relationship between supportive faculty interactions in both academic and social environments, and students' subsequent sense of belonging. Furthermore, participation in extracurricular activities and membership in campus sub-environments were found to contribute to students' sense of belonging in a study by Hurtado and Carter (1997). Based on these findings, it might be expected that teacher and peer interactions possibly form antecedents of students' sense of belonging. Additionally, some studies have shown that a sense of belonging is more vital for minority students (Just, 1999; Swail et al., 2003; Zea et al., 1997). This could imply that the interrelationships between teacher and peer interaction, sense of belonging and study success may be different for minority and majority students.

The learning environment

In addition to examining links between interaction and sense of belonging and finding out whether sense of belonging explains study progress to a greater extent, the present study aims to follow up on a question left unanswered in our former study (Severiens & Wolff, 2008). This question concerns the role of the learning environment. Given the possible

importance of sense of belonging and peer and teacher interaction with regard to study success, it is relevant to examine stimulating factors in the learning environment. What type of learning environment enhances feelings of belonging? And what type of learning environment fosters quality interactions among students and between students and their teachers?

The link between the learning environment, interaction, sense of belonging and study success

Most studies examining the link between the learning environment on the one hand and sense of belonging or quality interactions on the other hand show that learning environments that can be characterized as activating and (or) cooperative environments, help students to integrate, experience a sense of belonging and achieve good study results. For example, in their study about learner centeredness and student retention, Zepke et al. (2006) showed how learner-centered education improves retention and completion rates. Their study confirmed earlier findings by Yorke and Thomas (2003). Learner centeredness is described in terms of high quality teaching in general and catering to diverse learning preferences. In other words, for the learning environment to stimulate retention, it should adapt to the diverse backgrounds of students.

Braxton et al. (2000) have studied the relationship between active learning behavior in the classroom on the one hand, and social integration (measured by peer group relations and out-of-class interactions with faculty members), involvement, and the decision to continue studying on the other hand. Their descriptive study showed that active learning behavior indeed fosters social integration. Moreover, social integration was positively related to students' decisions to remain in their chosen program. Prince (2004) conducted a study that focused on the relationship between activating learning environments and interaction. This study reported that active learning (i.e., collaborative and cooperative learning) promoted the quality of social interaction. The same was found by Johnson, Johnson and Smith (1998). In a study by Umbach and Wawryzinski (2005) it similarly was concluded that at institutions where faculty members use active and collaborative learning techniques, levels of engagement and student learning were higher.

The main conclusion from this short overview is that activating and cooperative learning environments foster peer and faculty interaction, and in turn, that this interaction positively affects generic learning outcomes such as levels of engagement and the decision to continue studying. In a similar vein, activating learning environments seem also to promote a sense of belonging as well as retention. What we do not know, is whether activating learning environments stimulate peer and teacher interaction and sense of belonging in a similar way, or to a similar extent, in groups of students from different ethnic backgrounds.

Aim of the present study

Figure 1 summarizes the research literature regarding the links between the learning environment, teacher and peer interactions, sense of belonging and study success. The present study aims to examine these links, as well as possible differences between students from different ethnic backgrounds. First, the theoretical model (see Figure 1) will be tested in the full sample. Next, the model will be tested in groups of ethnic minority and majority students.

Based on the literature, all relationships in the model are hypothesized to be positive. In addition, some of the studies suggest that high levels of sense of belonging, as well as peer and teacher interactions, may be more important for minority students (Eimers & Pike, 1997; Just, 1999; Swail et al., 2003; Zea et al., 1997). Therefore, it is expected that the relationships in the model as tested in the group of minority students will be stronger than the relationships in the group of majority students.

The research questions are the following:

1) To what extent can the positive links between the learning environment, peer and teacher interactions, sense of belonging and study success as described in the theoretical model be confirmed?
2) Does the model hold true for both the group of minority students and the group of majority students? And if not, are the relationships different in a group of minority students compared to the relationships in a group of majority students?

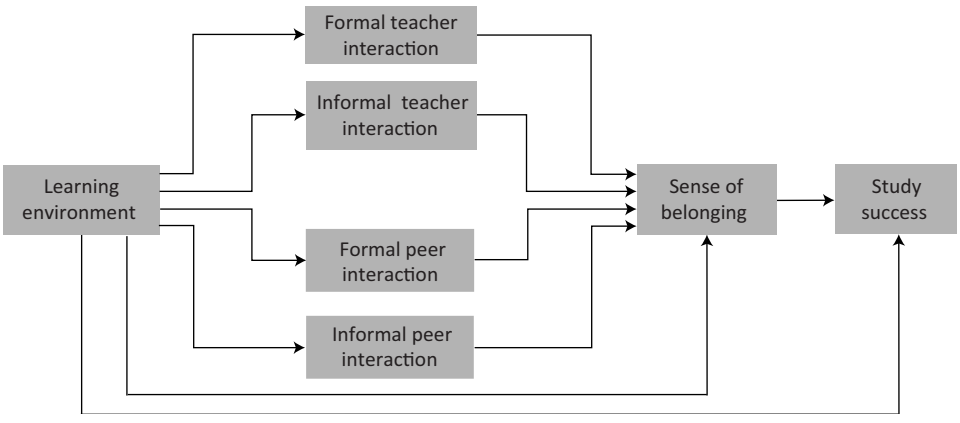

Figure 1 | Theoretical model

Method

Participants and procedure

The participants were 523 first year university students from four different universities in the Netherlands (145 ethnic minority students and 378 majority students). Each participant completed an online version of a questionnaire measuring quality of interactions, sense of belonging and the type of learning environment. The response rate was 33%. Background information on these students is provided in Table 1. Our former paper (Severiens & Wolff, 2008) made use of data collected in the same empirical study. That paper investigated the links between quality of interactions and three indicators of quality of learning. The present paper expands on this previous study by including sense of belonging and the learning environment in an attempt to increase the explanatory power of the model.

First-year students were chosen because the drop-out rate between the first and second year is relatively high, namely approximately ten percent. First-year students thus provide the most varied picture of students in higher education.

The distinction between majority and minority students was made on the basis of the definition used by Statistics Netherlands (CBS). According to CBS an individual belongs to an ethnic minority group if at least one parent was born outside the Netherlands. Most minority students in our sample belong to a non-Western minority group, as they or their parents were born in Surinam, Turkey, the Netherlands Antilles or Morocco. Because these sub-groups were represented by relatively small samples – varying from nine to 27 – it was not possible to compare the individual ethnic groups with each other.

Measures

Based on previous research on activating learning environments (Braxton et al., 2000), a scale was constructed to measure the extent to which a learning environment is activating. Items measuring the type of teaching (e.g., 'how often did you have to work cooperatively in small groups of students in the last year?'), type of exams (e.g., 'how often did you take open-ended exams in the last year?') and teacher's behavior (e.g., 'teachers make us think about how to study') were included. Students were asked to rate each of the items on a 5-point Likert scale ranging from 1 *(never)* to 5 *(very often)*. This eight-item scale yielded an average of 3.00, with a standard deviation of .67 (see Table 2 for the scores of ethnic minority and majority students) and a Cronbach's alpha of .67.

The operational definition of teacher and peer interactions was based on an earlier qualitative study conducted in the Netherlands (Severiens et al., 2006), in which 138 students (ethnic minority as well as majority students) were interviewed and asked about their social and academic experiences in different periods during their study. In order to create a valid and reliable instrument in the context of Dutch Higher Education, excerpts

Table 1 | Participant background information (*N* = 523)

	no.	%
Gender		
Male	161	30.8
Female	361	69.0
Missing	1	.2
Ethnicity		
Majority	378	72.3
Western minority	55	10.5
Non-Western minority	90	17.2
Country of origin		
Netherlands	378	72.3
Morocco	9	1.7
Turkey	11	2.1
Surinam	27	5.2
Netherlands Antilles/ Aruba	10	1.9
Other (non-)Western countries	88	16.8
Gender*ethnicity		
Majority male	117	22.4
Majority female	260	49.7
Minority male	44	8.4
Minority female	101	19.3
Missing	1	0.2

from these interviews were used to develop four sets of items measuring formal and informal interactions with teachers and peers (Severiens et al.). Students were asked to rate each of the items on a 5-point Likert scale ranging from 1 *(not true at all)* to 5 *(completely true)*. The formal teacher interaction scale consisted of seven items, with an average scale score of 2.71, a standard deviation of .73 (see Table 2) and a Cronbach's alpha of .72. Informal interaction with teachers is measured with eight items. This scale yielded an average of 2.25, with a standard deviation of .75 and a Cronbach's alpha of .80. The formal peer interaction scale (*k* = 8) yielded an average of 3.47, with a standard deviation of .62 and

a Cronbach's alpha of .79. The scale measuring informal interaction with peers consisted of five items. The average scale score was 3.71, the standard deviation was .83 and the Cronbach's alpha was .87. In Table 3 all scale items are presented.

Table 2 | Means and standard deviations of the variables in the model

Scale	Respondents	M	SD	t (minority-majority)
Learning environment (*k* = 8)	Total group (*N* = 523)	3.00	.67	
	Ethnic minority students (*N* = 145)	3.08	.63	
	Majority students (*N* = 378)	2.97	.68	
				Ns
Formal teacher interaction (*k* = 7)	Total group (*N* = 523)	2.71	.73	
	Ethnic minority students (*N* = 145)	2.70	.78	
	Majority students (*N* = 378)	2.71	.71	
				Ns
Informal teacher interaction (*k* = 8)	Total group (*N* = 523)	2.25	.75	
	Ethnic minority students (*N* = 145)	2.26	.76	
	Majority students (*N* = 378)	2.24	.75	
				Ns
Formal peer interaction (*k* = 8)	Total group (*N* = 523)	3.47	.62	
	Ethnic minority students (*N* = 145)	3.40	.66	
	Majority students (*N* = 378)	3.50	.60	
				Ns
Informal peer interaction (*k* = 5)	Total group (*N* = 523)	3.71	.83	
	Ethnic minority students (*N* = 145)	3.69	.87	
	Majority students (*N* = 378)	3.72	.82	
				Ns
Sense of belonging (*k* = 6)	Total group (*N* = 523)	3.70	.70	
	Ethnic minority students (*N* = 145)	3.62	.74	
	Majority students (*N* = 378)	3.73	.68	
				Ns
Study progress (credits)	Total group (*N* = 523)	45.09	17.96	
	Ethnic minority students (*N* = 145)	41.53	18.01	
	Majority students (*N* = 378)	46.45	17.77	
				2.85**

Note. Type of learning environment, formal teacher interaction, informal teacher interaction, formal peer interaction, informal peer interaction and sense of belonging were measured on a five-point scale. Credits were measured on a scale from 0-60.

**$p < .01$

Table 3 | Items of teacher and peer interaction (formal and informal) scales

Scale	Items
Formal teacher interaction (*k* = 7)	*Interaction between teachers and students on university and study-related matters* Teachers approach me to enquire about my study progress. Teachers are available for their students. Teachers know my qualities. Teachers have time to answer questions. Teachers don't realize when you have a question (reverse scored). My contacts with teachers have a positive influence on my academic performance. I learn a lot from the teachers at this institution.
Informal teacher interaction (*k* = 8)	*Interaction between teachers and students concerning personal matters* Teachers are not interested in my personal situation (reverse scored). Teachers tell me about themselves. Teachers say hello when we meet on campus. Teachers don't know much about my personal situation (reverse scored). Teachers know my name. Teachers never ask me how things are going at home (reverse scored). I talk about my personal situation with teachers. I have good personal contacts with at least one teacher.
Formal peer interaction (*k* = 8)	*Interaction among students regarding university and study-related matters* Fellow students invite me to work together on school tasks. It is difficult to find a group of students to collaborate with (reverse scored). In this program, students work on their own. Peer students approach me to discuss study tasks. Peer students do not appreciate my feedback (reverse scored). Peer students listen to my remarks. I collaborate well with fellow students. My interpersonal relationships with fellow students have a positive influence on my study performance.
Informal peer interaction (*k* = 5)	*Interaction among students regarding personal matters* I hardly know anyone here (reverse scored). Fellow students are interested in me. Fellow students often ask me to spend time with them. Peer students are involved with me. I have close interpersonal relationships with fellow students.

Students' sense of belonging was measured using a six item scale developed for this study. Item examples are 'I feel at home at this university' and 'I enjoy the atmosphere at this university'. Students were asked to rate each of the items on a 5-point Likert scale ranging from 1 *(not true at all)* to 5 *(completely true)*. This scale yielded an average of 3.70, with a standard deviation of .70 and a Cronbach's alpha of .76.

Study success was indicated by study progress. From previous research it is known that 'the number of credits earned' is an appropriate measure for students' study progress in the Netherlands (Beekhoven et al., 2002; Van den Berg & Hofman 2005). Therefore, study progress was measured by the number of credits (varying from 0-60) students had earned after one year of study. This information was obtained from the academic records of the universities.

Method of analysis

The research questions were answered using linear structural modeling analyses using Amos (Arbuckle & Wothke, 1999). This method makes it possible to test specific hypotheses about the relationships between the relevant variables. Amos provides a number of relevant statistics, including a chi-square statistic (χ^2) that can be used to test whether the empirical data sufficiently fit a proposed theoretical model. It has generally been accepted that χ^2 should be expressed relative to the corresponding degrees of freedom. Among others, Carmines and McIver (1981) suggested that, before rejecting a model as ill-fitting, χ^2 should be two or three times greater than the degrees of freedom (Punnett & Van der Beek, 2000). In addition, other statistics have been developed for the evaluation of a particular model. Next to χ^2, we used the comparative fit index (CFI), with a cut-off value of > .95 (Hu & Bentler, 1999) and the root mean square error of approximation (RMSEA), with guidelines proposed by MacCallum, Browne and Sugaware (1996). RMSEA values of less than .05 indicate a close fit, values ranging from .05 to .08 indicate a fair fit, values from .08 to .10 indicate a mediocre fit, and values greater than .10 indicate a poor fit between the observed data and the specified theoretical model.

Results

Linear structural modeling analyses were used to determine the interrelationships between the learning environment, the four types of *interaction*, students' sense of belonging and their study progress as described in Figure 1.

As we are interested in the unique contribution of each of the four types of interaction, we allowed for the error-covariances between all four *measures* to *covary*. The results for this hypothesized model were χ^2 = 10.38, *df* = 4, *p* = .03; *CFI* = 1.00; *RMSEA* = .06. On the basis of the chi-square, the hypothesized model is rejected. However, the other fit measures indicate a fair fit. To improve the model, the non-significant relationship between learning environment and credits was eliminated. This resulted in a close fit based on all fit measures (Figure 2). The results were χ^2 = 10.80, *df* = 5, *p* = .06; *CFI* = 1.00; *RMSEA* = .05 (see Table 4 for standardized regression coefficients).

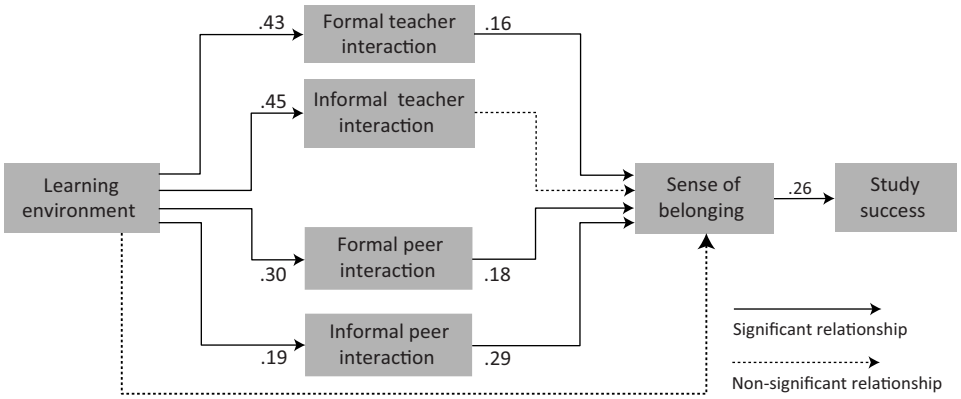

Figure 2 | Accepted model with statistically significant coefficients for total group of participants (*N* = 523; χ^2 = 10.80, *df* = 5, *p* = .06; *CFI* =1.00; *RMSEA* = .05)

Given the focus on possible differences between ethnic minority and majority students, it was tested whether the results obtained from the full sample fit the group of ethnic minority students and the group of majority students separately.

First, the model was tested for ethnic minority students[2]. The accepted model for the total group of students (*N* = 523) fit the group of minority students (*N* = 145) well and could be accepted: χ^2 = 3.41, *df* = 5, *p* = .64. Furthermore, RMSEA is .00 and the CFI is 1.00. The model explained two percent of variance in study progress. Figure 3 shows the paths in the model for ethnic minority students. The statistically significant paths were from (see also Table 4):

- learning environment to formal teacher interaction (standardized coefficient of .42);
- learning environment to informal teacher interaction (standardized coefficient of .42);
- learning environment to formal peer interaction (standardized coefficient of .27);
- formal teacher interaction to sense of belonging (standardized coefficient of .28);
- formal peer interaction to sense of belonging (standardized coefficient of .36).

The model showed that the more activating the learning environment is the more minority students have high quality formal relationships with their teachers. An activating learning environment also had a positive impact on minority students' informal contacts with their

[2] Both the model for Western minority students as well as the model for non-Western minority students appeared to fit the data well. Subsequently, a multiple group analysis revealed that the magnitude and direction of the hypothesized relationships were invariant across both ethnic groups. Given these results, we concluded that the model generalizes across Western ethnic minority students and non-Western ethnic minority students. Therefore, the group of Western minority students and the group of non-Western minority students were joined together in a group of ethnic minority students (*N* = 145) in the present study.

teachers. The quality of collaborative work with fellow students was positively influenced by a more activating learning environment. The extent to which minority students feel at home at the institution was only influenced by the formal forms of interaction. The better the formal contacts with teachers and fellow students, the more minority students felt they belonged at the institution. Yet, what was remarkable in the accepted model for minority students was that their study progress could not be predicted from the learning environment nor from their sense of belonging. It thus appeared that the extent to which minority students felt that they belonged at the institution did not have any consequence for their study progress.

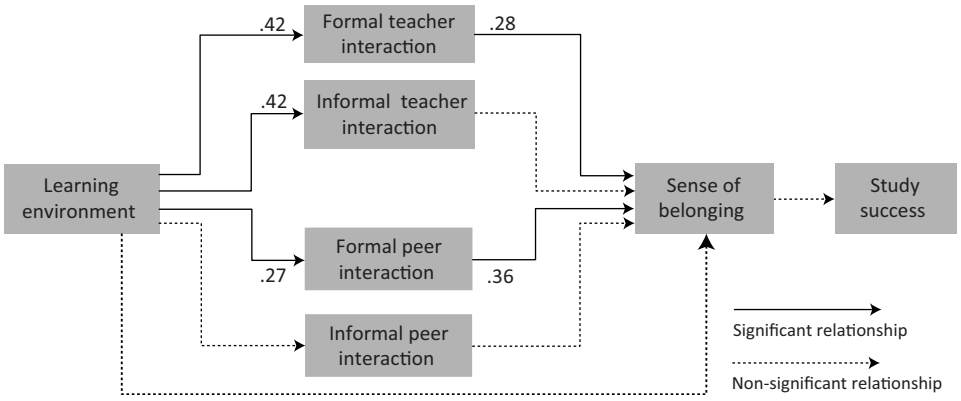

Figure 3 | Accepted model for ethnic minority students (N = 145; χ^2 = 3.41, df = 5, p = .64; *CFI* = 1.00; *RMSEA* = .00)

Second, the model was tested for the group of majority students. The accepted model for the total group (N = 523) of students (which also closely fit in the group of ethnic minority students separately) did not fit the group of majority students (N = 378) well and could not be accepted: χ^2 = 14.75, df = 5, p = .01; *CFI* = .99; *RMSEA* = .07. Modification indices thereafter suggested that a link should be included between informal teacher interaction and credits to obtain a model fit. This resulted in a model with a fair fit: χ^2 = 8.68, df = 4, p = .07; *CFI* = 1.00; *RMSEA* = .06. To improve the model, the non-significant relationship between informal teacher interaction and sense of belonging was eliminated. This amendment indeed resulted in a model with a close fit: χ^2 = 9.25, df = 5, p = .10; *CFI* = 1.00; *RMSEA* = .05 (see Figure 4).

The model explained eleven percent of variance in study progress. The statistically significant paths were from (see also Table 4):

- learning environment to formal teacher interaction (standardized coefficient of .44);
- learning environment to informal teacher interaction (standardized coefficient of .47);
- learning environment to formal peer interaction (standardized coefficient of .32);
- learning environment to informal peer interaction (standardized coefficient of .22);
- informal peer interaction to sense of belonging (standardized coefficient of .39);
- informal teacher interaction to credits (standardized coefficient of -.12);
- sense of belonging to credits (standardized coefficient of .34).

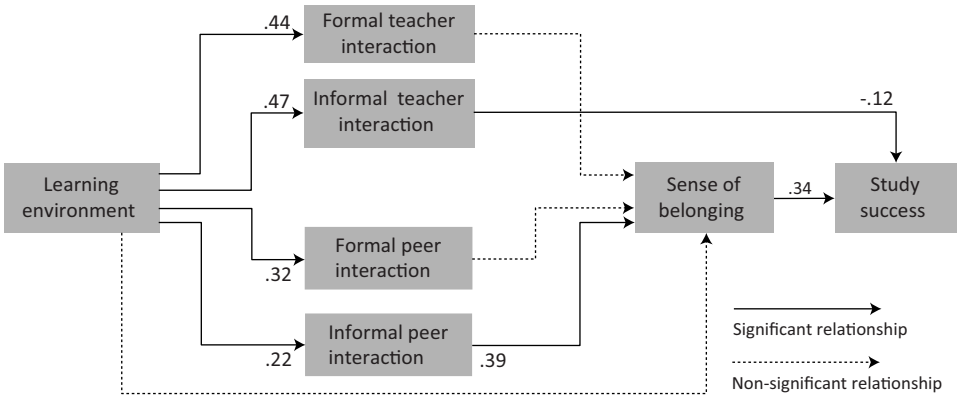

Figure 4 | Accepted model for majority students (N = 378; χ^2 = 9.25, df = 5, p = .10; *CFI* =1.00; *RMSEA* = .05)

As for minority students, the model for the majority students showed that the more activating the learning environment is, the more majority students had high-quality formal contacts with their teachers as well as informal contacts with their teachers. The quality of collaborative work with fellow students was positively influenced by a more activating learning environment. The learning environment also influenced the quality of informal contacts with fellow students in the case of majority students. The more activating the learning environment, the better majority students' contacts with their fellow students were. The extent to which majority students felt at home at the institution was only influenced by informal social interaction. The better the quality of informal contacts with fellow students, the more majority students felt they belonged at the institution. The study progress of

majority students could be predicted based on their sense of belonging. The more majority students felt that they belonged at the institution, the more credits they earned. Their study progress was also influenced by the informal relationships with teachers but in a negative way (see the negative path from informal teacher interaction to study progress). This means that, on average, majority students who reported informal interactions with their teachers earned fewer credits than students who did not report such interactions.

Table 4 | Standardized regression coefficients of the models of the total group of students, ethnic minority students and ethnic majority students

	All students (*N* = 523)	**Ethnic minorities (*N* = 145)**	**Ethnic majorities (*N* = 378)**
Learning environment > Formal teacher interaction	.43	.42	.44
Learning environment > Informal teacher interaction	.45	.42	.47
Learning environment > Formal peer interaction	.30	.27	.32
Learning environment > Informal peer interaction[a]	.19	.12	.22
Formal teacher interaction > Sense of belonging[b]	.16	.28	.07
Informal teacher interaction > Sense of belonging[c,1]	-.075	-.13	-
Formal peer interaction > Sense of belonging[d]	.18	.36	.08
Informal peer interaction n > Sense of belonging[e]	.29	.11	.39
Learning environment > Sense of belonging[f]	.077	.13	.06
Sense of belonging > Study progress[g]	.26	.13	.34
Informal teacher integration > Study progress[2]	-	-	-.12

Notes: [a] Tested relationship was not significant for ethnic minority students ($p < .05$)
[b] Tested relationship was not significant for majority students ($p < .05$)
[c] Tested relationship was not significant in the model for all students and ethnic minority students ($p < .05$)
[d] Tested relationship was not significant for majority students ($p < .05$)
[e] Tested relationship was not significant for ethnic minority students ($p < .05$)
[f] Tested relationship was not significant in any of the models ($p < .05$)
[g] Tested relationship was not significant for ethnic minority students ($p < .05$)
[1] This arrow was not drawn in the model for majority students
[2] This arrow was not drawn in the full sample model and the model for ethnic minority students

Discussion

In a previous study (Severiens & Wolff, 2008), a model was tested that describes a direct link between four forms of interaction on the one hand and three indicators of quality of learning on the other hand. To follow up on these findings, we first investigated whether sense of belonging did explain study progress in the group of minority students in this study. We expected that formal and informal peer and teacher interactions would be possible

antecedents of students' sense of belonging, based on findings by Hoffman et al. (2003) and Hurtado and Carter (1997). Secondly, the role of the learning environment was investigated as well. From previous research it is known that, in general, learning environments that can be characterized as activating and (or) cooperative, help students integrate (Braxton et al., 2000; Johnson et al., 1998; Prince, 2004), help them feel they belong (Umbach & Wawrzynski, 2005) and achieve good study results (Yorke & Thomas, 2003; Zepke et al., 2006). From this earlier research, we developed the theoretical model as presented in Figure 1. The present study investigated the relationships between these factors, and possible differences between students from different ethnic backgrounds.

Aside from one link in the model (the direct relationship between learning environment and credits), the model fit the data well. This model was accepted for the total group of students (N = 523), thereby answering our first research question positively, namely that positive relationships between the learning environment, peer and teacher interactions, sense of belonging and study success could be identified. To answer our second research question, that is whether the model hold true for both ethnic minority as well as ethnic majority students separately, the full sample model was tested in the group of ethnic minority students and in the group of majority students separately. The results showed that the model that describes the relationships in the group of ethnic minority students is not the same as the model that fits the group of majority students. Ethnic minority students appeared to feel at home in their educational program if they have good formal relationships with teachers and fellow students. The extent to which ethnic minority students felt they belonged at the institution, however, appeared not to influence their study progress. Ethnic majority students' sense of belonging on the other hand was not fostered by any formal relationships. Instead, the better the informal contacts with fellow students were, the more majority students felt at home. Moreover, sense of belonging in the group of majority students furthered their study progress. Their study progress was also influenced by the informal relationships with teachers, but in a negative way. This result was already observed in the study of Severiens and Wolff (2008). As Severiens and Wolff theorized, it is not unlikely that this relationship should be interpreted the other way around: teachers approach majority students with lower grades more often than they approach students who perform well.

What was confirmed by the present study was our expectation that teacher and peer interactions were antecedents of students' sense of belonging, and that the interrelationships between interaction, sense of belonging and study success are different for minority students compared to their majority counterparts. However, the present study showed that the extent to which a learning environment was activating did not influence students' sense of belonging directly. An activating learning environment did foster quality interactions among students and between students and their teachers. Different forms of

interactions then led to a sense of belonging on the part of ethnic minority and majority students. Sense of belonging only appeared to influence students' study progress among the majority students.

Limitations

The present study has several limitations. First, sense of belonging was measured with a six-item scale developed for the present study. The fact that we found no differences between ethnic minority and majority students' sense of belonging (see Table 2), contrary to previous research (Hurtado, 1994; Hurtado & Carter, 1997; Johnson et al., 2007; Read et al., 2003; Zepke & Leach, 2005), makes us wonder if the scale was appropriate. It is possible that the concept of sense of belonging is more complex than we assumed. Johnson et al. argue for example that sense of belonging as a theoretical construct has not been well studied and is inconsistently defined in the higher education literature. An interesting topic for future research might be to investigate the concept of sense of belonging further. A qualitative study can show the meaning of sense of belonging in the context of Dutch higher education.

A second limitation concerns the relatively small number of ethnic minority participants from the different countries of origin. This made it impossible to examine the results of these different ethnic groups separately. It must therefore be kept in mind that the results as observed in the present study may not apply to each group in our study.

Implications for research and practice

The present findings have several implications for future research on differences in study progress between ethnic minority and majority students. It is known that ethnic minority students make less study progress than majority students (Crul & Wolff, 2002; Van den Berg, 2002). However, the reason for this is still unknown. In our previous study (Severiens & Wolff, 2008) we learned that peer and teacher interactions appear not to affect the study progress of ethnic minority students. The results of the present study add to this finding that ethnic minority students' study progress appears not to be influenced by the activating character of the program or by the extent to which they feel they belong in the educational program. Therefore, it is still unclear what factors do directly affect the study progress of ethnic minority students. An interesting topic for future research would be to look more closely at the lives of different students. Are there differences between ethnic minority and majority students' life domains and the extent to which these domains interrelate? It is, for example, imaginable that ethnic minority students have to spend more time working during their studies compared to majority students and that this results in a work-study conflict. This in turn might reduce study progress and ultimately lead to withdrawal from higher education.

The findings presented here have practical implications for higher education in the Netherlands. For both majority and minority students, activating learning environments contribute to their levels of peer and teacher interactions. For ethnic minority students, formal relationships seem to be crucial to their sense of belonging at the institution. It is up to the institutions to promote these formal relationships between students and teachers and among students. For majority students, informal relationships with peers are of considerable importance to their sense of belonging. Since their feeling of belonging influences their study progress, it is important to enable majority students to develop such informal relationships within the institution.

Chapter 3

The family-study interface and academic outcomes: Testing a structural model*

* This chapter was published as:
Meeuwisse, M., Born, M. Ph., & Severiens, S. E. (2011). The family-study interface and academic outcomes: Testing a structural model. *Journal of Educational Psychology, 103*(4), 982-990.
The study in this chapter was also presented at the 14th biennial conference of the European Association for Research on Learning and Instruction (EARLI), Exeter, UK, August 2011.

Abstract

Expanding on family-work and work-study models, this article investigated a model for family-study conflict and family-study facilitation. The focus of the study was the relationship of family-study conflict and family-study facilitation with students' effortful behaviors and academic performance among a sample of university students (*N* = 1,656). Model tests using structural equation modeling identified participation in family activities, family social support and involvement with family as antecedents of both family-study conflict and family-study facilitation. In turn, family-study conflict was negatively related to study effort, and family-study facilitation positively contributed to students' study effort. Effort positively predicted students' grade point average.

Introduction

School is an important realm of students' lives. However, student jobs have become a major activity as well (Butler, 2007; Derous & Ryan, 2008; Fox, Connolly, & Snyder, 2005). Statistics of the U.S. Department of Education, National Center for Education Statistics (2002), showed that of college students enrolled at 4-year institutions in 2000, 77% were employed, working an average of 27 hr per week. Besides work, students also spend time with their families and are involved in leisure activities (e.g., spending time with friends, sports). As a consequence, students need to combine their role as a student with their roles as an employee, family member and friend. Combining multiple roles can result in conflict between as well as facilitation of these roles. In the present study, we focus on the possible interface between students' family role and their role as a student and whether this family-study conflict and family-study facilitation affect the academic outcomes of students in higher education.

Inter-role conflict and facilitation

In recent decades, many studies have been conducted on the combination of work and family roles. These studies have predominantly investigated the negative aspects of combining both roles (i.e., work-family conflict; Byron, 2005; Ford, Heinen, & Langkamer, 2007; Frone, Russell, & Cooper, 1992; Greenhaus & Beutell, 1985). The underlying assumption of these studies typically has been that the work role is made more difficult by the family role and vice versa. When the demands of one role are incompatible with the demands of another, tension in the form of inter-role conflict may be experienced (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964). In their seminal work describing inter-role conflict between work and family, Greenhaus and Beutell identified time, strain and required behavior as three forms of conflict between both domains. They argued that time spent on activities from one role generally can not be devoted to activities from another role, which may result in time-based conflict between life domains. For example, excessive family time may make it difficult to fulfill work responsibilities. Strain-based conflict exists when strain in one role affects one's performance in another, in the sense that the strain created by one role makes it difficult to live up to the demands of the other. More specifically, irritability and anxiety at work may interfere with family duties and vice versa. Greenhaus and Beutell viewed behavior-based conflict as specific patterns of in-role behavior (e.g., aggressiveness at work) that are incompatible with the behavioral expectations of another role (e.g., warmth at home). If individuals are unable to adjust behavior to live up to the expectations of different roles, they will experience role conflict.

It has been proposed that, in contrast to the assumption of conflicting life domains, combining multiple roles may also have a positive side. The idea of the benefits of engaging

in multiple roles originated from earlier work by Sieber (1974) and others (e.g., Marks, 1977; Thoits, 1983). More recently, family-work theorists have begun to suggest that one role domain may offer resources that can be utilized in another domain, leading to inter-role facilitation or enrichment (Butler, 2007; Carlson, Kacmar, Wayne, & Grzywacz, 2006; Greenhaus & Powell, 2006; Grzywacz & Butler, 2005; Wayne, Grzywacz, Carlson, & Kacmar, 2007). Greenhaus and Powell stated that resources generated in one role may enrich experiences in other roles through instrumental means (e.g., skills developed at home can subsequently be used at work), which will then enhance performance in that role, or through affective means (e.g., participation in the family can create energy that will enhance experiences in the work role), which enhances role-related positive emotions. Supporting this line of thinking, it has been established that conflict and facilitation are distinct constructs, that can be experienced by an individual at the same time (cf. Carlson et al., 2006; Grzywacz & Butler; Van Steenbergen, Ellemers, & Mooijaart, 2007) instead of being bipolar ends of a single continuum.

Another development in research on multiple roles is the extension of the work-family interface to the work-school interface (Butler, 2007; Markel & Frone, 1998). These studies empirically determined that several job characteristics – for example workload (Markel & Frone), job demands (Butler) and number of work hours (Butler; Markel & Frone) – increased work-school conflict, which in turn negatively affected academic performance. Butler was one of the first to study inter-role facilitation between work and the school domain. In line with the research by Greenhaus and Powell (2006), Butler found that students' academic performance and school satisfaction were indeed predicted by work-school facilitation.

From previous research on factors contributing to student success, it is known that students' family plays an important role in obtaining good study results (Herndon & Hirt, 2004; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Herndon and Hirt for example demonstrated that the family of students and their contact with the family (e.g., parents, siblings) is key to educational attainment. For this reason, in addition to the work domain as studied by Butler (2007) and Markel and Frone (1998), the family domain may also be a key domain in the lives of students. Similar to the work-school interface, students need to combine the role of student with the role of family member. It can therefore be expected that the processes of conflict and facilitation also operate between the family and study domains. However, as far as we know, no research has yet been conducted on this family-school interface. In the present study, therefore, the focus is on possible conflict and facilitation between the family role and student role and what this means for students' academic outcomes. It is important to note that in the work-family domain, family generally refers to the spouse or children of respondents (Byron, 2005; Carlson et al., 2006; Ford et al., 2007; Frone et al., 1992). In students' lives, the scope of "family" is broader, because it may include parents, siblings and extended family members as well.

A model of the family-study interface

The conceptual model of the family-study interface guiding the present research is given in Figure 1. The family-study interface is defined as the extent to which family life affects the ability of students to meet study-related demands and responsibilities in both a positive (i.e., facilitation) and a negative (i.e., conflict) way. Because we are unaware of any systematic attempts to date to model the antecedents and outcomes of the family-study interface simultaneously, we drew on models of the work-school interface (Butler, 2007; Markel & Frone, 1998) and the work-family interface (Ford et al., 2007; Frone et al., 1992) in developing the present model.

In the following sections, possible antecedents of family-study conflict are described, followed by possible antecedents of family-study facilitation. Subsequently, the possible relationship of family-study conflict and family-study facilitation with students' effortful behaviors and grades (i.e., academic outcomes) is described.

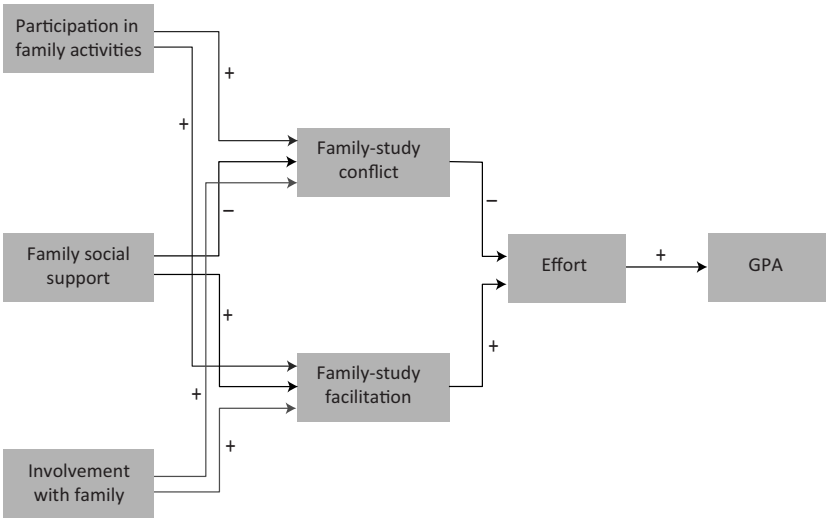

Figure 1 | Theoretical model of the family-study interface

Antecedents of family-study conflict

Here, three hypotheses regarding family-study conflict are presented. Each hypothesis is followed by an explanation from the theoretical framework and literature review.

Hypothesis 1: Participation in family activities is positively related to family-study conflict.

Greenhaus and Beutell (1985) argued that multiple roles may compete for a person's time. Many studies have focused on the work-family conflict (Baltes & Heydens-Gahir, 2003; Byron, 2005; Ford et al., 2007; Frone et al., 1992; Greenhaus & Beutell). Greenhaus and Beutell, for example, reported that family role characteristics (e.g., young children) that require a person to spend large amounts of time in family activities can produce work-family conflict. Household duties such as housework and childcare-related obligations are factors that can create time-based pressure from the family realm (Baltes & Heydens-Gahir; Frone et al.). Both Byron and Ford et al. conducted a meta-analysis concerning the family-work conflict. These researchers reported a positive relationship between family hours and family-work conflict.

In their study on work-school conflict, Markel and Frone (1998) found that the number of hours worked was positively related to the work-school conflict experienced by college and high school students. Similarly, in a sample of employed undergraduate students, Butler (2007) found a relationship between greater number of hours worked and higher levels of work-school conflict. Applying the research on the work-family conflict (Byron, 2005; Ford et al., 2007) and on the work-school conflict (Butler; Markel & Frone) to the family-study interface, we expect that participation in family activities is associated with increased family-study conflict, because time spent on family activities can not be devoted to studying (cf. Greenhaus & Beutell, 1985; Major, Klein, & Ehrhart, 2002).

Hypothesis 2: Family support is negatively related to family-study conflict.

Previous research has found a negative relationship between family social support and family-work conflict (Adams, King, & King, 1996; Baltes & Heydens-Gahir, 2003; Carlson, Kacmar, & Williams, 2000; Ford et al., 2007), implying that individuals with more supportive families experience less family-work conflict (Byron, 2005).

Such processes concerning family social support and family-work conflict are also expected to operate in the family-study domain. That is, a supportive family will not take students' time from their study, will not give the student a feeling that he or she falls short in the family role, and will better cope with differences in student's behavior at home and at the university.

Hypothesis 3: Family involvement is positively related to family-study conflict.

In addition to participation in family activities and family social support, a third potential antecedent of role conflict is role involvement (Loerch, Russell, & Rush, 1989). This refers

to the extent to which a specific role is central to an individual's self-concept (Greenhaus & Beutell, 1985). High levels of psychological involvement in one role may be associated with a higher level of time and effort devoted to that role, making it more difficult to react to the pressures associated with another role. Confirming this idea, Frone et al. (1992) identified a positive relationship between family involvement and family-to-work conflict. This relationship between family involvement and family interference with work was also found in a study by Adams et al. (1996).

In generalizing these findings from the family-work domain to the family-study domain, it can be expected that family involvement will be positively related to family-study conflict. In other words, students who are highly involved with their family will devote a higher level of time and effort to this family role in comparison to their role as a student, resulting in family-study conflict.

Antecedents of family-study facilitation

Here, three hypotheses regarding family-study facilitation are presented, each followed by an explanation of the reason for the particular hypothesis.

Hypothesis 4: Participation in family activities is positively related to family-study facilitation.

The idea that combining multiple roles also may have a positive side has only recently been given serious research attention. However, as far as we know, until now there has been no examination of whether participation in family activities can have a facilitating influence on study. Greenhaus and Powell (2006) stated that participation in the family can create energy that will enhance experiences in the work role. Following this line of reasoning, we hypothesized that participation in family activities positively affects family-study facilitation.

Hypothesis 5: Support by the family is positively related to family-study facilitation.

The few studies that have focused on facilitation between roles revealed that social support at work from co-workers and supervisors (i.e., giving assistance or advice) forms a resource that can enhance performance and well-being in the family (Frone, Yardly, & Markel, 1997). Vice versa, Grzywacz and Marks (2000) found that a lower level of positive spillover between family and work is associated with a lower level of spouse and other family affectual support. Along these lines, Wayne et al. (2007) argued that coworker and supervisor social support form resources that contribute to work-family facilitation. In line with these results, it is expected that support by the family will positively influence family-to-study facilitation.

Hypothesis 6: Family involvement is positively related to family-study facilitation.

In addition to support, another antecedent of facilitation that has been investigated is role involvement (Kirchmeyer, 1992). It was found that the more individuals perceive participation in a particular domain to be an integral part of their identity, the more positive spillover they experience between that life domain and another life domain. For example, individuals who were highly involved with their family reported more positive effects from family to work than did individuals who saw the family as less integral to their self-identity. On the basis of these results, it is expected that students' involvement with the family will positively influence family-to-study facilitation.

It is important to note that, based on earlier research on conflict and facilitation (Adams et al., 1996; Carlson et al., 2000; Frone et al., 1992; Kirchmeyer, 1992; Loerch et al., 1989), we expect that participation in family activities and role involvement may result in both conflict (Hypotheses 1 and 3) and facilitation (Hypotheses 4 and 6) between life domains, demonstrating that conflict and facilitation are distinct constructs (cf. Carlson et al., 2006; Grzywacz & Butler; Van Steenbergen, Ellemers, & Mooijaart, 2007).

Family-study conflict and family-study facilitation with respect to academic outcomes

Early research on school-related outcomes of work-school conflict has generally focused on a single outcome, such as school absence (Greenberger, Steinberg, & Vaux, 1981) or school misconduct (Mortimer, Finch, Shanahan, & Ryu, 1992). In more recent studies, multiple academic outcomes – such as school performance and school (dis)satisfaction (Butler, 2007; Markel & Frone, 1998) – have been examined. Similar to what is shown in Figure 1, our model outlines a set of hypothesized relations between two school-related outcomes (i.e., effort and academic performance). Because of a lack of relevant research on the intersection of family and school roles, the model predictions in the next three sections were informed by work-school research.

Hypothesis 7: Family-school conflict is negatively related to students' effortful behaviors.

Prior research on this work-school conflict involving samples of high school and undergraduate students is consistent with the proposition that work-school conflict will interfere with the performance of effortful behaviors at school, hindering academic performance (see e.g., Barling, Rogers, & Kelloway, 1995; Butler, 2007; Greenberger et al., 1981; Markel & Frone, 1998). In line with these findings, it is expected that family-study conflict will decrease students' effort at school.

Hypothesis 8: Family-study facilitation is positively related to students' effortful behaviors.

Butler (2007) found a positive relationship between work-school facilitation and academic performance (e.g., school effort). Because no prior studies have been found concerning possible family-study facilitation, our hypothesis is based on the findings by Butler with respect to work-school facilitation and academic outcomes.

Hypothesis 9: Effortful behaviors are positively related to academic performance.

Many studies have demonstrated that effort is a positive predictor of academic performance (Elliot, McGregor, & Gable, 1999; Hofman & Van den Berg, 2003; Markel & Frone, 1998). On the basis of these results, we hypothesized a positive relationship between effort and students' grade point average (GPA).

Method

Participants

Data were collected from 1,656 full-time university students attending a major 4-year university in the western part of the Netherlands in the spring of the 2007/2008 academic year. The participants represented two different fields of study: behavioral sciences (74%) and health sciences/ medicine (26%). Fifty-two percent of the participants were women, the average age was 22.18 years (*SD* = 2.76) and almost 80% of the participants belonged to the Dutch ethnic majority group. Nearly 55% of the participants were living with at least one family member (e.g., a parent, uncle, sister; see Table 1). The other participants were living alone or in student residences.

Procedure

Participants were solicited via the university's study information network and via an e-mail announcement. Each participant completed an online version of a questionnaire measuring conflict and facilitation between the family domain and the study domain, possible antecedents of conflict and facilitation, and academic outcomes. Participants provided their identification numbers so GPAs could be obtained from the official university records.

Measures

Table 2 presents the descriptive statistics (means and standard deviations) and zero-order correlations among all variables. Alpha reliability estimates ranged from .78 to .92 and are provided on the diagonal. All variables are scored such that a high score represents higher levels of the construct.

***Participation in family activities*.** This variable was assessed using 17 items asking respondents to report on the extent to which they participate in family activities (e.g., household duties for the family, spending time with family during the weekend; Ford et al., 2007; Kirchmeyer, 1992). A 5-point Likert scale ranging from 1 *(never)* to 5 *(always)* was used.

Table 1 | Participant background information (*N* = 1,656)

	Number	Percentage
Gender		
Male	784	47.3
Female	851	51.4
Missing	21	1.3
Ethnicity		
Dutch	1,314	79.3
Non-Western minority	342	20.7
Socioeconomic status		
Low	346	20.9
Medium	288	17.4
High	909	54.9
Missing	113	6.8
Living situation		
With parents (i.e., at home)	595	35.9
With a partner	246	14.9
With family other than parents and partner	43	2.6
Student room on/ near campus	604	36.5
Alone	128	7.7
Missing	40	2.4
Field of study		
Behavioral sciences	1,214	73.3
Health sciences/ medicine	429	25.9
Missing	13	0.8
Year of study		
First year	636	38.4
Second year	347	21.0
Third year	287	17.3
Fourth year	166	10.0
Fifth year or more	211	12.7
Missing	9	0.5

***Support by the family*.** Support by the family was measured using eight items adapted from the Perceived Social Support from the Family Scale (Procidano & Heller, 1983). Respondents were asked about the perceived support from their family (e.g., “My family helps me solve

my problems"). A 5-point Likert scale ranging from 1 *(not true at all)* to 5 *(completely true)* was used.

***Involvement with the family*.** Family involvement was assessed by modifying six out of nine job involvement items (Reeve & Smith, 2001) so that these referred to a respondent's family (e.g., "The most important things that happen to me involve my family"). Each family involvement item was measured on a 5-point response scale ranging from 1 *(not true at all)* to 5 *(completely true)*.

Family-study conflict. Time-based family interference with study was measured using six items developed for the current study, that were based on a three-item measure of time-based family interference with work (Carlson et al., 2000). All items reflect conflict from family to study (e.g., "The time I spend on family responsibilities interferes with my study responsibilities"). Strain-based family interference with study was measured using three items, which were modified from a measure of strain-based family interference with work (Carlson et al.). All items reflect conflict from family to study (e.g., "Due to stress because of family responsibilities, it is hard for me to concentrate on my schoolwork"). Behavior-based family interference with study was measured using four items developed for this study, that were based on a three-item measure of behavior-based family interference with work (Carlson et al.). All items reflect family-to-study conflict (e.g., "Behavior that is effective and necessary for me when I am with my family would be counterproductive at university"). The response scale for the items ranged from 1 *(not true at all)* to 5 *(completely true).* Given high intercorrelations between these three conflict scores (i.e., .50 to .71), exploratory factor analysis was used to investigate the likelihood of a composite conflict score. On the basis of eigenvalues, the scree plot, and percentage of explained variance it was decided that an aggregate family-study conflict variable was tenable. The family-study conflict variable was created by averaging the 13 family-to-study conflict variables.

Family-study facilitation. Instrumental family-study facilitation was assessed using three items modified from a measure of work-family facilitation (Grzywacz & Butler, 2005) so that they referred to possible family-study facilitation. All items reflect family-to-study facilitation (e.g., "The skills I use when I am with my family are useful for things I have to do at school"). Affective family-study facilitation was measured using five items developed for the current study, on the basis of a three-item measure of work-family facilitation (Butler, Grzywacz, Bass, & Linney, 2005) so that they referred to possible family-study facilitation. All items reflect affective family-to-study facilitation (e.g., "A good day with my family inspires me to perform well at university"). A 5-point Likert scale ranging from 1 *(not true at all)* to 5 *(completely true)* was used. Given the high intercorrelation between the two

Table 2 | Means, standard deviations, alpha coefficients, and correlations between all variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	1.52	.50	(-)													
2. Age	22.18	2.76	-.11**	(-)												
3. Ethnicity	1.21	.41	.11**	.05*	(-)											
4. SES	2.36	.83	-.06*	-.04	-.25**	(-)										
5. Living situation	1.45	.50	.01	.06*	-.12**	.12**	(-)									
6. Field of study	1.26	.44	.21**	-.11**	-.12**	.13**	.08**	(-)								
7. Year of study	2.37	1.41	-.03	.32**	.03	.01	.06*	.19**	(-)							
8. Support of family	3.76	.76	.20**	.01	.01	.07**	-.06*	.08**	.00	(.88)						
9. Involvement with family	3.85	.71	.15**	.03	.14**	-.02	-.12**	.02	.03	.72**	(.85)					
10. Participation in family activities	2.46	.63	.09**	-.10**	.23**	-.12**	-.27**	-.01	-.04	.39**	.40**	(.86)				
11. Family-study conflict	1.77	.69	-.05*	-.02	.16**	-.13**	-.08**	-.08**	-.01	-.13**	-.07**	.22**	(.92)			
12. Family-study facilitation	3.09	.78	.07**	-.03	.05	.05	.03	.03	-.03	.44**	.38**	.31**	.05*	(.87)		
13. Effort	3.71	.56	.22**	.06*	-.05*	-.01	-.11**	.06*	-.06*	.22**	.17**	.12**	-.22**	.22**	(.78)	
14. GPA	6.67	.67	.06*	-.02	-.11**	.03	-.07**	-.14**	-.09**	.00	-.01	.03	-.07**	.05	.25**	(-)

Note. Cronbach's alpha reliability coefficients are on the diagonal. The demographic variables were coded as follows: gender (1 = male, 2 = female), ethnic background (1 = ethnic majority student, 2 = ethnic minority student), ses (1 = low, 2 = medium, 3 = high), living situation (1 = with family, 2 = alone or with others than family), field of study (1 = Behavioral sciences, 2 = Health sciences/Medicine) and year of study (1 = first-year student, 2 = second-year student, 3 = third-year student, 4 = fourth-year student, 5 = fifth-year student or longer). Participation in family activities, family-study conflict, family-study facilitation, and effort were measured on a 5-point scale. GPA was measured from 1 to 10 (1 = lowest score, 10 = perfect score). *N* = 1,543-1,656 (variation due to missing values). SES = socioeconomic status, GPA = grade point average.

** $p < .01$ * $p < .05$

facilitation variables (i.e., .60), exploratory factor analysis was used to investigate the likelihood of a composite facilitation score. On the basis of eigenvalues, the scree plot, and percentage of explained variance, it was decided that an aggregate family-study facilitation variable was tenable. The family-study facilitation variable was created by averaging the eight family-to-study facilitation variables.

We followed Markel and Frone (1998) in that our model outlines a hypothesized causal relationship between school-related outcomes. For this reason, we did not use a composite measure of academic performance similar to that used by Butler (2007). Instead, we used the variables effort and grades as separate indicators of academic performance – with grades as our final dependent variable – as follows.

Effort. Effort was assessed using Butler's (2007) school effort measure, which consists of nine items (e.g., "I put forth a high level of effort in class"). The Likert response scale ranged from 1 *(never)* to 5 *(always)*.

Academic performance. The students' cumulative GPA served as a measure of academic performance. The data were obtained from the academic records of the university in the semester the data were collected, namely the second semester of the 2007/2008 academic year.

Control variables. Seven demographic variables were included as covariates in the model: gender (1 = male, 2 = female), age (in years), ethnic background (1 = ethnic majority student, 2 = ethnic minority student (i.e., at least one parent is born outside the Netherlands)), socioeconomic status (i.e., the highest educational level of one of the parents of the participants) (1 = low, 2 = medium, 3 = high), field of study (1 = Behavioral Sciences, 2 = Health Sciences/Medicine), year of study (1 = first-year student, 2 = second-year student, 3 = third-year student, 4 = fourth-year student and 5 = fifth-year student or longer) and student's living situation (1 = with family, 2 = alone or with others than family). All demographic variables were self-reported.

Analyses

The hypothesized structural equation model (see Figure 1) was estimated using linear structural modeling analyses (Arbuckle & Wothke, 1999). In addition to chi-square, we used the comparative fit index (CFI), with a cut-off value of > .95 (Hu & Bentler, 1999), and the root-mean-square error of approximation (RMSEA), with guidelines proposed by MacCallum, Browne and Sugawara (1996). RMSEA values of less than .05 indicate a close fit, values ranging from .05 to .08 a fair fit, values from .08 to .10 a mediocre fit and values exceeding .10 a poor fit between the observed data and the specified theoretical model.

Results

Preliminary analyses

Descriptive statistics, correlations, and reliability coefficients are presented in Table 2. It is important to note that students reported relatively low levels of family-study conflict (i.e., smaller than 2 on a 1-5 scale). The mean score for family-study facilitation is around 3, the midpoint of the scale. In other words, students more often experienced facilitation between their family lives and their lives as a student than conflict between these two domains.

Women perceived more family support (r = .20, p < .01), were more involved with their families (r = .15, p < .01) and participated more in family activities (r = .09, p < .05) than did men. They experienced less family-to-study conflict (r = -.05, p < .05) and more family-to-study facilitation (r = .07, p < .01) than did men. Women put more effort into their study (r = .22, p < .01) and had better study performance (r = .06, p < .05). Ethnic minority students were more involved with their family (r = .14, p < .01), participated more in family activities (r = .23, p < .01) and reported more family-study conflict (r = .16, p < .01) than did ethnic majority students. Ethnic majority students put more effort into their study (r = -.05, p < .05) and had better school performance (r = -.11, p < .01) compared with ethnic minority students.

Model fit was first assessed by comparing the conceptual model excluding covariates (see Figure 1) with the conceptual model including the covariates gender, age, ethnicity, socioeconomic status, living situation, field of study, and year of study. The analysis revealed that the demographic covariates had hardly any impact on the magnitude or significance of the parameter estimates. Consequently, the covariates could be dropped from the further model estimation analyses (cf. Frone et al., 1992, for this procedure).

Model evaluation

Linear structural modeling analysis was used to determine the interrelationships between participation in family activities, support from the family and involvement with the family, family-study conflict and family-study facilitation, and school effort and academic performance as described in Figure 1. To obtain model fit, covariances between the independent variables (i.e., participation in family activities, support from the family and involvement with the family) had to be drawn. This resulted in the following values for the sample (N = 1,656): χ^2 = 44.49, df = 9, p = .00; CFI = .99; $RMSEA$ = .05. Despite the significance of the chi-square-value, the other fit measures indicate that the model fits well. Accordingly, the hypothesized model could be accepted (see Figure 2). The model explains 11% of variance in effort and 7% of variance in students' GPA.

Hypotheses

As predicted by the first hypothesis, it was found that the more students participated in activities with their family, the more family-to-study conflict they experienced (β = .32, p < .001). Support from the family was found to be negatively related to family-study conflict, showing that the more support students experienced from their family, the less (β = -.24, p < .001) conflict they felt between their family and study. This finding supported Hypothesis 2. Family involvement appeared to be non-significantly related to family-study conflict (β = -.02, *ns*). On the basis of this finding, Hypothesis 3 was rejected.

Participation in family activities was positively related to family-study facilitation (β = .15, p < .001). This means that the more students participated in family activities, the more family-study facilitation they felt. On the basis of this finding, Hypothesis 4 was confirmed. Support from the family and facilitation were positively related, indicating that the higher the perceived family support, the more family-study facilitation the students experienced (β = .31, p < .001). This finding confirmed Hypothesis 5. Furthermore it was found that, as predicted by Hypothesis 6, the stronger the students' family involvement, the more family-study facilitation they felt (β = .11, p < .01).

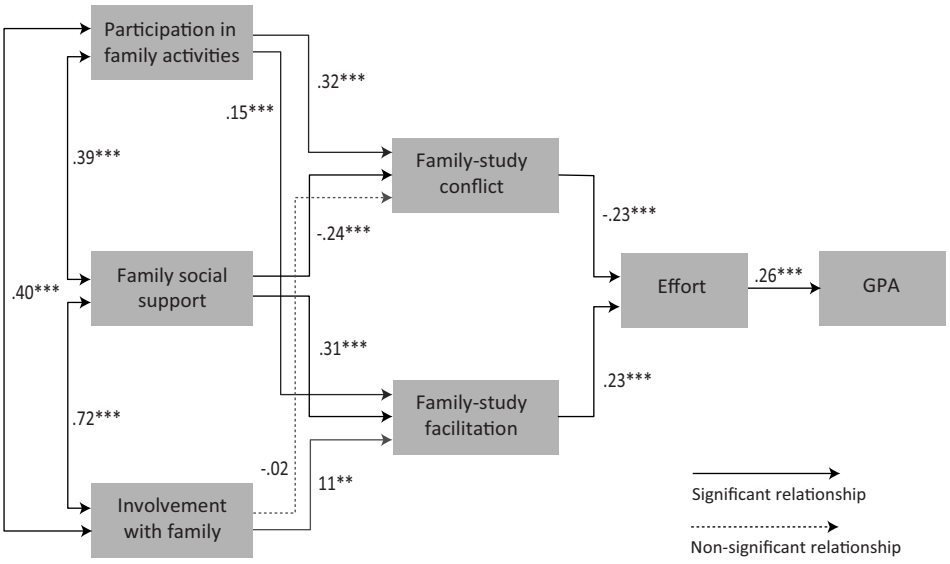

Figure 2 | Accepted model with statistically significant coefficients for all respondents (N = 1,656; χ^2 = 44.49, df = 9, p = .00; *CFI* = .99; *RMSEA* = .05)

Note. ** p <.01, *** p <.001

Hypothesis 7, which predicted that family-study conflict would negatively influence students' effortful behaviors, was also confirmed. Family-study conflict (β = -.23, $p < .001$) appeared to significantly affect students' effortful behaviors. Hypothesis 8 stated that family-study facilitation is positively related to students' effortful behaviors. This hypothesis was confirmed (β = .23, $p < .001$).

Finally, students' effortful behaviors in turn positively contributed to students' academic success. The more effortful behaviors (β = .26, $p < .001$) students showed, the higher their grades. This finding gave support to Hypothesis 9.

Discussion

The primary goal of this study was to examine the family-study interface and to assess whether family-study conflict and family-study facilitation affect the academic outcomes of students in higher education. We begin our discussion by examining findings directly related to the family-study interface. We then discuss, in turn, implications for research and practice, study limitations and future research and the final conclusions.

The family-study interface

The present study revealed several general findings concerning the family-study interface. First, it was shown that the more students participated in family activities (e.g., spending time with family, household duties for the family), the more conflict they experienced between their family lives and their lives as students. This finding is consistent with previous research on other interfaces in which time with family or work hours were determined as an antecedent of conflict (Butler, 2007; Ford et al., 2007). Second, and also in line with previous studies (Adams et al., 1996; Baltes & Heydens-Gahir, 2003; Byron, 2005; Ford et al.; Greenhaus & Beutell, 1985), family support negatively predicted family-study conflict. In other words, the more students perceived support from the family, the less conflict they reported between their family and study. Third, contrary to expectations, the results indicated that involvement with the family was not significantly related to family-study conflict.

As regards family-study facilitation, participation in family activities, family support, and students' involvement with the family appeared to be antecedents of family-study facilitation. In other words, the more students participated in family activities, the more students perceived family support, and the more students were involved with the family, the more family-study facilitation they reported. These findings are in line with previous studies in the work-family domain, which found that support and involvement are positively related to work-family facilitation (Frone et al., 1997; Grzywacz & Marks, 2000; Kirchmeyer, 1992; Wayne et al., 2007).

Our study also demonstrated that students' effortful behaviors were affected by the family-study interface. Family-study conflict negatively affected students' effortful behaviors, which on the other hand were positively affected by family-study facilitation. Finally, academic performance was positively predicted by effortful behaviors.

In sum, the results of the present study show that known antecedents of the family-work interface also operate in the family-study domain and that conflict and facilitation, as extensively studied between family and work, also exist between family and study. Furthermore, by examining processes of both conflict and facilitation simultaneously, this study provides a comprehensive picture of the family-study interface.

Implications for research and practice

This study has several implications for research on inter-role processes and on the relationship between family and study in particular. Most studies on inter-role processes to date have focused on the relationships between work and family (Byron, 2005; Carlson et al., 2006; Ford et al., 2007; Frone et al., 1992; Greenhaus & Beutell, 1985; Greenhaus & Powell, 2006; Grzywacz & Butler, 2005; Wayne et al., 2007). Studies on the relationship between work and a non-work role such as school (Butler, 2007; Markel & Frone, 1998) have only recently been conducted. However, no prior studies have shifted these theories on inter-role processes away from the work domain and applied them to non-work domains such as family and school. The results of the present study show that processes of conflict and facilitation, as extensively studied between family and work, also exist between family and study. It is recommended that future studies of family-study processes include both conflict and facilitation to better understand the links between family and school.

Although students experienced low levels of family-study conflict and the standardized coefficients in the family-study model are moderate, we believe that higher education institutes should consider the possible importance of family in the lives of students in higher education. Family support reduces the conflict experienced between family and study and – more strongly – increases the family-study facilitation experienced, which in turn positively impacts study effort and ultimately students' grades. Involvement with the family enhances family-study facilitation, resulting in more study effort and, in the end higher grades. In terms of opportunities to improve academic success (higher grades), support for involvement with the family and creating family support are probably effective policy measures.

Limitations and future research

Two important limitations should be acknowledged. First, this study is limited by its cross-sectional nature, which precludes making causal inferences regarding relations among the model constructs. It would be valuable to know by means of a longitudinal design how family life affects student life over a longer period of time as well as to understand day-to-day associations between family and study.

The second limitation concerns the generalizability of our family-study model across ethnic groups. From previous research it is known that ethnic minorities' family ties are often stronger compared with the family ties of majorities (Hays & Mindel, 1973; Heard, 2007; Sarkisian & Gerstel, 2004; Schans, 2008). Furthermore, the families of ethnic minorities are characterized by valuing extended kin relationships, that is, blood relationships beyond the nuclear family (Hays & Mindel; Staples, 1986). In an exploratory way, it was therefore tested whether the model holds for the two ethnic groups in the present study separately. For this purpose, both within and between-group analyses were conducted (Byrne, 2004). An examination of the within-group fit indices first revealed that the model fits well for both ethnic majority students (N = 1,314; χ^2 = 44.12, df = 9, p = .00; *CFI* = .98; *RMSEA* = .06) and non-Western ethnic minority students (N = 342; χ^2 = 17.54, df = 9, p = .04; *CFI* = .98; *RMSEA* = .05). Second, two simultaneous between-group models were specified to examine whether the magnitude or direction of each hypothesized relationship was invariant across ethnic background. The first between-group model did not contain any cross-group invariance constraints. In other words, all of the parameter estimates were freely estimated within ethnic groups. The second between-group model, however, constrained all hypothesized relationships to be invariant across ethnic background. The significant between-group chi-square-difference test ($\Delta\chi^2$ = 22.39, Δdf = 9, p = .01) suggests that one or more individual parameter estimates varied across the two groups. In other words, some equality constraints do not hold across the ethnic groups. This means that the assumption of invariance is not tenable and that the strength of relationships may differ between ethnic majority students and ethnic minority students. For example, does family-study conflict in the group of ethnic minority students more strongly affect study effort compared with the group of ethnic majority students? To find out which parameters exactly are (in)variant across the ethnic groups, the parameters have to be constrained one by one. In this process it is important that, when parameters are found to be invariant across ethnic minority and ethnic majority groups, their specified equality constraints are maintained, cumulatively, throughout the remainder of the invariance-testing process (Byrne). Because the student population in Western societies has become ethnically more diverse in the past decade(s), it may be interesting to compare ethnic majority students with ethnic minority students in such a way in a future study.

Conclusions

The present study demonstrated that processes of conflict and facilitation that until now have been extensively studied in the work-family domain also operate between the non-work domain of family and study. Both family-study conflict and family-study facilitation affect students' effortful behaviors, which in turn influences students' GPA.

Chapter 4

The family-study interface and academic outcomes: Differences and similarities between ethnic minority and ethnic majority students*

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The study in this chapter was also presented at the 20th anniversary conference of the European Access Network (EAN), Amsterdam, the Netherlands, June 2011.

Abstract

The present study investigated possible differences in family-study conflict and family-study facilitation between ethnic minority and ethnic majority students as an explanation for the poorer study results of ethnic minority students compared to those of majority students. We used a model for family-study conflict and facilitation derived from family-work and work-study models. This model held true for the full sample and both non-Western ethnic minority students (*N* = 342) and ethnic majority students (*N* = 1,314) separately at a major Dutch university. Multivariate analyses of variance revealed that ethnic minority students reported less study effort and earned lower grades compared to ethnic majority students. As regards the family-study interface, ethnic minority students reported more family-study conflict than did ethnic majority students. No differences were found between the two groups in family-study facilitation. For both ethnic minority students and ethnic majority students, involvement with the family implied more family-study facilitation, which in turn resulted in increased study effort and subsequently higher grades. Students who received more family social support reported less conflict and more facilitation. This latter finding held more strongly for majority students, resulting in more study effort and higher grades for this group. The results demonstrated the explanatory power of the family-study conflict and facilitation model for both groups.

Introduction

In the past decade(s), the student population in Western societies has changed markedly. The "traditional" students who entered higher education immediately after completing secondary education, who are about to enter their 20s, studying full time and whose parents are highly educated with middle or high incomes are no longer representative of the current student population (Severiens & Wolff, 2009). In the last few decades, higher education in Western societies has become more ethnically diverse. More than 90% of the 1971 U.S. freshman population was White/Caucasian. In 2006, this share had decreased to just above 75% due to the strong emergence of Asian American/Asian (from 0.6% to 8.6%), Latina/Latino (from 0.6% to 7.3%) and multiracial students (from 1.3% to 7.2%) (Pryor, Hurtado, Saenz, Santos, & Korn, 2007). The share of the largest minority group – African Americans – also increased, but did so less spectacularly (from 7.5% to 10.5%). Yet, U.S. and international data generally show that the academic career of ethnic minority students is less successful compared to that of ethnic majority students. Ethnic minority students earn fewer credits in the same amount of time (Hofman & Van den Berg, 2003; Severiens & Wolff, 2008; Swail, Redd, & Perna, 2003) and on average reflect lower completion rates (Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Jennissen, 2006; Just, 1999; Van den Berg & Hofman, 2005).

The role of family

From previous research on factors contributing to student success, it is known that students' family plays an important role in obtaining good study results (Herndon & Hirt, 2004; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Herndon and Hirt demonstrated that the family of students and their contact with the family (e.g., parents, siblings) is a key to educational attainment. Previous research has also demonstrated that the family ties of non-Western ethnic minorities are often stronger than those of ethnic majorities (e.g., high levels of family solidarity, taking care of ill family members) (Hays & Mindel, 1973; Heard, 2007; Sarkisian & Gerstel, 2004; Schans, 2008) and that the families of non-Western ethnic minorities seem to place higher value on extended kin relationships (i.e., blood relationships extending beyond the nuclear family) (Hays & Mindel; Staples, 1986). The possibly more salient role of family in the lives of ethnic minority students compared to ethnic majority students may result in differences between these two groups of students in how family and school relate to each other (the so-called family-study interface) and may be able to in part explain the difference in academic success between ethnic minority and ethnic majority students.

Inter-role conflict and facilitation

In recent decades, many studies have been conducted on the combination of roles, in particular work and family roles. These studies have predominantly investigated the negative aspects of combining roles (i.e., work-family conflict) (Byron, 2005; Ford, Heinen, & Langkamer, 2007; Frone, Russell, & Cooper, 1992; Greenhaus & Beutell, 1985). The underlying assumption of these studies typically has been that one role is made more difficult by the other role and vice versa. When the demands of one role are incompatible with the demands of another, tension in the form of inter-role conflict may be experienced (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964). In contrast to the assumption of conflicting life domains, family-work theorists have begun to suggest that one role domain may offer resources that can be utilized in another domain, leading to inter-role facilitation or enrichment (Butler, 2007; Carlson, Kacmar, Wayne, & Grzywacz, 2006; Greenhaus & Powell, 2006; Grzywacz & Butler, 2005; Wayne, Grzywacz, Carlson, & Kacmar, 2007). For example, skills developed at home can subsequently be used at work and participation in the family can create energy that will enhance experiences in the work role. Supporting this line of thinking, it has been established that conflict and facilitation are distinct constructs, which can be experienced by an individual simultaneously (cf. Carlson et al., 2006; Grzywacz & Butler; Van Steenbergen, Ellemers, & Mooijaart, 2007) instead of being bipolar ends of a single continuum.

Based on these theories on inter-role processes in the work and family domain, we tested a model on the interface between the domains of family and school (Meeuwisse, Born, & Severiens, 2011). Results indicated that participation in family activities, family social support and involvement with family predicted both family-study conflict and family-study facilitation. For example, the more students participated in family activities, such as doing household duties for the family and spending time with family in weekends, the more family-study conflict they reported. The more students perceived family support the less family-study conflict and the more family-study facilitation they reported. In turn, family-study conflict was negatively related to study effort, and family-study facilitation appeared to positively contribute to students' study effort. Effort subsequently and positively predicted students' GPA, the dependent variable in this model.

Ethnic differences in inter-role conflict and facilitation

In previous research on multiple role conflict and facilitation, possible differences related to ethnicity have seldom been investigated. Frone et al. (1992) conducted one of the few studies into the generalizability of their model on the work-family interface across ethnic groups (i.e., Whites/Caucasians versus non-Whites/non-Caucasians). Their model generalized across racial groups (i.e., Whites and non-Whites/non-Caucasians) within the U.S.

Given the possibly more salient role of family in the lives of non-Western ethnic minorities (Hays & Mindel, 1973; Heard, 2007; Sarkisian & Gerstel, 2004; Schans, 2008; Staples, 1986), in the present study we aim to investigate 1) possible mean differences between ethnic minority and ethnic majority students in family-study conflict and family-study facilitation, and 2) possible differences in the relationship between this family-study interface and academic outcomes in both groups of students. We made use of the conceptual model of the family-study interface (Meeuwisse et al., 2011) (see Figure 1). In this model the family-study interface is defined as the extent to which family life affects the ability of students to meet study-related demands and responsibilities in both a positive (i.e., facilitation) and a negative (i.e., conflict) way.

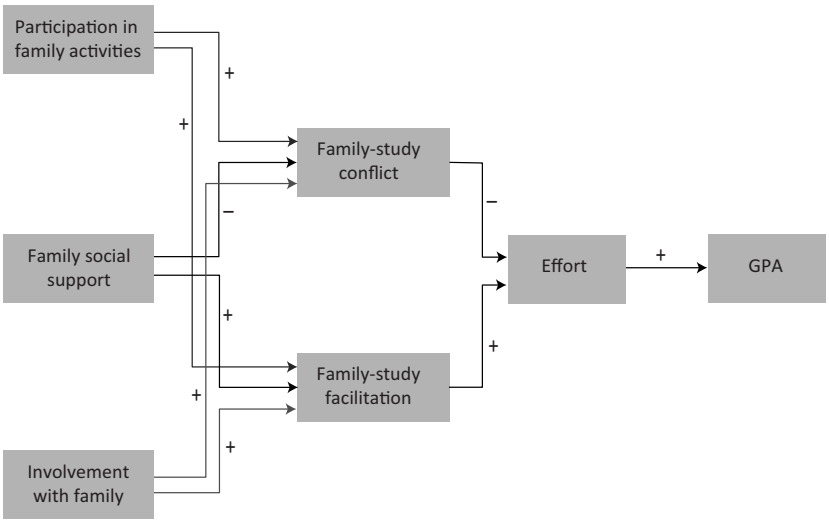

Figure 1 | Theoretical model of the family-study interface

Possible differences and similarities between ethnic majority and ethnic minority students in the family-study interface

In the following, three hypotheses are presented and elaborated upon regarding mean differences between ethnic majority students and non-Western ethnic minority students in family-related variables, conflict and facilitation between family and study, and academic outcomes. Subsequently, two research questions are presented regarding possible differences in relationships between variables in the model for ethnic majority and non-Western ethnic minority students.

Hypothesis 1: Non-Western ethnic minority students participate more in family activities, experience more support from the family and are more involved with the family than ethnic majority students.

Hypothesis 2: Non-Western ethnic minority students experience more family-study conflict and less family-study facilitation than ethnic majority students.

Hypothesis 3: Non-Western ethnic minority students report lower study effort and have lower grades (i.e., GPA) than ethnic majority students.

Given the possibly more salient role of family in the lives of non-Western ethnic minorities (Hays & Mindel, 1973; Heard, 2007; Sarkisian & Gerstel, 2004; Schans, 2008; Staples, 1986), it is expected that non-Western ethnic minority students will participate more in family activities, experience more support from their family and are more involved with their family compared to their non-ethnic minority counterparts. Furthermore, students from cultural backgrounds emphasizing family interdependence may be expected to fulfill obligations to the family that conflict with college responsibilities (Tseng, 2004). For example, non-Western ethnic minority students may have to spend more time with their (extended) families, such as having to act as translators in official or health situations. Therefore, it is expected that ethnic minority students experience more family-study conflict compared to ethnic majority students. As regards family-study facilitation, the resources of ethnic minority students' families may not be as relevant in terms of academic support (e.g., offering help with college tasks, Zalaquett, 1999) as the resources of majority students' families. Lack of college experience (Dennis, Phinney & Chuateco, 2005) and lack of knowledge of the university system (York-Anderson & Bowman, 1991) perhaps form underlying reasons. It is thus expected that ethnic minority students experience less family-study facilitation compared to ethnic majority students. In line with research demonstrating that the academic career of ethnic minority students is less successful than that of ethnic majority students (Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Hofman & Van den Berg, 2003; Jennissen, 2006; Severiens & Wolff, 2008; Swail et al., 2003), it is expected that ethnic minority students report less effortful behaviors, and, ultimately, earn lower grades compared to ethnic majority students.

The question was formulated whether the family-study model on multiple role conflict and facilitation would hold true for both ethnic groups and whether this model would be invariant across ethnic groups. As far as known, no previous research was available on the family-study interface. As a consequence, possible differences in the family-study interface related to ethnicity had not been investigated. Therefore, the research questions are as follows:

1) Do the relationships in the model as depicted in Figure 1 hold true for both ethnic minority students and ethnic majority students?
2) Are the relationships in the model as depicted in Figure 1 different for ethnic minority students and ethnic majority students?

Method

Participants

Data were collected from 1,656 full-time university students attending a large university in the western part of the Netherlands in the spring of the 2007/2008 academic year. The participants represented two different fields of study: Behavioral Sciences (74%) and Health Sciences/ Medicine (26%). Fifty-two percent of the participants were women, the average age was 22.18 years (*SD* = 2.76) and nearly 21% of the respondents (342 students) belonged to a non-Western ethnic minority group, which is representative of the Dutch urban student population (Inspection of Education, 2009). The distinction between ethnic majority and ethnic minority students was drawn based on the definition used by Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS). According to the CBS, an individual belongs to an ethnic minority group if at least one parent was born outside the Netherlands. The minority students in our sample belonged to a non-Western minority group, as the student respondent or one or both parents were born in Surinam (6.5%), Turkey (2.4%), Netherlands Antilles (2.9%), Morocco (1.4%) or another non-Western country (7.4%). As these sub-groups were represented by relatively small samples, it was unfortunately not possible to further distinguish between these non-Western ethnic groups in our analyses. Nearly fifty-five percent of the participants were living with at least one family member (e.g., a parent, uncle, sister).

Procedure

Participants were solicited via the university's study information network and via an e-mail announcement. Each participant completed an online version of a questionnaire measuring conflict and facilitation between the family domain and the study domain, possible antecedents of conflict and facilitation, and academic outcomes. Participants provided their identification numbers so GPAs could be obtained from the official university records.

Measures

Configural invariance (i.e., conceptual equivalence of measures) and metric invariance (i.e., equivalent calibration of measures to constructs) of all measures was checked across ethnic groups before conducting any further analyses (Vandenberg & Lance, 2000). Using Amos

6.0 (Arbuckle, 2005) and guidelines detailed by Byrne (2001), it was first tested whether the pattern of factor loadings imposed on the measures' items was equivalent across groups (i.e, configural invariance), followed by testing whether the factor loadings of the measures' items were equal (i.e., metric invariance) across groups (Vandenberg & Lance). Unless noted otherwise, all measures were invariant across ethnic background (the first author may be contacted for detailed information).

***Participation in family activities*.** This variable was assessed using 17 items asking respondents to report on the extent to which they participate in family activities (e.g., household duties for the family, spending time with family during the weekend) (Ford et al., 2007; Kirchmeyer, 1992). A 5-point rating scale was used ranging from 1 *(never)* to 5 *(always)*.

Support by the family. Support by the family was measured using eight items adapted from the Perceived Social Support from the Family Scale (Procidano & Heller, 1983). Respondents were asked about the perceived support from their family (e.g., "My family helps me solve my problems"). A 5-point rating scale was used ranging from 1 *(not true at all)* to 5 *(completely true)*.

***Involvement with the family*.** Family involvement was assessed by modifying six out of nine job involvement items (Reeve & Smith, 2001) so that these referred to a respondent's family (e.g., "The most important things that happen to me involve my family"). Each family involvement item used a 5-point rating scale ranging from 1 *(not true at all)* to 5 *(completely true)*.

Family-study conflict. Family-study conflict was measured using thirteen items developed for the present study, partly adapted from measures of family-work conflict (Carlson, Kacmar, & Williams, 2000). All items reflect conflict from family to study (e.g., "I lose lessons due to the time I have to spend on family responsibilities", "Due to stress because of family responsibilities, it is hard for me to concentrate on my schoolwork" and "Behavior that is effective and necessary for me when I am with my family would be counterproductive at university"). From the test of metric invariance three items appeared to be variant for ethnic majority and ethnic minority students (e.g., "The time I spend on family responsibilities interferes with my study responsibilities"). For this reason, following the guidelines by Vandenberg and Lance (2000), these three items were removed from the final scale. The family-study conflict variable was created by averaging the ten family-to-study conflict items. The rating scale for the items ranged from 1 *(not true at all)* to 5 *(completely true).*

Family-study facilitation. Family-study facilitation was measured using eight items developed for the present study, partly adapted from measures of work-family facilitation (Butler, Grzywacz, Bass, & Linney, 2005; Grzywacz & Butler, 2005) so that they referred to possible family-study facilitation. All items reflect family-to-study facilitation (e.g., "The skills I use when I am with my family are useful for things I have to do at school", "A good day with my family inspires me to perform well at university"). A 5-point rating scale ranging from 1 *(not true at all)* to 5 *(completely true)* was used.

We followed Markel and Frone (1998) in that our model outlines a hypothesized causal relationship between school-related outcomes. For this reason, we did not use a composite measure of academic performance similar to Butler (2007). Instead, we used the variables effort and grades as separate indicators of academic performance – with grades as our final dependent variable – as follows.

Effort. Effort was assessed using Butler's (2007) school effort scale, which consists of nine items (e.g., "I put forth a high level of effort in class"). From the test of metric invariance, one item appeared to be variant for ethnic majority and ethnic minority students, namely "I try to do my best on all assignments". For this reason, following the guidelines by Vandenberg and Lance (2000), this particular item was removed from the final effort-scale. The rating scale ranged from 1 *(never)* to 5 *(always)*.

Academic performance. The students' cumulative GPA served as measure of academic performance. The data were obtained from the academic records of the university in the semester the data were collected, namely the second semester of the 2007/2008 academic year.

Control variables. Eight demographic variables were included as covariates in the model: gender (1 = male, 2 = female), age (in years), socioeconomic status (1 = low, 2 = medium, 3 = high), field of study (1 = Behavioral Sciences, 2 = Health Sciences/Medicine), year of study (1 = first-year student, 2 = second-year student, 3 = third-year student, 4 = fourth-year student and 5 = fifth-year student or longer), student's living situation (1 = with family, 2 = alone or with others than family), student's perception of the family structure (1 = nuclear family, 2 = extended family) and whether the student's family lived in the Netherlands (1 = no family in the Netherlands – 5 = all family members in the Netherlands). All demographic variables were self-reported.

Analyses

Controlling for gender, age, socioeconomic status (SES), field of study, year of study, student's living situation, family structure, and family in the Netherlands, multivariate analyses were conducted to test hypotheses 1, 2 and 3, namely whether there were any mean differences between ethnic majority and non-Western ethnic minority students with regard to participation in family activities, perceived support from the family and involvement with the family, family-to-study conflict and family-to-study facilitation, study effort and academic performance (i.e., GPA). We controlled for categorical variables (such as gender) by putting these in the analyses as fixed factors, and we controlled for continuous variables (such as age) by putting these in the analyses as covariates.

The hypothesized structural equation model (see Figure 1) was estimated using linear structural modeling analyses (Arbuckle & Wothke, 1999). In addition to χ^2, we used the comparative fit index (CFI), with a cut-off value of > .95 (Hu & Bentler, 1999) and the root mean square error of approximation (RMSEA), with guidelines proposed by MacCallum, Browne and Sugawara (1996). RMSEA values of less than .05 indicate a close fit, values ranging from .05 to .08 a fair fit, values from .08 to .10 a mediocre fit and values exceeding .10 a poor fit between the observed data and the specified theoretical model. After model fit was obtained for the full sample, it was examined whether these results were invariant across ethnic background (research questions 1 and 2). For this purpose, both within and between-group analyses were conducted (see Byrne, 2004, for this procedure).

Results

Preliminary analyses

Table 1 presents the descriptive statistics (means and standard deviations) and zero-order correlations among all variables separately for ethnic majority and non-Western ethnic minority students. Alpha reliability estimates ranged from .75 to .89 and are provided on the diagonal. All variables are scored such that a high score represents higher levels of the construct. It is important to note that both ethnic majority students and ethnic minority students reported relatively low levels of family-study conflict (i.e., smaller than 2 on a 1-5 scale). The mean score for family-study facilitation is around 3, the midpoint of the scale. In other words, students in both groups more often experienced facilitation between their family lives and their lives as a student than conflict between these two domains.

Model fit was first assessed by comparing the conceptual model excluding covariates (Figure 1) to the conceptual model including covariates. The analysis revealed that the demographic covariates had virtually no impact on the magnitude or significance of the

parameter estimates. Consequently, the covariates could be dropped from the further model estimation analyses (cf. Frone et al. (1992) for this procedure).

Mean differences between ethnic majority students and non-Western ethnic minority students

For hypotheses 1-3, multivariate analyses were conducted to examine possible mean differences between ethnic majority students and non-Western ethnic minority students with regard to the following variables: participation in family activities, perceived family social support, involvement with the family, perceived family-to-study conflict and family-to-study facilitation, effortful behaviors and academic performance (i.e., GPA). The analyses controlled for gender, age, SES, field of study, year of study, student's living situation, family structure and whether the family lived in the Netherlands (Table 2).

Hypothesis 1 stated that non-Western ethnic minority students participate more in family activities, experience more support from the family and are more involved with the family compared to ethnic majority students. Testing this hypothesis revealed that ethnic minority students were more involved with their family ($F(1) = 12.56$, $p < .01$, partial $\eta^2 = .01$, $M = 4.05$, $SD = .71$ (ethnic minority) vs. $M = 3.84$, $SD = .71$ (ethnic majority)) and that they participated more in family activities ($F(1) = 47{,}87$, $p < .01$, partial $\eta^2 = .03$, $M = 2.65$, $SD = .73$ (ethnic minority) vs $M = 2.32$, $SD = .57$ (ethnic majority)) compared to ethnic majority students. However, ethnic minority and ethnic majority students did not differ as regards perceived family social support. Consequently, hypothesis 1 was confirmed, except for perceived family support.

Results for hypothesis 2 – which stated that non-Western ethnic minority students experience more conflict and less facilitation between family and study than ethnic majority students – revealed that ethnic minority students experienced more family-study conflict ($F(1) = 18.76$, $p < .01$, partial $\eta^2 = .01$, $M = 1.94$, $SD = .78$ (ethnic minority) vs. $M = 1.71$, $SD = .64$ (ethnic majority)). Contrary to what was expected, no differences related to ethnicity were revealed in perceived family-study facilitation ($F(1) = 1.43$, *ns*). Based on these findings, hypothesis 2 was confirmed for conflict but not for facilitation.

Hypothesis 3 stated that non-Western ethnic minority students report lower study effort and have lower grades than ethnic majority students. Differences in these academic outcomes related to ethnicity were investigated. Ethnic majority students indeed reported more study effort ($F(1) = 9.60$, $p < .01$, partial $\eta^2 = .01$, $M = 3.71$, $SD = .53$ (ethnic majority) vs. $M = 3.57$, $SD = .59$ (ethnic minority)) and earned higher grades ($F(1) = 17.60$, $p < .01$, partial $\eta^2 = .01$, $M = 6.67$, $SD = .67$ (ethnic majority) vs. $M = 6.44$, $SD = .64$ (ethnic minority)) than did ethnic minority students. Accordingly, hypothesis 3 was confirmed.

Table 1 | Means, standard deviations, t-values, alpha coefficients, and correlations between all variables

	M (SD) Majority	M (SD) Minority	t	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Gender	1.49 (.50)	1.63 (.49)	-4.45**	(-)	-.01	-.02	.05	.09	-.08	.05	-.02	.21**	.20**	.08	-.11*	.08	.19**	.10
2. Age	22.11 (2.73)	22.46 (2.84)	-2.10*	-.14**	(-)	-.04	.12*	-.18**	.05	-.11*	.41**	.11*	.17**	-.03	-.00	.03	.11*	-.10
3. SES	2.47 (.77)	1.96 (.91)	9.09**	-.04	-.02	(-)	.09	.08	-.06	.24**	-.03	.07	.02	-.15*	-.24**	.06	.14*	.08
4. Living situation	1.48 (.50)	1.34 (.47)	4.83**	.01	.05	.09**	(-)	-.02	-.23**	.11*	.05	-.11*	-.12*	-.32**	-.02	-.03	-.01	-.12*
5. Family structure	1.23 (.42)	1.36 (.48)	-4.32**	-.04	-.04	-.05	-.12**	(-)	-.17**	.01	-.12*	.06	.03	.08	-.11	-.04	.04	.06
6. Family in the Netherlands	4.81 (.58)	3.78 (1.21)	15.04**	-.01	-.00	-.07*	-.03	-.03	(-)	-.11*	-.00	.02	.00	.18**	.08	-.02	.04	-.08
7. Field of study	1.29 (.45)	1.16 (.37)	5.49**	.26**	.10**	.07*	.06*	.01	.00	(-)	.12*	.01	.00	.04	-.05	.03	.10	-.06
8. Year of study	2.36 (1.39)	2.45 (1.46)	ns	-.03	.29**	.04	.07*	-.06*	.00	.21**	(-)	.08	.15**	.02	.06	.00	.02	-.10
9. Support by family	3.75 (.75)	3.77 (.81)	ns	.20**	-.02	.07*	-.04	-.01	-.04	.09*	-.02	(.89/.89)	.67**	.38**	-.27**	.37**	.25**	-.04
10. Involvement with family	3.80 (.71)	4.05 (.71)	-5.89**	.13**	-.02	.01	-.10**	.04	-.01	.04	-.00	.74**	(.85/.83)	.28**	-.24**	.35**	.12**	-.07
11. Participation in family activities	2.39 (.57)	2.74 (.73)	-8.15**	.07*	-.15**	-.03	-.24**	.12**	.01	.02	-.08**	.41**	.42**	(.85/.88)	.10	.30**	.05	.05
12. Family-study conflict	1.72 (.64)	1.98 (.78)	-5.47**	-.06	-.05	-.04	-.08**	.01	-.01	-.05	-.05	-.10**	-.06*	.21**	(.89/.89)	-.04	-.31**	-.13**
13. Family-study facilitation	3.08 (.80)	3.16 (.77)	ns	.06*	-.05	.06*	.05	.05	-.04	.04	-.04	.46**	.39**	.31***	.08**	(.87/.85)	.20**	.02
14. Effort	3.69 (.55)	3.60 (.59)	2.38*	.25**	.06*	-.08**	-.13**	.07*	.02	.05	-.07**	.20**	.18**	.15**	-.18**	.22**	(.75/.75)	.22**
15. GPA	6.70 (.67)	6.53 (.64)	4.32**	.06*	.01	-.02	-.08**	.03	.04	-.17**	-.09**	.02	.02	.06*	-.02	.06	.26**	(-)

Note. Correlations for the group of ethnic majority students are presented below the diagonal, correlations for the group of ethnic minority students above the diagonal. The demographic variables were coded as follows: gender (1 = male, 2 = female), socioeconomic status (1 = low, 2 = medium, 3 = high), living situation (1 = with family, 2 = alone or with others than family), family structure (1 = nuclear family, 2 = extended family), family in the Netherlands (1 = no family in the Netherlands – 5 = total family in the Netherlands), field of study (1 = Behavioral Sciences, 2 =Health Sciences/Medicine) and year of study (1 = first-year student, 2 = second-year student, 3 = third-year student, 4 = fourth-year student, 5 = fifth-year student or longer). Participation in family activities, family social support, involvement with family, family-study conflict, family-study facilitation, and effort were measured on a 5-point scale. GPA was measured from 1 to 10 (1 = lowest score, 10 = perfect score). $N_{majority}$ = 1,230-1,312 and $N_{minority}$ = 312-340 (variation due to missing values). SES = socioeconomic status, GPA = grade point average. ** $p < .01$ * $p < .05$

Table 2 | Analyses of variance: Differences according to ethnic background

	df	*F*	Partial η^2	*p*	R^2
Analysis 1: Family variables	3	29.32**	.06	.00	
Between subjects					
Participation in family activities	1	47.87**	.03	.00	.14
Family social support	1	.77	.00	.38	.06
Involvement with the family	1	12.56**	.01	.00	.05
Analysis 2: Family-study interface	2	9.85**	.01	.00	
Between subjects					
Family-study conflict	1	18.76**	.01	.00	.05
Family-study facilitation	1	1.43	.00	.23	.01
Analysis 3: Academic outcomes	2	11.23**	.02	.00	
Between subjects					
Effort	1	9.60**	.01	.00	.06
Grades	1	17.60**	.01	.00	.11

**$p < .01$.

Model evaluation for the full sample

Linear structural modeling analysis was used to determine the interrelationships between participation in family activities, support from the family and involvement with the family, family-study conflict and family-study facilitation, school effort and academic performance as described in Figure 1. To obtain model fit, covariances between the independent variables (i.e., participation in family activities, support from the family and involvement with the family) had to be drawn. This resulted in the following values for the full sample (N = 1,656): χ^2 = 38.45, df = 9, p = .00; *CFI* = .99; *RMSEA* = .04. Despite the significance of the χ^2-value, the other fit measures indicated that the model fits well. Accordingly, the proposed model could be accepted (see Figure 2).

Multiple Group Comparisons

Given possible differences between non-Western ethnic minority and ethnic majority students, it was tested whether the model obtained from the full sample was invariant across ethnic background (research questions 1 and 2). For this purpose, within and between group models were specified. The results of these analyses are provided in Table 3.

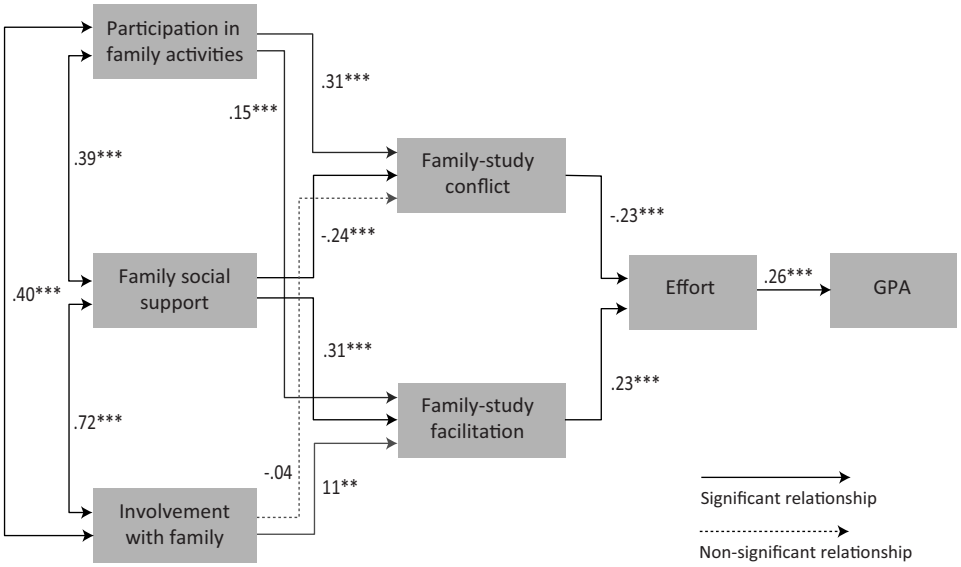

Figure 2 | Accepted model with statistically significant coefficients for all respondents (*N* = 1,656; χ^2 = 38.45, *df* = 9, *p* = .00; *CFI* = .99; *RMSEA* = .04)

Note. ** *p* <.01, *** *p* <.001

Table 3 | Goodness-of-fit information for within- and between-group comparisons

Group	X^2	*df*	*p*	*CFI*	*RMSEA*
Ethnic majority (within-group, *n* = 1,314)	39.40	9	.00	.98	.05
Non-Western ethnic minority (within-group, *n* = 342)	18.47	9	.03	.98	.06
Unconstrained between-group model	57.89	18	.00	.98	.04
Constrained between-group model	81.08	27	.00	.98	.04
X^2 difference (constrained – unconstrained)	23.19	12	.01		

Note. CFI = comparative fit index; *RMSEA* = root mean square error of approximation.

An examination of the within-group fit indices (Table 3, lines 1 and 2) revealed that the model fits well for both ethnic majority and non-Western ethnic minority students (research question 1). In other words, the model in Figure 1 holds true for both groups of students. Participation in family activities positively affects both family-study conflict and family-study facilitation. That is, the more students participated in activities with their family the more family-study conflict they experienced (β = .31, *p* < .001) and the more

family-study facilitation they experienced (β = .15, $p < .001$). Support from the family was found to be negatively related to family-study conflict, showing that the more support students experienced from their family the less family-study conflict they felt between their family and study (β = -.24, $p < .001$). As expected, a positive relationship was found between support from the family and family-study facilitation. This means that the more support students experienced from their family, the more family-study facilitation they felt between their family and study (β = .31, $p < .001$). Contrary to expectations, no significant relationship was found between involvement with the family and family-study conflict. A positive relationship was found between involvement with family and family-study facilitation. That is, the more students are involved with their family the more facilitation they experienced between their family and study (β = .11, $p < .01$). Family-study conflict and effort were negatively related, indicating that the more family-study conflict students experienced, the lower their study effort was (β = -.23, $p < .001$). Furthermore it was found that family-study facilitation and effort were positively related. This means that the more family-study facilitation students reported, the more effort they put in their study (β = .23, $p < .001$). Finally, students' effortful behaviors in turn positively contributed to students' academic success. The more effortful behaviors students showed (β = .26, $p < .001$), the higher their grades.

Having found model fit in both the group of ethnic majority and ethnic minority students, the next question was whether the relationships in the model (see Figure 1) are different for ethnic minority students and ethnic majority students (research question 2). The χ^2-values for the unconstrained and constrained simultaneous between-group analyses are presented in Table 3 on lines 3 and 4, respectively. The significant between-group χ^2-difference test (line 5) suggested that one or more individual parameter estimates varied across the two groups. In other words, some equality constraints did not hold across the ethnic groups. Subsequently, it was tested which parameter(s) appeared (in)variant across ethnic background following the guidelines specified by Byrne (2004). Results of this test on structural invariance indicated that two relationships were variant across groups (Table 4). First, the relationship between support from the family and family-study facilitation was significantly stronger for ethnic majority students (β = .35, $p < .001$) compared to ethnic minority students (β = .19, $p < .01$). The second variant path appeared to be a non-significant path in both the group of ethnic minority students (β = -.11, *ns*) and the group of ethnic majority students (β = -.06, *ns*): involvement with the family to family-study conflict. All other paths appeared to be statistically indistinguishable across both groups. In sum, research question 2, whether the relationships in the model are different for ethnic minority students and ethnic majority students, could be answered negatively, except for the relationship between family support and family-study facilitation and the relationship between involvement with the family and family-study conflict.

Table 4 | Goodness-of-fit statistics for tests of invariance across ethnic minority and ethnic majority students

Model description	χ^2	*df*	$\Delta\chi^{2a}$	Δdf	*p*
1. Unconstrained model (ethnic minority and majority)	57.89	18	-	-	-
2. Structural weights constrained equal	81.08	27	23.19	9	$p < .01$
3. Path from participation in family activities to FSC constrained equal	59.34	19	1.45	1	ns
4. Path from participation in family activities to FSF constrained equal	59.35	20	1.47	2	ns
5. Path from family social support to FSC constrained equal	62.89	21	5.00	3	ns
6. Path from family social support to FSF constrained equal	68.51	22	10.62	4	$p < .05$
7. Path from involvement with family to FSC constrained equal	72.17	22	14.29	4	$p < .01$
8. Path from involvement with family to FSF constrained equal	64.25	22	6.36	4	ns
9. Path from FSC to effort constrained equal	66.01	23	8.12	5	ns
10. Path from FSF to effort constrained equal	66.21	24	8.32	6	ns
11. Path from effort to academic performance constrained equal	67.13	25	9.25	7	ns

Note. FSC = family-study conflict, FSF = family-study facilitation, $\Delta\chi^2$ = difference in chi-square values, Δdf = difference in degrees of freedom, *p* = statistical significance.
[a] All models compared with Model 1.

Discussion

The present study to our knowledge is the first to investigate possible differences in family-study conflict and family-study facilitation between ethnic minority and ethnic majority students as an explanation for the poorer study results of ethnic minority students compared to those of ethnic majority students. Both average differences and differences in the relationships between the variables in the family-study model may explain this difference in study success. In the following, therefore, average differences between ethnic minority and ethnic majority students on the family and study variables in the model are discussed in relation with differences between these two groups of students in how the variables are mutually related. Then, directions for future research and practice, study limitations and conclusions are presented.

Explaining differences between ethnic minority and ethnic majority students in academic outcomes from the family-study model

The results revealed that non-Western ethnic minority students earned lower grades than ethnic majority students, confirming previous studies reporting that academic careers of ethnic minority students are less successful compared to the academic careers of ethnic majority students (Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Hofman & Van den

Berg, 2003; Jennissen, 2006; Severiens & Wolff, 2008; Swail et al., 2003). The present study focused on one explanation for these differences, namely whether family-study interface issues predict students' academic performance in both ethnic groups in the same way.

The family-study model illustrated that the students' GPA is positively affected by students' study effort to the same extent for ethnic minority and ethnic majority students. That is, the more effortful behaviors students show, the higher their grades. However, non-Western ethnic minority students reported significantly lower study effort compared to ethnic majority students. According to our family-study model, the study effort of both ethnic minority and ethnic majority students is determined negatively by family-study conflict. In other words, the more family-study conflict students experience, the less effortful behaviors they report. Lower conflict between family and study will therefore positively affect academic success. Non-Western ethnic minority students reported significantly more conflict between their family lives and their lives as students than ethnic majority students. This means that the study role of ethnic minority students is made more difficult by their family role compared with ethnic majority students. As a result, ethnic minority students put less effort into their study and earn lower grades compared to ethnic majority students. The model further revealed that study effort is not only influenced by family-study conflict, but also by family-study facilitation. High levels of family-study facilitation result in more study effort. Ethnic minority and ethnic majority students report the same levels of family-study facilitation.

Looking at participation in family activities, family social support and students' involvement with family as possible antecedents of family-study conflict and family-study facilitation, it was shown that ethnic minority students were more involved with their family and that they participated more in family activities (such as household duties for the family) compared to ethnic majority students. Ethnic minority students and ethnic majority students did not differ as regards perceived family social support. As regards the relationships between these three variables and family-study conflict and family-study facilitation, the results showed that for both ethnic minority students and ethnic majority students participation in family activities positively and perceived family support negatively affects family-study conflict, with participation in family activities being a stronger predictor. The more students participate in family activities (such as spending time with their family in weekends, household duties for the family) the more conflict they experience between family and study, which ultimately – through effort – leads to lower grades. The less successful academic careers of non-Western ethnic minority students can thus be partially explained by their participation in family activities. That is, due to their higher levels of participation in family activities, they experience more conflict between family and study than ethnic majority students. These higher levels of conflict result in less study effort, and consequently in lower grades.

Family-study facilitation is positively affected by participation in family activities and involvement with the family. These relationships are identical between the group of ethnic minority and the group of ethnic majority students. But more than through students' participation in family activities and involvement with the family, family-study facilitation is influenced by family support. Both ethnic minority and ethnic majority students receive equal levels of support from their families. What is different, however, is that family-study facilitation is affected more strongly by family social support among the group of ethnic majority students than among the group of ethnic minority students. This difference is relevant as high levels of facilitation result in more effort and ultimately in higher grades. More specifically, this finding means that for both ethnic minority students and ethnic majority students family social support positively influences the level of family-study facilitation, resulting in higher study effort and ultimately higher grades. However, if the social support ethnic majority students receive from their family is high, these students will experience higher levels of family-study facilitation compared to ethnic minority students with equal high levels of support. Family social support thus seems to be more effective in the group of ethnic majority students in the sense that it results in more family-study facilitation.

Implications for research and practice

This study has several implications for research on inter-role processes and on possible differences and similarities in the relationship between family and study between ethnic groups in particular. Most research testing models on inter-role processes seemed to have used ethnic majorities. Thus, little was known about the generalizability of previous research to ethnic minorities. The results of the present study are the first to show that the conceptual model of the family-study interface (Meeuwisse et al., 2011) also fits the group of ethnic majority students and the group of non-Western ethnic minority students separately. Given some variance of the model across ethnic groups (i.e., two relationships appeared to differ between both ethnic groups), it is recommended that – similar to the present study – future studies on inter-role processes systematically include tests of invariance across ethnic groups.

This study further shows the importance of family in the lives of both ethnic majority and ethnic minority students in higher education. Family support reduces the conflict experienced between family and study, and increases the family-study facilitation experienced, which in turn positively impacts study effort and ultimately grades. Family support is more strongly related to family-study facilitation in the group of ethnic majority students. In other words, ethnic majority students' family support is more effective than the family support which ethnic minority students receive. This finding implies that the study success of ethnic minority students may be improved by making their family social

support more effective. More effective support may probably be established by involving students' family (e.g., parents) in academic life. In the Netherlands, for example, a major urban university organized meetings to inform the parents of ethnic minority students about academic life. Ethnic minority students' parents traveled to campus by buses arranged by the university. The information to the parents was provided in their native language. By drawing students' family members into the academic domain (e.g., informing the family about academic life, opening universities' doors to the families of students), it is thought that they will become more acquainted with academic life and consequently perhaps are able to offer more effective support such as offering emotional support in discussing choices and dilemma's. When the families of – in particular – ethnic minority students learn more about academic life, this may further have the positive side effect that the participation in family activities of ethnic minority students will be reduced. That is, knowing better what it means to be a student in higher education may withhold students' family members to confiscate students' time to participate in several family activities, such as household duties. As a result, family-study conflict will be reduced, which will result in higher grades. It is important to note that we realize that levels of family-study conflict were relatively low already (i.e., smaller than 2 on a 1-5 scale). However, as the term 'conflict' indicates, experiencing conflict is a negative thing and can be a burden for students. Ideally, no family-study conflict should be experienced. Therefore, we argue for further reducing family-study conflict.

Limitations

This study is limited in that no qualitative data (e.g., interviews) were collected besides the survey data. Especially given the results concerning the stronger relation between family support and family-study facilitation among ethnic majority students compared with ethnic minority students, some qualitative data would have been very helpful to find out what exactly was going on in the families. Is there, for example, a difference in type of support (e.g., support related to the content of the study or emotional support) ethnic majority and ethnic minority students receive from their families? If so, this could provide a possible explanation for the more effective family support ethnic majority students receive compared to ethnic minority students.

A second limitation is that the relatively small number of ethnic minority participants from the different countries of origin made it impossible to examine the results for these different ethnic groups separately. Future studies will need to study the results observed in this study in more detail for each separate group.

Conclusions

The present study demonstrated that non-Western ethnic minority students participate more in family activities and are more involved with their family than ethnic majority students. Ethnic minority students experience more conflict between their family lives and lives as a student and as a result put less effort into their study and earn lower grades compared to ethnic majority students. Although levels of experienced family support are equal for ethnic minority and ethnic majority students, the family social support by ethnic majority students' families appears to be more effective. Ethnic majority students who receive high levels of family support perceive relatively more family-study facilitation, resulting in an increase in study effort and consequently higher grades.

Chapter 5

Academic performance differences among ethnic groups: Do the daily use and management of time offer explanations?*

* This chapter is submitted for publication as:
Meeuwisse, M., Born, M. Ph., & Severiens, S. E. (submitted). Academic performance differences in ethnic groups: Do the daily use and management of time offer explanations?

Abstract

This explorative study describes time use and time management behavior of ethnic minority and ethnic majority students as possible explanations for the poorer study results of ethnic minority students compared to those of majority students. We used a diary approach in a small sample to examine students' daily time use in both a lecture week and an exam week. Time management behavior was measured in a questionnaire, as were demographic variables. The sample consisted of 48 full-time first-year university students of Business Administration of which 24 students belonged to a non-Western ethnic minority group. Student pairs (ethnic majority versus non-Western ethnic minority) were fully matched by gender, socioeconomic status, living situation and type of secondary education. Results showed that ethnic majority students earned higher grades compared to ethnic minority students. As regards time management behavior, ethnic majority students appeared to have a stronger *preference for organization* (e.g., leaving a clear study space at the end of a study day) than ethnic minority students. No differences between ethnic groups were revealed *in setting goals and priorities* (e.g., setting deadlines) and *mechanics of time management* (e.g., making to-do lists). Daily time use and study time patterns also appeared to be the same for both ethnic groups. Given the modest sample size, results should be interpreted as mere indications of possible differences and similarities between the ethnic groups.

Introduction

In the past decade(s), the lives of students have changed. Next to school, which is an important realm of students' lives, student jobs have become a major activity as well (Butler, 2007; Derous & Ryan, 2008; Fox, Connolly, & Snyder, 2005). Of college students enrolled in four-year US-institutions in 2000, 77% was employed, working an average of 27 hours per week (U.S. Department of Education, 2002). Besides work, students also spend time in extracurricular activities (e.g., community service activities, student clubs), watching TV, shopping, exercising, and so on. Because time is a limited resource, students need to divide their time over several activities, need to make choices what (not) to do, and need to set priorities. Studies on students' time use have investigated the relationship between time use and academic grades (e.g., Derous & Ryan, 2008; Dolton, Marcenaro, & Navarro, 2003; Nonis & Hudson, 2006). A recent development in these studies is to look at all student time instead of only looking at time spent studying or time spent working in relation to academic success (Kolari, Savander-Ranne, Viskari, 2008; Nonis, Philhours & Hudson, 2006; Witkow, 2009).

To our knowledge, until now only few studies have examined possible differences in time use between ethnic groups (DesJardins, McCall, Ott, & Kim, 2010), and to what extent achievement and time use were similarly related for individuals from different ethnic backgrounds (Witkow, 2009). This lack of research is remarkable, because higher education in Western societies has become ethnically more diverse in the past decade(s). In the Netherlands, for example, the number of first year students of non-Western descent, who in the Dutch context are considered as ethnic minority students, almost doubled up to a total number of 19,474 students from 2000 to 2010. This caused a relative increase from 10% non-Western influx of the total number of first year students in 2000 to 15% in 2010 (Statistics Netherlands, 2011). These changes in the ethnic backgrounds of the student population raise the question how well this group of minority students is performing. International data generally show that study careers of ethnic minority students are less successful compared to the study careers of ethnic majority students. Ethnic minority students earn less credits in the same amount of time (Hofman & Van den Berg, 2003; Meeuwisse, Severiens, & Born, 2010; Severiens & Wolff, 2008; Swail, Redd & Perna, 2003) and they on average have lower completion rates in higher education compared to non-minority students (Crul & Wolff, 2002; Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Jennissen, 2006; Just, 1999; Van den Berg, 2002; Van den Berg & Hofman, 2005). Because there are indications that time use may differ between ethnic groups (DesJardins et al.; Witkow), in the present study, we will focus on the time use by ethnic majority students in comparison to the time use by non-Western ethnic minority students as a possible explanation for the poorer study results of ethnic minority students compared to those of majority students.

Time allocated to study, work, and other activities

Taken together, studies on the time use of students show ambiguous results when it comes to the relationship between study time and students' grades. Some evidence suggests that the amount of study time is not related to students' overall grade point average (GPA; Nonis & Hudson, 2006; Plant, Ericsson, Hill, & Asberg, 2005), whereas other studies find a positive relationship between study time and students' academic performance (Brint & Cantwell, 2008; Dolton et al., 2003; George, Dixon, Stansal, Gelb, & Pheri, 2008; Stinebrickner & Stinebrickner, 2004). A possible explanation for these mixed findings may be that in this research no distinction has been made between formal study time and self study time. Dolton et al. found that both formal study time and self study time are significant determinants of exam scores, but that the former is more important than the latter.

Besides school, students also spend time working. Research indicates that a growing number of students work, and the number of hours students work has increased (Fox, Connolly, & Snyder, 2005; Riggert, Boyle, Petrosko, Ash, & Rude-Parkins, 2006). Most researchers have not found a significant relationship between time spent working and academic performance (Bennett, 2003; Dolton et al., 2003; Nonis & Hudson, 2006; Svanum & Bigatti, 2006). However, Wilkie and Jones (1994) found that on-campus work relevant to students' interest and coursework was associated with higher academic performance.

In addition to study and employment, students are engaged in a wide variety of extracurricular (e.g., community service activities) and co-curricular activities (e.g., student clubs), and in leisure activities (e.g., shopping). The limited evidence available shows that co-curricular and extracurricular activities are related to academic outcomes. For example, community service is positively related to course grades (Markus, Howard, & King, 1993) and participation in student clubs has a significant positive relation with 1st- to 2nd-year persistence for continuing (Lohfink & Paulsen, 2005). As regards spending time in leisure activities, Derous and Ryan (2008) found an inverted U-shaped relationship with academic performance. This means that engagement in leisure activities may be beneficial to a certain extent, but will become detrimental if one spends too much time on it. George et al. (2008) found a negative relationship between passive leisure time (such as watching television or hanging out with friends) and GPA. That is, the more time students spend on passive leisure the lower their GPA will be.

Given the less successful academic career of ethnic minority students compared to that of ethnic majority students (Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Hofman & Van den Berg, 2003; Jennissen, 2006; Meeuwisse et al., 2010; Severiens & Wolff, 2008; Swail et al., 2003; Van den Berg & Hofman, 2005), and given the relationship between time use and academic performance, the question can be posed whether the time use by ethnic majority students is different compared to the time use by non-Western ethnic minority students, and if so, whether this difference may serve as an explanation for the

poorer study results of ethnic minority students. Former research of DesJardins et al. (2010) on minority groups showed that Asian American students report studying most hours per week (24.5 hours), followed by African American and Latino/a students (22.2 hours per week) and Native American students (18.7 hours per week). Witkow (2009) found that the association between GPA and average study time was stronger for Asian students than those from European American backgrounds. These findings suggest that possible differences in time use may exist between students from different ethnic backgrounds, which perhaps can explain the less successful study careers of ethnic minority students.

Time management behavior

A construct related to time use is time management. In their review of time management research, Claessens, Van Eerde, Rutte, and Roe (2007, p.262) define time management as "behaviors that aim at achieving an effective use of time while performing certain goal directed activities". Students' time, especially the time of the nowadays student who combines studying, working, spending time with friends and family and so on, is a limited resource which can be more or less effectively managed. Previous research mainly shows that better time management skills are associated with higher academic performance (Britton & Tesser, 1991; George et al., 2008; Macan, Shahani, Dipboye, & Philips, 1990; Trueman & Hartley, 1996). In other words, students' time management skills appear to be important contributors to their study success. Macan et al. are one of the few researchers who have investigated possible correlations between time management behaviors and ethnic background in a sample of undergraduate students. They did not find a significant relationship between ethnic background of subjects and their time management behavior score. However, they did not examine time management behavior and actual time use among groups of students from different ethnic backgrounds in relation to their academic performance. This will be the focus of the present study.

The present study

The research described above has shown that the study careers of ethnic minority students are less successful compared to the study careers of ethnic majority students and has also shown that students' time use and time management behaviors are associated with their academic performance. Furthermore, DesJardins et al. (2010) and Witkow (2009) have shown differences in time use between ethnic groups. While DesJardins et al. investigated students' time use with a survey method, we used a daily diary method to more reliably collect data on students' daily time use (Dolton et al., 2003; Nonis et al., 2006; Stinebrickner & Stinebrickner, 2004). Instead of investigating only two areas of time expenditure (i.e., studying and working) in relation to academic success, our study looked at all areas and all student time (Kolari et al., 2008; Nonis et al.; Witkow), in both a regular lecture week and an

exam week. As regards study time, a distinction was made between formal study time and self study time (Dolton et al.). The research questions of the present study are as follows: Do ethnic majority students and non-Western ethnic minority students differ in terms of

1) Academic performance?
2) Time management style?
3) Time use on a typical day in a lecture week versus an exam week?
4) Study time patterns in a lecture week versus an exam week?

Although we matched the group of ethnic majority and ethnic minority students on the main background variables (i.e., gender, socioeconomic position, living situation and type of secondary education) for reasons of internal validity, the modest sample size (*N* = 48) precludes us from making strong generalizations. Therefore, the results of the present study should be considered as indicative of differences and similarities between the ethnic groups which need to be confirmed in larger samples.

Method

Participants

The sample consisted of 48 full-time first-year university students of Business Administration attending a large university in the western part of the Netherlands in the spring of the 2009/2010 academic year. Half of the respondents (24 students) belonged to a non-Western ethnic minority group, the other half belonged to the Dutch majority group. The distinction between ethnic majority and ethnic minority students was based on the definition used by Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS). According to the CBS, an individual belongs to an ethnic minority group if at least one parent was born outside the Netherlands. The minority students in our sample belonged to a non-Western minority group, as the student or one or both parents were born in Surinam (18.8% (*n* = 9)), Turkey (2.1 % (*n* = 1)), Netherlands Antilles (8.3 % (*n* = 4)), Morocco (2.1 % (*n* = 1)) or another non-Western country (18.8% (*n* = 9)). In the sample of ethnic majority students, 24 students were identified based on gender, socioeconomic status, living situation (i.e., with at least one family member such as a parent, uncle or sister versus living by themselves or in student housing), and type of secondary education[3] in such a way that 24 pairs of respondents (ethnic majority student versus non-Western ethnic minority student) were created. All student

[3] In the Netherlands, students have access to university education after completing pre-university education (i.e., a VWO degree), after successfully completing the first year in higher vocational education or the bachelor in higher vocational education, and after obtaining a colloquium doctum.

pairs were fully matched on the above criteria so that observed differences between the two groups of students were – possibly – related to students' ethnic background (Table 1).

Table 1 | Demographic characteristics of the sample (*N* = 48)

Demographic characteristic	***N***
Gender	
Male	8
Female	40
Ethnic Background	
Ethnic minority student	24
Ethnic majority student	24
Socioeconomic status (SES)	
Parent(s) no higher education	28
Parent(s) higher education	16
Missing	4
Living situation	
With family	28
Alone or in student housing	20
Secondary education	
Pre-university education (VWO)	48

Procedure

Participants were solicited via the university's study information network and via an e-mail announcement. Instructions were provided to the students during a lecture and on Blackboard. A paper and pencil version of a questionnaire was completed during the lecture measuring time management behaviors and demographic information such as gender, age, and ethnic background. A diary approach was used to document students' time use during two separate weeks. Students were instructed to fill in the diary daily, during these two weeks. The first week was in the middle of the 12-week term in which no exams took place, and the second week was the exam week at the end of the term. The diary survey measured each student's daily activities from the moment of rising until going to bed in the evening or night, in units of half an hour. Participants provided their identification numbers on the diaries as well as on the questionnaire. In this way, the researchers were able to match the questionnaires and the diary surveys. Furthermore, GPAs were obtained from university records and could be matched to the data of individual students.

Measures

Academic performance

Students' GPA served as an objective measure of academic performance. Data were obtained from the academic records of the university in the term the data were collected, namely the third term of the 2009/2010 academic year.

Questionnaire data

The time management behavior scale (TMBS) (Macan, 1994) was used to assess students' time management behaviors. The TMBS was obtained from T.H. Macan via personal communication (January 25, 2010). The scale contains the following three subscales, with a 5-point response scale for each item ranging from 1 *(never)* to 5 *(always)*.

Setting goals and priorities. This subscale consisted of 10 items asking respondents to report on the extent to which they set deadlines, goals and priorities (e.g., "I set deadlines for myself when I set out to accomplish a study task").

Mechanics of time management. Mechanics of time management were measured using eleven items. Respondents were asked about the extent to which they make to-do-lists and schedule activities when studying (e.g., "I write notes to remind myself of what I need to do").

Preference for organization. Preference for organization was assessed using T.H. Macan's preference for organization scale, which consists of eight items (e.g., "At the end of a study day I leave a clear, well-organized study space").

Diary data

In concordance with the study of Nonis et al. (2006), we investigated students' time use encompassing all student activities, not just study or work. A daily diary approach was chosen instead of retrospective questions (e.g., in a typical week during the last academic year, how many hours did you spend studying?) to avoid reporting error in students' recollection of how much time is spent (Dolton et al., 2003; Nonis et al.; Stinebrickner & Stinebrickner, 2004). Students completed online daily diaries every evening for two separate weeks (a typical lecture week and an exam week), providing information on their time use for the day. Completing a diary took about five minutes each day.

Time spent on various activities. Student diaries, as described earlier, were used to measure time use variables. In order to answer research question 3 (i.e., do ethnic majority students and non-Western ethnic minority students differ in terms of time use on a typical day in a

lecture week versus an exam week?) composite scores of daily time use were calculated from the time students spent on each of the activities in the diary period. For example, if a respondent spent two hours of studying during the first day, four hours on the second day, two hours during the third day, one hour on the fourth day, two hours during the fifth day, three hours on the sixth day, and zero hours on the seventh day, the composite score would be 2 hours studying a day (2+4+2+1+2+3+0 = 14 hours a week, 14/7 = 2). In order to answer research question 4 on differences in patterns of study time between ethnic majority and non-Western ethnic minority students, repeated measures analyses were conducted using the study time on each particular day in either the lecture week or the exam week. For example, if a respondent reported study time on Monday from 9:00 – 11:00 AM and from 15:00-17:00 AM, the total study time for Monday is four hours.

Nine broad categories of activities were investigated in this study, which were the following: Time spent studying, time spent working, time spent on leisure and sports, time spent on (personal) care, time spent on housekeeping, time spent eating and drinking, travel time (e.g., from home to university and vice versa), time spent on administration and other activities. Time spent studying was measured by student report of time spent at lectures, workshop courses and group work with student peers (i.e., formal study) and time spent studying outside of class hours (i.e., self study time). Time spent working included time spent at work. Time spent on leisure and sports included shopping, sports, attending club activities in a fraternity or sorority, watching TV, playing computer games, reading for fun, and so on. Time spent on (personal) care included bathing and showering, and caretaking of others (e.g., family members). Time spent on housekeeping included activities such as doing the laundry and vacuum cleaning. Travel time was measured by student report of time spent traveling from home to university or from home to work, or vice versa. Time spent on administration included administrative tasks (e.g., paying bills) for oneself or others. In the category other activities students could report activities which did not belong to any other activity, such as taking driving lessons.

In summary, the constructs investigated in this study are as follows. Study success was measured using GPA as an objective indicator of academic performance. Personal and situational characteristics were measured in a survey using the variables gender, socioeconomic status, ethnic background, living situation and type of secondary education, and time management style (i.e., setting goals and priorities, mechanisms of time management and preference for organization). The time students spent on daily activities was measured by a composite score across each of two weeks to examine average differences. To investigate possible differences in study patterns, the study time per day in the student diary was summed for each day separately.

Results

Means, standard deviations, alpha coefficients and correlations between all variables are presented in Table 2.

Academic performance

The first objective of the study was to identify a possible difference in study performance (i.e., GPA) between the group of ethnic majority students and ethnic minority students (research question 1). Table 2 shows a significant negative correlation (r = -.31, p < .05) between ethnic background and GPA. This means that ethnic majority students (M = 6.31, SD = .73) earned higher grades compared to non-Western ethnic minority students (M = 5.87, SD = .67).

Time management

Time management behavior (i.e., setting goals and priorities, mechanics of time management and preference for organization) and academic performance (GPA) were not significantly related (Table 2).

In the regular lecture week, time management behavior appeared to be positively related to the time students spent studying. This means that the more students set goals and priorities, the more mechanics of time management they used and the more they organized their study, the more time was spend studying. Students who set goals and priorities also appear to have more leisure time and time for administrative tasks.

In the exam week, time management behavior is no longer related to study time (Table 2). Negative relationships are found between setting goals and priorities and time spent working, and between setting goals and priorities and leisure time and sports in the exam week. Students with a high preference for organization also seem to work less in the exam week.

Time management and ethnic background

As regards the second research question, namely whether ethnic majority students and non-Western ethnic minority students differ in term of time management behaviors, we found a negative correlation (r = -.30, p < .05) between ethnic background and preference for organization (Table 2). This result indicates that ethnic majority students have a higher preference for organization compared to ethnic minority students (M = 3.75, SD = .59 (ethnic majority) vs. M = 3.33, SD = .75 (ethnic minority)). For ethnic majority students 'preference for organization' seems the time management behavior most often used. Ethnic minority students on the contrary most often used 'setting goals and priorities' as a time management behavior.

Students' time use on a typical lecture day and an exam day

The third objective of the study was to determine how much time students spend on various activities (such as studying, working) during a typical day in a lecture week and an exam week, and whether there are differences in time use on these typical days between ethnic majority students and non-Western ethnic minority students. No significant correlations were identified between any of the time variables and academic performance at the .05 level in both the lecture week and the exam week. As can be seen in Table 2, students on average spent 3.55 hours studying a day in a regular lecture week, of which – not shown in Table 2 – 1.16 hours are spent on formal study (e.g., attending lectures) and 2.40 hours are spent studying outside of class (i.e., self study). No differences were found in study time (i.e., overall study time, and study time differentiated in formal study time and self study time) between ethnic majority students and ethnic minority students (see Figures 1 and 2). A remarkable finding is that students spent more hours on leisure and sports per day (4.91 hours) in a regular lecture week, than on their study. This finding is true for both ethnic majority students (5.16 hours) and ethnic minority students (4.67 hours) (see Figure 1). Ethnic minority students spent more time on care than ethnic majority students (1.12 hours versus .72 hours). Looking more closely to the type of care (i.e., personal care versus caretaking of others such as family members) ethnic minority students appeared to spend more time on personal care compared to their majority counterparts.

Students on average spent 6.12 hours studying a day in the exam week (see Table 2), which is an increase of more than 40% compared to the lecture week. The increase in study time in the exam week compared to the lecture week holds for both the group of ethnic majority students (6.34 hours a day in the exam week) and the group of ethnic minority students (5.90 hours a day in the exam week) (see Figure 3). In the exam week, students spent less time a day on leisure and sports (3.83 hours) and working (.34 hours). This finding is similar for both ethnic majority students (3.97 hours on leisure and sports a day and .16 hours working a day) and ethnic minority students (3.69 hours on leisure and sports a day and .52 hours working a day). As in the lecture week, ethnic minority students spent more time on care than ethnic majority students (1.28 hours versus .65 hours) in the exam week. Again, it appeared to be personal care on which ethnic minority students spent more time compared to ethnic majority students.

Table 2 | Means, standard deviations, alpha coefficients and correlations between all variables for the lecture week and the exam week

	M (SD)	M (SD) Lecture week	M (SD) Exam week	1	2	3	4	5	6
1. Gender	1.83 (.38)	-	-	(-)	.30*	.00	-.08	.15	.12
2. SES	1.36 (.49)	-	-	.30*	(-)	.00	-.12	-.12	-.04
3. Ethnic background	1.50 (.51)	-	-	.00	.00	(-)	.00	.17	-.07
4. Living situation	1.42 (.50)	-	-	-.08	-.12	.00	(-)	.21	.34*
5. Goals and priorities	3.46 (.53)	-	-	.15	.17	.17	.21	(.76)	.65**
6. Mechanics of time management	2.76 (.58)	-	-	.12	-.04	-.07	.34*	.65**	(.71)
7. Preference for organization	3.54 (.70)	-	-	-.01	.05	-.30*	.26	.59**	.50**
8. GPA	6.11 (.73)	-	-	.10	.12	-.31*	.16	-.21	.07
9. Time spent studying	-	3.55 (1.63)	6.12 (1.96)	.23	.23	-.03	-.04	.40**	.34*
10. Time spent working	-	.87 (.98)	.34 (.88)	-.18	-.44**	-.14	-.08	-.31*	-.20
11. Time spent on leisure and sports	-	4.91 (1.58)	3.83 (1.26)	-.34*	-.12	-.16	-.14	.46**	-.34*
12. Time spent on care	-	.92 (.46)	.96 (.78)	.23	-.03	.45**	-.16	.16	-.22
13. Time spent on housekeeping	-	.46 (.47)	.28 (.40)	.06	-.00	.19	.43**	.20	.15
14. Time spent eating and drinking	-	1.45 (.46)	1.57 (.44)	-.01	-.15	-.21	.26	.11	.19
15. Time spent traveling	-	1.16 (.63)	1.33 (.54)	.15	.10	-.14	-.07	-.04	.10
16. Time spent on administration	-	.13 (.27)	.07 (.16)	-.01	.20	.22	.19	.38**	.15
17. Time spent on other activities	-	.53 (.68)	.28 (.41)	.12	.06	.14	-.04	.05	.14

Table 2 | Continued

	7	8	9	10	11	12	13	14	15	16	17
1. Gender	-.01	.10	.42**	-.06	-.38**	.07	.15	.00	.00	-.07	-.11
2. SES	.05	.12	.11	-.16	.09	.09	.12	-.00	.00	.06	-.32*
3. Ethnic background	-.30*	-.31*	-.10	.21	-.11	.41**	.11	-.34*	.11	.09	-.25
4. Living situation	.26	.16	.08	-.21	.00	.06	.40**	-.01	-.23	-.02	.07
5. Goals and priorities	.59**	-.21	.19	-.31*	-.29*	.08	.17	-.04	-.01	.20	.17
6. Mechanics of time management	.50**	.07	.03	-.06	-.22	.13	.20	.08	.03	-.20	.29*
7. Preference for organization	(.74)	.02	.26	-.33*	-.08	-.13	.06	.14	-.13	.14	.16
8. GPA	.02	(-)	.00	.10	.06	-.01	.10	.25	-.17	-.14	.18
9. Time spent studying	.48**	.11	(-)	-.40**	-.46**	-.18	-.25	.03	-.32*	-.07	-.14
10. Time spent working	-.28	-.13	-.28	(-)	.02	.16	-.06	-.29*	.22	.00	.02
11. Time spent on leisure and sports	-.26	-.10	-.62**	.11	(-)	-.31*	-.07	-.13	-.00	-.15	-.15
12. Time spent on care	-.14	-.10	.07	-.16	-.24	(-)	.41**	-.05	.15	.03	-.08
13. Time spent on housekeeping	.03	-.06	-.16	-.10	-.15	.22	(-)	-.07	-.20	.25	-.07
14. Time spent eating and drinking	.10	.09	-.11	-.30*	.00	-.12	.00	(-)	.27	.03	.04
15. Time spent traveling	-.03	.25	-.10	-.11	.05	-.04	.00	.05	(-)	.10	-.10
16. Time spent on administration	.16	-.06	-.00	-.17	-.22	.34*	.57**	-.08	-.05	(-)	-.15
17. Time spent on other activities	-.07	.06	-.03	-.10	-.41**	.17	-.03	.00	.12	-.03	(-)

Note. Correlations for the college week are presented below the diagonal, correlations for the exam week above the diagonal. The demographic variables were coded as follows: gender (1 = Male, 2 = Female), socioeconomic status (1 = no higher education, 2 = higher education), ethnic background (1= ethnic majority student, 2 = non-Western ethnic minority student), living situation (1 = with family, 2 = alone or with others than family). Goals and priorities, mechanics of time management and preference for organization were measured on a five-point scale (1 = never - 5 = always). GPA was measured from 1-10 (1 = lowest score and 10 = perfect score). *N = 44-48* (*N* varies due to missing values). SES = socioeconomic status, GPA = grade point average.* * $p < .01$ * $p < .05$

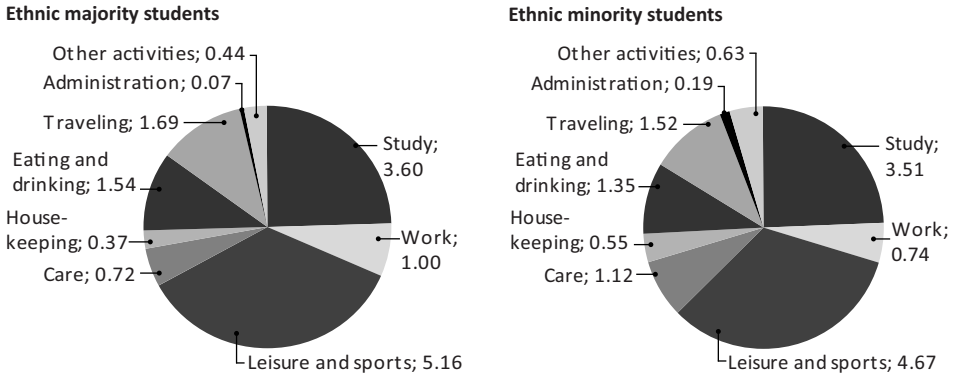

Figure 1 | Average time use in hours per day in lecture week

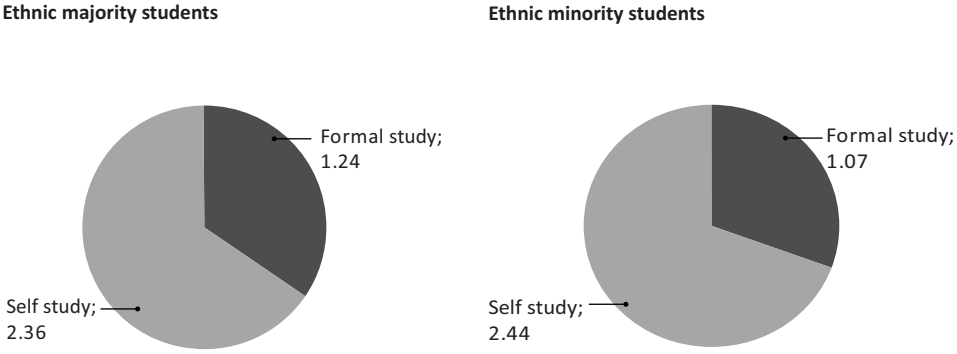

Figure 2 | Formal study time and self study time in hours per day in lecture week

Study time patterns

The final objective of the present study concerned students' study patterns. It is imaginable, for example, that students spending little time studying in a regular lecture week have to spend more time studying in the exam week (i.e., cramming for examinations) compared to students who already spend a lot of time studying during the term. To identify possible differences between ethnic majority and ethnic minority students in study time patterns in a lecture week and an exam week (research question 4) repeated-measures Anovas were conducted. The time students spent studying on one day was summed for that day so we

obtained students' study time per day over six consecutive days (e.g., study time on Sunday, study time on Monday, study time on Tuesday etc.) in both the lecture week and the exam week.

Table 3 presents the results of the repeated measures Anovas for the lecture week. In the first analysis, possible differences in total daily study time over the course of the week were investigated, as were possible differences between ethnic majority students and ethnic minority students in daily study time. Results show that the total daily study time was significantly affected by the day of the week ($F(5) = 16.28$, $p < .01$, partial $\eta^2 = .50$) (see Figure 4), indicating that students spent most time studying in the beginning of the week. No differences in study time patterns were found between ethnic majority students and non-Western ethnic minority students ($F(5) = .32$, *ns*) during a lecture week.

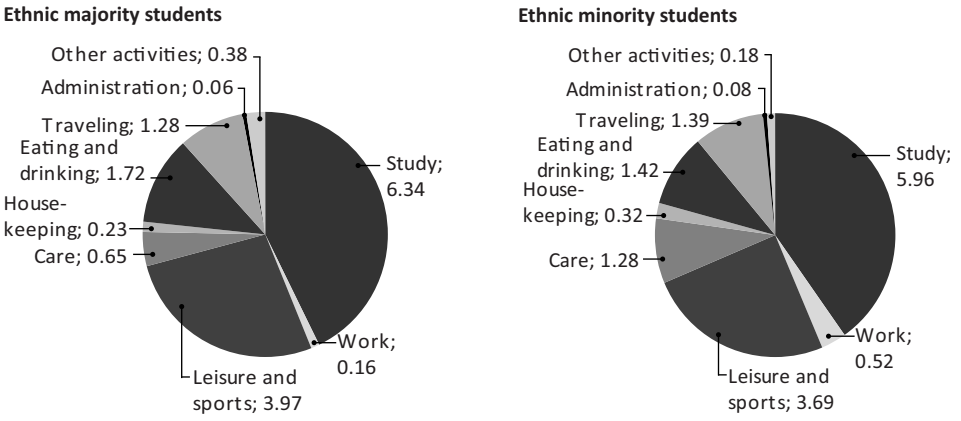

Figure 3 | Average time use in hours per day in exam week

In a lecture week, students spent time attending lectures and workshop courses (i.e., formal study time) and they spent time on self-study tasks. Therefore, in the second repeated measures analysis (Table 3), possible differences in daily formal study time were investigated, as were possible differences in daily formal study time between ethnic majority students and ethnic minority students. The results show no relationship between reported formal daily study time and day of the week ($F(4) = 1.99$, *ns*). Furthermore, no differences in reported daily formal study time were found between ethnic majority students and non-Western ethnic minority students ($F(4) = .64$, *ns*).

Table 3 | Analyses of variance: Daily study time in lecture week

	df	*F*	Partial η^2	*p*
Analysis 1: Total study time lecture week				
Within subjects				
Study time	5	16.28**	.50	.00
Study time * Ethnic background	5	.32	.02	*ns*
Analysis 2: Formal study time lecture week				
Within subjects				
Formal study time	4	1.99**	.09	*ns*
Formal study time * Ethnic background	4	.64	.03	*ns*
Analysis 3: Self study time college week				
Within subjects				
Self study time	5	8.02**	.33	.00
Self study time * Ethnic background	5	.11	.01	*ns*

**$p < .01$

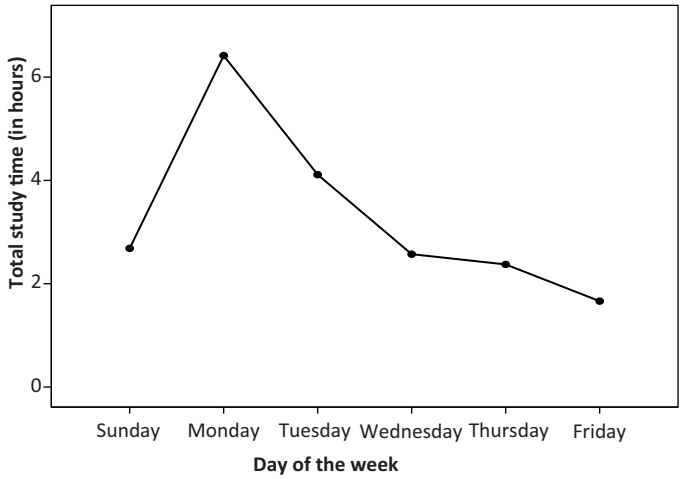

Figure 4 | Students' total study time per day in lecture week, averaged across students

In the third analysis (Table 3), possible differences in daily self study time in the lecture week were investigated, as were possible differences in daily self study time between ethnic majority students and ethnic minority students. The results show that the daily self study time was significantly affected by the day of the week ($F(5) = 8.02$, $p < .01$, partial $\eta^2 = .33$).

In the course of the week, students spent less time on self study. No differences in daily self study time were found between ethnic majority students and non-Western ethnic minority students ($F(5) = .11$, *ns*).

In the exam week, the formal study time students reported is negligible (.14 hour). Therefore, the analysis in the exam week is restricted to self study time and possible differences in daily self study time between ethnic majority students and non-Western ethnic minority students (Table 4). The results show that the daily self study time was significantly affected by the day of the week ($F(5) = 13.57$, $p < .01$, partial $\eta^2 = .68$) (see Figure 5). Exams were on Monday, Wednesday and Friday. No differences in daily self study time were found between ethnic majority students and non-Western ethnic minority students ($F(5) = .13$, *ns*) in the exam week.

Table 4 | Analyses of variance: Daily self study time in exam week

	df	***F***	*Partial η^2*	***p***
Analysis 1: Self study time exam week				
Within subjects				
Self study time	5	13.57**	.68	.00
Self study time * Ethnic background	5	.96	.13	*ns*

Note. The analysis in the exam week is restricted to self study time since the formal study time students reported in this week is negligible. **$p < .01$

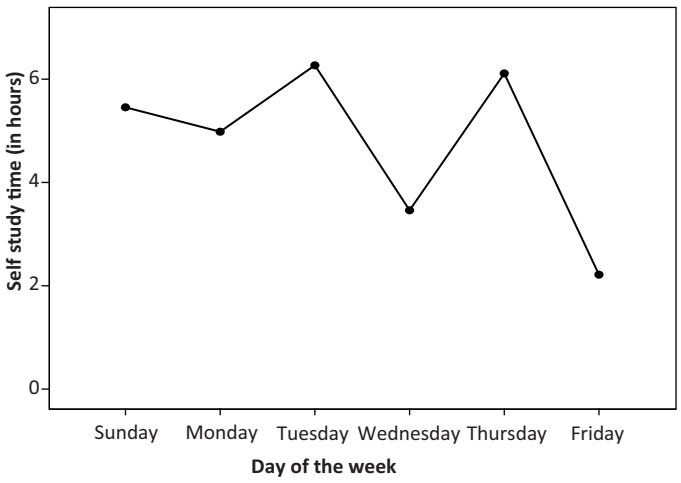

Figure 5 | Students' average self study time per day in exam week.
Note: Exams were on Monday, Wednesday and Friday.

Discussion

The present study described time use and time management behavior of non-Western ethnic minority and ethnic majority students as possible explanations for the poorer study results of ethnic minority students compared to those of majority students.

In the section below, academic performance, time management behaviors, students' time use and patterns of study time use are first discussed, including possible differences according to ethnic background. We then discuss directions for future research and practice, followed by study limitations and conclusions.

Differences and similarities between ethnic minority and ethnic majority students' academic performance, time management and time use

In line with previous research on differences in study outcomes between ethnic groups (Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Hofman & Van den Berg, 2003; Jennissen, 2006; Meeuwisse et al., 2010; Severiens & Wolff, 2008; Swail et al., 2003; Van den Berg & Hofman, 2005), it was found that ethnic majority students earned higher grades compared to non-Western ethnic minority students. As a possible explanation for this difference in academic performance between the ethnic groups, we investigated time management behavior and actual time use among groups of students from different ethnic backgrounds.

As regards time management behavior, it was shown that ethnic majority students have a stronger preference for organization than ethnic minority students. No differences between ethnic groups were revealed in setting goals and priorities and mechanics of time management.

The daily diary studies showed that students spent more hours on leisure and sports per day in a regular lecture week, than that they were studying. In the exam week, students' daily study time increased with more than 40% compared to a day in the lecture week. It is not unlikely that it is because of the increased study time in the exam week that students spent less time a day on leisure and sports and on working. These findings are similar for both ethnic majority students and ethnic minority students.

As regards study time patterns, it was shown that students spent most time studying in the beginning of the lecture week. Differentiating the total study time into formal study hours (e.g., attending lectures) and self study hours, the decrease in daily study time appears to be related to students' self study time. In the course of the lecture week, students spent less time on self study. However, reported formal study time appeared to be stable across the week. That is, students do not report more formal study time in the beginning of the week compared to the end of the week. This finding is probably related to the curriculum design of the Business Administration program, which was the program of

the respondents in the present study. It is for example imaginable that in the curriculum of another education more formal study time is scheduled in the beginning of the week. As regards possible differences in study time use patterns between ethnic majority and ethnic minority students, the results showed no group differences in total study time, formal study time or self study time in the lecture week.

In the exam week, students mostly spent time on self study and only marginally on formal study tasks (such as group work with student peers). The results showed that students self study hours were related to the day of the week: on days *before* examinations (which were on Monday, Wednesday and Friday) students studied most. This finding is especially true on Tuesday and Thursday. As in the lecture week, no differences in study time patterns were found in the exam week between ethnic majority and ethnic minority students.

In sum, the results of the present study show that ethnic majority students obtained higher grades compared to ethnic minority students. Ethnic majority students appeared to have a stronger preference for organization than ethnic minority students. No differences related to ethnicity were revealed in setting goals and priorities and mechanics of time management. As regards daily time use both ethnic majority and ethnic minority students spent more hours on leisure and sports per day in a regular lecture week, than that they were studying. In the exam week, daily study time increased at the cost of time spent in leisure and sport activities and time spent working. These findings hold true for both the group of ethnic majority and ethnic minority students. Repeated measures Anovas resulted in different study patterns during a lecture week and an exam week. Students self study time appeared to be related to the day of the week. In particular, in the lecture week self study time decreased in the course of the week, and in the exam week students spent more time studying on a day before an examination. Again, no differences in these study time patterns were found between ethnic majority and ethnic minority students.

Overall, results of the present study concerning students' time management behavior and daily time use do not seem to explain the difference in academic performance between ethnic majority students and non-Western ethnic minority students.

Implications for research and practice

Given the small scale nature of our study, a larger scale study is needed to confirm our findings and make generalizations. Apart from a larger scale diary study, it would be interesting to include a different set of possibly relevant moderator variables. The reason is that the direct relationship between time management behavior and GPA may be moderated by personal and situational variables. For example, students who participate in several activities simultaneously (e.g., studying, working, membership of a sorority, sports), and who therefore lead busy lives, probably need to set goals and prioritize all the time.

These students probably have good time management skills that could be beneficial with regard to their study. However, despite their excellent time management skills, the time all these different activities take may keep these students from spending the necessary time studying, with negative consequences for their academic performance. In groups of students with less extensive lives, a similar excellent level of time management skills may lead to higher academic performance. More generally, the impact that time management behavior has on academic performance may be different for different students under different situations or circumstances.

Furthermore, the results of the present study did not show a direct relationship between students' time management behavior and academic performance, and between students' time use and academic performance. It was beyond the scope of the present study, but it would be worthwhile to examine this lack of relationship in further detail. It is remarkable that several recent studies (e.g., Nonis & Hudson, 2006; Plant et al., 2005) have shown that spending more time studying does not result in higher grades. Have students become more strategic in their thinking, and have they settled more often for sufficient grades? Have our educational systems changed in that self study time does not add to study success because of increasing 'contact time' (i.e., formal study hours) in which students do all the learning? A qualitative study using in-depth student interviews can possibly clarify these issues.

Limitations and directions for future research

This study is limited first in that the small sample made it impossible to generalize the results beyond the two ethnic samples. By fully matching student pairs on gender, socioeconomic status, living situation and type of secondary education the differences between the two groups of students were – likely – related to students' ethnic background (i.e., Dutch majority background versus non-Western background). However, it must be kept in mind that future studies need to study the results observed in this study in a larger sample.

A second limitation is that all of the data for this study came from the third term in the participants' first study year. Thus, no conclusions can be drawn about causal relationships, such as whether patterns of time use contribute to academic achievement or whether, vice versa, academic achievement causes students to spend their time in certain ways. It is likely that both are true and that the relationship between achievement and time management is reciprocal. To further uncover the ambiguous relationship between time use and academic achievement, it would be interesting to investigate these causal pathways in a diary study that takes a longer time period into account or that includes different cohorts of students and periods during the academic year.

A third limitation is that no diary data are available in the week before the examinations took place. Results of our study show that in the exam week students spent more time

studying on days before examinations. To investigate the extent to which students cram for exams, it would be interesting to collect data one week before the exams start and in the exam week itself.

A fourth limitation is that the study was conducted in one educational program (i.e., Business Administration). A future study, in which different educational programs that invoke different time use patterns are compared, could possibly show the impact of formal and self study time use in a different way.

Conclusions

The present study demonstrated that non-Western ethnic minority students obtained lower grades compared to ethnic majority students. Ethnic majority students appeared to have a stronger preference for organization than ethnic minority students, but no differences are found between the two ethnic groups in setting goals and priorities, and mechanics of time management. No differences between ethnic majority and ethnic minority students were found in daily time use in both the lecture week and the exam week. Study time patterns also appeared to be the same for both ethnic groups. Thus, results concerning students' time management behavior and daily time use do not seem to explain the difference in academic performance between the two ethnic groups of students.

Chapter 6

Reasons for withdrawal from higher vocational education. A comparison of ethnic minority and majority non-completers*

* This chapter was published as:

Meeuwisse, M., Severiens, S. E., & Born, M. Ph. (2010). Reasons for withdrawal from higher vocational education. A comparison of ethnic minority and majority non-completers. *Studies in Higher Education, 35*(1), 93-111.

The study in this chapter was also presented at the 1st biennial conference of Special Interest Group Teaching and Learning in Culturally Diverse Settings (SIG21, EARLI), Gothenborg, Sweden, May 2008.

Abstract

The present study explored possible differences in reasons for withdrawing from higher vocational education between ethnic minority and majority non-completers in the Netherlands. Tinto's (1993) model on the departure process was used as a theoretical framework. 1,017 non-completers filled out a questionnaire regarding their reasons for withdrawal. An exploratory factor analysis resulted in six factors representing these reasons. Multivariate analyses of variance showed no main effect for ethnic background of non-completers, but interaction effects with type of withdrawal (dropout versus switching course or institution), and moment of withdrawing (early or late). Ethnic minority dropouts withdrew more often than majority dropouts because of a perceived poor quality of education. A lack of ability was more important in the decision to withdraw for majority dropouts compared to ethnic minority dropouts. Ethnic minority switchers withdrew more often than majority switchers because they were disappointed with the content of the education. This factor also appeared to be more important to minority non-completers who had left higher vocational education after more than one year in comparison with the late majority non-completers.

Introduction

Research has shown that students from ethnic minority backgrounds on average have lower completion rates in higher education compared to non-minority students (Crul & Wolff, 2002; Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Jennissen, 2006; Just, 1999; Van den Berg, 2002; Van den Berg & Hofman, 2005). The magnitude of difference in these non-completion rates between ethnic minority and majority students remains unclear. Most studies do not report such percentages, probably because most countries do not register information on the ethnic background of students in higher education. In the Netherlands, the percentage of non-Western ethnic minority students who leave higher vocational education within the first two years is 20 percent. This is three percent higher than it is for Dutch ethnic majority students. Differences in five-year completion rates are greater: 60 percent for majority students versus 38 percent for ethnic minority students (Dutch Ministry of Education, 2004). Given that ethnic minority students are more likely to withdraw from higher education, it is remarkable that only a limited number of studies have investigated possible differences in withdrawal reasons between ethnic minority and non-minority non-completers. It seems fair to expect different reasons contributing to differences in completion rates, because of the relatively negative college experiences of ethnic minority students (Swail, Redd & Perna, 2003). Instead, most research has examined the process of withdrawing itself, based on students who are still in college. The present study aims to fill this gap by performing a comparative study between non-completers from ethnic minority backgrounds and their majority counterparts. In this introduction, we will first present an overview of the literature pertaining to the departure process and then review existing research that has focused on differences between students from minority and majority backgrounds. Next, the outcomes in this area will be translated into possible withdrawal reasons. Lastly, we will discuss the limited number of studies that have focused on withdrawal reasons and differences according to ethnic background.

Tinto's model: The departure process

In the research literature that has tried to explain these differences in retention rates, Tinto's longitudinal and interactionalist model (1993) on the departure process of students is a key work. According to Braxton (2000), it "enjoys a near paradigmatic stature in the study of college student departure" (p.2). Tinto's model seeks to explain the longitudinal process by which interactions among individuals within the academic and social systems of the institution lead to withdrawal prior to degree completion. In Tinto's model, academic performance and interaction with staff play a central role in the academic system, while extracurricular activities and peer group interaction constitute the social system. The model posits that, all else being equal, the lower the degree of one's social and intellectual

integration into the academic and social communities of the college, the greater the likelihood of departure. Aside from these institutional experiences, Tinto also describes how external commitments (i.e., events in one's life unrelated to college) may play a role in the departure decision. The model suggests that students may leave due to external commitments such as care responsibilities or work, even if experiences within the college are largely positive. On the other hand, support in the external communities from family and friends may also reinforce retention (Tinto, 1993, p.116).

Research investigating differences according to ethnic background in the Tinto framework has mainly looked at social and academic integration. This research has shown that, on average, ethnic minority students have less contact with their fellow students and teachers and are therefore less socially and academically integrated (Berger & Milem, 1999; Eimers & Pike, 1997; Nora & Cabrera, 1996; Severiens & Wolff, 2008). This subsequently may have an adverse effect on the study success and retention of ethnic minority students, although not all studies have clearly confirmed this relationship (Braxton, 2000; Severiens & Wolff, 2009). However, the empirical evidence seems strong enough to justify the inclusion of these concepts and their related withdrawal reasons (i.e., withdrawal due to limited interaction with fellow students and teachers) in the present study on differences between ethnic minority and majority students.

Research into differences between ethnic minority and majority students in terms of their external commitments and the role these commitments play in their study progress confirms Tinto's (1993) supposition: External commitments may hinder but also help a student's study success, especially the study success of a minority student. In a study on successful African Caribbean students in the UK, for example, Rhamie and Hallam (2002) indicated the importance of a system of combined support from parents, school and social organizations (e.g., sports clubs and church). The positive support of parents and organizations in which the students were active even compensated for a lack of support from school (e.g., discrimination and exclusion on the part of peers and teachers). Similarly, Hurtado and Carter (1997) reported that Latino students who participated actively in their own community and received support integrated better at the education institution where they were enrolled. These findings indicate that the lack of such an extensive social support network may bear negative consequences for minority students. Another reason to expect external commitments to play an important role in the withdrawal process of minority students is that minority students more often than majority students are non-traditional students, in that they combine work and study or family and study (Crul & Wolff, 2002; Read, Archer & Leathwood, 2003).

These research findings on the departure process can be translated into possible withdrawal reasons, which are the focus of the present study. Disappointing institutional experiences within academic and social systems may serve as important reasons for students

to withdraw from higher education. The same holds true for external commitments in the departure model. A lack of support from family and friends, care responsibilities as well as work and financial obligations may be important withdrawal reasons.

Research on withdrawal reasons

Studies on leavers partially confirm the findings from research on the withdrawal process as described above. Non-completers indeed often state that limited social support networks are a reason they leave college (Christie, Munro & Fisher, 2004; Wilcox, Winn & Fyvie-Gauld, 2005). Gloria and Robinson Kurpius (2001) also showed social support to be a strong predictor of academic non-persistence decisions among American Indian (i.e., tribes native to North America) undergraduates.

Research on leavers also confirms the importance of experiences in the academic system. This research, however, uses concepts such as *fitting in* and *culture* (Christie et al., 2004; Ozga & Sukhnandan, 1998; Thomas, 2002) instead of the integration concepts in Tinto's model (1993). Thomas states that if students feel that they do not fit in, that their social and cultural practices are considered inappropriate and that their tacit knowledge is undervalued, they are inclined to withdraw earlier. Similarly, Just (1999) claims that the fit between the individual and his or her environment is an important aspect of retention in higher education. Feeling like part of the campus community is important to all students, but minority students sometimes face unique problems not experienced by students of the dominant culture. Just argues that a good fit within the campus community, a sense of belonging, is crucial to the academic persistence among ethnic minority students. On the basis of these studies, it can be expected that ethnic minority students withdraw more often than non-minority students due to negative cultural atmosphere at the institute (i.e., a poor fit).

Aside from these studies on withdrawal reasons related to whether the academic system is a good fit, some studies have also found the quality of the organization of the education to be an important reason for withdrawal. For example, among seven general factors which influence a student's decision to withdraw, Yorke (1999) mentions dissatisfaction with aspects of institutional facilities, such as computing facilities and library facilities, and unhappiness with the institutional environment, such as with respect to accommodation problems. To our knowledge, studies have not as yet investigated differences between ethnic groups in reasons to withdraw that can be related to the quality of the organization. Because proper organization of the educational program may contribute to a student's sense of belonging to the institute, differences according to ethnic background as it pertains to poor organization as a withdrawal reason may be expected.

The role of external commitments in research on withdrawal reasons can be seen particularly when it comes to financial obligations. According to Davies and Elias (2003) and

McInnis, Hartley, Polesel and Teese (2000), financial issues are one of the main reasons for withdrawing from higher education. Yorke (1999) also identified financial problems as one of seven relevant factors in the decision to leave, and Ozga and Sukhnandan (1998) found that financial issues play a secondary role in non-completers' decision to withdraw, immediately behind institutional and course incompatibility. In their qualitative study, Wilcox et al. (2005) found material factors (such as finances) to be important in a student's decision to leave college. Given the fact that ethnic minority students more often come from relatively low income families (Read et al., 2003) compared to their majority counterparts, it may be expected that they withdraw more often due to financial issues. Next to lack of finances, a lack of appealing future job prospects may be a possible reason for withdrawal. Especially in the context of higher vocational education, in comparison to the more theoretical content of university programs, disappointing experiences during trainee periods may cause leavers to ascribe their reason for withdrawal to the anticipated professional life in terms of content, status and income.

A final theme that emerges from research on withdrawal reasons concerns interest and motivation in the program. Students often withdraw from higher education because of a poor choice of field of study (Christie et al., 2004; Davies & Elias, 2003; Yorke, 1999). Yorke, for example, reported that leavers often stated they had chosen the wrong field of study, found the program to be different than expected and were uncommitted to the program. Tinto's (1993) model pays attention to goals and commitments, but mainly as the result of experiences in the social and academic system. The research on withdrawal reasons, on the other hand, seems to focus more on motivation and choice processes as an antecedent of withdrawal.

In the present study, the possible withdrawal reasons identified on the basis of Tinto's model (1993) and broader literature will be examined, with a particular focus on the differences in possible withdrawal reasons for ethnic minority and majority students.

Studies on withdrawal from higher education have also examined differences in relation to gender, socioeconomic status (SES) and on the moment and type of withdrawal. Each of these factors may be related to ethnic background, either as an interesting source of interaction or as a related factor. For example, differences between ethnic minority and majority students concerning the withdrawal reason 'financial obligations' are quite likely related to the generally lower socioeconomic backgrounds of minority students (Read et al., 2003). The same may be true for ethnic differences in 'poor study choice' as reason for withdrawal. In relation to gender, Yorke (1999) and Davies and Elias (2003) found several differences between males and females in their reasons for withdrawing from higher education. Male students seem to withdraw more often because of academic and financial influences when compared to female students who withdraw more often because of external or non-academic, personal issues. Given the variation in withdrawal rates in

groups of male and female majority and minority students (Dutch figures show that female majority students withdraw less often compared to the remaining three groups, see Wolff, 2007), it is interesting to examine whether gender differences in withdrawal reasons will likewise emerge in groups of minority and majority students as well.

Another important issue concerns the *moment* of withdrawal. Both Davies and Elias (2003) and Yorke (1999) investigated possible differences in withdrawal reasons between students who withdrew within the first year of higher education and students who left after more than a year. Compared with those who had been relatively more persistent, early leavers felt they had chosen the wrong field of study, found the program to be different than expected, lacked commitment to the program and were unhappy with the way that the program was being taught. Because there is some evidence that differences in withdrawal and completion rates between ethnic minority and majority students grow with the years in higher vocational education (Dutch Ministry of Education, 2004; Wolff, 2007), it is interesting to examine whether there is an interaction between ethnic background and the moment of withdrawal.

Lastly, the *type* of withdrawal may also be relevant in relation to reasons for withdrawal. A distinction can be made between students who completely withdraw from higher education (i.e., dropouts) and students who leave one program but start another one (i.e., switchers). Even though most studies do not distinguish between these two groups of leavers (Davies & Elias, 2003; Yorke, 1999), different reasons for withdrawal between these two groups of leavers seem logical. Because the differences in completion rates between minority and majority students are bigger than differences in withdrawal rates after two years of studying, as described in the introduction, it is plausible that minority students more often drop out instead of switching to other programs. Therefore, the present study will explore possible differences based on ethnic background within these types of leavers.

In summary, the research questions are:

1) What are the reasons for withdrawal from higher vocational education?
2) Do ethnic minority students withdraw from higher vocational education for different reasons than their Dutch majority counterparts?

Method

Participants and procedure

In the Netherlands, within the domain of higher education a distinction is made between institutes for higher vocational education and university education (with a focus on research). The present study focused on withdrawal from higher vocational education,

because the withdrawal rates in higher vocational education are higher than the withdrawal rates in universities (20 percent versus 10 percent). 1,017 non-completers participated by completing an online or a paper and pencil version of a questionnaire regarding reasons for withdrawal from higher vocational education. Due to an overrepresentation of female participants, ethnic minority participants and participants who withdrew from teacher education, a weighting procedure was performed. The data were weighted by gender, ethnicity and field of education to create a representative sample of the students in higher vocational education in the Netherlands. The weighting procedure was performed on the basis of a national database. Furthermore, only data from participants who studied full-time and withdrew voluntarily were used. Background information on the non-completers is provided in Table 1. Respondents were defined as non-completers if they withdrew from higher vocational education in the period of 2000-2006 or switched programs or higher education institutes in this period.

The distinction between majority and minority participants was made on the basis of the definition of the Statistics Netherlands (CBS). According to CBS, an individual belongs to a non-Western ethnic minority group if at least one of his or her parents was born outside a Western country. Most minority participants were born in, or had parents born in, Suriname, Turkey, the Netherlands Antilles or Morocco (Table 1). Because of the relatively small sample sizes of these sub-groups, it was not possible to make group comparisons between each ethnic group.

Questionnaire

Forty-five reasons for withdrawing from higher vocational education were identified in the literature on the withdrawal process and reasons for withdrawal from higher education. Respondents were asked to rate the reasons on a 5-point Likert scale ranging from 1 *(no reason at all for withdrawing)* to 5 *(a very important reason for withdrawing)*.

Method of analysis

All analyses in the present study have been performed on the weighted data. Exploratory factor analysis was used to determine the factors underlying the 45 reasons for withdrawing from higher vocational education. Principal component analysis was used as the extraction method. The number of factors to be retained was determined on the basis of eigenvalues, the scree plot, percentage of explained variance and factor interpretability. The factors were rotated using the varimax rotation method. Whether or not the underlying factor structures were equal across ethnic minority and majority non-completer groups was tested by comparing the results of separate factor analyses in each group.

Table 1 | Participant background information (weighted and unweighted data) (*N* = 1,017)

	Weighted data		Unweighted data	
	N	***%***	***N***	***%***
Gender				
Male	500	49.1	309	30.4
Female	517	50.9	708	69.6
Ethnicity				
Majority	882	86.7	737	72.5
Non-Western ethnic minority	135	13.3	280	27.5
Country of origin				
Netherlands	882	86.7	737	72.5
Morocco	16	1.6	56	5.5
Turkey	30	2.9	63	6.2
Suriname	40	3.9	73	7.2
Netherlands Antilles/ Aruba	22	2.1	38	3.7
Other non-Western	28	2.7	50	4.9
Gender*ethnicity				
Majority male	434	42.7	224	22.0
Majority female	448	44.0	513	50.4
Non-Western minority male	66	6.5	85	8.4
Non-Western minority female	69	6.8	195	19.2
Socioeconomic status				
Low	83	8.2	121	11.9
Medium	417	41.0	414	40.7
High	487	47.9	444	43.7
Missing	29	2.9	38	3.7
Moment of withdrawal				
Before or at the end of the first year of education	796	78.3	809	79.5
After more than one year of education	221	21.7	208	20.5
Dropout or switch				
Switchers	640	62.9	652	64.1
Dropouts	230	22.6	238	23.4
Missing	147	14.5	127	12.5

After scale construction on the basis of the outcomes of the exploratory factor analysis, reliability analyses were conducted to examine Cronbach's alpha for each scale. In case of reliable scales (i.e., alpha .65 or higher), means and standard deviations were calculated and used as dependent variables in the multivariate analysis of variance. The purpose of the analysis of variance is to examine differences between mean scores on withdrawal reasons of the relevant groups in the present study. Ethnic background, gender, type of withdrawal and moment of withdrawal were used as independent factorial variables in the analysis of variance and socioeconomic background (SES) was included as a covariate to test whether these have an effect on the withdrawal reasons. The interaction effects between ethnic background and all other independent variables were included as well.

Results

In order to answer the first research question on withdrawal reasons, exploratory factor analysis was carried out on the 1,017 sample cases. An eight factor solution appeared to be the best interpretable solution and accounted for about 60.7% of the total variance. However, close examination of the factor loadings and the content of the items, and applying a general rule of at least three items in a scale, eventually resulted in six factors and reliable scales reflecting distinct withdrawal reasons instead of eight (Table 2). These six factors are 'home situation', 'future job', quality of education', 'ability', 'culture' and 'content of education'.

To investigate whether this factor structure was equal across ethnic minority as well as majority non-completer groups, separate factor analyses were performed for both groups of non-completers. Only the items in the six constructed scales were included. The factor structures across both groups of non-completers were equal, except for three items. The items 'unable to combine education with job', 'heavy study load' and 'prejudices at school' loaded on different components in the group of ethnic minority non-completers. Each of the three items loaded on factors they do not seem to belong to in terms of content. For example, the item 'prejudices at school' loaded on the factor 'quality of education and organization'. Therefore, in the construction of the final scales, it was decided to remove these three ambivalent items from the withdrawal scales.

The outcomes of the scale construction analyses generally confirm the expected withdrawal reasons on the basis of Tinto's model (1993) and research on leavers. The scale relating to (lack of) ability (e.g., 'lack of competence' and 'lack of math skills') resembles Tinto's concept of academic performance. Withdrawing from higher vocational education due to the poor quality of an education program (e.g., 'poor tutoring' and 'poor educational system') includes both faculty and staff interaction as well as organizational factors. Withdrawal because of external commitments can clearly be recognized in the scale relating to (problems in) the home situation and lack of support from the community (e.g., 'lack of support from my parents for my education' and 'stress due to home situation'). As for the concepts concerning external commitments, future job perspectives emerge as a separate factor (e.g., 'poor career perspectives' and 'low salary in future job'). A reliable and interpretable scale concerning financial issues could not be identified. Withdrawing because of the content of the education (e.g., 'wrong study choice' and 'uninteresting courses') matches the withdrawal reason related to motivation. The culture scale (e.g., 'negative culture at school' and 'being different than other students') seems to reflect a combination of the 'poor fit' concept and poor quality of social contacts with fellow students (Tinto's social integration).

Table 2 | Withdrawal reasons with scale name, description, typical items, reliability and descriptive values based on factor analysis

Withdrawal reasons	Description	Typical items	Cronbach's alpha	M (1-5) (SD)
Home situation (*k* = 7)	Withdrawal because of (problems in) the home situation	Lack of support from my parents for my education Stress due to home situation	0.86	1.47 (0.75)
Future job (*k* = 6)	Withdrawal because of future job perspectives	Poor career perspectives Low salary in future job	0.87	1.65 (0.91)
Quality of education (*k* = 5)	Withdrawal because of poor quality of education and organization	Poor tutoring Poor educational system	0.89	2.77 (1.27)
Ability (*k* = 5)	Withdrawal because of a lack of ability	Lack of competence Lack of math skills	0.78	1.61 (0.82)
Culture (*k* = 5)	Withdrawal because of the culture at the institute	Negative culture at school Being different than other students	0.81	1.85 (0.94)
Content of education (*k* = 3)	Withdrawal because of a disappointing content of the education	Wrong study choice Uninteresting courses	0.75	3.03 (1.32)

A multivariate analysis of variance was conducted to test the differences in withdrawal reasons for ethnic minority and majority non-completers, male and female non-completers, differences according to SES, between dropouts and switchers and between non-completers who left higher vocational education before or at the end of the first year and non-completers who left after the first year. Tables 3 and 4 report the findings. The multivariate tests regarding differences in the importance of withdrawal reasons turned out to be significant for gender, type of withdrawal, SES, the interaction between ethnic background and the type of withdrawal and the interaction between ethnic background and the moment of withdrawal (Table 3). No main effect was found for ethnic background. This means that there are no overall differences in withdrawal reasons between ethnic minority and majority non-completers. Therefore, univariate results (i.e., the results regarding main effects of ethnic background on each of the six withdrawal reasons) in Table 4 should be disregarded.

Table 3 | Multivariate analysis of variance: Differences according to ethnic background, gender, type and moment of withdrawal and socioeconomic status in reasons for withdrawing from higher vocational education

Effect	*df*	*F*	Partial η^2	*p*
Ethnic background	6.000	.691	.006	.657
Gender	6.000	4.311**	.035	.000
Type of withdrawal	6.000	5.123**	.041	.000
Moment of withdrawal	6.000	1.652	.014	.130
Socioeconomic status	6.000	3.382**	.028	.003
Ethnic background*Gender	6.000	1.684	.014	.122
Ethnic background*type of withdrawal	6.000	4.595**	.037	.000
Ethnic background*moment of withdrawal	6.000	2.517*	.021	.020
Ethnic background* socioeconomic status	6.000	.144	.001	.990

* p <.05. ** p <.01.

Univariate results showed five main effects for gender (Table 4). Male non-completers withdrew from higher vocational education more often because of (problems in) their home or personal situation, a poor quality of education, because they were not able to complete the education, a negative culture at school and disappointing educational content (see Table 5 for mean scores). Main effects were also found for the type of withdrawal. Participants who switched programs in higher vocational education withdrew more often because of a lack of ability to complete the program compared with participants who completely withdrew from higher vocational education. Switchers also withdrew more often than dropouts because

of their disappointment with the educational content. Withdrawing because of problems in the home or personal situation appeared to be more important to non-completers from low SES backgrounds (F = 4.101, p = .043) (see Table 4). Non-completers from low SES backgrounds also withdrew more often than non-completers from higher SES backgrounds because of a lack of ability (F = 13.876, p = .000).

A first significant interaction effect was found between ethnic background and the type of withdrawal. For ethnic minority dropouts, a poor educational quality was significantly more important in their decision to withdraw than it was for majority dropouts (see Table 5 for mean scores). This means that when the quality of the education was rated as poor, ethnic minority students were more likely to withdraw completely from higher vocational education than majority students were (Figure a). A lack of ability was a less important reason for ethnic minority dropouts in their decision to withdraw in comparison to majority dropouts. In other words, if majority students have the feeling that they are not able to complete the educational program they more often withdraw completely from higher education in comparison to ethnic minority students (Figure b). A disappointing educational content was more important in the decision to leave for ethnic minority switchers in comparison to majority switchers (Figure c).

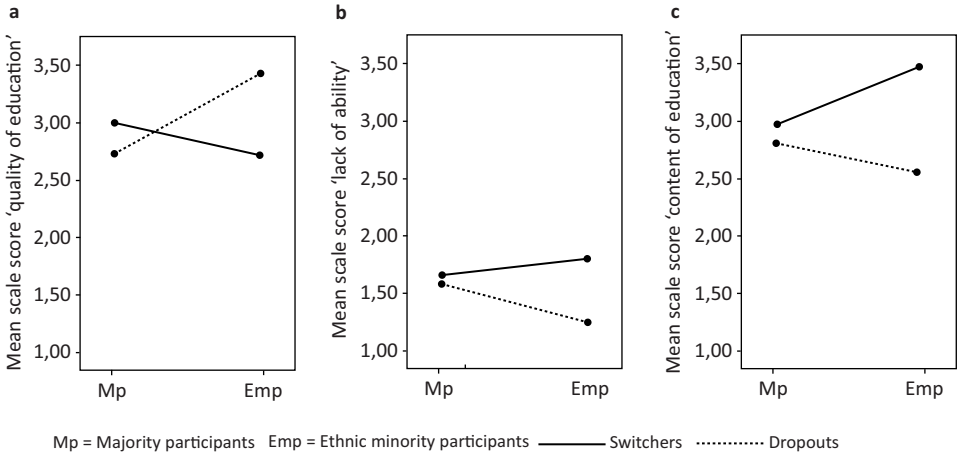

Figure 1 | Interaction effects between ethnic background of participants and the type of withdrawal when withdrawing due to poor quality of the education (a), due to lack of ability (b) and due to disappointing educational content (c)

A second significant interaction effect emerged between ethnic background and the moment of withdrawal. Disappointing educational content appeared to be more important in the decision to leave for ethnic minority non-completers who withdraw late (i.e., after more than one year) from higher vocational education in comparison to late majority leavers (Figure 2).

In summary, compared to majority dropouts, ethnic minority dropouts withdrew more often because of a poor quality of the education and less often because of a lack of ability. Ethnic minority switchers withdrew more often than majority switchers due to disappointing educational content. Late ethnic minority non-completers withdrew more often than late majority non-completers due to disappointing content.

Table 4 | Tests of between-subjects effects

Factor	Dependent variable	*df*	*F*	Partial η^2	*p*
Ethnic background	Home situation	1	.966	.001	.326
	Future job	1	.000	.000	.982
	Quality of education	1	.090	.000	.765
	Ability	1	.763	.001	.383
	Culture	1	2.500	.003	.114
	Content of education	1	.084	.000	.772
Gender	Home situation	1	5.822*	.008	.016
	Future job	1	.257	.000	.612
	Quality of education	1	4.231*	.006	.040
	Ability	1	11.225**	.015	.001
	Culture	1	13.448**	.018	.000
	Content of education	1	6.450*	.009	.011
Type of withdrawal	Home situation	1	.925	.001	.337
	Future job	1	3.839	.005	.050
	Quality of education	1	1.636	.002	.201
	Ability	1	7.395**	.010	.007
	Culture	1	2.017	.003	.156
	Content of education	1	9.022**	.012	.003
Moment of withdrawal	Home situation	1	.509	.001	.476
	Future job	1	4.209*	.006	.041
	Quality of education	1	5.990*	.008	.015
	Ability	1	.485	.001	.486
	Culture	1	.001	.000	.981
	Content of education	1	.702	.001	.402

Table 4 | Continued

Factor	Dependent variable	*df*	*F*	Partial η^2	*p*
Socioeconomic status (SES)	Home situation	1	4.101*	.006	.043
	Future job	1	.000	.000	.982
	Quality of education	1	.733	.001	.392
	Ability	1	13.876**	.019	.000
	Culture	1	2.031	.003	.155
	Content of education	1	.296	.000	.587
Ethnic background*Gender	Home situation	1	5.086*	.007	.024
	Future job	1	.028	.000	.867
	Quality of education	1	.877	.001	.349
	Ability	1	1.302	.002	.254
	Culture	1	3.263	.004	.071
	Content of education	1	3.123	.004	.078
Ethnic background*type of withdrawal	Home situation	1	.077	.000	.781
	Future job	1	.004	.000	.947
	Quality of education	1	8.376**	.011	.004
	Ability	1	4.475*	.006	.035
	Culture	1	2.798	.004	.095
	Content of education	1	4.782*	.007	.029
Ethnic background*moment of withdrawal	Home situation	1	2.060	.003	.152
	Future job	1	.108	.000	.742
	Quality of education	1	1.288	.002	.257
	Ability	1	1.619	.002	.204
	Culture	1	1.952	.003	.163
	Content of education	1	4.776*	.007	.029
Ethnic background*SES	Home situation	1	.315	.000	.575
	Future job	1	.036	.000	.849
	Quality of education	1	.073	.000	.787
	Ability	1	.277	.000	.599
	Culture	1	.346	.000	.556
	Content of education	1	.431	.001	.512

*$p < .05$. **$p < .01$; Home situation: R Squared = .045; Future job: R Squared = .040; Quality of education: R Squared = .043; Ability: R Squared = .072; Culture: R Squared = .042; Content of education: R Squared = .027

Table 5 | Means and standard deviations (in parentheses) of the significant univariate results and the significant interaction effects

		Home situation	Future job	Quality of education	Ability	Culture	Content of education
Gender	Male	1.63 (.07)	ns	3.12 (.12)	1.73 (.08)	2.01 (.09)	3.23 (.13)
	Female	1.43 (.08)	ns	2.82 (.13)	1.40 (.09)	1.59 (.10)	2.84 (.14)
Type of withdrawal	Switchers	ns	ns	ns	1.73 (.07)	ns	3.31 (.11)
	Dropouts	ns	ns	ns	1.41 (.11)	ns	2.76 (.18)
Ethnic background*type of withdrawal	Majority switchers	ns	ns	ns	ns	ns	3.05 (.07)
	Minority switchers	ns	ns	ns	ns	ns	3.58 (.20)
	Majority dropouts	ns	ns	2.72 (.11)	1.58 (.07)	ns	ns
	Minority dropouts	ns	ns	3.45 (.32)	1.24 (.21)	ns	ns
Ethnic background* moment of withdrawal	Late majority leaver	ns	ns	ns	ns	ns	2.84 (.12)
	Late minority leaver	ns	ns	ns	ns	ns	3.40 (.35)

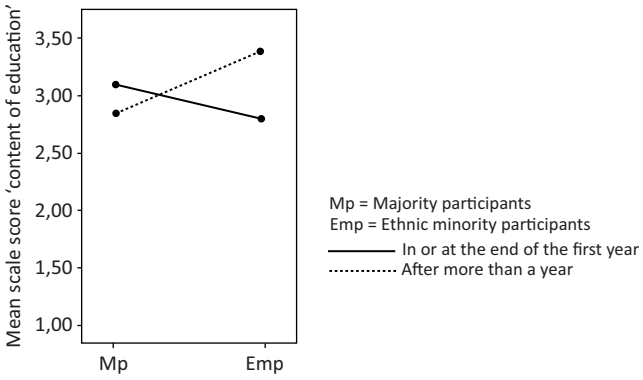

Figure 2 | Interaction effect between ethnic background of participants and the moment of withdrawal when withdrawing due to disappointing educational content

Discussion

Previous research has shown that, on average, students from ethnic minority backgrounds have lower completion rates in higher education in comparison to majority students (Crul & Wolff, 2002; Eimers & Pike, 1997; Hobson-Horton & Owens, 2004; Jennissen, 2006; Just, 1999; Van den Berg, 2002; Van den Berg & Hofman, 2005). Against this background of completion rate differences between ethnic groups, the present study investigated whether ethnic minority and majority students leave their programs for different reasons. The literature regarding the departure process based on the model of Tinto (1993) as well as the research on withdrawal reasons suggested that ethnic minority students leave for different reasons. A lack of support in the academic system, a lack of academic integration and a lack of fit have been suggested to be more important factors in the departure decision of minority students. Similarly, a lack of support from peers in the social system also seems to be more important to students from ethnic minority backgrounds. The role of external commitments may be negative as well as positive for ethnic minorities: Support from family may help, but care responsibilities may hinder the study progress of students from ethnic minority backgrounds. These processes are shown in research on minority students, but the same may be true for majority students. Some of the concepts identified in former research as important in the departure decision had not been investigated among groups of ethnic minority leavers before, namely: The organization of the program, future job perspectives, motivation and study choice. The present study included these reasons as well, and explored possible differences between minority and majority leavers.

The overview of research on the withdrawal process and withdrawal reasons among groups of ethnic minority and majority non-completers was translated into an initial list of 45 reasons. Scale construction analyses resulted in a list of six distinct withdrawal reasons that generally confirms the expected withdrawal reasons on the basis of Tinto's model (1993) and research on leavers. Leavers presented the following reasons for leaving, thereby answering the first research question: (problems in) the home or personal situation (1), disappointing future job perspectives (2), poor quality of education (3), a lack of ability (4), negative culture (5) and disappointing program content (6). No separate factor was found indicating a reason related to the social system. The relatively strong relation between the social integration items and the culture items seems to have resulted in one culture factor. In other words, the lack of social support seems to be hidden within the concept of culture. The reason 'lack of financial resources' could also not be confirmed on the basis of the scale construction analyses.

One of the main conclusions of the present study is that in fact there are no significant differences in the reasons for leaving higher vocational education given by ethnic minority and majority non-completers. In view of the considerable differences in withdrawal rates between ethnic minority and majority non-completers and previous studies suggesting differences in withdrawal reasons, this finding is remarkable. The question arises to what extent the expected differences in withdrawal reasons are tenable and not oversimplified. Perhaps the differences in withdrawal rates between ethnic minority and majority students can not be explained by simply looking at mean differences in the reasons for their departure. It is possible that differences in the departure reasons of ethnic minority and majority students are of a structural nature. It is for example imaginable that ethnic minority and majority students understand or interpret the reasons as presented in different ways. A qualitative ethnographic study going into depth regarding reasons for leaving might unveil such differences in interpretations.

That we did not observe a main effect for ethnic background but several interaction effects indicates the complex nature of group differences in withdrawal reasons. Regarding the type of withdrawal, an interaction effect was found in withdrawing due to educational quality and content, and student ability. Ethnic minority dropouts withdrew entirely from higher education more often than majority dropouts due to the poor quality of the education, such as a poor quality of teachers and a poor educational system. When ethnic minority students are disappointed in (the quality of) higher vocational education, they will more often decide to leave higher education completely. Disappointed ethnic majority students, on the other hand, seem to give the higher education system a second chance and switch to another program. However, when the content of the education was disappointing (i.e., uninteresting courses, a poor study choice), ethnic minority students were more likely than majority students to switch programs. In ethnic minorities' decisions to completely

withdraw from higher vocational education or switch programs, it thus seems to be important how they attribute their disappointment. When they internally attribute their discontent (i.e., a poor study choice) they decide to switch programs, but when the disappointment is attributed externally (i.e., a poor quality of the education) they decide to drop out entirely. A possible explanation for this complete withdrawal when the quality of the education is rated as poor is that ethnic minority students might think that this educational quality is the standard in higher vocational education. They do not expect the quality to be better in another program or institute and decide to withdraw completely from higher education. Determining whether this is the case is an interesting topic for future research. As a final result concerning the type of withdrawal, we found that majority dropouts withdrew more often than ethnic minority dropouts due to a lack of ability to complete the program. This finding seems to indicate that ethnic minority students have more confidence in their ability to succeed in another educational program. Majority students, on the other hand, decide to withdraw entirely from higher vocational education when they feel they are unable to complete the specific program.

Concerning the moment of withdrawal from higher vocational education (i.e. within or at the end of the first year as opposed to after more than one year), we saw that ethnic minority late leavers withdraw more often due to disappointing educational content than majority late leavers. This finding may indicate that ethnic minority students discover at a relatively late stage that their educational choice is not what they expected it to be. They find out later that they made a poor choice. This means that they may unnecessarily lose time in higher vocational education.

The observed differences do not confirm our expectations on the basis of Tinto's (1993) model and past research on leavers. Ethnic minority students do not leave more often because of a negative culture or a lack of fit, nor do they leave more often due to external commitments. The only expectation that can be partially confirmed concerns the quality of education. We expected minority students to leave more often due to the poor quality of teachers or interaction with teachers (academic integration), and due to the poor quality of the organization. This seems to be true for ethnic minority students who leave higher education entirely in comparison to their majority counterparts. Ethnic minority students were also expected to leave more often as a result of their home situation. This, however, turned out to be an effect of socioeconomic status (SES). Non-completers from low SES backgrounds withdrew more often due to problems in their home or personal situation. The answer to our second research question turned out to be a rather complicated one. In general, we can conclude that there are no overall differences, but rather differences between ethnic minority and majority students with respect to other background factors in reasons for withdrawing from higher vocational education.

Aside from these differences between non-completers from minority and majority backgrounds, the present study observed a number of other interesting group differences. Gender turned out to be an important factor in that men differ from women in five of six withdrawal reasons. It is beyond the scope of the present paper, but the findings call for a further exploration of these differences in relation to the relatively high dropout rates among male students (Wolff, 2007). Secondly, as expected on the basis of Read et al. (2003), problems in the home situation are indeed more important for non-completers from low SES backgrounds. The present study also showed that low SES students leave early more often due to a lack of ability. Finally, future research on withdrawal reasons should take the type of withdrawal into account: Students who leave higher education entirely do so for different reasons than students who switch programs.

Limitations

The present study has several limitations. First of all, data were collected one to seven years after the respondents withdrew from higher vocational education. The respondents that withdrew six or seven years ago for example may not have been able to fully recall the precise reason(s) for their decision to withdraw at that moment in the past. Although we recognize the possible difficulty in relying on the hindsight perceptions of respondents (e.g., the occurrence of a memory bias), we think this does not seriously threaten the validity of our method, because the correlations between the year of withdrawal and the six withdrawal reasons were not statistically significant. This means that there is no difference in (importance of) withdrawal reasons between students who withdrew one year ago or seven years ago for example.

A second limitation concerns the relatively small numbers of ethnic minority participants from different countries of origin. This made it impossible to examine the results of these different origin groups separately. It must therefore be kept in mind that the results as observed in the present study may not be true for each different group in our study.

A third limitation concerns the combination of social and culture items. As described above, the analyses show that the social support items were combined with the culture items into one factor (and scale), thereby reflecting one underlying concept. However, it could also mean that the items attempting to measure the social support concept were inadequate. Given the central role of social integration in Tinto's (1993) model, it seems warranted to examine this last explanation in further detail. A qualitative study among leavers which examines the role of the social system in more depth may reveal the inadequateness of the current set of items. In such a qualitative study the concept of culture should also be addressed more carefully. The purpose of the present study was to investigate possible differences in withdrawal reasons between ethnic minority and

majority students. We expected that a negative cultural atmosphere at the institute (i.e., a poor fit) would cause ethnic minority students to leave more often than majority students. We carefully worded the items on the basis of former research in this area. However, given our results, we propose a qualitative follow up study aiming to more closely examine the underlying meanings of 'negative culture at school' as an option for withdrawal in each of the different groups in our study.

A fourth and final limitation of the present study is that no distinction was made between the separate institutes of higher vocational education. One of the major conclusions drawn is that when the quality of the education was rated as poor, ethnic minority students were more likely to completely withdraw from higher vocational education than majority students. As a consequence, the question arises whether this is caused by possible differences in the institute profiles. If not, an alternative explanation may be that ethnic minority students experience the same institution in different ways, for example in terms of institutional racism or fitting in and culture. In future research it is therefore interesting to compare student experiences against their institutional profiles.

Implications for research and practice

Finally, the present findings have several implications for research on withdrawal from higher vocational education which give insight into the background of this phenomenon in the Netherlands. The extent to which these findings can apply to other countries is not known. The instrument measuring possible withdrawal reasons has been developed based on international literature. Accordingly, it is expected that the instrument is internationally valid.

Not having found overall differences in withdrawal reasons according to ethnic background, the question remains as to whether other reasons for leaving play a role in explaining the difference between ethnic minority and majority students in withdrawal rates. An interesting topic for future research would be to look closer at the impact of the different live domains of students. Are there differences between the importance ethnic minority and majority students attach to their different life domains and the extent to which these domains interfere? A study investigating these issues might reveal reasons for leaving college that have not been included in the present study.

The findings presented here have practical implications for the information about higher vocational education provided in secondary school. Ethnic minority students realize relatively late in their studies that they have made the wrong study choice. When students are provided with early information and supported in making their study choice, (late) withdrawal might be reduced. Another point of attention concerns the quality of the course programs. It would seem important to monitor the quality of study programs more closely to prevent withdrawal and, in the case of ethnic minority students, complete dropout from higher vocational education in the Netherlands.

Chapter 7

Summary and discussion

The present dissertation presents four empirical studies (described in five chapters) on similarities and differences between ethnic majority students and non-Western ethnic minority students in psychosocial and study skill factors (PSFs; Robbins et al., 2004) as a possible explanation for differences in study success between these two groups of students. In this thesis, the following PSFs were included: 1) social involvement (i.e., the extent to which students feel connected to the college environment; the quality of students' relationships with peers, faculty and others in college), 2) perceived social support (i.e., students' perception of the availability of social networks that support them in their study), and 3) academic-related skills (i.e., cognitive, behavioral and affective tools and abilities) necessary to successfully complete tasks, achieve goals, and manage academic demands (Robbins et al.). In this final chapter, similarities and differences between ethnic majority students and non-Western ethnic minority students will be addressed in the context of the three investigated PSFs. The results of the separate studies will be described first. Subsequently, an overview will be given of strengths and limitations of the studies, as are suggestions for future research. Finally, practical implications will be presented.

Summary of main findings

Academic outcomes and social involvement: The role of the learning environment

The first PSF, social involvement, refers to the extent to which students feel connected to their college environment and the quality of students' relationships with peers, faculty and others in college (Robbins et al., 2004). In **chapter 2,** firstly**,** we examined the extent to which ethnic majority students and non-Western ethnic minority students felt connected to the learning environment and we investigated the quality of their relationships with peers and faculty. Secondly, and in particular, we investigated whether activating learning environments stimulated a sense of belonging in a similar way, or to a similar extent, in the group of ethnic majority students and non-Western ethnic minority students. We also investigated how activating learning environments and a sense of belonging related to students' study success, which was conceptualized as 'the number of credits earned', and whether these possible relationships differed for students from different ethnic backgrounds. Data were collected among 523 first year university students from four different universities in the Netherlands (378 ethnic majority students versus 145 non-Western ethnic minority students) who completed an online version of a questionnaire. Results showed that ethnic majority students and ethnic minority students felt equally connected to the learning environment, and that the quality of their interactions with peers and faculty also was comparable. The interrelationships between interaction, sense of belonging and study success appeared to be different for ethnic minority students compared to their ethnic majority counterparts.

Ethnic minority students appeared to feel at home in their educational program if they had good *formal* relationships (i.e., interactions regarding university and study-related matters) with teachers and fellow students. Ethnic majority students' sense of belonging was not fostered by any formal relationships. Instead, the better the *informal* contacts (i.e., interactions concerning personal matters) with fellow students were, the more majority students felt at home. As regards the relationship between sense of belonging and study success, it was found that the extent to which ethnic minority students felt they belonged at the institution did not influence their study progress. However, sense of belonging in the group of ethnic majority students did further their study progress.

In sum, the first investigated PSF, social involvement (Robbins et al., 2004), was indeed found to be a predictor of academic outcomes in the group of ethnic majority students as positive relationships were found between the learning environment, peer and teacher interactions, sense of belonging and study success. However, the social involvement could not explain the less successful academic careers of the non-Western ethnic minority students in the present study. In a previous study (Severiens & Wolff, 2008) it was already learned that peer and teacher interactions did not affect the study progress of ethnic minority students. The results of the present study add to this finding in such a way that ethnic minority students' study progress was neither influenced by the activating character of the program nor by the extent to which they felt they belonged in the educational program. Apparently, other factors explain the study success of ethnic minority students.

In the following section, therefore, the PSF social support is investigated in relation to the academic success of ethnic majority and ethnic minority students.

Academic outcomes and perceived social support: The role of the family

The second PSF, perceived social support, is defined as students' perceptions of the availability of social networks that support them in college (Robbins et al., 2004). An important social network is students' family. Several studies confirmed that students' family plays an important role in obtaining good study results (Herndon & Hirt, 2004; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006), but the details remain unclear as to how exactly students' family plays a role in explaining differences in study success between ethnic majority and ethnic minority students. In **chapter 3** we examined the family-study interface, which was defined as the extent to which family life affects the ability of students to meet study-related demands and responsibilities in both a positive (i.e., facilitation) and a negative (i.e., conflict) way. Furthermore, it was assessed whether family-study conflict and family-study facilitation affected the academic outcomes of students in higher education. Data were collected from 1,656 full-time university students attending a major 4-year university in the western part of the Netherlands. E-survey results showed that the more students participated in family activities such as spending time with family and household duties

for the family, the more conflict they experienced between their family lives and their lives as students. This finding is consistent with previous research on other interfaces in which time with family or work hours were determined as an antecedent of conflict between roles (Butler, 2007; Ford, Heinen, & Langkamer 2007). Second, and also in line with previous studies (Adams, King, & King, 1996; Baltes & Heydens-Gahir, 2003; Byron, 2005; Ford et al.; Greenhaus & Beutell, 1985), family support negatively predicted family-study conflict. In other words, the more students perceived support from the family, the less conflict they reported between their family and study. Third, contrary to expectations, the results indicated that involvement with the family (i.e., the extent to which the family role is central to an individual's self-concept) was not significantly related to family-study conflict.

Participation in family activities, family support and the students' involvement with the family appeared to be antecedents of family-study facilitation. In other words, the more students participated in family activities (such as spending time with family, household duties for the family), the more students perceived family support and the more students themselves were involved with the family, the more family-study facilitation they reported. These findings are in line with previous studies in the work-family domain, which found that support and involvement are positively related to work-family facilitation (Frone, Yardley, & Markel, 1997; Grzywacz & Marks, 2000; Kirchmeyer, 1992; Wayne, Grzywacz, Carlson, & Kacmar, 2007).

Our study also demonstrated that students' study effort was affected by the family-study interface. Family-study conflict negatively affected students' effortful behaviors (such as putting forth a high level of effort in class), which on the other hand were positively affected by family-study facilitation. Finally, students' academic performance was positively predicted by their study effort.

Chapter 4 extended chapter 3 by examining both possible mean differences between ethnic minority and ethnic majority students in (antecedents of) family-study conflict and family-study facilitation, as well as how this family-study interface is related to academic outcomes in both groups of students. Of the total sample (N = 1,656) nearly 21% of the respondents (342 students) belonged to a non-Western ethnic minority group. Results demonstrated that non-Western ethnic minority students participate more in family activities such as spending time with family and household duties for the family compared to ethnic majority students. Ethnic minority students were also more involved with their family than ethnic majority students, indicating that family is more central in their lives than it is in the lives of ethnic majority students. Furthermore, ethnic minority students experienced more conflict between their family live and lives as a student, put less effort into their study and earned lower grades compared to ethnic majority students. No average differences were found between the two groups of students in family social support and family-study facilitation.

In a next step, we tested the family-study model as identified in chapter 3 in both the group of ethnic majority students and ethnic minority students separately to investigate whether the family-study interface could give an explanation for the lower grades of ethnic minority students. The family-study model showed that students' GPA is positively affected by students' study effort to the same extent for ethnic minority and ethnic majority students. The family-study interface and its antecedents give us an explanation – at least partly – for the less successful academic careers of non-Western ethnic minority students. According to our family-study model, the study effort of both ethnic minority and ethnic majority students is determined negatively by family-study conflict. The more family-study conflict students experience, the less effortful behaviors they report. For both ethnic minority and ethnic majority students, participation in family activities positively and family support negatively affect family-study conflict, with participation in family activities being a stronger predictor. The less successful academic careers of non-Western ethnic minority students can therefore be partially explained by their participation in family activities. That is, due to their higher levels of participation in family activities, they experience more conflict between family and study than ethnic majority students. These higher levels of conflict result in less study effort, and consequently in lower grades.

The model further revealed that study effort is not only affected by family-study conflict, but also by family-study facilitation. High levels of family-study facilitation result in more study effort. Family-study facilitation is positively affected by participation in family activities and involvement with the family. These relationships are identical between the group of ethnic minority and the group of ethnic majority students. But more than through students' participation in family activities and involvement with the family, family-study facilitation seems to be influenced by family support. Both ethnic minority and ethnic majority students receive equal levels of support from their families. What is different, however, is that family-study facilitation is affected more strongly by family social support among the group of ethnic majority students than the group of ethnic minority students. More specifically, this finding means that if the family social support ethnic majority students receive is high, these students will experience higher levels of family-study facilitation compared to ethnic minority students with equal high levels of support. In other words, family social support thus seems to be more effective in the group of ethnic majority students in the sense that it results in more family-study facilitation. This difference is important, as facilitation results in more effort and ultimately in higher grades.

In sum, the results firstly show that the social network of family plays a role in predicting students' grade point average. This finding is in line with the study of Robbins et al. (2004), who identified social support as a predictor of academic outcomes. However, more important is the fact that the PSF social support contributes in the explanation of the less successful academic careers of ethnic minority students compared to the academic careers

of ethnic majority students. This thesis demonstrated the importance of family in the lives of both ethnic majority and ethnic minority students in higher education. Family support reduces the conflict experienced between family and study, and increases the family-study facilitation experienced, which in turn positively impacts study effort and ultimately grades. Family support is more strongly related to family-study facilitation in the group of ethnic majority students. In other words, ethnic majority students' family support is more effective than the family support which ethnic minority students receive. Ethnic majority students who receive high levels of family support perceive relatively more family-study facilitation, resulting in an increase in study effort and consequently higher grades. Furthermore, due to the higher levels of participation in family activities of ethnic minority students compared to ethnic majority students, ethnic minority students experience more conflict between their family lives and lives as a student. This higher level of conflict between the domains of family and study result in less study effort and consequently lower grades.

Academic outcomes and academic-related skills: The role of time use and time management

The third and final PSF, academic-related skills, refers to cognitive, behavioral and affective tools (such as time management skills and study skills) necessary to successfully complete tasks, achieve goals, and manage academic demands (Robbins et al., 2004). In **chapter 5** we investigated at the micro level how students use and manage their time in relation to their ethnic cultural backgrounds. For two weeks (a lecture week and an exam week), the daily time use of 48 full-time first-year university students Business Administration (24 ethnic majority students and 24 non-Western ethnic minority students who were fully matched by gender, socioeconomic status, living situation and type of secondary education) was investigated by means of a daily diary survey. Results showed that ethnic majority students earned higher grades compared to non-Western ethnic minority students. As regards time management behavior, ethnic majority students appeared to have a stronger *preference for organization* (e.g., leaving a clear study space at the end of a study day) than ethnic minority students. No differences between ethnic minority students and ethnic majority students were revealed in *setting goals and priorities* (e.g., setting deadlines) and *mechanics of time management* (e.g., making to-do lists). Looking at the daily time use of students, both ethnic majority and ethnic minority students spent more hours on leisure and sports per day in a regular lecture week, than that they were studying. In the exam week, daily study time increased and students spent less time a day on leisure and sports and working. It is not unlikely that it is because of the increased study time in the exam week that students spent less time a day on leisure and sports and on working. These findings hold true for both the group of ethnic majority and ethnic minority students. Finally, repeated measures Anovas resulted in study patterns during the lecture week and the exam week. Students' self study

time appeared to be related to the day of the week. In particular, in the lecture week self study time decreased in the course of the week, and in the exam week students spent more time studying on a day before an examination. No differences in these study time patterns were found between ethnic majority and ethnic minority students.

In sum, results concerning students' time management behavior and daily time use (i.e., the third PSF, Robbins et al., 2004) do not seem to explain the difference in academic performance between ethnic majority and ethnic minority students. That is, ethnic majority students appeared to have a stronger preference for organization than ethnic minority students, but no differences were found between the two ethnic groups in setting goals and priorities, and mechanics of time management. Furthermore, no differences between ethnic majority and ethnic minority students were found in daily time use in both the lecture week and the exam week. Study time patterns also appeared to be the same for both ethnic groups.

The three psychosocial and study skill factors as possible reasons for withdrawal from higher education

In **chapter 6** we examined differences and similarities between ethnic majority and ethnic minority leavers' reasons for withdrawing from higher vocational education. In particular, psychosocial reasons for withdrawal such as one's social involvement in relation to the learning environment, (lack of) support, and academic skills were investigated. A total of 1,017 non-completers participated in this study by completing a survey. The results showed that leavers presented the following reasons for leaving higher vocational education: (problems in) the home or personal situation (1), disappointing future job perspectives (2), poor quality of education (3), a lack of ability (4), negative culture (5) and disappointing program content (6). Contrary to what we had expected, no significant differences were found in the reasons for leaving higher vocational education given by ethnic minority and ethnic majority non-completers. However, there appeared to be two interaction effects with ethnic background: Type of withdrawal (i.e., switch versus drop-out) and moment of withdrawal (i.e., in or at the end of the first year versus after more than a year). Regarding the type of withdrawal, an interaction effect was found in withdrawing due to 1) educational quality and content, and 2) student ability. Ethnic minority dropouts withdrew entirely from higher education more often than ethnic majority dropouts due to the poor quality of the education, such as a poor quality of teachers and a poor educational system. When ethnic minority students are disappointed in (the quality of) higher vocational education (e.g., poor tutoring, poor educational system) they will more often decide to leave higher education completely. Disappointed ethnic majority students seem to give the higher education system a second chance and more often switch to another program. However, when the content of the education was disappointing (i.e., uninteresting courses, a poor study choice), ethnic

minority students were more likely than ethnic majority students to switch programs. In ethnic minorities' decisions to completely withdraw from higher vocational education or switch programs, it thus seems to be important how they attribute their disappointment. When they internally attribute their discontent (i.e., a poor study choice) they decide to switch programs, but when the disappointment is attributed externally (i.e., a poor quality of the education) they decide to drop out entirely.

As a second result concerning the type of withdrawal, we found that ethnic majority dropouts withdrew more often than ethnic minority dropouts due to a lack of ability to complete the program. This finding seems to indicate that ethnic minority students have more confidence in their ability to succeed in another educational program. Ethnic majority students, on the other hand, decide to withdraw entirely from higher vocational education when they feel they are unable to complete the specific program.

Concerning the moment of withdrawal from higher vocational education (i.e., within or at the end of the first year as opposed to after more than one year), we saw that ethnic minority late leavers withdraw more often due to disappointing educational content than majority late leavers. This finding may indicate that ethnic minority students discover at a relatively late stage that their educational choice is not what they expected it to be. They find out later that they made a poor choice. This means that they may unnecessarily lose time in higher vocational education.

In general, we can conclude that there are no differences in the reasons for leaving higher vocational education given by ethnic minority and ethnic majority non-completers. Nevertheless, we did observe several interaction effects between non-completers' ethnic background and the type of withdrawal (i.e., drop-out versus switch) and between ethnic background and moment of withdrawal (i.e., before or at the end of the first year of education versus after more than one year of education) in reasons for withdrawing from higher vocational education.

Explaining the less successful academic careers of non-Western ethnic minority students

All studies in this dissertation confirmed what had been reported before (e.g., Eimers & Pike, 1997; Hofman & Van den Berg, 2003; Swail, Redd, & Perna, 2003): The academic careers of ethnic minority students are less successful compared to the academic careers of ethnic majority students. Given the fact that higher education in Western societies has become more ethnically diverse in the last few decades, and the expectation that this ethnic diversity in higher education will grow in the next decade, it is worrying that ethnic minority students' study performance remains at significantly lower levels compared to

their ethnic majority counterparts. This inequality in academic career success becomes even more alarming with regard to students' future after academic life. For example, from previous research it is known that ethnic minorities often need more time to find a job and more often work below their ability when compared to their ethnic majority counterparts (Dagevos, 1998; Vandevenne & Lenaers, 2007; Van Gent, Hello, Odé, Tromp, & Stouten, 2006). Academic qualifications may be quite relevant when entering the labor market and may play a role in the determination of levels on income for example (Bouma, Coenen, & Kerckhaert, 2011). Ethnic minority students' lower performance in academic life may therefore negatively affect their position on the labor market (Vandevenne & Lenaers). The present dissertation aimed to shed light on the reasons behind the less successful academic careers of ethnic minority students to – hopefully – increase their academic performance to the level of ethnic majority students' academic performance.

This dissertation showed that, looking at students' reasons for withdrawal from higher education, withdrawal because of a poor quality of education (such as poor tutoring) appeared to be important in deciding to quit. For non-Western ethnic minority students in particular, a poor perceived quality of education is an important reason to withdraw completely (i.e., dropout) from higher education instead of switching to another educational program. Furthermore, the results showed that *formal* contacts with teachers and fellow students (i.e., interactions on university and study-related matters such as discussing study tasks) are important for the extent to which non-Western ethnic minority students feel that they belong to the university. Even though these formal contacts may not have a direct influence on students' study success, they appear to be of considerable importance for the retention of ethnic minority students in higher education. Thus, high quality formal interactions, which reflect – at least partly – the quality of an educational program should be fostered within educational programs to prevent ethnic minority students from leaving higher education prior to degree completion.

Secondly, the present dissertation demonstrated the importance of family in the lives of students in relation to their academic success for both ethnic majority and ethnic minority students. Both groups of students reported reasonable (i.e., 3.8 on a 5-pt rating scale) and comparable levels of social support from their families, indicating that they do not experience a lack of support from their home situation. This finding was in line with the result that neither ethnic majority leavers nor ethnic minority leavers indicated their home situation (such as a lack of support from their parents, stress due to their home situation) to be an important reason for withdrawal from higher education. Although these results show that students' families are supportive, we found that the less successful academic careers of ethnic minority students can partly be explained by the family domain. Non-Western ethnic minority students participated more in activities with their families than ethnic majority students. That is, they spent more time with their families, they were more

involved in household duties for their family, they more often accompanied their family in health situations, and so on. As a consequence, they experienced more conflict between their family lives and lives as a student than ethnic majority students. This higher level of family-study conflict then results in less study effort and consequently lower grades. Furthermore, the social support of ethnic minority students' families appeared to be less effective than the support of the families of ethnic majority students, in the sense that the relationship between family support and family-study facilitation is stronger for the latter group of students. The challenge in improving the study performance of ethnic minority students therefore lies in finding a way in which ethnic minority students on the one hand participate less in family activities such as household duties for their family, without the consequence that this will lead to a decrease in family social support.

Finally, no differences were found in the time management skills and use of time of ethnic majority students and ethnic minority students which could explain the less successful academic career of the latter group of students. Our study on the withdrawal reasons of higher education leavers added to these findings by showing that lack of ability (such as lack of skills, lack of competence) was not reported as an important reason in the decision to withdraw from higher education. What we did find, however, is that ethnic minority leavers seem to have more confidence in their ability to succeed in another educational program compared to ethnic majority leavers. That is, if ethnic minority students decide to quit an educational program because of their lack of ability to finish that program successfully, they more often than ethnic majorities switch to another educational program. However, there is the risk of also not being able to complete a newly started program. Therefore, it is important to reveal possible less developed skills (such as a lack of mathematics skills, a lack of reading skills, and a lack of planning skills) of students who quit a prior educational program. By training skills and competences which appeared to be stumbling-blocks in a prior degree program, students may stand a larger chance of completing another educational program.

Suggestions for future research

Contrary to previous research (Hurtado 1994; Hurtado & Carter, 1997; Johnson et al., 2007; Read, Archer, & Leathwood, 2003; Zepke & Leach, 2005), in the present dissertation no differences were found between ethnic minority and majority students' in their sense of belonging to the institution. It is possible that the concept of sense of belonging is more complex than we assumed. Johnson et al. argue for example that sense of belonging as a theoretical construct has not been well studied and is inconsistently defined in the higher education literature. An interesting topic for future research might be to investigate the

concept of sense of belonging further. A qualitative study can show the meaning of sense of belonging in the context of Dutch higher education.

The present dissertation's results on the family domain in the lives of students showed that ethnic minority students participated more in activities with or for their families, such as household duties and accompanying their family in health situations. Furthermore, although levels of family social support were comparable for ethnic majority and ethnic minority students, the support of ethnic minority students' families appeared to be less successful in the sense that it did not contribute to family-study facilitation as much as in the group of ethnic majority students. Especially given the results concerning this stronger relation between family support and family-study facilitation among ethnic majority students compared with ethnic minority students some qualitative data will be very helpful to find out what exactly happens in the families. Is there, for example, a difference in *type* of support (e.g., support related to the content of the study, emotional support) ethnic majority and ethnic minority students receive from their families? If so, this could provide a possible explanation for the more effective family support ethnic majority students receive compared to ethnic minority students. It appears to be worth examining the different types of support in a future, qualitative study.

Next to family life, the domains of work and leisure may also play an important role in students' lives. Butler (2007) demonstrated in a sample of ethnic majority students that the work-school interface affects students' academic outcomes. Similarly, students' engagement in leisure activities may result in possible leisure-study conflict and facilitation. Therefore, it appears to be worth examining the work-study interface and the leisure-study interface in ethnically diverse student groups, as these interfaces may explain – at least partly – the difference in study success between ethnic minority and ethnic majority students.

As regards reasons for withdrawal from higher education, it was found that ethnic minority students who decided to quit an educational program because of their lack of ability to finish that program successfully more often switched to another educational program than ethnic majority students. Concerning this finding, it is recommended to investigate the academic progress and success of these switchers in their new educational program. More specifically, these students decided to quit an educational program because of a lack of skills. How did these students subsequently make their study choice for the new educational program? Was their study choice based on the expectation that this new program would better meet their skills and abilities? And how do these switchers perform in the new educational program: Are they going to succeed?

Strengths and weaknesses

The studies presented in this dissertation contribute to the literature on ethnic diversity in higher education in four ways.

First, we followed Robbins et al. (2004) in choosing PSFs as possible predictors of academic outcomes. Despite the fact that Robbins et al. proved the incremental validity of PSFs in predicting academic outcomes over and above traditional predictors such as socioeconomic status and high school GPA, to our knowledge only few studies have investigated possible ethnic differences in PSFs in relation to academic outcomes. The present dissertation therefore focuses on the PSFs social involvement, social support and time management as an academic related skill because these were thought to play an important role in explaining differences in academic outcomes between ethnic majority and ethnic minority students. Yet, the details remained unclear as to how exactly they play a role in explaining differences in study success between these two groups of students. Therefore, the role of the three PSFs was examined to gain a more thorough understanding of the reasons for differences in study success between ethnic majority and ethnic minority students.

Second, in chapter 3 theories on inter-role processes were shifted away from the work domain and applied to non-work domains such as family and school. Most studies on inter-role processes to date have focused on the relationships between work and family (Byron, 2005; Carlson, Kacmar, Wayne, & Grzywacz, 2006; Ford et al., 2007; Frone, Russell, & Cooper, 1992; Greenhaus & Beutell, 1985; Greenhaus & Powell, 2006; Grzywacz & Butler, 2005; Wayne et al., 2007). Only very few studies have been conducted on the relationship between work and a non-work role such as school (Butler, 2007; Markel & Frone, 1998). However, no prior studies have shifted these theories on inter-role processes away from the work domain and applied them to non-work domains such as family and school. The present dissertation shows that processes of conflict and facilitation, as extensively studied between family and work, also exist between family and study. Furthermore, most research testing models on inter-role processes has used samples of ethnic majorities. Thus, little was known about the generalizability of previous research to ethnic minorities. The results of present dissertation's chapter 4 are the first to show that the conceptual model of the family-study interface also fits in the group of ethnic majority students and the group of non-Western ethnic minority students separately. Given some variance of the model across ethnic groups (i.e., two relationships appeared to differ between both ethnic groups), it is recommended that – similar to our study – future studies on inter-role processes include tests of invariance across ethnic groups.

Third, the present dissertation aimed to shed light on the reasons for withdrawal from higher education and possible differences between ethnic majority leavers and ethnic minority leavers. Given that ethnic minority students are more likely to withdraw from

higher education, it is remarkable that only a limited number of studies have investigated possible differences in withdrawal reasons between ethnic majority and ethnic minority non-completers. It seems fair to expect that different reasons contribute to differences in completion rates, because of the relative negative college experiences of ethnic minority students (Swail et al., 2003). Instead, most research has examined the process of withdrawing itself, based on students who are still in college. In chapter 6 we compared the withdrawal reasons of non-completers from ethnic minority backgrounds and their majority counterparts.

Fourth, in chapter 5 students' daily time use was examined by means of collecting daily diary data of all student time expenditure (Kolari, Savander-Ranne, & Viskari, 2008; Nonis, Philhours, & Hudson, 2006; Witkow, 2009) instead of only the areas of studying and working. Furthermore, as suggested by Dolton, Marcenaro, and Navarro (2003), a distinction was made between formal study hours and self study hours. We believe that the use of the daily diary method in which all student time was reported and in which formal study time and self study time were distinguished resulted in a comprehensive picture of students' daily time use.

Some limitations of the present dissertation are worth mentioning. First, the studies in this thesis are limited in that the relatively small number of ethnic minority participants from the different countries of origin made it impossible to examine the results of these different ethnic groups separately. It must therefore be kept in mind that future studies need to study the results observed in this thesis in more detail for each separate group.

Second, the studies in this thesis are limited by their cross-sectional nature, which precludes making causal inferences regarding the proposed relationships. As regards the family-study interface (chapters 3 and 4), it would be valuable to know by means of a longitudinal design how family life affects student life over a longer period of time as well as to understand day-to-day associations between family and study. Furthermore, all of the data for study on students' time use (chapter 5) came from one term in the participants' first study year. Thus, no conclusions could be drawn about causal relationships, such as whether patterns of time use contributed to school achievement or school achievement caused students to spend their time in certain ways. It is likely that both are true and that the relationship between achievement and time management is reciprocal. It would be useful to investigate these causal pathways in future studies.

Practical implications

The findings presented in this thesis have several practical implications for higher education in the Netherlands. Below, four suggestions are given to improve the academic success of ethnic minority students related to the different psychosocial and study skill factors (PSFs).

Study success: Does sense of belonging matter?

First, for both ethnic majority and ethnic minority students, activating learning environments contribute to their levels of peer and teacher interactions. For ethnic minority students, *formal* relationships (i.e., interactions regarding university and study related matters) seem to be crucial to their sense of belonging at the institution. Yet, ethnic minority students' study success could not be predicted from the learning environment or from their sense of belonging. The extent to which minority students felt that they belong at the institution did not have any consequence for their study success. Our results are somewhat inconclusive since previous studies have shown the importance of students' sense of belonging in relation to their study success (e.g., Swail et al., 2003; Zea, Reisen, Beil, & Caplan, 1997). For now, it seems important to encourage higher education institutions to promote formal relationships between students and teachers and among students. However, we first need to make a case that sense of belonging for the group of ethnic minority students matters in obtaining study success.

Study success: A family affair

Second, we believe that higher education institutes should consider the possible importance of family in the lives of students in higher education. Family support reduces the conflict experienced between family and study and – more strongly – increases the family-study facilitation experienced, which in turn positively impacts study effort and ultimately students' grades. Involvement with the family enhances family-study facilitation, resulting in more study effort, and in the end in higher grades. In terms of opportunities to improve academic success (higher grades), support for involvement with the family and creating family support can be expected to be effective policy measures. As regards ethnic differences in the family-study interface, it was found that family support was more strongly related to family-study facilitation in the group of ethnic majority students. In other words, ethnic majority students who experience high levels of family support experience higher levels of family-study facilitation than ethnic minority students who receive equal levels of family support. This finding implies that the family support of ethnic majority students' families can be more effective which will then lead to higher levels of family-study facilitation. Higher levels of family-study facilitation will increase study effort and will ultimately lead to higher grades. More effective support of ethnic minority students' families may probably be established by involving these students' family (e.g., parents) in academic life, for example by informing them in their native language. By inviting students' family members into the academic domain (e.g., informing the family about academic life), they will become more acquainted with academic life and consequently perhaps are able to offer more effective support.

Study success: A matter of time?

Third, the results of the time use and time management study (chapter 5) did not show a direct relationship between students' time management behavior and academic performance, and between students' time use and academic performance. It would be worthwhile to examine this lack of relationship in further detail. It is remarkable that several recent studies (e.g., Nonis & Hudson, 2006; Plant, Ericsson, Hill, & Asberg, 2005) have shown that spending more time studying does not result in higher grades, although other also recent studies did show the importance of study time in relation to study success (e.g., Brint & Cantwell, 2008; Stinebrickner & Stinebrickner, 2004). Have students become more strategic in their thinking, and have they settled more often for sufficient grades? Have our educational systems changed in that self study time does not add to study success because of increasing 'contact time' (i.e., formal study hours) in which students do all the learning? A qualitative study using in-depth student interviews can possibly clarify these issues.

Study success: Improving the quality of the information provided to new and prospective students

Fourth, the findings concerning withdrawal reasons of ethnic majority and ethnic minority non-completers (chapter 6) have practical implications for the information about higher education provided in secondary school. Ethnic minority late leavers (i.e., withdrawal after more than one year of studying) appeared to withdraw more often due to a disappointing educational content than ethnic majority late leavers. This finding may indicate that ethnic minority students realize relatively late in their studies that they have made the wrong study choice. When students are provided with early information and supported in making their study choice, (late) withdrawal might be reduced. Another point of attention concerns the quality of the course programs. Given the recent findings of the Educational Inspection (2011) related to the quality of higher vocational education in the Netherlands, it is important to monitor the quality of study programs more closely. Four out of five investigated educational programs at one institute for higher vocational education in the Netherlands scored 'extremely weak' according to the Educational Inspection: These educations did not live up to the end terms, as provided by the law. The quality of study programs should be monitored closely to prevent withdrawal and, in the case of ethnic minority students, dropout from higher vocational education in the Netherlands.

Conclusion

In the past decade(s), many studies have been conducted on the differences in study success between ethnic minority students and ethnic majority students to identify explanations

for the less successful academic careers of ethnic minority students. This dissertation aimed to explain the differences in study success between ethnic majority students and ethnic minority students from the perspective of psychosocial and academic-related skills in relation to academic success. The research reported in this dissertation has highlighted several issues related to the less successful academic careers of ethnic minority students. One important issue is the quality of interaction with faculty and peers as it are the *formal* interactions with teachers and fellow students that made ethnic minority students feel at home in their educational program. Furthermore, high quality formal relationships, as part of the quality of the education, prevent ethnic minority students from dropping out from higher education. Next to the learning environment, students' families also play a role in obtaining study success. More specifically, the less successful academic careers of ethnic minority students can partly be explained by their higher levels of participation in activities with or for their family, and by the less effective family social support they receive in comparison with ethnic majority students. Finally, the results concerning academic related skills (e.g., time management) do not seem to explain the less successful academic careers of ethnic minority students. These findings yield practical implications for improving the student success of ethnic minority students in particular, such as inviting students' families to the academic domain and fostering high quality formal relationships with faculty and fellow students. More research is needed to further improve our understanding of the less successful academic performance and study progress of ethnic minority students, to ultimately reach the day that the academic careers of both groups of students are the same.

Samenvatting

De laatste decennia is de etnische diversiteit binnen het hoger onderwijs in westerse samenlevingen toegenomen. De verwachting is dat deze diversiteit binnen het hoger onderwijs de komende jaren nog verder zal toenemen. Het is verontrustend dat de studieprestaties van niet-westerse allochtone studenten achterblijven ten opzichte van de studieprestaties van autochtone studenten (e.g., Eimers & Pike, 1997; Hofman & Van den Berg, 2003; Swail, Redd, & Perna, 2003). Uit eerder onderzoek weten we dat etnische minderheden vaak meer tijd nodig hebben om een baan te vinden en dat zij vaker onder hun niveau werken dan autochtonen (Dagevos, 1998; Vandevenne & Lenaers, 2007; Van Gent, Hello, Odé, Tromp, & Stouten, 2006). Academische kwalificaties kunnen zeer relevant zijn bij het betreden van de arbeidsmarkt en kunnen een rol spelen bij het vinden van een baan en het bepalen van het inkomen (Bouma, Coenen, & Kerckhaert, 2011). De minder goede studieprestaties van niet-westerse allochtone studenten kunnen dus een negatieve invloed hebben op hun arbeidsmarktpositie (Vandevenne & Lenaers). In dit proefschrift is geprobeerd verklaringen te vinden voor de achterblijvende academische carrières van niet-westerse allochtone studenten. Het doel is om suggesties te geven voor maatregelen die hun studieprestaties verhogen tot het niveau van de prestaties van autochtone studenten.

Dit proefschrift presenteert vier empirische studies. Deze studies richten zich op overeenkomsten en verschillen tussen Nederlandse autochtone studenten en niet-westerse allochtone studenten in hun psychosociale factoren en academische vaardigheden (Robbins et al., 2004). Verondersteld wordt dat deze factoren en vaardigheden mogelijke verklaringen vormen voor verschillen in studiesucces tussen de twee groepen studenten. De resultaten van deze studies worden beschreven in vijf hoofdstukken. De volgende psychosociale factoren en academische vaardigheden worden onderscheiden: 1) sociale betrokkenheid, dat wil zeggen de mate waarin studenten zich verbonden voelen met de leeromgeving en de kwaliteit van de relatie van studenten met hun studiegenoten en docenten; 2) ervaren sociale steun, dat wil zeggen de mate waarin studenten steun ervaren binnen hun sociale netwerk; en 3) academische vaardigheden, dat wil zeggen cognitieve, gedragsmatige en affectieve vaardigheden die nodig zijn om taken succesvol af te ronden, doelen te bereiken en om te gaan met academische vraagstukken (Robbins et al.). Te denken valt aan timemanagement vaardigheden, studievaardigheden en probleemoplossend vermogen.

In deze samenvatting worden overeenkomsten en verschillen tussen Nederlandse autochtone studenten en niet-westerse allochtone studenten beschreven als het gaat om bovenstaande drie factoren. In de volgende paragraaf zal een overzicht worden gegeven van de belangrijkste empirische bevindingen uit deze vijf studies. Daarna worden mogelijke verklaringen voor de minder goede academische prestaties van niet-westerse allochtone studenten uiteengezet. Tot slot volgt een conclusie.

Overzicht van Empirische Bevindingen

Studiesucces en sociale betrokkenheid: De rol van de leeromgeving

De eerste psychosociale factor, sociale betrokkenheid, heeft betrekking op de mate waarin studenten zich verbonden voelen met hun leeromgeving en op de kwaliteit van de relatie van de studenten met hun medestudenten en docenten (Robbins et al., 2004). In **hoofdstuk 2** werd onderzocht in hoeverre autochtone studenten en niet-westerse allochtone studenten zich thuis voelen binnen hun leeromgeving. Daarnaast werd de kwaliteit van hun interacties met medestudenten en docenten onderzocht. Vervolgens werd nagegaan in hoeverre een activerende leeromgeving (dat wil zeggen een kleinschalige leeromgeving waar studenten aan de bal worden gehouden) het thuis voelen van studenten binnen de leeromgeving bevordert en of hierin verschillen bestaan tussen autochtone en niet-westerse allochtone studenten. Tot slot werd onderzocht of een activerende leeromgeving en het zich thuis voelen binnen een leeromgeving bijdragen aan studiesucces – dat wil zeggen het aantal behaalde studiepunten – van studenten, en of deze mogelijke bijdrage gelijk is voor autochtone en niet-westerse allochtone studenten. De data werden verzameld onder 523 eerstejaarsstudenten van vier universiteiten in Nederland (378 autochtone studenten en 145 niet-westerse allochtone studenten). Deze studenten vulden een online vragenlijst in. Er werden geen verschillen gevonden tussen autochtone studenten en niet-westerse allochtone studenten in de mate waarin zij zich thuis voelen binnen de leeromgeving. Ook de kwaliteit van interactie tussen medestudenten en docenten was vergelijkbaar voor beide groepen studenten. Echter, in de relaties tussen interactie met medestudenten en docenten, thuis voelen en studiesucces bleken wel verschillen te bestaan tussen autochtone studenten en niet-westerse allochtone studenten. Niet-westerse allochtone studenten voelden zich thuis binnen hun opleiding wanneer zij goede *formele* contacten hadden, dat wil zeggen interacties met docenten en medestudenten over studiegerelateerde zaken. De mate waarin autochtone studenten zich thuis voelden binnen de leeromgeving werd niet beïnvloed door formele contacten, maar juist door *informele* contacten, dat wil zeggen interacties met medestudenten over persoonlijke zaken. De mate waarin niet-westerse allochtone studenten zich thuis voelden binnen de leeromgeving had geen invloed op hun studievoortgang. Het studiesucces van autochtone studenten werd daarentegen wel degelijk bepaald door de mate waarin zij zich thuis voelden binnen de opleiding.

Samengevat blijkt de eerste psychosociale factor, sociale betrokkenheid, vooral een voorspeller van studiesucces te zijn in de groep autochtone studenten. Er werden namelijk positieve relaties gevonden tussen de mate van activering die de leeromgeving biedt, interacties met medestudenten en docenten, het zich thuis voelen en studiesucces. Sociale betrokkenheid bood echter geen verklaring voor de minder succesvolle academische carrière van de niet-westerse allochtone studenten in deze studie. Uit een eerdere studie (Severiens

& Wolff, 2008) was al bekend dat interacties met medestudenten en docenten niet van invloed zijn op het studiesucces van allochtone studenten. De resultaten van de huidige studie voegen daaraan toe dat het studiesucces van niet-westerse allochtone studenten niet bepaald lijkt te worden door het activerende karakter van een onderwijsprogramma of de mate waarin zij zich thuis voelen binnen een dergelijke leeromgeving. Blijkbaar voorspellen andere factoren het studiesucces van niet-westerse allochtone studenten. In de volgende studie wordt daarom de relatie tussen sociale steun en studiesucces van autochtone en niet-westerse allochtone studenten onderzocht.

Studiesucces en sociale steun: De rol van familie

De tweede psychosociale factor, sociale steun, wordt omschreven als de aanwezigheid van sociale netwerken die studenten ondersteunen tijdens hun studie (Robbins et al., 2004). De familie vormt een dergelijk sociaal netwerk. Verschillende studies hebben vastgesteld dat de familie van studenten een belangrijke rol speelt bij het behalen van goede studieresultaten (Herndon & Hirt, 2004; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Het is echter onduidelijk welke rol familie heeft in het verklaren van verschillen in studiesucces tussen autochtone en niet-westerse allochtone studenten. In **hoofdstuk 3** werd de familie-studie relatie onderzocht. In hoofdstuk 4 werd de familie-studie relatie onderzocht in een groep autochtone studenten en een groep niet-westerse allochtone studenten. De familie-studie relatie verwijst naar de mate waarin het familieleven de studie beïnvloedt, zowel in positieve zin (dat wil zeggen facilitatie tussen beide domeinen) als in negatieve zin (dat wil zeggen conflict tussen beide domeinen). Ook werd onderzocht in hoeverre familie-studie conflict en familie-studie facilitatie het studiesucces van studenten in het hoger onderwijs beïnvloeden. De data werden door middel van een online vragenlijst verzameld onder 1656 voltijd studenten aan een grote universiteit in de Randstad.

De resultaten van hoofdstuk 3 lieten zien dat studenten meer *conflict* tussen hun familieleven en studie bleken te ervaren naarmate zij meer deelnamen aan familiegerelateerde activiteiten, zoals tijd doorbrengen met de familie en ondersteuning in het huishouden. Dit resultaat komt overeen met eerder onderzoek naar relaties tussen andere levensdomeinen, waarin tijd die met de familie werd doorgebracht of werktijd voorspellers bleken te zijn van conflict tussen de domeinen werk en familie (Butler, 2007; Ford, Heinen, & Langkamer, 2007). Een tweede resultaat, eveneens in lijn met eerder onderzoek (Adams, King, & King, 1996; Baltes & Heydens-Gahir, 2003; Byron, 2005; Ford et al.; Greenhaus & Beutell, 1985), was dat steun van de familie het familie-studie conflict negatief beïnvloedt. Dat wil zeggen dat hoe meer steun studenten kregen van hun familie, des te minder conflict zij rapporteerden tussen hun familieleven en leven als student. Tegen de verwachting in lieten de resultaten ten derde zien dat de betrokkenheid van studenten bij hun familie niet gerelateerd was aan familie-studie conflict. Het is dus niet zo dat als studenten erg betrokken zijn, ze ook meer conflicten ervaren.

Deelname aan familieactiviteiten, steun van de familie en de betrokkenheid van studenten zelf bij hun familie bleken voorspellers te zijn van familie-studie *facilitatie*. Met andere woorden, hoe meer studenten deelnamen aan familieactiveiten (zoals tijd doorbrengen met de familie, ondersteunen in het huishouden), hoe meer steun zij van familie kregen en hoe meer studenten betrokken waren bij hun familie, des te meer familie-studie facilitatie zij rapporteerden. Deze resultaten zijn in overeenstemming met eerder onderzoek binnen het werk-familie domein, waarin werd gevonden dat steun en betrokkenheid positieve voorspellers zijn van werk-familie facilitatie (Frone, Yardley, & Markel, 1997; Grzywacz & Marks, 2000; Kirchmeyer, 1992; Wayne, Grzywacz, Carlson, & Kacmar, 2007).

De huidige studie liet ook zien dat de studie-inzet werd beïnvloed door de familie-studie relatie. Familie-studie conflict had een negatieve invloed op de studie-inzet van studenten (zoals opletten tijdens colleges) en familie-studie facilitatie een positieve invloed. Deze studie-inzet voorspelde ten slotte de studieprestaties van studenten. Hoe meer studie-inzet studenten vertoonden, des te hoger hun cijfers waren.

In **hoofdstuk 4** wordt het familie-studie model uit hoofdstuk 3 apart getoetst voor autochtone en niet-westerse allochtone studenten. In hoofdstuk 4 werd aan de ene kant onderzocht of er gemiddelde verschillen bestaan tussen autochtone en niet-westerse allochtone studenten in (voorspellers van) familie-studie conflict en familie-studie facilitatie. Aan de andere kant is aan de hand van het familie-studie model uit hoofdstuk 3 onderzocht in hoeverre de familie-studie relatie van invloed is op het studiesucces van beide groepen studenten. Van de totale steekproef (N = 1656) behoorde bijna 21 procent (N = 342) van de studenten tot de groep niet-westerse allochtone studenten. De resultaten lieten zien dat niet-westerse allochtone studenten meer deelnamen aan familieactiviteiten dan autochtone studenten. Niet-westerse allochtone studenten waren daarnaast meer betrokken bij hun familie dan autochtone studenten, wat aangeeft dat familie een centralere plaats inneemt in het leven van niet-westerse allochtone studenten dan in het leven van autochtone studenten. Niet-westerse allochtone studenten rapporteerden meer conflict tussen hun familieleven en hun leven als student, zij vertoonden minder studie-inzet en zij behaalden lagere cijfers dan autochtone studenten. Er werden geen verschillen gevonden in de hoeveelheid steun die niet-westerse allochtone en autochtone studenten van hun familie kregen en in familie-studie facilitatie.

Om te bepalen of de familie-studie relatie een verklaring kan bieden voor de lagere studieprestaties van niet-westerse allochtone studenten in vergelijking met autochtone studenten, werd onderzocht of het familie-studie model uit hoofdstuk 3 ook past bij de twee groepen studenten afzonderlijk. Dit bleek inderdaad grotendeels het geval te zijn. Het familie-studie model liet zien dat het gemiddelde cijfer van studenten voor autochtone en niet-westerse allochtone studenten in dezelfde mate positief wordt beïnvloed door hun studie-inzet. Volgens het familie-studie model wordt de studie-inzet van zowel autochtone

als niet-westerse allochtone studenten negatief beïnvloed door familie-studie conflict. Dat wil zeggen dat hoe meer conflict studenten ervaren tussen hun familieleven en hun leven als student, des te minder studie-inzet zij vertonen. Voor zowel autochtone als niet-westerse allochtone studenten laten de resultaten zien dat zij meer familie-studie conflict ervaren naarmate zij meer deelnemen aan familieactiviteiten, en minder familie-studie conflict ervaren als zij veel steun van hun familie krijgen. De relatie tussen deelname aan familieactiviteiten en familie-studie conflict is echter sterker dan de relatie tussen steun van de familie en familie-studie conflict. Hierin vinden we een gedeeltelijke verklaring voor de minder goede studieprestaties van niet-westerse allochtone studenten ten opzichte van autochtone studenten. Niet-westerse allochtone studenten nemen vaker deel aan familieactiviteiten dan autochtone studenten, waardoor zij meer familie-studie conflict ervaren. Dit hogere niveau aan ervaren conflict tussen familieleven en het leven als student resulteert in minder studie-inzet van niet-westerse allochtone studenten met als gevolg daarvan lagere cijfers.

Studie-inzet van studenten wordt echter niet alleen bepaald door familie-studie conflict, maar ook door familie-studie facilitatie. Veel familie-studie facilitatie resulteert in meer studie-inzet. Familie-studie facilitatie wordt positief beïnvloed door deelname aan familieactiviteiten en door betrokkenheid bij de familie. Deze relaties zijn gelijk voor autochtone en niet-westerse allochtone studenten. Echter, familie-studie facilitatie wordt vooral bepaald door steun van de familie. Autochtone en niet-westerse allochtone studenten ervaren evenveel steun van hun families. De relatie tussen steun van de familie en familie-studie facilitatie is echter verschillend, en dit is het enige verschil in het familie-studiemodel dat is gevonden: voor autochtone studenten is deze relatie sterker dan voor niet-westerse allochtone studenten. Dit betekent dat wanneer de steun die autochtone studenten ontvangen van hun familie groot is, zij meer familie-studie facilitatie zullen ervaren dan niet-westerse allochtone studenten die evenveel steun van hun familie krijgen. Met andere woorden, de steun die autochtone studenten ontvangen van hun familie lijkt effectiever te zijn dan de steun die niet-westerse allochtone studenten krijgen van hun familie aangezien het tot meer familie-studie facilitatie leidt. Dit verschil is belangrijk, omdat facilitatie leidt tot meer studie-inzet en uiteindelijk hogere cijfers.

Samengevat laten de resultaten zien dat het sociale netwerk ‘familie’ een rol speelt in het voorspellen van studieprestaties. Dit resultaat is in overeenstemming met onderzoek van Robbins et al. (2004), die sociale steun aanmerkten als voorspeller van studiesucces. Belangrijker is het resultaat dat de psychosociale factor ‘sociale steun’ bijdraagt in het verklaren van de minder succesvolle academische carrière van niet-westerse allochtone studenten in vergelijking met autochtone studenten. Dit proefschrift heeft het belang van familie laten zien in het leven van studenten, zowel autochtoon als allochtoon, in het hoger onderwijs. Door veel met en voor hun familie te doen, ervaren niet-westerse allochtone

studenten meer familie-studie conflict dan autochtone studenten, wat resulteert in minder studie-inzet en lagere cijfers. Daarnaast is gebleken dat de steun van familie die autochtone studenten ontvangen effectiever lijkt dan de steun van familie die niet-westerse allochtone studenten ontvangen.

Studiesucces en studievaardigheden: De rol van tijdbesteding en time management

De derde en laatste psychosociale factor, academische vaardigheden, verwijst naar cognitieve, gedragsmatige en affectieve vaardigheden zoals time management vaardigheden en studievaardigheden die noodzakelijk zijn om taken te kunnen voltooien, doelen te kunnen bereiken en om te gaan met academische vraagstukken (Robbins et al., 2004). In **hoofdstuk 5** werd in detail onderzocht hoe studenten hun tijd gebruiken en hoe zij omgaan met hun tijd. Gedurende twee weken (een collegeweek en een tentamenweek) hebben 48 eerstejaars bedrijfskunde studenten dagelijks een dagboek bijgehouden waarin zij hun tijdbesteding nauwkeurig bijhielden. Het betrof 24 studentparen: 24 autochtone studenten en 24 niet-westerse allochtone studenten die wat betreft geslacht, sociaal-economische status, woonsituatie en vooropleiding niet verschilden van elkaar. De resultaten lieten zien dat autochtone studenten hogere cijfers behaalden dan niet-westerse allochtone studenten. Wat betreft time management gedrag, bleken autochtone studenten een grotere *voorkeur voor organisatie* (zoals een opgeruimd bureau achterlaten na een dag studeren) te hebben dan niet-westerse allochtone studenten. Er werden geen verschillen gevonden tussen beide groepen studenten als het gaat om het *stellen van doelen en prioriteiten* (zoals deadlines stellen) en *mechanismen van time management* (zoals het maken van to-do-lijstjes). De dagelijkse tijdbesteding van autochtone en niet-westerse allochtone studenten liet vervolgens zien dat beide groepen in een collegeweek meer tijd besteden aan vrije tijd en sport dan dat zij studeren. In de tentamenweek nam de dagelijkse studietijd toe en tijd besteed aan vrije tijd, sport en werken af. De afname van vrije tijd, tijd besteed aan sporten en werken komt zeer waarschijnlijk door de toename in studietijd in de tentamenweek. Deze resultaten golden zowel voor autochtone als voor niet-westerse allochtone studenten. Tot slot lieten de resultaten bepaalde patronen zien in de tijdbesteding van studenten in de collegeweek en in de tentamenweek. De zelfstudietijd van studenten bleek gerelateerd te zijn aan de dag van de week: gedurende de collegeweek nam de zelfstudietijd af en in de tentamenweek studeerden studenten meer op de dag voor een tentamen. In deze studietijdpatronen werden geen verschillen gevonden tussen autochtone en niet-westerse allochtone studenten. Vanwege de kleine steekproef in deze studie moeten we echter voorzichtig zijn met de conclusie dat er geen verschillen bestaan in tijdbesteding en time management tussen autochtone studenten en niet-westerse studenten. Het is niet ondenkbaar dat de verschillen wel worden gevonden in een grotere steekproef.

Samengevat blijken de resultaten aangaande de tijdbesteding en time management van studenten (dat wil zeggen de derde psychosociale factor, Robbins et al., 2004) het verschil in studiesucces tussen autochtone en niet-westerse allochtone studenten vooralsnog niet te verklaren. Autochtone studenten hadden een grotere voorkeur voor georganiseerd werken dan niet-westerse allochtone studenten, maar er werden geen verschillen gevonden tussen beide groepen als het gaat om het stellen van doelen en prioriteiten en mechanismen van time management. Daarnaast bestonden er geen verschillen tussen autochtone en niet-westerse allochtone studenten in hun dagelijkse tijdbesteding in de collegeweek en de tentamenweek. Studiepatronen gedurende de week waren ook hetzelfde voor beide groepen studenten.

De drie psychosociale factoren als mogelijke reden van uitval in het hoger onderwijs

In **hoofdstuk 6** werden overeenkomsten en verschillen onderzocht tussen autochtone en niet-westerse allochtone studenten in hun redenen om te stoppen met een opleiding in het hoger onderwijs. Daarbij werden vooral psychosociale uitvalredenen, zoals de sociale betrokkenheid bij de leeromgeving, (gebrek aan) steun, en academische vaardigheden onderzocht. In totaal namen 1017 uitvallers uit het hoger beroepsonderwijs deel aan deze studie door het invullen van een vragenlijst. De volgende redenen voor uitval werden gegeven door de respondenten: (problemen in) de thuissituatie of persoonlijke omstandigheden (1), tegenvallende baankansen (2), slechte kwaliteit van de opleiding (3), gebrek aan capaciteiten (4), negatieve cultuur op de opleiding (5) en een tegenvallende inhoud van het onderwijsprogramma (6). Tegen de verwachtingen in werden er geen significante verschillen gevonden in de uitvalredenen die autochtone en niet-westerse allochtone uitvallers gaven voor het verlaten van de opleiding. Er bleken echter twee interactie-effecten te zijn met etnische achtergrond: het soort uitval (dat wil zeggen omzwaaien versus volledige uitval) en het moment van uitval (dat wil zeggen in of aan het einde van het eerste studiejaar versus na meer dan een jaar studeren). Als het gaat om het soort uitval werd een interactie-effect gevonden met uitval vanwege 1) kwaliteit en inhoud van de opleiding, en 2) gebrek aan capaciteiten.

Het eerste resultaat als het gaat om het soort uitval is dat niet-westerse allochtone uitvallers vaker volledig stopten met studeren als gevolg van de slechte kwaliteit van de opleiding (zoals slechte docenten en een slecht onderwijssysteem) dan autochtone studenten. Dit betekent dat niet-westerse allochtone studenten die teleurgesteld zijn in de kwaliteit van het hoger onderwijs blijkbaar vaker beslissen helemaal te stoppen met studeren in het hoger onderwijs. Autochtone studenten die teleurgesteld zijn in hun opleiding lijken het hoger onderwijs echter nog een kans te geven en zwaaien vaker om naar een andere opleiding. Wanneer echter de inhoud van de opleiding tegenviel (dat wil

zeggen oninteressante lessen, een verkeerde studiekeuze), dan zwaaien niet-westerse allochtone studenten vaker om naar een andere opleiding dan autochtone studenten. In de beslissing van niet-westerse allochtone studenten om te stoppen met studeren in het hoger onderwijs of te kiezen voor een andere opleiding binnen het hoger onderwijs, lijkt het dus belangrijk te zijn waar hun teleurstelling aan te wijden is. Niet-westerse allochtone studenten die vinden dat de teleurstelling door henzelf komt (zoals door het maken van een verkeerde studiekeuze) besluiten vaker om te zwaaien naar een andere opleiding binnen het hoger onderwijs, terwijl niet-westerse allochtone studenten die de teleurstelling aan een externe oorzaak toeschrijven (bijvoorbeeld teleurgesteld zijn door de slechte kwaliteit van een opleiding) vaker besluiten volledig te stoppen met studeren in het hoger onderwijs.

Een tweede resultaat met betrekking tot het soort uitval is dat autochtone uitvallers vaker stoppen met studeren dan niet-westerse allochtone uitvallers als gevolg van een gebrek aan capaciteiten. Dit resultaat lijkt erop te wijzen dat niet-westerse allochtone studenten meer vertrouwen hebben in hun vermogen een andere opleiding binnen het hoger onderwijs wel met goed gevolg af te ronden. Autochtone uitvallers daarentegen besluiten volledig te stoppen met studeren in het hoger onderwijs als zij het gevoel hebben het onderwijsprogramma niet aan te kunnen.

Het moment van uitval uit het hoger onderwijs (dat wil zeggen uitval in of aan het einde van het eerste jaar versus uitval na meer dan een jaar studeren) liet zien dat late niet-westerse allochtone uitvallers vaker stopten vanwege een tegenvallende studie-inhoud dan late autochtone uitvallers. Dit resultaat kan een aanwijzing vormen dat niet-westerse allochtone studenten relatief laat ondervinden dat hun studie niet is wat zij ervan verwacht hadden. Zij ontdekken pas laat dat zij een verkeerde studiekeuze hebben gemaakt. Dit betekent dat zij wellicht onnodig tijd verliezen in het hoger onderwijs.

De algemene conclusie lijkt te zijn dat er geen verschillen zijn in hoofdredenen om te stoppen met een opleiding in het hoger onderwijs tussen autochtone en niet-westerse allochtone studenten. Wel werden enkele interactie-effecten gevonden tussen de etnische achtergrond van uitvallers en het soort uitval (volledige uitval versus omzwaaien) en tussen etnische achtergrond en het moment van uitval (in of aan het einde van het eerste studiejaar versus na meer dan een jaar studeren) in redenen om te stoppen met een opleiding binnen het hoger onderwijs.

Een verklaring voor de minder succesvolle academische carrière van niet-westerse allochtone studenten

Als het gaat om succes in academische carrières bevestigden alle studies in dit proefschrift wat in eerder onderzoek al beschreven is (e.g., Eimers & Pike, 1997; Hofman & Van den Berg, 2003; Swail et al., 2003): de academische carrières van allochtone studenten zijn minder succesvol dan de academische carrières van autochtone studenten. In dit proefschrift is

geprobeerd verklaringen te vinden voor deze achterblijvende academische carrières van niet-westerse allochtone studenten. Deze verklaringen kunnen mogelijke suggesties bieden om hun studieprestaties op een gelijk niveau te krijgen met de prestaties van autochtone studenten.

Dit proefschrift liet om te beginnen zien dat als het gaat om redenen om te stoppen met een studie in het hoger onderwijs uitval vanwege een slechte onderwijskwaliteit (zoals slechte begeleiding) een belangrijke rol speelt in de beslissing om te stoppen. Met name voor niet-westerse allochtone studenten vormt een slechte kwaliteit van de opleiding een belangrijke reden om volledig te stoppen met studeren binnen het hoger onderwijs, in plaats van om te zwaaien naar een andere opleiding binnen het hoger onderwijs. De resultaten lieten eveneens zien dat *formele* contacten met docenten en medestudenten (dat wil zeggen interacties over studiegerelateerde zaken zoals het bediscussiëren van studiestof) belangrijk zijn voor de mate waarin niet-westerse allochtone studenten zich thuis voelen op de universiteit. Ondanks het feit dat deze formele interacties niet direct van invloed zijn op het studiesucces van studenten blijken deze interacties wel degelijk van belang te zijn voor het behoud van niet-westerse allochtone studenten binnen het hoger onderwijs. Kwalitatief goede formele interacties die – ten minste ten dele – de kwaliteit van een onderwijsprogramma vormen, moeten worden geborgd binnen onderwijsprogramma's om te voorkomen dat niet-westerse allochtone studenten het hoger onderwijs voortijdig verlaten.

Ten tweede toonde dit proefschrift het belang van familie in het leven van studenten aan als het gaat om het studiesucces van zowel autochtone als niet-westerse allochtone studenten. Beide groepen studenten rapporteerden een aanzienlijke en vergelijkbare hoeveelheid steun van hun familie. Dit geeft aan dat zij geen gebrek aan steun vanuit hun thuissituatie ervaren. Dit resultaat is in overeenstemming met de bevinding dat noch autochtone uitvallers noch niet-westerse allochtone uitvallers hebben aangegeven dat hun thuissituatie (zoals een gebrek aan steun van ouders, stress als gevolg van de thuissituatie) een belangrijke rol speelde in hun beslissing te stoppen met hun studie. Ondanks het feit dat deze resultaten laten zien dat zowel autochtone als niet-westerse allochtone studenten steun ervaren van hun familie vinden we binnen dit familiedomein een gedeeltelijke verklaring voor het achterblijvende studiesucces van niet-westerse allochtone studenten. Niet-westerse allochtone studenten namen vaker deel aan familieactiviteiten. Zij brachten bijvoorbeeld meer tijd door met hun familie, ondersteunden hun familie vaker in het huishouden en begeleidden hun familie vaker in gezondheidssituaties (zoals het bezoeken van een dokter). Het gevolg hiervan is dat zij in vergelijking met autochtone studenten meer conflict ervaren tussen hun familieleven en het leven als student. Deze hogere mate van familie-studie conflict zorgde er vervolgens voor dat niet-westerse allochtone studenten zich minder inzetten voor hun studie en daardoor lagere cijfers haalden. Daarnaast bleek

de steun die niet-westerse allochtone studenten van hun familie krijgen minder effectief te zijn dan de steun die autochtone studenten van hun familie krijgen, in die zin dat de relatie tussen steun van de familie en familie-studie facilitatie sterker was voor de laatstgenoemde groep studenten. De uitdaging in het bevorderen van het studiesucces van niet-westerse allochtone studenten ligt dan ook in het vinden van een manier waarop niet-westerse allochtone studenten aan de ene kant minder hoeven deel te nemen aan familieactiviteiten zoals het verrichten van huishoudelijke taken zonder hierdoor sociale steun van hun familie te verliezen. Dit kan mogelijk worden bereikt door de familie van met name niet-westerse allochtone studenten te informeren over het hoger onderwijs in Nederland. In de voorlichting aan (niet-westerse allochtone) ouders zou meer expliciet aan bod moeten komen wat studeren betekent voor hun kinderen, hoeveel tijd het kost en wat zij kunnen doen om hun kinderen effectief te ondersteunen.

Tot slot werden er geen verschillen gevonden in het time management gedrag en de tijdbesteding van autochtone en niet-westerse allochtone studenten die het verschil in studiesucces tussen beide groepen kunnen verklaren. De studie naar uitvalredenen binnen het hoger onderwijs voegde hieraan toe dat het gebrek aan capaciteiten (zoals een gebrek aan vaardigheden, een gebrek aan competenties) niet genoemd werd als een belangrijke reden in de beslissing om te stoppen met een studie. Wat we echter wel vonden is dat niet-westerse allochtone uitvallers meer vertrouwen lijken te hebben in hun vermogen om te slagen binnen een ander onderwijsprogramma dan autochtone uitvallers. Wanneer niet-westerse allochtone studenten namelijk stopten met een studie als gevolg van een gebrek aan capaciteiten om die studie te voltooien, zwaaiden zij vaker dan autochtone studenten om naar een andere studie in het hoger onderwijs. Het risico bestaat dat zij ook in de nieuw gekozen studie tegen hetzelfde probleem aanlopen. Het is daarom van belang om boven tafel te krijgen wat eventueel onderontwikkelde vaardigheden zijn (zoals basisvaardigheden of studievaardigheden) van studenten die een eerdere studie staakten. Door het trainen van vaardigheden en competenties die struikelblokken bleken te zijn in een eerdere studie kunnen studenten een grotere kans van slagen hebben in een andere studie.

Conclusie

De afgelopen decennia is veel onderzoek gedaan naar de verschillen in studiesucces tussen autochtone studenten en niet-westerse allochtone studenten om verklaringen te vinden voor de minder succesvolle academische carrières van niet-westerse allochtone studenten. De studies in dit proefschrift probeerden deze verschillen in studiesucces tussen autochtone en niet-westerse allochtone studenten te verklaren vanuit het perspectief van psychosociale factoren en academische vaardigheden in relatie tot studiesucces.

Een belangrijk punt dat in dit proefschrift naar voren komt als het gaat om de slechtere studieprestaties van niet-westerse allochtone studenten betreft de kwaliteit van interacties van studenten met hun docenten en medestudenten. Het zijn de *formele* interacties tussen docenten en medestudenten die maken dat niet-westerse allochtone studenten zich thuis voelen binnen een onderwijsprogramma. Daarnaast voorkomen deze formele interacties, als onderdeel van de kwaliteit van de opleiding, dat niet-westerse allochtone studenten stoppen met hun studie. Naast de leeromgeving speelt de familie van studenten een rol bij het behalen van studiesucces. De slechtere studieprestaties van niet-westerse allochtone studenten kunnen voor een deel verklaard worden doordat zij meer deelnemen aan familieactiviteiten en door minder effectieve steun die zij van hun familie krijgen in vergelijking met autochtone studenten. Tot slot lieten de resultaten zien dat er nauwelijks verschillen zijn in academische vaardigheden (zoals time management vaardigheden) van studenten die de minder succesvolle academische carrières van niet-westerse allochtone studenten zouden kunnen verklaren. Met het oog op de onderwijspraktijk kan het studiesucces van met name niet-westerse allochtone studenten bevorderd worden door de familie van studenten meer te betrekken bij de studie van hun kinderen en kwalitatief goede formele relaties met docenten en medestudenten te borgen binnen het onderwijs. Maatregelen op dit gebied kunnen er aan bijdragen dat, uiteindelijk, de studiecarrières van autochtone en niet-westerse allochtone studenten vergelijkbaar zijn.

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Marieke
Breda, 2012

Curriculum Vitae

Marieke Meeuwisse was born on October 7th 1978 in Breda, the Netherlands. She completed her secondary education in 1997 at the Newmancollege in Breda. She graduated in September 2001 from the Psychology Department at the University of Utrecht (majored in Organizational Psychology). Next to her fulltime job as an advisor at the Centre of Work and Income (CWI) she enrolled in Sociology (major in Labor, Organization and Management) at the Erasmus University Rotterdam in September 2003. Shortly after receiving her Master's Degree in 2006, Marieke started working as a researcher at Risbo, Erasmus University Rotterdam. Her first research project concerned a study on student dropout from teacher education, with a special focus on ethnic minority students. In September 2007, Marieke started a PhD project at Risbo, studying ethnic diversity in higher education. During the PhD project Marieke was the assistant coordinator of the special interest group 'Learning and Teaching in Culturally Diverse Settings' of Earli (European Association for Research on Learning and Instruction). She taught a number of courses on statistics (SPSS) and worked on various Risbo research projects. Currently, Marieke is employed as a researcher at Risbo, Erasmus University Rotterdam.

Stellingen behorend bij het proefschrift

Being Smart is Not Enough:
The role of psychosocial factors in study success of ethnic minority and ethnic majority students

Marieke Meeuwisse

1. In de zoektocht naar verklaringen voor het verschil in studiesucces tussen autochtone en niet-westerse allochtone studenten is het zinvol om - naast traditionele voorspellers van studiesucces zoals schoolprestaties - ook psychosociale factoren te onderzoeken *(dit proefschrift)*.
2. Binnen het hoger onderwijs zullen niet-westerse allochtone studenten zich meer thuis gaan voelen door de vraag hoe het met hun studie gaat, minder door de vraag hoe hun weekend was *(dit proefschrift).*
3. Steun van familie is belangrijk voor het behalen van studiesucces *(dit proefschrift).*
4. De slechtere studieprestaties van niet-westerse allochtone studenten zijn deels verklaarbaar door hun intensievere betrokkenheid bij familieactiviteiten, zoals het doorbrengen van tijd met hun familie en het geven van ondersteuning in het huishouden *(dit proefschrift).*
5. Uitval van niet-westerse allochtone studenten uit het hoger onderwijs kan worden tegengegaan door het aanbieden van kwalitatief hoogwaardig onderwijs *(dit proefschrift).*
6. Education is the most powerful weapon which you can use to change the world (*Nelson Mandela*).
7. Het krijgen van kinderen tijdens een promotietraject zorgt voor familie-werk conflict en voor familie-werk facilitatie.
8. The key is not to prioritize what is on your schedule, but to schedule your priorities (*Steven R. Covey*).
9. Vanwege de toenemende etnische diversiteit van de Nederlandse studentenpopulatie moeten (aankomend) docenten niet alleen beschikken over voldoende inhoudelijke kennis en didactische competenties, maar ook over multiculturele competenties.
10. Om in grootschalig vragenlijstonderzoek een zo hoog mogelijke respons te krijgen is het nodig respondenten zowel voor- als achteraf te belonen.
11. Na 5 december is het niet verstandig je kind een zeurpiet te noemen: Alle Pieten zijn immers weer vertrokken naar Spanje (*gebaseerd op uitspraak van Madelief, 3 jaar oud*).