# The Academic Career: A Longitudinal Study of Motivational and Psychosocial Predictors of Persistence and Performance

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Abstract

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This study examined whether motivational and psychosocial factors could predict persistence and performance longitudinally. Questionnaire data from the HELT (Helse- og trivsel blant studenter ved Universitetet i Oslo) study, a survey of students' health and well-being at the University of Oslo in 2003, was used to predict the academic careers of 646 students over the course of two and a half years (from 2003 to 2005). Logistic and multiple linear regression analyses were conducted to investigate the relative contribution of academic motivation, social support, attendance, degree of full-time studies, mental health and personality on persistence (or dropout) and average grade. Measures included the Academic Motivation Scale, the Emotional versus Social Loneliness Scale, the HSCL-25, the 5Pfa (a short version of a Norwegian translation of Big Five (Engvik, 1993), and study related variables. Outcome variable data was collected from the student record at the University of Oslo.

The results revealed different patterns of predictors for the two different outcome variables, as well as gender differences in the predictors. Attendance predicted persistence uniquely for both genders, and mediated the effect of amotivation. Female students' persistence was further predicted by extrinsic motivation, emotional loneliness and personality (openness, agreeableness and neuroticism). Female students with a higher degree of extrinsic motivation and neuroticism, and a lower degree of emotional loneliness, openness and agreeableness had a higher probability of persisting towards completing a degree.

The variables that had unique effects on grades for women were intrinsic motivation, amotivation, friends at the university and extraversion. Female students with higher intrinsic motivation, a larger social network at the university and lower amotivation and extraversion in 2003, achieved better grades throughout their academic careers. Amotivation and extrinsic motivation were negatively related to grades for men, but these effects were mediated by conscientiousness, which was the only predictor that contributed uniquely to the prediction of grades for the male students.

Limitations of the current study, implications of the results and directions for future research are discussed.

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## Background

Statistics reveal that every third student who entered a university in the fall 1994 had left higher education or transferred to a college (høyskole) within a year (Hovdhagen & Aamodt, 2006). This student dropout represents a significant challenge for educational institutions, both economically and organizationally. Moreover, dropout may be an economical and a personal burden for the students it concerns. Many students experience dropping out of university as a personal failure, resulting in low self-esteem and low self-confidence. Negative reactions from family and peers, as well as sanctions from Lånekassen, the bank that supplies student loans and grants, are other possible outcomes. However, leaving university does not necessarily represent an experience of failure. Presumably, the internal and external reactions are largely dependant on the reasons for dropping out, and the students' future plans. Nevertheless, it is desirable to minimize student dropout from higher education.

Academic achievement, or performance, is relevant because it has been shown that grades have an impact on the probability of being employed six months after completing a degree in higher education, and that grades canalise the students into different kinds of work. Good grades increase the chances of obtaining a job within a relevant field (Arnesen & Try, 2001). Knowing the factors that contribute to students' academic success, and which factors that limit students' abilities to succeed in higher education, may contribute to the future promotion of students' success, and point at meaningful selection criteria for higher education.

Persistence and performance in higher education have traditionally been predicted using demographic and academic variables, but these predictors have proved insufficient in explaining the variance in academic outcomes. The goal of this study is to move beyond these traditional predictors in search for motivational and psychosocial determinants of the university career.

## Introduction

A considerable amount of psychological and educational research has been conducted in an attempt to unravel the predictors of academic career, in particular persistence and performance. Traditionally, there has been a focus on intellectual ability as well as demographic risk-factors such as socio-economic status, ethnic origin and gender as

determinants of outcomes in higher education. These factors' ability to predict college success has proven both statistically and practically significant, yet, a large amount of outcome variance remains unclaimed (Tross, Harper, Osher & Kneidinger, 2000). In a critical review of the literature, Mouw and Khanna (1993) found that the most heavily weighted admission criteria in the USA, the combination of high school grades and entrance tests, accounted for approximately 25 % of the variance when predicting first-year college GPA. Surprisingly, their own empirical study revealed that 30 % of the students that were predicted to succeed based on these criteria had failed, while 50 % of the students predicted to fail had graduated or were in good standing. Academic success certainly does require a minimum set of skills, but the need to go beyond ability as a predictor of academic outcomes has become evident and is widely recognized. Risk factor research has made the implicit assumption that by simply counting a person's demographic risk factors one can predict a student's chances of academic success or failure (Hawkins, Catalano & Miller, 1992). However, evidence negating ethnic origin and gender as direct determinants of academic performance and persistence was provided by Byrnes (2003), who found that when students perceived themselves to be in an environment with opportunities for success, when they were motivated to engage in those opportunities and when they possessed the appropriate skills, their gender and ethnicity explained little to no variance on tests of achievement. This evidence gives further support for the need to expand the search of possible predictors of academic career beyond the earlier mentioned traditional variables. And in fact, in the recent decades, there has been increased interest in the role of psychosocial and other factors in understanding college outcomes (Robbins et al., 2004).

In this line of thinking, contemporary motivational theories are emerging as strong explanatory models of academic achievement (Robbins et al., 2004). The importance of willingness and drive to perform and persist at the university has long been acknowledged (Harris, 1940 as cited in Busato, Prins, Elshout & Hamaker, 2000), but research from the past thirty years has provided a clearer understanding of the importance of motivation (Dweck, 1986). Moreover, a growing body of literature point to the social adjustment of students as an important factor in predicting academic outcomes. Important elements of social adjustment include becoming integrated into the social life of college, forming a support network, and managing new social freedoms (Gerdes & Mallinckrodt, 1994). Transition to university is a stage when individuals face many new interpersonal, social and academic demands (Baker, 2003). The academic environment can be stressful – it represents competition and a pressure to obtain results. Social support and absence of loneliness might therefore be important

success factors. Other psychological concepts such as personality traits and mental health have also been investigated as possible predictors of an academic career. Another line of work has focused on the effect of contextual interfering variables, for example part-time work. The effect of attendance has also gained attention as a predictor of university outcomes, besides educational and cognitive concepts such as study skills and learning styles.

*The Norwegian Context*

The recent study reform in Norway (Kvalitetsreformen), which was implemented in the fall 2003, and the evaluation of the effect and impact of this reform, has caused renewed focus on predictors of academic outcomes. The ultimate goal of this reform was to improve the students' abilities to succeed in their studies (Det kongelige kirke-, utdannings-, og forskningsdepartement, 2001), by improving the quality of higher education. By strengthening the relationship and commitment between student and institution, the goal was to ensure that students completed their degrees within regular time and to reduce dropout. The reform involved a reorganization of the structure of degrees and programs and the introduction of a new grading system. Equally important were the pedagogic changes; closer contact between students and teachers and smaller and more frequent exams.

*Persistence versus Dropout*

Besides disagreement about which variables that are meaningful in the prediction of an academic career, there is also lack of conceptual clarity or consistency with regard to what constitutes a college outcome – it might be immediate, intermediate or ultimate outcomes (Robbins et al., 2004). Still, common definitions in the literature are persistence versus dropout, and performance during student years.

However, student departure or dropout is a difficult concept to disentangle, as it may involve both institutional departure (leaving one educational institution for another) and system departure (leaving higher education) (Tinto, 1993). Another fact that complicates the matter is that some of the students who drop out, return to higher education at a later point in time. Tinto uses the term "stopouts" for this group of students. Besides, there are students who enrol at a university or college without the purpose of obtaining a degree; their goal might simply be to follow one or more single courses. Despite this variety in departing behaviors, it is interesting for the universities to know what characterizes the departing group as a whole. Student dropout represents a major economical strain on the universities, as long as their financial support from the Norwegian state is contingent on the number of study

points accumulated by their student population. The money follows the student, implicitly; it follows the successful student.

The first national evaluation of the study reform was available in 2006 (Hovdhagen & Aamodt, 2006). It revealed that the dropout rate was somewhat reduced after the implementation of the reform. Most of the reduction took place at the University of Oslo, and can, at least partially, be explained by the fact that students no longer were accepted only for the preparatory course (examen philosophicum and examen facultatum). Students were instead accepted for longer and more structured programs leading towards a degree. The evaluation further showed that the increase in study stability was caused mainly by decreased institutional departure and to a lesser degree by reduced system departure. The total number of students that were outside of higher education one year after entering was about 20 % both before and after the study reform. The reform thus seems to have had an effect on the institutional departure, but not on the system departure.

Norwegian research on predictors of dropout behavior has also mainly focused on the traditional predictors, and to a lesser degree on psychological variables. Hovdhagen and Aamodt (2006) found that parents' educational attainment predicted dropout, besides the students' age, gender, ethnic background and employment status. Females, younger students, students with non-western ethnic background, and students with less income, were less likely to drop out (Hovdhagen & Aamodt, 2005).

Dropout from higher education might represent a major challenge for the students involved. The reform evaluation, however, found that between 40-50 % of the dropouts thought that they had found something more interesting to do after leaving university, and that they viewed their university experience as part of a maturational process leading to something better. Likewise, 40-50 % of students had experienced dropping out of university as a difficult decision to make. Thirty % of the dropouts regretted the decision, and more than a third of these students experienced dropping out as a failure (Hovdhagen & Aamodt, 2006). Tinto (1993, p.1) claims that those who drop out may also have benefited from higher education in some way. "As with the process of trial and error in the job market, college education may lead individuals to discover their likes and dislikes and uncover the occupations that are compatible with their interests and abilities".

*Performance at the University*

In addition to persistence, performance is the most common definition of college success. Performance pertains to class or subject matter achievement, typically measured by

cumulative grade point average (GPA). Despite faculty-wise and institutional grading differences and problems regarding grading reliability, it is still the most widespread performance measure (Robbins et al., 2004).

Achievement is central to the very concept of higher education. Achieving decent grades at university will therefore be an important goal for most, if not all, students. The opposite, not performing well (enough), will possibly create stress and a sense of failure, especially when the stakes are high.

Literature on the psychological predictors of performance in Norway is scarce. The prevalent Norwegian research on the determinants of performance in higher education has focused on traditional variables such as high school grades, social class, gender and parents' educational attainment (Berg, 1995; Hansen, 2000). Næss (2006) concludes that high school grades come out as the most salient predictor in these studies, and further, that students whose parents have an academic background achieve better grades than students with a lower sociocultural background. Still, some studies have included a wider number of predictors. Berg (1995) found that time spent studying and integration in the student community had a positive effect, while employment had a negative effect on grades. However, most existing research on the psychological predictors of performance is international, particularly American. Increasing the knowledge on the psychological predictors of performance at the university, if they are in fact malleable variables, might through the implementation of appropriate interventions, help enhance the possibility of better performance among students. Performing well may also, through self-efficacy and motivation, increase the probability of completing a degree.

A need for further research on the psychological variables that may play a role in determining a student's academic career is evident. Because of the differences in the educational systems in Norway and in the USA, American research findings cannot necessarily be generalized to Norwegian students. Moreover, although research studies on the psychological predictors on university outcomes are numerous, few studies have included both motivational, psychosocial and personality factors simultaneously.

*Psychological Predictors of the Academic Career*

There is no theoretical framework that captures all of the variables that seem important for students' academic careers. Instead, several theories and lines of research must be considered when approaching persistence and performance in an educational setting.

*Motivation*

One of the most important psychological concepts in education is certainly that of motivation (Vallerand et al., 1992). The term motivation is derived from the Latin word *movere* (to move), and it can be defined as the process whereby goal-directed activity is instigated and sustained (Pintrich & Schunk, 1996). However, motivation is not a unitary phenomenon. People do not only have different amounts of motivation, but they also differ in the orientation or type of motivation. Self-Determination Theory (SDT) distinguishes between different types of motivation based on the variety of reasons or goals that give rise to action. The most basic distinction is between intrinsic and extrinsic motivation, as well as amotivation (Ryan & Deci, 2000a). When individuals are intrinsically motivated, they engage in an activity because they are interested in and enjoy the activity (Eccles & Wigfield, 2002). Intrinsically motivated behaviors represent the prototype of self-determined behavior (Ryan & Deci, 2000a). Extrinsically motivated individuals engage in activities out of a sense of obligation, or as a means to an end. Extrinsically motivated behaviors can vary in the extent to which they represent self-determination (Ryan & Deci, 2000a). Amotivated behaviors are the least self-determined actions (Vallerand & Bissonette, 1992) and is related to not valuing the activity, feeling incompetent, or feeling unable to obtain a desired outcome (Ryan & Deci, 2000a). These differential states have been argued to fall along a motivational continuum that reflects the degree of self-determined behavior, ranging from amotivation, to extrinsic motivation to intrinsic motivation (Fairchild, Horst, Finney & Barron, 2005). The degree of self-determination is contingent on the degree to which three innate psychological needs are met; the need for competence, the need for autonomy, and the need for relatedness (Deci & Ryan, 1985 as cited in Fairchild et al., 2005). As the theory argues, social-contextual events and conditions can either promote or prevent the fulfilment of these needs (Fairchild et al., 2005), and as such influence the type of motivation. In an academic setting examples of promoting conditions are “optimal challenges, effectance promoting feedback, and freedom from demeaning evaluations” (Ryan & Deci, 2000b, p.71), that satisfies the need for competence, and, an internal perceived locus of causality (deCharms, 1968 as cited in Ryan & Deci, 2000a) or experience of self-determination, that satisfies the need for autonomy. A sense of security and relatedness to co-students and teachers will also increase the probability of self-determined types of motivation. The opposite conditions; tangible rewards, threats, deadlines, directives, pressured evaluations, and imposed goals will, accordingly, diminish

self-determined motivation, because they will induce an external perceived locus of causality (Ryan & Deci, 2000b).

Although SDT does not differentiate intrinsic motivation, researchers have identified three types of intrinsic motivation, that is, *to know, to accomplish* and *to experience stimulation* (Vallerand, Blais, Brière & Pelletier, 1989 as cited in Vallerand et al., 1992). Intrinsic motivation *to know* can be described as behavior being performed for the pleasure one experiences while learning or trying to understand something new (Cokley, 2000), and it relates to several constructs such as exploration, curiosity and the search for meaning (Vallerand et al., 1992). Intrinsic motivation *to accomplish* things can be defined as behavior being performed for the satisfaction one feels when accomplishing or creating something (Cokley, 2000). Intrinsic motivation *to experience stimulation* can be described as behavior being performed to experience stimulating sensations as a result of being engaged in some activity (e.g., sensory pleasure, aesthetic experiences, as well as fun and excitement) (Vallerand et al., 1992). Three types of extrinsic motivation have also been identified. From lower to higher levels of self-determination, they are: *external regulation, introjected regulation* and *identification*. *External regulation* is behavior that is regulated by an external reinforcement such as a reward or at threat of punishment. *Introjected regulation* is behavior regulated by internal coercion such as guilt, ego enhancement or obligation (Fairchild et al., 2005). *Identification* is behavior that is valued and engaged in willingly and that is perceived as chosen by oneself (Vallerand et al., 1992). Although it is extrinsic in nature, there is no external pressure. Ryan and Deci (2000a) also operate with a fourth subtype of extrinsic motivation; *integrated regulation*. At this level the self-regulation is consistent with the individual's self concept. Although behavior motivated by integrated regulation is both volitional and valued by the self, it still has some instrumental value for the individual (Ryan & Deci, 2000a). Finally, amotivation occurs when individuals perceive their behaviors as being caused by forces outside their own control (Cokley, 2000). This perspective on motivation has proved to be relevant with regard to academic achievement.

In relation to persistence, Vallerand and Bisonnette (1992) conducted a prospective study on junior-college students, concerning their motivational style at the beginning of a semester, and their persistence or dropout behaviour four months later, at the end of the semester. They found that students who persisted and finished the course had higher initial levels of intrinsic motivation toward academic activities in general than did students who dropped out of the course. In addition, self-determined types of extrinsic motivation (integration and identification) were found to be positively related to behavioral persistence,

while amotivation was found to be negatively related to persistence. Vallerand, Guay and Fortier (1997) proposed and tested a model of high school dropout. The model posits that low levels of self-determined motivation lead to dropout. The low levels of motivation was shown to be caused by less positive perceptions of competence and autonomy, which in turn were caused by the network's (teachers, parents and school administration) failure in supporting these psychological needs.

In relation to performance, Baker (2003) found that intrinsic motivation (to accomplish) predicted performance (overall GPA) over one year at university, controlled for entry qualifications, adjustment to university, psychological and physical health, and stress. Lin, McKeachie and Kim (2003) found that the combination of intrinsic and extrinsic motivation produced an interactive/curvilinear effect on achievement (grades). Students in the mid-third of the distribution on extrinsic motivation who were high on intrinsic motivation achieved better grades than students with higher or lower extrinsic motivation. To improve the ecological validity, they used both American and Korean samples. Another finding was provided by Burton, Lydon, D'Allesandro and Koestner (2006), who found that while it was identified motivation (extrinsic) that predicted academic performance, intrinsic motivation predicted psychological well-being in elementary school children. Intrinsic motivation did not predict academic performance in their study. They further tested these hypotheses experimentally with university students, and replicated the results from the real life setting. Fortier, Vallerand and Guay (1995) did not test intrinsic and extrinsic motivation directly, yet they proposed and tested a motivational model of school performance based on Deci and Ryan's theoretical framework. They found that perceived academic competence and perceived academic self-determination positively influenced autonomous academic motivation, which in turn had positive impact on school performance. The proposed model explained 28 % of the variance in performance. A related finding was provided by Walker, Greene and Mansell (2006), who found that intrinsic motivation predicted meaningful cognitive engagement, while extrinsic motivation predicted shallow cognitive engagement. Meaningful processing is related to cognitive elaboration of the material, such as relating the new information to one's existing knowledge, while shallow processing involves superficial engagement in the material such as basic rehearsal or memorization (Walker et al., 2006). In line with this, Bråten and Olaussen (2005) found, using a combination of different motivational constructs, that students scoring high on motivation, consistently reported more use of deeper-level strategies. In addition, they expressed more sophisticated beliefs about the

nature of knowledge and knowledge acquisition. Meaningful, deeper-level processing affects learning and may in turn have an effect on persistence and achievement.

*Social Support*

Humans have a need to belong, and form social attachments under all conditions and settings. A desire for interpersonal attachments is a fundamental human motivation and relationships play a central role in human happiness and physical and mental health, according to Baumeister and Leary (1995) and Bersceid (1994). Investigators of social support often view it as being a buffer that protects a person against life stressors (Berg & Piner, 1990). In a university setting, a stressful environment in many ways, social support may represent an important success factor. Having friends and establishing a social network at the university may provide social support. As network size increases, social support should increase, according to Berg and Piner (1990). The social support network can, in turn, provide informational, instrumental and emotional support (Salem, Bogat & Reid, 1997). Informational support can in an academic setting pertain to suggestions and guidance of possible courses of action, and can give students access to information on important dates of deadlines and exams and changes in schedule etc. Instrumental support is the provision of concrete support (Salem et al., 1997), and may involve borrowing books from others, proof reading, or similar practical assistance. Emotional support is empathic; it seeks to nurture and encourage each other, and implies having someone to confide in and to share difficulties with. Consequently, the university social network will affect a student's integration into the academic community (Culbert, Lachenmeyer & Good, 1988). Social integration into this community will increase the probability that a student acquires and sustains the repertoire of values and skills that make successful academic achievement possible (Antrobus, Dobbelaer & Salzinger, 1988).

Loneliness is another way of conceptualising the experienced presence or absence of social support. Loneliness is defined as a discrepancy between the quantity and/or quality of social relationships one has and the quantity and/or quality that one desires (Perlman & Peplau, 1981 as cited in Berg & Piner, 1990). Loneliness is generally treated as a one-dimensional construct. However, Weiss (1973 as cited in Green, Richardson, Lago & Schatten-Jones, 2001) proposed the existence of two distinct types of loneliness, social and emotional loneliness; each related to different deficits in relationships. Social loneliness refers to the lack of a network of social relationships with peers, while emotional loneliness refers to the lack of a close, intimate attachment to another person (Shaver & Brennan, 1991). Green et

al. (2001) examined the network correlates of social and emotional loneliness. Their findings supported the proposal that social and emotional loneliness are different constructs, and that they have differential network correlates. Emotional loneliness was related to the presence of a romantic partner in the network, while social loneliness was related to both network size and the presence of a close other.

The empirical evidence is inconclusive concerning the effect of social support on achievement and persistence. Halamandaris and Power (1999) investigated the relationship between social support and loneliness, and academic achievement of first year home students, but did not find any correlation between these variables. Several other studies confirmed this lack of relationship and found that social support did not predict GPA (Antrobus et al., 1988; Culbert et al., 1988; Trockel, Barnes & Egget, 2000). The last two studies also investigated the effect of social network on persistence, but did not find any relationship between these variables. In contrast, a study by DeBerard, Spielmans and Julka (2004) concluded that the total level of social support was a significant independent predictor of academic achievement among college freshmen (GPA). However, it did not predict persistence, measured as re-enrolment status the following year. Gloria and Ho (2003), on the other hand, found that social support variables were strong predictors of academic persistence in Asian American Undergraduates. Further evidence was presented by Harris (1991), who found that students who dropped out were significantly lonelier, less socially adapted and less attached to others. Those who reported that they had thought about leaving university (but who if fact did not) reported to be more lonely, less adapted and less satisfied with their social network. But academically, they were equally successful as their peers.

*Attendance*

Attendance at the university implies participating in academically related behavior, such as classes, lectures and seminars. It may also involve taking part in social activities. Attendance at the educational institution consequently increases both social and academic integration. It presumably induces a student identity, and a feeling of being a part of the student community. According to Tinto (1993, p.13), “it is apparent that the more students are involved in the social and intellectual life of a college, the more frequently they make contact with faculty and other students about learning issues, especially outside the class, the more students are likely to learn”. There is evidence that attendance is related to both persistence and achievement. Hovdhagen and Aamodt (2005) found that students with an active study style were less likely to dropout, while Clump, Bauer and Whiteleather (2003) demonstrated

the importance of attendance on both immediate test scores and overall test scores. Further support was presented by Farsides and Woodfield (2003), who demonstrated that attendance, measured as lack of seminar absence, was the strongest and most consistent predictor of academic success, above that of intelligence and personality. Moreover, Conard (2006) found that attendance incrementally predicted academic performance over the entrance test Scholastic Aptitude Test (SAT). A related finding is provided by Robbins, Allen, Casillas, Petersen and Le (2006), who found that academic discipline and social activity both predicted both grades and persistence.

*Contextual Interference*

University studies are generally time consuming, and success is contingent on effort and focus. Contextual interfering variables might steal time and focus from studying, and thereby affect performance and the probability of persisting at university. One such factor is being engaged in part-time or full-time employment. The motivation for engaging in part-time employment varies: it might be to finance the studies, to provide for children, or it might be to gain relevant work experience. Either way it might take time away from studying, although it may certainly also provide valuable work experience which will be useful for job application and later employment. Being dependant on the income from part-time or full-time work to finance higher education might cause stress. Andrews and Wilding (2004) confirmed empirically that financial difficulties can increase British students' levels of anxiety and depression and that financial difficulties and depression can affect performance. When the motivation behind seeking employment while studying is caused by a genuine interest in the work itself, perhaps accompanied by the understanding that the job is more important than the formal education, this will probably reduce the chance of succeeding at university. In several studies, researchers have reported negative effects of part-time work on performance and persistence (Berg, 1995; Hovdhagen & Aamodt, 2006; Trockel et al., 2000). Cabrera, Nora and Castañeda (1992) investigated the role of finances in the persistence process. They found that receiving some sort of financial aid facilitated the students' academic and social integration, and influenced their commitment to stay in higher education. Financial aid also enhanced students' academic performance (GPA). Receiving financial aid reduces anxiety, time and effort associated with securing additional funds to finance an education (Cabrera et al., 1992).

*Personality*

The field of personality psychology is approaching consensus on a general descriptive taxonomy of personality traits, known as the ”Big Five” personality dimensions or the Five Factor Model (John & Srivastava, 1999; McCrae & Costa, 1999). There is general agreement that personality can be described by five factors labelled *Openness* (versus closed mindedness): intellectual, imaginative, independent-minded, *Conscientiousness* (versus lack of direction): orderly, responsible, dependable, *Extraversion* (versus introversion): talkative, assertive, energetic, *Agreeableness* (versus antagonism): good-natured, cooperative, trustful, and *Neuroticism* (versus emotional stability): anxiety, angry hostility, vulnerability (John & Srivastava, 1999). Personality traits are by definition relatively stabile over time, and they influence persons' interactions with, and adaptations to the environment (Larsen & Buss, 2002). These stabile and lasting traits have been associated with a number of domains, including educational outcomes. Few studies have in fact investigated the relation between the big five personality traits and persistence at university. On the other hand, there are lots of studies on the association between the big five traits and performance. Yet, evidence is mixed concerning the role of personality traits in predicting grades.

The trait that most often has been associated with academic performance is conscientiousness. A number of research studies have shown that conscientiousness explained unique variance in GPA beyond the traditional predictors (high school grades and SAT) (Conard, 2006; Lievens, Coetsier, De Fruyt, & Maeseneer, 2002; Noftle & Robins, 2007; Tross et al., 2000; Wagerman & Funder, 2007). Conard (2006) found that conscientiousness was mediated by attendance, while Noftle and Robins (2007) found that both concurrently and longitudinally, the personality trait was mediated by increased academic effort and higher levels of perceived academic ability. Further evidence was provided by Busato et al. (2000), who found an association between conscientiousness and academic success measured as the amount of study points accumulated after the first, second and third year, in addition to the result on the first psychology exam.

Other researchers have found effects of other personality traits in predicting academic success. Farsides and Woodfield (2003) investigated the effect of the Big Five traits on academic success up to three years later, controlling for attendance and intelligence. They found that openness to experience explained unique variance in final grades, while the effect of agreeableness was mediated through attendance. Openness has also been related to a learning strategy (“elaboration”) that contributes to the prediction of grades (Blickle, 1996),

and with intention to get good grades, which predicted success (Phillips, Abraham & Bond, 2003).

Extraversion has been shown to either correlate negatively with grades (Busato et al., 2000; Furnham & Mitchell, 1991), or to have no effect (Farsides & Woodfield, 2003; Halmandaris & Power, 1999), while neuroticism has either not been related, or has been positively related to academic performance (Farsides & Woodfield, 2003; Halmandaris & Power, 1999; Musgrave-Marquart, Bromley & Dalley, 1997; Ridgell & Lounsbury, 2004).

Few studies have investigated the relation between big five personality traits and persistence at university. However, Tross et al. (2000) found that conscientiousness added significant incremental variance (3%) to high school GPA and SAT, in predicting college retention, besides significantly predicting college achievement (7 %). A test of mediation indicated that conscientiousness impacted college retention both directly and indirectly through college GPA.

*Mental Health*

Poor mental health is associated with a variety of adverse consequences (Svanum & Zody, 2001). In DSM-IV depression is described as the loss of interest or pleasure in nearly all activities. Associated symptoms are, among others, decreased energy and difficulty in thinking and concentrating. Anxiety is associated with autonomic hyper arousal, excessive worry and restlessness, and both depression and anxiety are correlated with impairment in social and occupational functioning (American Psychiatric Association, 1994). The loss of productivity associated with psychopathology may be particularly evident among university students, who over the course of a semester must meet at a relatively fixed schedule of classroom activities, term papers, exams and so on. Students experiencing alcohol dependence, depression or other mental health problems would be expected to thrive less well than their more adjusted counterparts, and be at risk of academic underachievement and failure (Svanum & Zody, 2001).

One line of research has investigated the effect of mental health on academic outcomes. The results are inconclusive on this matter. DeBerard et al. (2004) found that the overall level of mental health was a significant independent predictor of achievement, measured as cumulative GPA, in college freshmen. Andrews and Wilding (2004) found that depression affected academic performance, but that anxiety did not. Further evidence was provided by Pritchard and Wilson (2003), who found that emotional health, was related to both GPA and intention to drop out. They showed that students with high stress levels were

more likely to have a lower GPA, and that student with more fatigue and lower self-esteem indicated that they had an intention to drop out of college. Other researchers have reached other conclusions, based on their material. Sundquist-Stensman (1981) found that psychological distress did not seem to have any significant effect on performance. Strahan (2003) investigated the effect of social anxiety specifically, on academic outcomes, and found that it did not emerge as a significant predictor of neither college persistence nor GPA. Svanum and Zody (2001) actually found a positive association between anxiety disorders and grades. Some studies have looked at specific groups of students. Lloyd and Gartrell (1984) examined the presence of psychiatric symptoms in a sample of medical students, and found that this group had considerably higher symptom levels than those previously reported in a general population survey. A similar Norwegian study (Bramness, Fixdal & Vaglum, 1991) did not replicate this result, and concluded that medical students in Norway did not differ from the general population in mental health.

### *Goals of the Present Study*

The main purpose of the present study is to investigate the importance of motivational and psychosocial factors in predicting the academic careers of students at the University of Oslo. Academic career is defined as persistence (versus dropout), and performance (grade average) at the university.

More specifically, my goals are to: (1) examine the effect of academic motivation, social network and loneliness, time spent at the university, mental health and personality on persistence at the university over the course of two and a half years (from 2003 to 2005), and (2) examine the relative contribution of academic motivation, social network and loneliness, time spent at the university, mental health and personality in predicting exam grades over the course of two and a half years (from 2003 to 2005).

## Method

### *Participants and Procedures*

Predictors of academic careers were studied longitudinally using data from the HELT (Helse- og trivsel blant studenter ved Universitetet i Oslo) study, a survey of students' health and well-being at the University of Oslo in 2003 (HELT 1) and 2005 (HELT 2). Questionnaire data from HELT 1 was used to predict the academic careers of students over

the course of two and a half years. The outcome variables of interest were *persistence* and *performance*, and this data was collected from the student record at the University of Oslo.

The HELT study was initiated by the student health service at the university, and it was conducted in cooperation with the university administration. The purpose of the HELT study was to aggregate knowledge about the students' health and well-being in order to adapt the health service to the needs of the population. A second purpose of the HELT study was to investigate the possible implications of the study reform that was implemented in the fall 2003 (Kvalitetsreformen) on the students social and academic well-being, as well as their health (Olsen, Rosvold, Mogård, Kvalem & Daae, 2006). The implications of the study reform are not the scope of this article. The data from HELT 1 was collected during spring 2003, before the reform was implemented. However, since the reform is a factor that may have affected the outcome variables, it will be discussed in relation to the results.

The sample in the HELT 1 study consisted of 2000 students drawn randomly from the student registry. Of these, 1800 were regularly enrolled students, while 200 were foreign students visiting for a short period of time. The sample constituted 6 % of the student population at the University of Oslo and included students from all different university levels. The gender distribution corresponded to that of the student population as a whole (60 % females, 40 % males). The age distribution was similar to the population, but males were overrepresented in the oldest age group. The questionnaires were distributed by mail.

Some exclusions of participants were made in the current study. The foreign exchange students (n = 200) were excluded from the sample because of the interest in longitudinal data. Students in the profession-related education programs, medicine- and dentist students (n = 55), were also excluded from the sample because they represent a highly selected group of students regarding grades and motivation, something which is likely to have implications for persistence as well as achievement. This resulted in a net sample of 1745 students, and a response rate of 43.6 % (761/1745). From the response group all students over 32 years (n = 115) were also excluded. It was mainly the young student population, those who were in higher education for the first time that was of interest. A cut off at 32 years presumably excluded those students who started, or returned to, higher education after several years working. The net response group was 646.

*Dependent Variables*

Outcome variable data was drawn from the student record at the University of Oslo. Information on semester registration, degrees and results from exams from spring 2003 to fall 2005 (six semesters) was collected.

*Persistence versus dropout.* Two groups of students were constructed; the persistent group (coded as "0"), which were students who left university after finishing a degree or still were studying by the fall 2005 and the dropout group (coded as "1"), which were students who had left university without a degree.

*Grades.* Due to the changes made in the grading system in the fall 2003, some transformations of the grades were necessary in order to calculate an average. The previous grading system consisted of numbers ranging from 1.00 to 4.00. The new grading system consisted of letters ranging from A to E. The following procedure was conducted to calculate an average value. First, number grades were transformed into letter grades (A: 1.0-2.2, B: 2.3-2.5, C: 2.6-2.8, D: 2.9-3.4, E: 3.5-4.0). Secondly, all letter grades were given a number value (A: 5, B: 4, C: 3, D: 2, E: 1).Thirdly, average grades were calculated, ranging from 5 to 1. The higher number, the better the grade.

In order to compare successful students to less successful students regarding achievement, two groups were constructed based on their grades; students with good grades, and students with medium to low grades. The cut-off between the good and the medium grades was placed at the value that separated the upper 35% of the response group from the lower 65 %. According to university guidelines, grades should be normally distributed. This implies that about 10 % of grades should be As and about 25 % should be Bs. The value closest to 35 % was 4.00. This in fact included 36.8 % of the response group in the good grade group, while 63.2 % ended in the medium to low grade group.

*Independent Variables*

The independent variables were collected from the questionnaire used in the HELT study. It consisted of several instruments, some of which were used in this particular study. The questionnaire can be found in appendix A.

*Motivation.* Motivation was measured by the Academic Motivation Scale (AMS) (Vallerand et al., 1992) translated into Norwegian. AMS is a measure of different types of motivation or different reasons for studying (intrinsic and extrinsic motivation) and the absence of motivation (amotivation). The measure is composed of 28 items, subdivided into three scales. The amotivation scale is made up of four items, while the intrinsic and extrinsic

motivation scales consists of 12 items each. The participants are instructed to answer the following question: “Why are you studying at the university?” by indicating to what extent they agree on a 7-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). The higher the score, the more intrinsically or extrinsically motivated, or amotivated, is the person.

The scales achieved the following reliabilities (Cronbach’s α): Intrinsic motivation α = .91, Extrinsic motivation α = .84 and Amotivation α = .83. The intrinsic and extrinsic scales are further divided into three subscales, each composed of four items. The intrinsic motivation subscales are as follows: (1) to know (α = .83), (2) to accomplish (α = .85) and (3) to experience stimulation (α = .81). The extrinsic motivation subscales are as follows: (1) identified regulation (α = .74), (2) introjected regulation (α = .82) and (3) external regulation (α = .80).

*Mental health.* Mental health was measured by HSCL-25 (Derogatis, Lipman, Rickel, Uhlenhuth & Covi, 1974), translated into Norwegian. The HSCL-25 “is (…) designed to measure psychological distress, or more specifically, mainly symptoms of anxiety and depression” (Strand, Dalgard, Tambs & Rognerud, 2003, p.114). The participants were asked to estimate to what extent they were bothered or distressed by 25 different symptoms during the last two weeks, and to rate this on a 4-point Likert scale ranging from *“not at all”, “a little”, “quite a bit”,* to *“extremely”*. Higher score indicates more psychological distress. The scale achieved a reliability (Cronbach’s α) of .92.

*Loneliness.* Loneliness was measured by a Norwegian translation of the Emotional versus Social Loneliness Scale (ESLS) (Shaver & Brennan, 1991). ESLS is a measure of different kinds of loneliness; social loneliness, which refers to the lack of a social network, and emotional loneliness, which refers to the lack of a close, intimate attachment to another person (Shaver & Brennan, 1991). The measure was presented as a 10-item scale with statements concerning the quality of social relations. The participants were instructed to estimate how well each statement applied during the last year, and to rate this on a 5-point Likert scale (*never, rarely, sometimes, often, very often*). Higher score indicates a stronger experience of loneliness. The scales achieved the following reliabilities (Cronbach’s α): Social loneliness α = . 77, emotional loneliness α = .76. (Combined: α = .79).

*Social network.* The participants were asked to report how many friends they had become acquainted with at the university, both close friends (“*How many friends do you have whom you can take into your confidence or with whom you can talk about a variety of*

*problems?"* and*" How many of these friends did you become acquainted with at the university?")* and not close friends *("How many friends do you have, with whom you spend time regularly, but whom you cannot take into confidence, or with whom you cannot talk about a variety of problems?"* and *"How many of these friends did you become acquainted with at the university?").* The total number of friends from the university was added together.

*Attendance at the university.* The participants were simply asked to estimate if and how often they had been present at the university ("*Have you been present at the University of Oslo, spring 2003?"*), and to rate this on a 6-point scale (*almost every day, at least twice a week, seldom, take classes some other place, study entirely on my own, have interrupted studies*). This scale was transformed into a 5-point scale before the analyses were conducted. The new scale ranged from 0 - 4 (*0 = interrupted studies, 1= studying on my own or at some other place, 2 = seldom present, 3 = present at least twice a week, and 4 = present almost every day).* Higher score indicates higher attendance.

*Full-time studies*. To investigate whether part-time work intrudes on the possibility of succeeding at the university, three groups were constructed based on the degree of being a full-time student. The participants were asked to describe how they financed their studies by indicating every source of income from the following list: *student loan and grant, employment; less than half time, employment; more than half time, welfare, medical rehabilitation support, professional rehabilitation, child support for single parent, partially or completely supported by others or other.* The "full-time student" group (2) included those students who reported student loan and grant as their only income, as well as those who reported being supported or receiving social funding of some sort. The "< 50 % employed student" group (1) included the students that worked less than half time, and the "employed part-time student" group (0) include the students that reported working half time or more. Higher score indicates a higher degree of full-time studies.

*Personality.* Personality traits were measured by a Norwegian short version, developed by Engvik (1993), of a Norwegian translation of Big Five (Engvik, 1993), the 5PFa. The instrument is designed to assess the personality dimensions of the Five Factor Model (FFM): *openness* (versus closed mindedness), *conscientiousness* (versus lack of direction), *extraversion* (versus introversion), *agreeableness* (versus antagonism) and *neuroticism* (versus emotional stability) (OCEAN). It consists of 20 items, four items on each of the five personality factors. Each item is a word pair; two opposite adjectives. Examples: *warm - cold, passive - active, well organized – not well organized*. The items are rated on a 7-point Likert scale, with the two adjectives at each end of the scale. The participants are

instructed to indicate which score that corresponds to how they perceive themselves. Higher score indicates higher OCEAN, lower score indicates being closer to the opposite side of the dimension. The scales in this study achieved the following reliabilities (Cronbach's $\alpha$): Openness $\alpha$ = .83, Conscientiousness $\alpha$ = .86, Extraversion $\alpha$ = .74, Agreeableness $\alpha$ = .66 and Neuroticism $\alpha$ = . 78.

*Representativity*

In order to give an indication of the representativity of the response group, we compared the questionnaire responders to the non-responders regarding one of the outcome variables; persistence/dropout. Since age was not registered in the sample, students over 32 years were not excluded from the response group in this particular analysis. A chi square test of persistence/dropout in relation to whether one returned the HELT 1 questionnaire was conducted, showing that there were significantly more persistent students in the response group (64.3 %, 489/761), than among the non-responders (45.6 %, 449/984, $\chi^2 = 59.9$, $p<.001$). If the variability in the predictors are similar in both groups (which one could assume), this will not have a major impact on the predictors effect on the outcome variable. But there is still a possibility of a selection bias regarding for example psychological problems; there may have been more severe problems among the non-responders.

*Statistical Analyses*

All statistical analyses were performed in SPSS 13.0. The analyses were run separately for men and women in order to investigate whether the pattern of predictors differed.
Some preliminary analyses were conducted. Group differences in mean scores on dropout and grades were compared with independent samples t-tests. A t-test compares means between samples, and states how many standard deviations the observed score deviate from the expected score (the mean of the null hypothesis). Tests of significance are stated as t-values.

To establish whether the independent variables had unique contributions to dropout, a logistic regression analysis was conducted. The logistic regression analysis was employed because the dependent variable was categorical. The relationship between the independent variables and the dichotomous criterion variable are given in Odds Ratio (OR) in the logistic regression analysis. The Odds Ratio for a predictor tells the relative amount by which the odds of the outcome increase (OR greater than 1.0) or decrease (OR less than 1.0) when the value of the predictor increases with one unit. When investigating the independent variables

prediction on grades, a multiple regression analysis was conducted, since the dependent variable was continuous. The relationship between the independent variables and the continuous criterion variable are given in Beta coefficients in the multiple regression analysis. The Beta value represents the unique contribution of a predictor in explaining the dependent variable, when the variance explained by all other variables in the model is controlled for. Both the regression analyses were conducted sequentially and the variables were entered in three steps. In this way it was possible to assess what each block could add to the prediction of dropout and grades after the previous variables had been controlled for.

Throughout the analyses, the confidence interval (CI) was set to 95 %, which means that in an interval of scores, there is a 95 % probability that the interval will include the actual score.

## Results

Of the 646 participants in this study, about 2/3 of the students were female, as shown in table 1. The distribution of the demographic characteristics further reveals that almost half (48.9%) of the response group was between 23 and 27 years of age. Women seem to both begin and end their studies at a younger age than men. There were significantly more women than men between 18 and 22 years of age, and more men than women between 28 and 32 years of age. Further inspection of the table shows that the majority of the participants, about 60 %, were either married, cohabiting or in steady relationships, but that as few as 7.4 % were providing for children.

Table 1: Demographic characteristics of the response group.

| | **Females** | | **Males** | | **Total** | |
|---|---|---|---|---|---|---|
| | N | % | n | % | N | % |
| Age groups | | | | | | |
| 18-22 | 139 | 32.4 | 53 | 24.4 | 192 | 29.7 |
| 23-27 | 208 | 48.5 | 108 | 49.8 | 316 | 48.9 |
| 28-32 | 82 | 19.1 | 56 | 25.8* | 138 | 21.4 |
| Marital status | | | | | | |
| Single | 160 | 37.6 | 95 | 43.8 | 255 | 39.7 |
| Married/cohabiting/ steady partner | 265 | 62.4 | 122 | 56.2 | 387 | 60.3 |
| Children | | | | | | |
| Providing for children | 38 | 8.5 | 11 | 5 | 49 | 7.4 |
| Total | 429 | 66.4 | 217 | 33.6 | 646 | 100 |

* Chi-square 6.16, p = <.05.

The distribution of the financial situation of the response group is described in table 2.

Table 2: Degree of full-time studies.

| | **Females** | | **Males** | | **Total** | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Full-time studies | | | | | | |
| Full-time student | 129 | 30.4 | 67 | 30.9 | 196 | 30.6 |
| < 50 % employed student | 187 | 44.1 | 95 | 43.8 | 282 | 44 |
| Employed part-time student | 107 | 25.2 | 56 | 25.8 | 163 | 25.4 |
| Total | 424 * | | 217 | | 641 | 100 |

* 5 missing.

It appears that a large number of students were working to finance their studies. Most of the employed students, almost half of the participants (44 %), worked less than half time, while ¼ worked half time or more. A large number of the working students reported that they also had a student loan or grant. Overall, nearly 70 % of the response group reported having study loan as a financial source (n = 434, 67, 2 %). The table reveals that about 1/3 of the response group were full-time students; having student loan as their only income. There are no gender differences in the distribution.

*Distribution of Persistence and Grades*

Table 3 describes the student status of the response group fall 2005. It reveals the number of students who dropped out without a degree (dropout students), and the number of students who left university with a degree or who are still students (persistent students). The table also shows how many of the persistent students that have achieved a degree, the level of degrees, and the number of students who has not achieved a degree.

Table 3: Student status fall 2005; persistence, degrees and level of degrees.

| | **Females** | | **Males** | | **Total** | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Student status fall 2005 | | | | | | |
| Persistence | | | | | | |
| Dropout students | 155 | 36.1 | 66 | 30.4 | 221 | 34.2 |
| Persistent students | 274 | 63.9 | 151 | 69.6 | 425 | 65.8 |
| Degree | | | | | | |
| Achieved | 125 | 29.1 | 69 | 31.8 | 194 | 30 |
| Level of degree | | | | | | |
| Bachelor | 46 | 36.8 | 25 | 36.2 | 71 | 36.6 |
| Master | 79 | 63.2 | 44 | 63.8 | 123 | 63.4 |
| Not achieved | 304 | 70.9 | 148 | 68.2 | 452 | 70 |
| Total | 429 | 100 | 217 | 100 | 646 | 100 |

As shown in table 3 the dropout rate is high. About 1/3 (34.2 %) of the participants dropped out of university without a degree. 65.8 % were persistent. Among the persistent students, only 30 % have achieved a degree by fall 2005; of those 36.6 % achieved a bachelor degree, and 63.4 % achieved a master degree or “hovedfag”.

In order to investigate the participants’ performance, the students were divided into two groups, based on their average grade. The cut off was set to 36.8 %, the value closest to 35 %. This resulted in a mean cut off grade of 4. A certain gender difference was found, as 41 % of the male response group ended in the good grade group, while only 34.6 % of the females were in this group. Men had an overall higher average grade than women.
The distribution of grades varied somewhat among the different faculties, with the 35. percentile cut off point ranging from grades 3.8 to 4.3. The grading traditions vary to some degree from faculty to faculty. The cut off was however close to 4 at all faculties.

*Differences in Predictors between Outcome Variable Groups*

Table 4 and 5 reveals the differences between the outcome variable groups regarding persistence and grades.

Table 4 shows the differences between the dropout group - whether one quit university without a degree, and the persistent group- whether one quit university with a degree or still are studying, on all the independent variables (t-tests).

Table 4: Independent variables in relation to student persistence.

| | Female | | | | | | | Male | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dropout students | | | Persistent students | | | | Dropout students | | | Persistent students | | | |
| | *n* | *M* | *SD* | *n* | *M* | *SD* | *t-value* | *N* | *M* | *SD* | *n* | *M* | *SD* | *t-value* |
| Intrinsic motivation | 151 | 4.13 | 1.1 | 261 | 4.49 | 1.1 | 3.2** | 64 | 3.93 | 1.1 | 149 | 4.36 | 1.0 | 2.7** |
| Extrinsic motivation | 150 | 4.14 | 1.0 | 268 | 4.49 | 1.0 | 3.4** | 65 | 3.82 | 1.2 | 148 | 4.13 | 1 | 1.9 |
| Amotivation | 153 | 1.76 | 1.1 | 271 | 1.41 | .72 | -3.6*** | 65 | 2.18 | 1.5 | 150 | 1.53 | .83 | -3.3** |
| Mental health | 150 | 1.68 | .48 | 262 | 1.68 | .45 | .08 | 65 | 1.50 | .47 | 150 | 1.44 | .36 | -.71 |
| Friends at university | 153 | 3.10 | 5.4 | 260 | 4.49 | 5.0 | 2.6** | 64 | 3.09 | 4.3 | 147 | 6.24 | 9.5 | 3.3** |
| Emotional loneliness | 143 | 1.97 | .83 | 258 | 1.84 | .78 | -1.6 | 64 | 2.26 | .98 | 142 | 2.14 | .95 | -.85 |
| Social loneliness | 148 | 2.14 | .59 | 273 | 2.06 | .62 | -1.3 | 64 | 2.48 | .74 | 151 | 2.22 | .69 | -2.5* |
| Attendance | 154 | 1.88 | 1.4 | 274 | 3.06 | 1.1 | 9.3*** | 66 | 1.98 | 1.4 | 151 | 3.11 | 1.1 | 5.9*** |
| Full-time studies | 152 | 0.80 | .81 | 271 | 1.19 | .67 | 5.3*** | 66 | 0.91 | .84 | 152 | 1.11 | .71 | 1.84** |
| Openness | 154 | 4.98 | 1.1 | 271 | 4.68 | 1.1 | -2.7** | 65 | 5.08 | 1.0 | 151 | 4.94 | 1.0 | -.97 |
| Conscientiousness | 153 | 4.80 | 1.2 | 271 | 4.83 | 1.3 | .22 | 65 | 4.58 | 1.4 | 150 | 4.50 | 1.3 | -.43 |
| Extraversion | 154 | 4.83 | 1.0 | 272 | 4.69 | 1.1 | -1.3 | 65 | 4.48 | 1.3 | 151 | 4.35 | 1.0 | -.79 |
| Agreeableness | 154 | 5.66 | .77 | 269 | 5.57 | .86 | -1.1 | 65 | 5.17 | 1.0 | 151 | 5.24 | .80 | .51 |
| Neuroticism | 151 | 3.93 | 1.2 | 271 | 4.15 | 1.2 | 1.7 | 65 | 3.30 | 1.2 | 152 | 3.41 | 1.2 | .56 |

* p<.05 , ** p<.01, *** p<.001.

An inspection of the results in table 4 reveals that the largest differences between the dropout and the persistent group were the degree of attendance and full-time studies. The persistent students spent significantly more time at the university and worked less in addition to studying in 2003 than did the dropout students. This applied to both men and women. Further inspection shows that persistent students were more intrinsically motivated than their counterparts; they were to a larger extent engaged in their studies merely because it provided pleasure and satisfaction. Persistent students experienced less amotivation in 2003, that is, a lack of intention to act (Ryan & Deci, 2000a), and had more friends at the university than the dropout students.

For females only, the groups also differed on openness and extrinsic motivation. The students who persisted were less open, that is, less original and creative, and more extrinsically motivated than the dropout students. When it comes to men, the groups differed on social loneliness; persistent students experienced less social loneliness in 2003 than the dropout students. In addition, the difference between the male groups on extrinsic motivation was almost significant ($p = .06$). There was a tendency that the male persistent students were more extrinsically motivated than the male dropout students.

In order to go deeper into the content of the motivation variables, t-tests between the groups on the motivation subscales were performed. The results from these t-tests showed that the female groups differed on all six intrinsic and extrinsic motivation subscales. For men, t-tests on two of the intrinsic subscales revealed significant differences between the groups; intrinsic motivation to know (*dropout group*: M=5.08, SD = 1.38 (65); *persistent group*: M=5.59, SD=1.06 (152); $t=2.98$, $p<.01$) and intrinsic motivation to experience stimulation (*dropout group*: M=3.35, SD=1.31 (65); *persistent group*: M=3.82, SD=1.27 (150); $t=2.49$, $p<.05$). The persistent students experienced more interest in their studies, and more pleasure while studying. The groups were not statistically different on intrinsic motivation to accomplish.

Although the male groups did not differ on the overall extrinsic motivation scale, the subscale t-tests showed that they differed statistically on one of the subscales; identified regulation (*dropout group*: M=4.26, SD=1.50 (65), *persistent group*: M=4.75, SD=1.16 (150); $t=2.59$, $p<.01$). This means that the persistent students valued their studies as more important for later job opportunities than did the dropout group.

T-tests on the mental health subscales; depression and anxiety, were also conducted, but neither of the scales revealed significant differences between the groups.

Table 5 shows the results from t-tests between the two average grade groups.

Table 5: Independent variables in relation to grades.

| | Female | | | | | | | Male | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Good grades | | | Medium to low grades | | | | Good grades | | | Medium to low grades | | | |
| | *N* | *M* | *SD* | *n* | *M* | *SD* | *t-value* | *n* | *M* | *SD* | *n* | *M* | *SD* | *t-value* |
| Intrinsic motivation | 109 | 4.59 | 1.02 | 211 | 4.31 | 1.1 | -2.24* | 69 | 4.49 | .94 | 101 | 4.22 | 1.1 | -1.68 |
| Extrinsic motivation | 112 | 4.35 | 1.03 | 214 | 4.4 | 1 | .52 | 70 | 4 | 1.01 | 100 | 4.2 | 1.08 | 1.17 |
| Amotivation | 116 | 1.33 | .55 | 217 | 1.54 | .84 | 2.75** | 70 | 1.48 | .82 | 102 | 1.63 | .95 | 1.13 |
| Mental health | 113 | 1.64 | .44 | 209 | 1.7 | .47 | 1.08 | 71 | 1.42 | .31 | 101 | 1.45 | .39 | .47 |
| Friends at university | 110 | 5.12 | 7.17 | 211 | 3.78 | 4.27 | -2.09 | 68 | 6.37 | 7.69 | 101 | 5.39 | 9.98 | -.69 |
| Emotional loneliness | 115 | 1.85 | .79 | 201 | 1.97 | .81 | 1.23 | 67 | 1.93 | .94 | 97 | 2.27 | .94 | 2.32* |
| Social loneliness | 116 | 2.09 | .62 | 215 | 2.11 | .6 | .31 | 70 | 2.15 | .64 | 102 | 2.28 | .67 | 1.2 |
| Attendance | 116 | 3.09 | 1.05 | 218 | 2.92 | 1.1 | -1.32 | 71 | 3.24 | 1.09 | 102 | 3 | 1.1 | -1.41 |
| Full-time studies | 116 | 1.12 | .7 | 216 | 1.18 | .7 | .75 | 71 | 1.15 | .73 | 102 | 1.11 | .72 | -.42 |
| Openness | 116 | 4.64 | 1.19 | 216 | 4.8 | 1.09 | 1.25 | 71 | 5.03 | 1.01 | 102 | 4.99 | 1.04 | -.26 |
| Conscientiousness | 115 | 4.85 | 1.47 | 216 | 4.82 | 1.21 | -.23 | 71 | 4.81 | 1.2 | 101 | 4.24 | 1.34 | -2.86** |
| Extraversion | 116 | 4.66 | 1.02 | 217 | 4.75 | 1.11 | .73 | 71 | 4.32 | 1.09 | 102 | 4.38 | 1.03 | .36 |
| Agreeableness | 115 | 5.52 | .88 | 215 | 5.64 | .82 | 1.27 | 71 | 5.21 | .71 | 102 | 5.25 | .88 | .33 |
| Neuroticism | 115 | 4.02 | 1.2 | 215 | 4.1 | 1.27 | .57 | 71 | 3.5 | 1.04 | 102 | 3.28 | 1.2 | -1.24 |

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

Table 5 shows that it was motivation that came through as the most important difference between the female grade groups. Women with good grades were significantly more intrinsically motivated and less amotivated than their counterparts in 2003. In other words, they were driven by interest for their studies, and they experienced studying as meaningful. Males that succeed, however, were significantly more conscientious, that is, more organized, thorough and efficient, than males with lower grades. Men also differed on emotional loneliness; the students who get good grades experienced significantly less emotional loneliness than the males who get medium to low grades.

In order to go deeper into the content of the motivation variables, t-tests between the groups on the motivation subscales were performed. This revealed that the only significant motivational difference between the female grade groups was on the intrinsic motivation to know subscale (*good grade group*: M=5.91, SD=.86 (113); *medium grade group*: M=5.59, SD=1.08 (217); t=-2.67, p<.01). The good grade group was to a greater extent interested in the subject matter of their studies. For men, none of the overall motivation scales revealed significant differences between the groups, but yet, the groups differed on both intrinsic motivation to know (*good grade group*: M=5.74, SD=1.01(71); *medium grade group*: M=5.37, SD=1.18 (102); t=-2.18, p<.05) and extrinsic motivation, external regulation (*good grade group*: M=3.66, SD=1.43 (70); *medium grade group*: M=4.10, SD=1.43 (102); t=1.98, p=.05). The male good grade group was statistically more inclined to experience pleasure while learning than was the medium grade group and they were less driven by an urge to obtain external rewards or avoid sanctions.

T-tests on the mental health subscales; depression and anxiety, were also conducted, but neither of the scales revealed significant differences between the groups.

*Correlation Matrix*

Table 6 shows the correlations among all the independent and dependent variables included in the regression models. The correlations were also conducted split by gender, which showed that the main tendencies of the correlations were the same as with the response group as a whole. However, some of the correlations split by gender diverged. The main differences were as follows. Extrinsic motivation did not correlate with social loneliness for women while it correlated negatively (-.18$^{**}$) for men. Psychological problems did not correlate with attendance for women, but correlated -.21$^{**}$ for men, indicating that men with problems spent less time at the university in 2003 than did the men without such problems. Furthermore, having friends at the university correlated with extraversion for both genders, but the correlation was higher for men (.18$^{**}$) than it is for women (.10$^{*}$).

Most of the correlations ranged from low to medium strength (low: r = .10 to.29 or -.10 to -.29, medium: r = .30 to .49 or -.30 to -.49, large: r = .50 to1.0 or -.50 to -1.0) (Cohen, 1988). The only correlation above .60 was the correlation between neuroticism and mental health (HSCL-25). Due to this high correlation, mental health and neuroticism were entered both in separate regression models, and together. Since mental health did not predict neither dropout nor grades, while neuroticism did, only regression models with neuroticism are presented here.

Table 6: Correlations between major variables, and means and standard deviations.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | M | SD | n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Intrinsic motivation | | | | | | | | | | | | | | | | 4.31 | 1.1 | 624 |
| 2. Extrinsic motivation | .43** | | | | | | | | | | | | | | | 4.24 | 1.1 | 630 |
| 3. Amotivation | -.32** | -.16** | | | | | | | | | | | | | | 1.61 | 1.0 | 639 |
| 4. Mental health | .004 | .11** | .25** | | | | | | | | | | | | | 1.60 | 0.5 | 627 |
| 5. Friends at university | .05 | -.04 | -.15** | -.09* | | | | | | | | | | | | 4.40 | 6.5 | 624 |
| 6. Emotional loneliness | -.05 | -.06 | .15** | .22** | -.04 | | | | | | | | | | | 1.99 | 0.9 | 607 |
| 7. Social loneliness | -.11** | -.09* | .25** | .40** | -.19** | .34** | | | | | | | | | | 2.16 | 0.7 | 636 |
| 8. Attendance | .18 | .10* | -.22** | -. 09* | .26** | .009 | -.08* | | | | | | | | | 2.69 | 1.3 | 645 |
| 9. Full-time studies | .06 | .15** | -.06 | .07 | .12** | .09* | .07 | .35** | | | | | | | | 1.61 | 0.7 | 641 |
| 10. Openness | .17** | -.07 | .03 | .07 | .09* | -.006 | -.02 | -.04 | .04 | | | | | | | 4.86 | 1.1 | 641 |
| 11. Conscientiousness | .08* | .08* | -.23** | -.16** | .03 | -.13** | -.08* | .07 | -.05 | -.006 | | | | | | 4.71 | 1.3 | 639 |
| 12. Extraversion | .19** | .15** | -.09* | -.10** | .12** | -.20** | -.32** | -.02 | -.10* | .29** | .19** | | | | | 4.62 | 1.1 | 642 |
| 13. Agreeableness | .02 | -.003 | -.11** | -.04 | -.02 | -.25** | -.22** | .005 | -.05 | .12** | .14** | .22** | | | | 5.47 | 0.9 | 639 |
| 14. Neuroticism | -.01 | .08* | .15** | .64** | -.15** | .08 | .29** | -.08 | .03 | -.05 | -.05 | -.17** | -.01 | | | 3.84 | 1.2 | 639 |
| 15. Dropout | .16** | -.14** | .21** | .03 | -.15** | .07 | .09* | -.43** | -.21** | .11** | .01 | .07 | .04 | -.05* | | 0.34 | 0.5 | 646 |
| 16. Grades | .16** | -.04 | -.22** | -.07 | .08 | -.07 | -.006 | .16** | -.03 | -.06 | .08 | -.10** | -.12** | .04 | -.18** | 3.47 | 0.9 | 510 |

*Regression Analyses*

Table 7 and 8 shows the results from the regression analyses; table 7 shows the logistic regression analysis on the prediction of persistence, and table 8 shows the multiple linear regression analysis on the prediction of grades. Both regression analyses were conducted sequentially and the independent variables were entered in three steps. The three motivation variables were first included in the analyses (model 1). Secondly, the psychosocial variables were added (model 2) and lastly, the personality traits were fed into the analyses (model 3).

Table 7: Summary of logistic regression analysis predicting persistence (persistence: "0", dropout "1").

| | **Females** | | | **Males** | | |
|---|---|---|---|---|---|---|
| | *OR* | *95% CI* | *p* | *OR* | *95% CI* | *P* |
| Model 1: | | | | | | |
| *Age* | 1.03 | 0.96-1.11 | 0.40 | 1.00 | 0.91-1.11 | 0.95 |
| Intrinsic motivation | 0.90 | 0.71-1.15 | 0.39 | 0.86 | 0.62-1.20 | 0.37 |
| Extrinsic motivation | 0.69 | 0.54-0.89 | <.01 | 0.86 | 0.62-1.18 | 0.34 |
| Amotivation | 1.46 | 1.12-1.90 | <.01 | 1.46 | 1.10-1.95 | <.01 |
| Model 2: | | | | | | |
| *Age* | 0.92 | 0.85-1.00 | 0.06 | 0.94 | 0.84-1.05 | 0.26 |
| Intrinsic motivation | 0.96 | 0.74-1.25 | 0.74 | 0.99 | 0.69-1.43 | 0.96 |
| Extrinsic motivation | 0.69 | 0.52-0.91 | <.01 | 0.82 | 0.58-1.17 | 0.27 |
| Amotivation | 1.18 | 0.89-1.57 | 0.26 | 1.25 | 0.91-1.71 | 0.17 |
| Friends at university | 1.00 | 0.95-1.05 | 0.97 | 0.96 | 0.89-1.04 | 0.33 |
| Emotional loneliness | 1.29 | 0.93-1.79 | 0.13 | 1.08 | 0.72-1.62 | 0.70 |
| Social loneliness | 0.88 | 0.57-1.34 | 0.54 | 1.21 | 0.68-2.16 | 0.52 |
| Attendance | 0.50 | 0.39-0.62 | <.001 | 0.52 | 0.39-0.71 | <.001 |
| Full-time studies | 0.77 | 0.54-1.10 | 0.15 | 0.90 | 0.55-1.48 | 0.68 |
| Model 3: | | | | | | |
| *Age* | 0.93 | 0.86-1.02 | 0.11 | 0.97 | 0.86-1.09 | 0.59 |
| Intrinsic motivation | 0.85 | 0.64-1.13 | 0.26 | 0.85 | 0.56-1.30 | 0.45 |
| Extrinsic motivation | 0.74 | 0.56-0.99 | <.05 | 0.83 | 0.56-1.23 | 0.35 |
| Amotivation | 1.32 | 0.97-1.79 | 0.08 | 1.25 | 0.88-1.76 | 0.21 |
| Friends at university | 1.00 | 0.95-1.06 | 0.94 | 0.93 | 0.85-1.03 | 0.15 |
| Emotional loneliness | 1.52 | 1.07-2.16 | <.05 | 1.20 | 0.78-1.85 | 0.42 |
| Social loneliness | 1.24 | 0.75-2.03 | 0.40 | 1.43 | 0.77-2.67 | 0.26 |
| Attendance | 0.52 | 0.41-0.66 | <.001 | 0.51 | 0.37-0.71 | <.001 |
| Full-time studies | 0.69 | 0.47-1.01 | 0.54 | 1.04 | 0.61-1.78 | 0.89 |
| Openness | 1.37 | 1.06-1.79 | <.05 | 1.29 | 0.84-1.98 | 0.25 |
| Conscientiousness | 1.12 | 0.91-1.38 | 0.27 | 1.11 | 0.84-1.46 | 0.48 |
| Extraversion | 0.94 | 0.71-1.25 | 0.69 | 1.23 | 0.82-1.85 | 0.32 |
| Agreeableness | 1.44 | 1.02-2.02 | <.05 | 1.04 | 0.67-1.62 | 0.85 |
| Neuroticism | 0.72 | 0.57-0.92 | <.01 | 0.76 | 0.54-1.06 | 0.10 |

Table 7 shows that, controlled for all other variables, attendance was the only variable that significantly predicted persistence for men. Spending time at the university increased the chance of persisting towards completing a degree. In model 1, amotivation significantly predicted persistence inversely for both genders, but when the psychosocial variables were entered in model 2, the predictive value of amotivation decreased to non-significance. This indicates that amotivation was mediated by attendance.

Several variables significantly predicted persistence for women. For women too, attendance was strongest predictor, besides extrinsic motivation. Students with higher scores on extrinsic motivation in 2003, meaning that they felt obliged to complete their studies or viewed their studies as a means to an end (Ryan & Deci, 2000a), had an increased probability of persisting at the university. Emotional loneliness, that is, an experienced lack of close relationships, decreased the chance of persisting. Further exploration of the results revealed that neuroticism, that is, being worried, touchy and tense, increased the odds of persistence. Two other personality traits, agreeableness and openness, were also significant predictors for women. A lower score on agreeableness, being cynical and unfriendly, increased the probability of persisting at the university, as did a lower score on openness. In other words, conventionality and lack of creativeness predicted longer university careers.

Table 8 shows which variables that predict grades.

Table 8: Summary of multiple linear regression analysis predicting grades, (ranging from 1 (“bad”) to 5 (“good”).

| | **Females** | | | **Males** | | |
|---|---|---|---|---|---|---|
| | β | t | P | β | t | p |
| Model 1: | | | | | | |
| *Age* | -.03 | -.58 | .56 | .21 | 2.67 | <.01 |
| Intrinsic motivation | .14 | 2.05 | <.05 | .15 | 1.79 | .08 |
| Extrinsic motivation | -.12 | -1.73 | .08 | -.18 | -2.31 | <.05 |
| Amotivation | -.23 | -3.74 | <.01 | -.27 | -3.54 | <.01 |
| Model 2: | | | | | | |
| *Age* | -.01 | -.08 | .93 | .21 | 2.65 | <.01 |
| Intrinsic motivation | .12 | 1.73 | .08 | .13 | 1.50 | .14 |
| Extrinsic motivation | -.09 | -1.38 | .17 | -.16 | -2.03 | <.05 |
| Amotivation | -.22 | -3.51 | <.01 | -.24 | -2.98 | <.01 |
| Friends at university | .12 | 2.02 | <.05 | .11 | 1.41 | .16 |
| Emotional loneliness | .02 | .31 | .76 | -.11 | -1.41 | .16 |
| Social loneliness | .11 | 1.83 | .07 | .03 | .31 | .76 |
| Attendance | .11 | 1.69 | .09 | .10 | 1.18 | .24 |
| Full-time studies | -.10 | -1.64 | .10 | .02 | .26 | .79 |
| Model 3: | | | | | | |
| *Age* | -.01 | -.16 | .87 | .22 | 2.77 | <.01 |
| Intrinsic motivation | .18 | 2.62 | <.05 | .12 | 1.37 | .17 |
| Extrinsic motivation | -.13 | -1.93 | .06 | -.15 | -1.80 | .08 |
| Amotivation | -.23 | -3.53 | <.01 | -.16 | -1.92 | .06 |
| Friends at university | .13 | 2.12 | <.05 | .13 | 1.66 | .10 |
| Emotional loneliness | -.02 | -.28 | .78 | -.12 | -1.46 | .15 |
| Social loneliness | .01 | .18 | .85 | -.04 | -.40 | .69 |
| Attendance | .09 | 1.37 | .17 | .11 | 1.30 | .20 |
| Full-time studies | -.09 | -1.50 | .13 | .003 | .04 | .97 |
| Openness | -.02 | -.37 | .72 | -.07 | -.82 | .42 |
| Conscientiousness | .02 | .28 | .78 | .24 | 2.99 | <.01 |
| Extraversion | -.19 | -2.94 | <.05 | -.07 | -.69 | .49 |
| Agreeableness | -.10 | -1.52 | .13 | -.04 | -.49 | .63 |
| Neuroticism | .06 | .10 | .32 | .14 | 1.66 | .10 |

As it can be seen in table 8, amotivation was significantly related to grades in both female and male students in model 1. Higher amotivation, that is, feeling incompetent or unable to obtain desired outcomes (Ryan & Deci, 2000a), predicted lower grades. The effect of amotivation on grades lasted throughout all three models for women, but decreased to

barely non-significance for the male students when the personality traits were added in model 3. The effect of both amotivation and extrinsic motivation was mediated by the effect of conscientiousness for men in model 3. Scoring high on conscientiousness, that is, being organized and systematic increased the probability of getting good grades. Moreover, age was positively related to grades for men, indicating that older students achieved better grades than their younger co-students.

In model 1, intrinsic motivation was a significant predictor of good grades for the female students, but the effect diminished into barely non-significance in model 2. However, in model 3, it again reached a significant level of prediction, indicating that this factor did have a unique effect on grades. Extrinsic motivation was non-significant throughout the models, but was almost significant in model 1 and 3. Altogether, the results revealed that while intrinsic motivation, that is, being driven by interest, predicted good grades, the less self-determined types of motivation, both extrinsic motivation and amotivation, predicted lower grades in women.

Further, it was shown that size of network at the university is related to grades for women. Having more friends at the university in 2003 predicted better grades. Finally, being extraverted reduced the chances of achieving good grades for the female students.

## Discussion

The first of the two main objectives of this study was to examine whether motivational and psychosocial variables could predict university persistence longitudinally. Distinct gender differences emerged in the results. Attendance at the university was the only unique predictor for men, and the only common unique predictor of persistence in university studies for both genders. A higher degree of attendance at the university in 2003 predicted a lower probability of having dropped out in the following two and a half years, controlled for level of motivation, psychosocial criteria and personality characteristics. Amotivation also had an effect on persistence for both genders, but this effect was mediated by attendance. In addition to the effect of attendance and amotivation, extrinsic motivation, emotional loneliness and personality (openness, agreeableness and neuroticism) contributed to the prediction of persistence for women. Female students with a higher degree of extrinsic motivation and neuroticism, and a lower degree of emotional loneliness, openness and agreeableness in the spring of 2003 were more likely still studying or had finished their degree by the fall 2005.

The second objective was to investigate the motivational and psychosocial predictors of university performance. Again, gender differences emerged. For men, the personality trait conscientiousness was the only predictor that contributed uniquely to the prediction of grades. Men, who scored higher on conscientiousness in 2003, received better grades over the next two and a half years. Amotivation and extrinsic motivation were negatively related to grades for men, but the effect of these variables was mediated by the conscientiousness factor. The variables that had unique effects on grades for women were intrinsic motivation, amotivation, friends at the university and extraversion. Female students with higher intrinsic motivation, a larger social network at the university and lower amotivation and extraversion in 2003, achieved better grades throughout their academic careers.

Interestingly, separate patterns of predictors were revealed for the two different university outcomes; persistence and performance. The aforementioned gender differences are also worth noting. Gender differences in predictors of university outcomes may arise from both different patterns of responding or from genuine gender differences. This will be discussed in relation to each of the outcome variables.

In the following discussion, the different variables will be considered one by one. This is somewhat artificial, as the variables were analysed simultaneously. However, it will simplify the interpretation of the results in relation to former research, because the variables generally have been studied separately.

*Persistence*

The current study adds to previous literature regarding the effect of attendance on dropout behavior. Regular and consistent attendance at the university increases the probability of persisting towards completing a degree for both genders. This is in line with previous research (Conard, 2006; Clump et al., 2003; Farsides & Woodfield, 2003; Hovdhagen & Aamodt, 2005), and it may account for the importance of both academic and social integration on persistence. It is worth noting that the unique effect of attendance also exists when degree of full-time studies, that is, whether a student studies full-time or holds a part-time job, was controlled for, implying that it is not time spent working that prohibits the students' attendance at the university. This counters previous findings of the association between part-time work and dropout (Berg, 1995; Cabrera et al., 1992; Hovdhagen & Aamodt, 2006; Trockel et al., 2000). Nor can motivation or number of friends at the university account for the degree of attendance. The content of the attendance variable, measured as days being present at the university during a week, may instead point at numbers of hours spent studying,

as well as participation in seminars and lectures. It may also point at a feeling of belongingness to the university community, and the incorporation of a student identity. Possibly, attendance at the university increases the access to relevant information, and makes students acquainted with academic standards and requirements.

Amotivation contributes to the prediction of persistence for both genders, but this effect is mediated by the attendance factor. However, there is a tendency that amotivation predicts dropout directly in women, as this factor is only marginally non-significant ($p<.08$). Vallerand and Bisonnette (1992) found a direct effect of amotivation on dropout, but they did not include psychosocial or personality variables in their study.

Female students' persistence is also predicted by higher extrinsic motivation, and lower emotional loneliness, as well as by the personality traits openness, agreeableness and neuroticism. The unique contribution of extrinsic motivation to the prediction on dropout, replicates a finding by Vallerand and Bisonnette (1992). They found that initial levels of self-determined extrinsic motivation were positively related to behavioral persistence in college. In the current study, the female persistent and dropout groups differed on all three subscales of extrinsic motivation; external regulation, introjected regulation and identification. This finding is partially in line with Vallerand and Bisonnette (1992) and gives further support to the importance of self-determined extrinsic motivation for persistence, that is completing a university career because it is valuable to reach a personal goal (identification) or due to internalised pressure, experienced as guilt, ego enhancement or obligation (introjected regulation) (Fairchild et al., 2005). But it also suggests that motivation that is not self-determined (external regulation), is important for female students' persistence. This indicates that external pressure and/or anticipated rewards are important incentives for completing university studies for women. This study actually provides stronger evidence for the effect of extrinsic motivation on persistence than did the previously mentioned study, since the unique effect of motivation exists when controlling for the effect of psychosocial and personality variables. A related finding was provided by Iversen, Hetland and Wiium (2007) who found that motivation similar to the extrinsic motivation construct predicted the completion of the master thesis, while intrinsic motivation did not. In accordance with this finding, intrinsic motivation did not predict persistence in the current study. This contradicts Vallerand and Bissonnettes' (1992) finding. The difference may be explained by the fact that their study was course-specific and because their perspective was shorter (one semester only). Possibly, intrinsic motivation represents a better predictor on short term than on long term persistence, and intrinsic motivation may be more vulnerable to the external pressures that are inevitable

parts of a university setting. Another study that emphasized the interplay of intrinsic and extrinsic motivation on university outcomes was provided by Philips et al. (2003). They showed that, in addition to intrinsic motivation, extrinsic motivation proved important, especially in the last few months of a degree, when a focus on the eventual rewards of hard work is important in order to maximize performance. The fact that intrinsic motivation does not predict persistence in the current study, may also indicate that the university fail in offering the conditions that, according to Ryan and Deci (2000a), must be present to elicit, sustain and enhance intrinsic motivation; namely the three fundamental human motives of competence, autonomy and relatedness.

As mentioned above, the emerging gender differences might be explained by either specific pattern of responding, or genuine gender differences. There is no reason to believe that is it more socially desirable for women to present themselves as more extrinsically motivated than is the case for men. One might speculate that as long as men still possess a greater amount of leading positions and have higher incomes, female students experience a stronger need to focus on the instrumental values of the university studies, such as preparing for the chosen career, and increasing the opportunities for higher salaries. Female students might feel that they need to demonstrate formal competence to obtain a desired job, while men may take this for granted.

Furthermore, emotional loneliness contributes uniquely to the prediction of dropout among females. While none of the other social support variables (friends at the university, social loneliness) contributes to the prediction of persistence, those experiencing a higher degree of emotional loneliness in 2003 had a higher probability of dropping out of university in the following two and a half years. Loneliness has previously been shown to have a predictive effect on the intention to drop out of college (Harris, 1991), while another study showed that social support more generally predicted persistence (Gloria & Ho, 2003). The lack of prediction from the remaining social support variables is in line with several researchers, who have failed to establish a relation between social support and dropout behavior (Antrobus et al., 1988; Culbert et al., 1988; DeBerard et al., 2004), despite of the theoretically based expectation of such a link (Tinto, 1993). The fact that emotional loneliness is a unique predictor for women but not for men, may indicate that the presence of a close other is more important for women than it is for men, in order to persist towards completing a university degree. The finding suggests that being able to seek comfort in a romantic partner or close friend in stressing periods, and receiving encouragement from this special other, might be of greater importance for females in a university setting.

Moreover, three of the personality traits contribute uniquely to the prediction of dropout in women. Neuroticism, that is, being anxious, nervous, and vulnerable, increases the chances of persisting, while agreeableness and openness predicts dropping out. Somewhat surprisingly then, is seems that being good-natured and cooperative, and imaginative and creative, is less compatible with university studies for women than are the opposite traits. Few studies have related the Big Five personality traits to persistence. Yet, one related study found that neuroticism was associated with higher academic performance (Musgrave-Marquart et al., 1997). Another related finding showed that anxiety disorders were positively associated with college performance (Svanum & Zody, 2001). Because neuroticism has been shown to correlate with anxiety disorders (Kotov, Watson, Robles & Schmidt, 2007; Watson, Gamez & Simms, 2005), this finding is relevant. As expected, the current study finds a high correlation between neuroticism and mental health. However, the fact that mental health did not contribute to the prediction of persistence, neither when tested alone, nor in combination with neuroticism, indicates that it is perhaps not the situation specific anxiety and worry, nor the characteristics that are related to psychological distress, that accounts for the predictive effect on persistence, but rather the self-punitive and fear-of-failing nature of the neurotic trait.

Somewhat surprisingly, openness contributes uniquely to the prediction of dropout. This contradicts findings that associate this trait to intellectual performance, learning and university success (Blickle, 1996; Farsides & Woodfield, 2003; Philips et al., 2003). There is some uncertainty regarding the definition of this fifth personality factor; suggestions have stretched from aspects of culture to intellectual characteristics, while others have emphasized the creative and imaginative aspects of the factor (John & Srivastava, 1999; Larsen & Buss, 2002). John and Srivastava (1999) claim that the openness factor, having only small positive correlations with IQ and scholastic aptitude, is not a measure of intelligence. In this line of thinking and when inspecting the specific formulations in the questionnaire, the results seem more comprehensible. The university setting does not supply conditions for, nor does it reward creativity, inventiveness or original and unconventional thinking, at least not at lower levels of degrees. The university is, on the contrary, an institution that provides strict conventions regarding structure and language on written work. Moreover, agreeableness has unique effect on persistence in female students. It might be that the university setting, with its strictly theoretical focus, does not provide the ultimate conditions for a person that is warm, care giving, friendly and lacks cynicism. Maybe a certain cynicism and competitiveness is necessary for persisting at the university? The results are in line with Farsides and Woodfield (2003) who claim that personality composition and type of study situation should be matched.

A person low on openness would match a setting that promotes and rewards the acquisition of received wisdom. Students high on agreeableness should do well when instruction and assessment occurs via collaborative social interaction, while those lower in agreeableness should fare better in educational settings where students are less socially interdependent (or are even negatively interdependent). This description fits the Norwegian university system quite well, in that it does not allow much creativity and because it demands a great amount of independent work. In light of this assertion, the results from the current study give meaning. Extraversion, does not, as expected, contribute to predicting persistence. Neither does conscientiousness. One study has related conscientiousness to persistence (Tross et al., 2000). These researchers controlled for high school GPA and SAT, but not for motivation and psychosocial factors.

None of the personality traits came out as significant predictors of persistence for men. Explanations of these gender differences are not evident. The few statistically significant predictors among men may to some degree be due to a smaller number of male respondents in the current study. This will be further discussed in the limitations section. Furthermore, this study did not find support for the predictive effect of mental health and full-time studies on persistence. These findings will be discussed in combination with the findings on performance.

*Performance*

Major gender differences are revealed when investigating the motivational and psychosocial predictors of university performance. However, motivational variables predict performance for both genders, although, for men, motivation is mediated through conscientiousness. As expected, amotivation predicts low grades for both genders. Furthermore, extrinsic motivation predicts low grades for men. Men with lower grades are to a greater extent externally regulated, that is, motivated by the goal of obtaining rewards or avoiding sanctions. Extrinsic motivation is also close to being a significant predictor for women ($p = .06$), while intrinsic motivation predicts good grades for women only. These findings are in line with the Self-Determination Theory's (SDT) predictions that autonomous forms of motivation leads to positive outcomes, and that less self-determined motivation leads to negative outcomes. It is also in line with previous research (Fortier et al., 1995).

Intrinsic motivation and amotivation thus contribute uniquely to the prediction of performance in women, when controlling for all other variables. The only significant motivational difference between the females with good grades and those with low grades, is

on the intrinsic motivation *to know* subscale. Hence, what separates the groups regarding intrinsic motivation is the degree of exploration, curiosity and search for meaning (Vallerand et al., 1992). Students with good grades experience greater pleasure while learning or trying to understand something new (Cokley, 2000). This contradicts Baker's (2003) finding that it was intrinsic motivation *to accomplish* that contributed uniquely to the prediction of grades, that is, behavior being performed for the satisfaction one feels when accomplishing or creating something (Cokley, 2000). However, the tendency is the same in both studies. Controlled for health, stress and adjustment variables, intrinsic motivation has a unique effect on performance. While Baker (2003) controlled for entry qualifications (ability), the current study controls for personality, in addition to the psychosocial variables, and also has a longer time perspective (2.5 years as opposed to one year). The results from the current study are partially in line with Lin et al. (2003), who found that higher levels of intrinsic motivation, combined with medium levels of extrinsic motivation, predicted performance. Lin et al.'s (2003) study did not control for psychosocial or personality variables, and it had a shorter time perspective (one semester); weaknesses that yield support to our findings.

Performance among the female students is further predicted by friends at the university and extraversion; friends contributing positively, and extraversion negatively to grades. This is in accordance with some previous findings (Busato et al., 2000; DeBerard et al., 2004; Furnham & Mitchell, 1991). Belonging to a social network at the university increases the chances of obtaining good grades for women, regardless of level of motivation or attendance at the university. In other words; the more friends, the better grades. The social network might affect grades through offering social support, and through ensuring students' social and academic integration into the university. The highly energetic, active and adventurous nature of an extraverted person is less compatible with the demands of university studies than the opposite traits. Academic success probably requires the ability to regulate the degree of social activities. This is important to in order to focus on the studies, especially in examination periods.

There is a small, but significant correlation ($r = .10^{*}$) between friends at the university and extraversion. But these factors may tap different aspects of being a sociable person. It might be that the extraverted students have more friends outside of the university, or that they engage in other activities with their social network than do their counterparts. Perhaps the students who obtain good grades attend more academically related activities with their friends.

Conscientiousness is the only unique predictor of good grades for male students, suggesting that a planful and thorough approach towards university studies is a success factor for men. This finding is expected, considering the extensive research literature relating conscientiousness to academic achievement (Busato et al., 2000; Conard, 2006; Noftle & Robins, 2007; Tross et al., 2000; Wagerman & Funder, 2007). Surprisingly though, conscientiousness does not predict performance for the female students. One possible explanation might be related to the gender bias in faculty distribution and a method weakness in the transformation of grades in the current study. There is a higher percentage of men registered in the Faculty of Mathematics and Natural Sciences (appendix B). Traditionally, this faculty used only the upper segment of the grading scale. This may have resulted in an overrepresentation of males with good grades in this study. Conscientiousness, being devoted and hard-working organized and thorough, is probably an important trait for obtaining success in this field of university studies. Intrinsic motivation – a genuine interest in the subject - on the other hand, might be more important to succeed in the Faculty of Humanities and the Faculty of Social Sciences, where females represent the majority of the students. The effect of the personality traits may therefore be directly related to the nature of the subject matter that is studied.

Mental health does not have any effect on either persistence or performance in the current study. The statistical survey of living conditions among students in Norway in 2005 (Statistisk sentralbyrå, 2006), revealed that students had a higher level of mental health problems than did the remaining part of the population. This excludes selection as an explanation for the non-effect of psychological distress on university outcomes. One possibility might of course be that the students at the University of Oslo are healthier than the remaining student population. A more likely option is that students with psychological problems did not respond to the questionnaire, as opposed to students with problems. Another possible reason why this study does not replicate previous findings that have related mental health to university outcomes, concerns the specific measure used in this study, the HSCL-25, which measures psychological distress. Previous research that have established a link between mental health and performance have partly focused on serious psychopathology (Strahan, 2003; Svanum & Zody, 2001). Furthermore, the former studies did not include personality traits, such as neuroticism, as did the current study. Altogether, this yields support to our finding that psychological distress does not predict academic career.

Full-time studies do not contribute uniquely to the prediction of the academic career in this study. Controlling for attendance, motivational, psychosocial and personality variables

seems to remove the earlier established negative effect of part-time work on university outcomes.

*Patterns of predictors for outcomes and genders*

As mentioned above, there are different patterns of predictors for the two educational outcomes; persistence and performance. This is in accordance with Robbins et al. (2004) and Robbins et al. (2006) who also found that the performance and persistence outcomes were predicted by different patterns of relationships between the predictor variables, and who emphasize the importance of investigating multiple measures of college success; not only GPA. There are up till now few studies that have investigated multiple outcomes of an academic career.

The current study reveals few common predictors for the two separate outcomes. Amotivation represents the only overlapping factor, and this variable is mainly mediated by other variables. While attendance at the university comes out as the first and foremost determinant for both genders in the prediction of persistence, it has no effect on the achievement of grades. The role of motivation in predicting university outcomes seems somewhat contradictory, because extrinsic motivation contributes positively to persistence, and negatively to achievement. Furthermore, while intrinsic motivation is not related to persistence, it predicts good grades among the female students. This means that those students who complete their studies are not necessarily those who get good grades. The findings raise questions concerning which of the different types of motivation the universities should promote to enhance the possibilities of success among the students. Increasing the amount of compulsory lectures and seminars and more frequent exams, which is a part of the study reform, will, according to SDT cause a reduction in self-determined motivation, and increase less self-determined motivation. It will also increase attendance. Since both attendance and extrinsic motivation leads to greater persistence at the university, these aspects of the reform should be welcomed. There is however reason to believe that these aspects of the university may cause lower grades among students, due to an anticipated reduction in the intrinsic motivation. However, Covington and Müeller (2001) criticised the assertion that intrinsic and extrinsic motivation are antagonistic processes, and claimed that they should be understood as two separate dimensions that can coexist. Faichild et al. (2005) have also questioned the hypothesized motivational continuum. In this line of thinking, an increase in external demands, and thus, an increase in extrinsic motivation, should not represent a threat to intrinsic motivation. Ideally, the universities should combine conditions supporting intrinsic

motivation, that is, an environment that induce autonomy, competence and relatedness with structured degree programs that increase the focus on rewards and attainment, while at the same time increasing attendance. These conditions may also match the conscientious inclinations of the successful male students.

Additionally, few studies have looked at each gender separately in relation to university outcomes. Ting and Robinson (1998) concluded, based on their findings, that multivariate models used to predict academic performance across gender and ethnic origin are more effective than a general model for the whole sample. The current study adds support to this assertion. The role of social support is shown to contribute to female students' success at the university, while it has no predictive effect on the male students' persistence and performance. Moreover, differential patterns of motivation and personality traits are revealed for the female and male students. Although some of the differences in predictors between genders are difficult to explain, they contribute to our understanding of the complexity of these phenomena, and give direction for further research.

*Limitations*

Despite of a solid longitudinal design using student registry data for the outcome variables, the current study also has some limitations.

The most important limitation concerns the representativity of the response group. Investigating the sample in the registry data we find that the response group consists of more persistent students than is the case among the non-responders. There is a possibility that this reflects different attitudes towards the university and different levels of motivation initially.

A second limitation is that it is not possible to distinguish between system and institutional departure. Because the reasons for student dropout are not known, the persistence/dropout outcome has some ambiguity. Although departing students appear as one group to the universities, recent research has shown that different factors predicted the two separate departing groups; those who leave higher education for good, and those who leave for another educational institution (Hovdhagen & Aamodt, 2006). These researchers did not, however, investigate psychological variables, but there is reason to believe that one would find more academically motivated students in the latter group.

A third limitation is related to the gender difference in the number of respondents, and the possible effect this difference has on the results. The male number of participants is considerably smaller than the female group. Statistically, a smaller *n* requires a larger effect of

a predictor to reach a significant level. This may partly explain why we find more unique effects on the university outcomes for the female students than for their counterparts.

A fourth limitation pertains a weakness in the construction of the outcome variable grades. Due to the changes made in the grading system in the fall 2003, grades were transformed in order to calculate an average. The transformations were conducted in a similar matter for all the students across faculties, despite of faculty-wise grading differences. This may have resulted in an overrepresentation of students from the Faculty of Mathematical and Natural Sciences with good grades. This faculty did to some degree diverge from the remaining grading traditions at the university, in using higher grades. Because there is a majority of male students registered at this faculty, it may further have caused a gender bias in the grades, resulting in too many males with good grades.

A fifth limitation is that data was collected both before and after the implementation of the study reform. The independent variables might therefore have been influenced by the changes in the study situation, changes that this study is not able to capture.

A sixth limitation is a certain ambiguity in the attendance measure, because the participants simply were asked to estimate how often they were present at the university. Ideally, one would have gone more thoroughly into the specific content of attendance, and thereby acquire information on which activities the respondents were engaged in while spending time at the university, whether it was social events, or different types of academic activities.

Lastly, one might add that the ultimate design would have been to investigate the incremental prediction of the psychosocial variables over and above high school grades, in order to conclude whether the psychosocial predictors could explain variance beyond that of ability measures.

*Implications*

Despite these limitations, the current study makes several contributions. It contributes to the scarce literature, both internationally and in the Norwegian context specifically, on the psychological predictors of the academic career. A considerable strength of the current study is that it includes both motivational, psychosocial and personality variables in a longitudinal prospective design, allowing these variables to be controlled for each other. Additionally, it examines persistence and performance separately, and discusses the differential patterns of predictors of these two university outcomes. It also contributes to the understanding of the different patterns of predictors between genders on the academic career.

The study yields support to the value of the academic motivation construct and its relation to outcomes in higher education, but it also suggests that less self-determined types of motivation can be related to positive outcomes, which contradicts the theoretical assumptions of the self-determination theory. Motivation, and the lack of motivation, is shown to be especially important determinants of academic careers for the female students. The study emphasizes the importance of offering an environment that stimulates intrinsic motivation, through giving students a feeling of being competent and autonomous, and to provide a sense of relatedness to co-students and teachers, and to the institution. At the same time, the results indicate that the implications of the study reform might contribute positively to persistence, through increasing attendance and an anticipated increase in extrinsic motivation. This study establishes the importance of attendance for persistence towards completing a university degree. Since attendance is a malleable factor, this finding provides optimism regarding the goal of reducing dropout from higher education. Moreover, the study shows that the social network at the university is of importance for female students' success in the university. A greater social and academic integration will increase the probability of persistence, and will heighten female students' achievement. This study gives some directions to future interventions. It seems that the optimal conditions for academic success would be to make the students come to the university, and offer them study groups and contact with the staff, while at the same time letting them influence their own schedule such that they feel that the academic activities are not imposed on them.

The current study also contributes to the scarce literature associating the Big Five personality traits to persistence. Findings on the effect of personality on the academic career point to increasing the match between person and study. The universities need to secure the future students' knowledge on the content, demands, possibilities and restrictions of a university study. If future students make an informed choice regarding which education to pursue, based on their abilities and characteristics and their knowledge of the institution and the specific study, one would expect less dropout and better performance.

*Conclusion*

The study demonstrated the importance of moving beyond traditional predictors in search of the determinants of the academic career. No single factor can predict persistence and performance outcomes, and this study showed that multidimensional models are needed to investigate the complex interplay of motivational, psychosocial, and personality factors in predicting educational outcomes. The study established gender differences and separate

patterns of predictors for the different university outcomes. The findings highlighted the importance of attendance on persistence. Further research on the attendance variable is needed in order to understand the specific effect of it's subcomponents on persistence. Such an understanding should result in interventions meant to improve attendance and thereby reduce dropout. The current study also revealed the importance of motivational and social support variables for females' academic careers. Furthermore, the study showed that certain personality traits can predict students' academic careers. Conscientiousness predicts performance in males, while extraversion predicts performance inversely for females. High neuroticism, low agreeableness and low openness are related to persistence in women. These findings point to the importance of a good match between the person and the study program, something which rely on the information that is available for future students when they make their career choices.

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# Appendix A:

The HELT 1 Questionnaire

# HELT prosjektet

## H1. DEMOGRAFISKE OPPLYSNINGER

1. **Kjønn?** Kvinne ☐ Mann ☐

2. **Alder?** ☐☐ *Antall år* ⊥

3. **Sivilstatus?** Enslig ☐ Gift/samboende/kjæreste ☐

4. **Bor du sammen med noen nå?** *(Sett bare ett kryss)*

| Nei | Ja, med kjæreste/ektefelle | Ja, med venner | Ja, med foreldre | Andre |
|---|---|---|---|---|
| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 |

5. **Boforhold?** *(Sett bare ett kryss)*

| Studentby, hybel | Studentby, leilighet | Hybel privat | Leilighet | Hus |
|---|---|---|---|---|
| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 |

| Kollektiv/ bofellesskap (utenom studentby) | Hos slekt | Annet |
|---|---|---|
| ☐ 6 | ☐ 7 | ☐ 8 |

6. **Forsørgeransvar – barn?**
Nei ☐ Ja ☐ Hvis flere, hvor mange? ☐

7. **Økonomi.** *(Sett kryss ved det som passer – du kan sette flere kryss)*

| Studielån og stipend | Arbeidsinntekt, mindre enn halv tid | Arbeidsinntekt, halv tid eller mer | Sosial-hjelp |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ |

| Rehabiliterings-penger | Yrkesrettet attføring | Stønad enslig forsørger | Helt eller delvis forsørget | Annet |
|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ |

8. **Regner du deg selv som innflytter til Oslo?**
Ja ☐ Nei ☐

9. **Oppvekststed** *(Med dette menes der du har bodd det meste av tiden før du fylte 16 år)*
**Hvis du er oppvokst i NORGE –** Oppgi i hvilket fylke:

_____

**Hvis du er oppvokst i et annet land –** Oppgi landets navn:

_____

10. **Hvis du ikke er vokst opp i Norge; hvor lenge har du bodd her?**

*Antall år bodd i Norge* ☐☐ *år* ⊥

11. **Har du flyttet ofte?** Ja ☐ Nei ☐

12. **Hvor er dine foreldre født?**

| | I Norge | Annet land | Oppgi hvilket land: |
|---|---|---|---|
| **Far** | ☐ | ☐ | _____ |
| **Mor** | ☐ | ☐ | _____ |

## H2. STUDIER

13. **Har du vært tilstede ved Universitetet i Oslo våren 2003?**
*(Sett bare ett kryss)*
Ja, stort sett hver dag ..... ☐ 1
Ja, minst et par ganger i uken ..... ☐ 2
Ja, men sjelden ..... ☐ 3
Nei, men følger undervisning annet sted ☐ 4
Nei, studerer helt på egenhånd ..... ☐ 5
Jeg har avbrutt studiet ..... ☐ 6

14. **Planlegger du å gå opp til eksamen dette semesteret?**
Ja ☐ Nei ☐ ⊥

15. **Er du student fra utlandet og tar del i et utvekslingsprogram for utenlandske studenter?**
Ja ☐ Nei ☐

## H2. STUDIER (fortsettelse)

16. **Hvorfor studerer du på universitetet?**
*Ved å bruke skalaen nedenfor, vennligst angi i hvilken grad hver av de følgende utsagnene tilsvarer årsakene nå for tiden til hvorfor **du** studerer på universitetet.*

| | Tilsvarer ikke i det hele tatt 1 | 2 | 3 | Tilsvarer moderat 4 | 5 | 6 | Tilsvarer eksakt 7 |
|---|---|---|---|---|---|---|---|
| 1. Fordi med bare videregående skole ville jeg ikke få en godt betalt jobb senere ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. Fordi jeg opplever glede og til-fredsstillelse ved å lære nye ting | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. Fordi jeg mener at en universitetsutdanning vil gjøre meg bedre forberedt til den karrieren jeg har valgt ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. For den sterke følelsen jeg får når jeg kommuniserer mine egne ideer til andre ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. Jeg vet ærlig talt ikke: Jeg føler virkelig at jeg kaster bort tiden min på universitetet | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. For gleden av å overgå meg selv i studiene mine ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. Å bevise ovenfor meg selv at jeg kan fullføre en universitetsgrad ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. For å få et arbeide med mer prestisje senere ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. For gleden ved å oppdage nye ting som jeg aldri har sett før ... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. Fordi det omsider vil gjøre meg i stand til å komme inn på jobbmarkedet innenfor det feltet jeg liker ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. For gleden ved å lese interessante forskere ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. Jeg pleide å ha gode grunner for å studere på universitetet, men nå er jeg usikker på om jeg skal fortsette ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. For gleden av å overgå meg selv når jeg gjennomfører en oppgave ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. Fordi det faktum at når jeg lykkes på universitetet så føler jeg med betydningsfull .... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. Fordi jeg vil ha ” det gode livet” senere ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. For gleden av å utvide mine kunnskaper på temaer som jeg liker ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. Fordi dette vil hjelpe meg til å gjøre et bedre valg i hvordan jeg skal orientere meg forhold til videre karriere ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. For gleden av å bli fullstendig oppslukt av hva bestemte forskere skriver ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. Jeg kan ikke se hvorfor jeg går på universitetet og for å være helt ærlig så er det helt likegyldig | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. For tilfredsstillelsen mens jeg utfører vanskelige akademiske aktiviteter ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 21. For å vise meg selv at jeg er en intelligent person ..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22.For å få bedre lønn senere | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## H2. STUDIER fortsettelse

**16. fortsettelse**

| | Tilsvarer ikke i det hele tatt | | | | | | Tilsvarer eksakt |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. Fordi mine studier gir meg mulighet å fortsette å lære om mange ting som interesserer meg | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 24. Fordi jeg tror at enda noen få års utdanning vil bedre min kompetanse som yrkesperson | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 25. For den oppløftende følelsen jeg får når jeg leser om ulike interessante temaer … | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 26. Jeg vet ikke, men jeg kan ikke skjønne hva jeg har på universitetet å gjøre ….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 27. Fordi universitetet gir meg muligheten til personlig tilfredsstillelse ved å gjøre det spesielt godt i mine studier ….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 28. Fordi jeg vil vise for meg selv at jeg kan lykkes med mine studier …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**17. Hvor fornøyd er du med følgende forhold?**
*(Sett kryss på hver linje som er relevant for deg)*

| | Meget misfornøyd | | | | | | Meget fornøyd |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Tilgang på kollokvierom …. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Pausekroker for studenter | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Tilgang på lesesalsplasser | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Studieveiledning …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Forelesninger …….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Seminarundervisning …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Veiledning fra lærerne ….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Informasjon om eksamen og undervisning …….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**18. Marker i hvilken grad lærerne i studiet ditt:**

| | Ikke i det hele tatt | | | | | | I svært høy grad |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Gir konstruktiv tilbakemelding på det du presterer …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Er sympatiske og hjelpsomme | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Viser interesse for din faglige utvikling …….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Opptrer avvisende overfor deg som student …….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## H3. HMS OG ERGONOMI

**19. Har du de <u>seneste 3 mnd.</u> hatt plager av en eller flere av de nevnte faktorer på universitetet?**
*(Besvar hvert spørsmål selv om du ikke har vært plaget)*

| | Ja, ofte | Ja, iblant | Nei, aldri |
|---|---|---|---|
| Trekk …….. | ☐ | ☐ | ☐ |
| For høy temperatur …….. | ☐ | ☐ | ☐ |
| Varierende temperatur …….. | ☐ | ☐ | ☐ |
| For lav romtemperatur …….. | ☐ | ☐ | ☐ |
| Innestengt (”dårlig”) luft …….. | ☐ | ☐ | ☐ |
| Tørr luft …….. | ☐ | ☐ | ☐ |
| Ubehagelig lukt …….. | ☐ | ☐ | ☐ |
| Statisk elektrisitet med småstøt | ☐ | ☐ | ☐ |
| Tobakksrøyk fra andre …….. | ☐ | ☐ | ☐ |
| Støy …….. | ☐ | ☐ | ☐ |
| Belysning, svak eller blendende | ☐ | ☐ | ☐ |
| Støv og smuss …….. | ☐ | ☐ | ☐ |
| Dårlig tilpasset bord, stoler, PC | ☐ | ☐ | ☐ |

## H4. SOSIALE FORHOLD

**20. Hvor mange venner har du som du er fortrolig med/kan snakke med om ulike problemer?** *Antall* ☐☐

**21. Hvor mange av disse vennene ble du kjent med på universitetet?** …….. *Antall* ☐☐

**22. Hvor mange venner har du som du er sammen med relativt regelmessig, men som du <u>ikke</u> er fortrolig med/kan snakke med om ulike problemer?** ……. *Antall* ☐☐

**23. Hvor mange av disse vennene ble du kjent med på universitetet?** …….. *Antall* ☐☐

**24. Disse spørsmålene handler om hvordan du føler at kvaliteten på dine sosiale relasjoner er.**
**Prøv å antyde <u>*hvor ofte du har følt det slik*</u> som beskrevet i utsagnene nedenfor, *i løpet av det siste året,* ved å sette ett kryss etter hvert utsagn.**

| | Aldri | Sjelden | Av og til | Ofte | Veldig ofte |
|---|---|---|---|---|---|
| De fleste mennesker rundt meg virker som fremmede …… | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg har ikke så mye glede av de gruppene jeg deltar i ….. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg har reale mennesker rundt meg som forstår mine synspunkter og oppfatninger … | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg har ikke følt at jeg har stått noen nær på lenge ……. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg har en kjæreste/ektefelle som gir meg støtte og oppmuntring | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg tilhører et nettverk av venner | ☐ | ☐ | ☐ | ☐ | ☐ |
| Det finnes mennesker jeg kan regne med når jeg ønsker selskap | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg har ikke ett spesielt forhold hvor jeg føler meg forstått ……. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg er en viktig del av et annet menneskes følelsesmessige velvære …….. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg har ikke et spesielt kjærlighetsforhold …….. | ☐ | ☐ | ☐ | ☐ | ☐ |

## H5. HELSE OG PERSONLIGHET

**25. Hvordan er helsen din nå?** *(Sett bare ett kryss)*

| Dårlig | Ikke helt god | God | Svært god |
|---|---|---|---|
| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |

**26. Har du, eller har du hatt?** *(Sett ett kryss for hver linje)*

| | JA | NEI |
|---|---|---|
| Astma …… | ☐ | ☐ |
| Høysnue (pollenallergi, allergisk reaksjon, rennende øyne, svie i øynene) | ☐ | ☐ |
| Eksem …… | ☐ | ☐ |
| Diabetes (sukkersyke) …… | ☐ | ☐ |

**27. Har du de <u>siste 12 mnd.</u> hatt** *(Sett ett kryss for hver linje)*

| | JA | NEI |
|---|---|---|
| Ørebetennelse …… | ☐ | ☐ |
| Halsbetennelse (minst 3 ganger) …… | ☐ | ☐ |
| Bronkitt eller lungebetennelse …… | ☐ | ☐ |
| Psykisk plage som det er søkt hjelp for | ☐ | ☐ |
| Alvorlig skade eller sykdom …… | ☐ | ☐ |

## H5. HELSE OG PERSONLIGHET (Fortsettelse)

**28.1 Har du de siste 12 mnd. hatt** *(Sett ett kryss for hver linje)*

| | JA | NEI |
|---|---|---|
| Hode (hodepine, migrene eller lignende) | ☐ | ☐ |
| Nakke/skuldre …… | ☐ | ☐ |
| Armer/ben/knær …… | ☐ | ☐ |
| Mage …… | ☐ | ☐ |
| Rygg …… | ☐ | ☐ |

**28.2 Har disse smertene ført til at du har vært hjemme fra universitetet i løpet av de siste 12 mnd.** *(Sett bare ett kryss)*

| Nei | Ja, 1-2 dager | Ja, 3-5 dager | Ja, 6-10 dager | Ja, mer enn 10 dager |
|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ |

| | JA | NEI |
|---|---|---|
| **28.3 Har smertene ført til redusert aktivitet i fritiden?** …… | ☐ | ☐ |
| **28.4 Tror du disse smertene skyldes forhold ved din studiesituasjon?** …… | ☐ | ☐ |

**29. Har du søkt profesjonell hjelp de siste 12 mnd:**

| | JA | NEI |
|---|---|---|
| For psykiske problemer? …… | ☐ | ☐ |
| For sosiale problemer? …… | ☐ | ☐ |

**30. Har du søkt hjelp ved helsetjenesten ved universitetet de siste 12 mnd:**

| | JA | NEI |
|---|---|---|
| I forhold til eksamener og eksamensrelaterte forhold? | ☐ | ☐ |
| Av andre grunner? …… | ☐ | ☐ |

**31. Har du vært behandlet for spiseforstyrrelser?** *(Sett bare ett kryss)*

| Nei | Nei, men jeg ønsker hjelp | Ja |
|---|---|---|
| ☐ 1 | ☐ 2 | ☐ 3 |

**32. Nedenfor finner du en rekke ordpar som i større eller mindre grad kjennetegner mennesker.** For eksempel: Slem ...1 2 3 4 5 6 7…snill
Hvis du mener du er en ubetinget slem person, krysser du av i ruta under tallet 1. Hvis du derimot er ubetinget snill, krysser du av i ruta under tallet 7. Hvis du mener at du er noe midt i mellom krysser du av i den ruta som tilsvarer det du mener.

*(Sett ett kryss for hver linje i den ruta som passer best for hvordan DU OPPFATTER AT DU VANLIGVIS ER. Det er ingen gale eller riktige svar. Det riktige svaret er det som du mener passer best.*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Varm …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Kald |
| Passiv …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Aktiv |
| Velorganisert | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke velorganisert |
| Bekymret …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ubekymret |
| Original …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Tradisjonell |
| Kynisk …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke kynisk |
| Pratsom …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Fåmælt |
| Ikke strukturert | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Strukturert |
| Ikke hårsår ….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Hårsår |
| Fantasifull ……. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke fantasifull |
| Omsorgsfull ….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke omsorgsfull |
| Ikke dominerende | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Dominerende |
| Planmessig ….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke planmessig |
| Nervøs …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke nervøs |
| Ikke kreativ …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Kreativ |
| Uvennlig …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Vennlig |
| Utadvendt …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Innadvendt |
| Ikke disiplinert … | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Disiplinert |
| Anspent …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Ikke anspent |
| Ikke oppfinnsom | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Oppfinnsom |

## H5. HELSE OG PERSONLIGHET (Fortsettelse)

**33. Nedenfor er en liste med symptomer eller problemer folk av og til har. Gi en vurdering på hvor mye hvert symptom var til plage eller ulempe for deg de siste 2 ukene (til og med i dag).**
*(Sett kryss i den ruta som passer deg best. Husk å sette ett kryss på hver linje.)*

| | Ikke i det hele tatt | Litt | En god del | Svært mye |
|---|---|---|---|---|
| Plutselig skremt uten grunn …… | ☐ | ☐ | ☐ | ☐ |
| Føler deg redd eller engstelig …… | ☐ | ☐ | ☐ | ☐ |
| Føler deg svimmel eller kraftløs … | ☐ | ☐ | ☐ | ☐ |
| Nervøs eller urolig …….. | ☐ | ☐ | ☐ | ☐ |
| Hjertebank …… | ☐ | ☐ | ☐ | ☐ |
| Skjelving …….. | ☐ | ☐ | ☐ | ☐ |
| Føler deg anspent eller opphisset | ☐ | ☐ | ☐ | ☐ |
| Hodepine …… | ☐ | ☐ | ☐ | ☐ |
| Anfall av redsel eller panikk …… | ☐ | ☐ | ☐ | ☐ |
| Rastløshet, kan ikke sitte rolig …. | ☐ | ☐ | ☐ | ☐ |
| Føler deg slapp og uten energi … | ☐ | ☐ | ☐ | ☐ |
| Anklager deg selv for ting …… | ☐ | ☐ | ☐ | ☐ |
| Har lett for å gråte …… | ☐ | ☐ | ☐ | ☐ |
| Tap av seksuell interesse eller lyst | ☐ | ☐ | ☐ | ☐ |
| Dårlig appetitt …….. | ☐ | ☐ | ☐ | ☐ |
| Vanskelig for å sove …….. | ☐ | ☐ | ☐ | ☐ |
| Følelse av håpløshet for fremtiden | ☐ | ☐ | ☐ | ☐ |
| Føler deg nedfor …… | ☐ | ☐ | ☐ | ☐ |
| Føler deg ensom …… | ☐ | ☐ | ☐ | ☐ |
| Har tanker om å ta ditt liv …….. | ☐ | ☐ | ☐ | ☐ |
| Følelse av å være fanget …….. | ☐ | ☐ | ☐ | ☐ |
| Bekymrer deg for mye …… | ☐ | ☐ | ☐ | ☐ |
| Føler ikke interesse for noe …….. | ☐ | ☐ | ☐ | ☐ |
| Føler at alt krever stor anstrengelse | ☐ | ☐ | ☐ | ☐ |
| Føler at du ikke er noe verd …….. | ☐ | ☐ | ☐ | ☐ |
| | 1 | 2 | 3 | 4 |

## H6. BRUK AV MEDISINER

**34. Hvor ofte har du i løpet av de 4 siste ukene brukt følgende medisiner?** *(Sett ett kryss for hver linje).*
Med medisiner mener vi her medisiner kjøpt på apotek. Kosttilskudd og vitaminer regnes **ikke** med her.

| | Aldri | Daglig | Hver uke, men ikke daglig | Sjeldnere enn hver uke | Ikke brukt siste 4 uker |
|---|---|---|---|---|---|
| Smertestillende uten resept …….. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Smertestillende på resept …….. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Allergi-medisin …… | ☐ | ☐ | ☐ | ☐ | ☐ |
| Astma-medisin …… | ☐ | ☐ | ☐ | ☐ | ☐ |
| Sovemedisin …….. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Beroligende medisin | ☐ | ☐ | ☐ | ☐ | ☐ |
| Medisin mot depresjon | ☐ | ☐ | ☐ | ☐ | ☐ |
| Annen medisin på resept …….. | ☐ | ☐ | ☐ | ☐ | ☐ |
| | 1 | 2 | 3 | 4 | 5 |

## H7. PÅKJENNINGER OG MESTRING

**35.** Nedenfor står fem utsagn om tilfredshet med livet som et hele. Vis hvor godt eller dårlig hver av de fem påstandene stemmer for deg og ditt liv ved å krysse av i den ruta som du synes stemmer best for deg. *(Sett ett kryss for hvert spørsmål)*

| | Stemmer dårlig 1 | 2 | 3 | 4 | 5 | 6 | Stemmer perfekt 7 |
|---|---|---|---|---|---|---|---|
| På de fleste måter er livet mitt nær idealet mitt …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Mine livsforhold er utmerkede … | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Jeg er tilfreds med livet mitt …… | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Så langt har jeg fått de betydnings-fulle tingene jeg ønsker i livet …. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hvis jeg kunne leve livet på nytt, ville jeg nesten ikke forandret på noe …….. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## H7. PÅKJENNINGER OG MESTRING (Forts.)

**36. Under finner du noen påstander:** *(Sett ett kryss for hver linje)*

| | Helt galt | Nokså galt | Nokså riktig | Helt riktig |
|---|---|---|---|---|
| Jeg klarer alltid å løse vanskelige problemer hvis jeg prøver hardt nok ….. | ☐ | ☐ | ☐ | ☐ |
| Hvis noen motarbeider meg, så kan jeg finne måter og veier for å få det som jeg vil | ☐ | ☐ | ☐ | ☐ |
| Hvis jeg har et problem og står helt fast, så finner jeg vanligvis en vei ut …… | ☐ | ☐ | ☐ | ☐ |
| Jeg føler meg trygg på at jeg ville kunne takle uventede hendelser på en effektiv måte …….... | ☐ | ☐ | ☐ | ☐ |
| Jeg beholder roen når jeg møter vanskeligheter, fordi jeg stoler på på mine evner til å mestre/få ting til ……. | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |

**37. Har du i løpet av de siste 12 mnd. selv opplevd noe av følgende?** *(Sett ett kryss for hver linje)*

| | JA | NEI |
|---|---|---|
| Foreldre (foresatte) har blitt arbeidsløse eller uføretrygdet | ☐ | ☐ |
| Alvorlig sykdom eller skade hos deg selv …… | ☐ | ☐ |
| Alvorlig sykdom eller skade hos noen som står deg nær | ☐ | ☐ |
| Dødsfall hos noen som sto deg nær …… | ☐ | ☐ |
| Seksuelle overgrep (for eksempel blotting, beføling, ufrivillig samleie m.m) …… | ☐ | ☐ |

**38. Har du opplevd noen av de følgende livshendelser:**

| | JA | NEI |
|---|---|---|
| Har du noen gang opplevd krig på nært hold? …… | ☐ | ☐ |
| Hvis "JA"; ble du i så fall skadet? …… | ☐ | ☐ |
| Har du vært fengslet eller internert av politiske årsaker? … | ☐ | ☐ |
| Har du vært torturert? (Systematisk mishandling fysisk eller psykisk) …… | ☐ | ☐ |

| | JA | NEI | Ikke aktuelt |
|---|---|---|---|
| Har du fortsatt plagsomme minner om skader fengsling eller tortur? …… | ☐ | ☐ | ☐ |
| Har du fortsatt mareritt om dette? …… | ☐ | ☐ | ☐ |
| Har du fortsatt kroppslige skader fra det som skjedde …… | ☐ | ☐ | ☐ |
| Har du i løpet av de *tre siste månedene* søkt lege eller psykolog på grunn av vonde eller vanskelige følelser, tanker eller handlinger …. | ☐ | ☐ | ☐ |

**39. Har du opplevd noe av følgende?** *(Sett ett kryss for hver linje)*

| | NEI | Ja, av og til | Ja ofte |
|---|---|---|---|
| Stort arbeidspress på universitetet …… | ☐ | ☐ | ☐ |
| Stort press fra andre for å lykkes/gjøre det bra på universitetet …….. | ☐ | ☐ | ☐ |
| Store vansker med å konsentrere deg i undervisningen …….. | ☐ | ☐ | ☐ |
| Store vansker med å forstå foreleseren når han/hun underviser …….. | ☐ | ☐ | ☐ |

**40. Har fagpersonell sagt at du har eller hatt lese- og skrivevansker?** *(Sett bare ett kryss)* ⊥

Ja, store ☐ 1 | Ja, middels ☐ 2 | Ja, lette ☐ 3 | NEI ☐ 4

**41. Har du i løpet av de siste 12 mnd. opplevd problemer med mobbing på universitetet?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Av og til ☐ 2 | Omtrent en gang i uken ☐ 3 | Flere ganger i uken ☐ 4

## H8. MOSJON OG FYSISK AKTIVITET

**42. Hvor mange ganger i uken driver du med idrett/mosjon slik at du blir andpusten eller svett?**

Antall ganger pr. uke ☐☐

**43. Omtrent hvor mange timer pr. uke bruker du på dette?** *(Sett bare ett kryss)*

0 timer ☐ 1 | 1-2 timer ☐ 2 | 3-4 timer ☐ 3 | 5-7 timer ☐ 4 | 8-10 timer ☐ 5 | 11 timer eller mer ☐ 6

## H9. ALKOHOL, TOBAKK OG ANDRE RUSMIDLER

**44. Hvor ofte drikker du alkohol?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Månedlig eller sjeldnere ☐ 2 | 2-4 ganger i måneden ☐ 3 | 2-3 ganger i uken ☐ 4 | 4 ganger i uken eller mer ☐ 5

**45. Hvor mange alkoholenheter tar du på en "typisk" drikkedag?** *(En alkoholenhet er en halvliter pils, ett glass rødvin, en "vanlig" drink eller lignende) (Sett bare ett kryss)* ⊥

1-2 enheter ☐ 1 | 3-4 enheter ☐ 2 | 5-6 enheter ☐ 3 | 7-9 enheter ☐ 4 | 10 eller flere enheter ☐ 5

**46. Hvor ofte drikker du seks alkoholenheter eller mer på en gang?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Sjeldnere enn månedlig ☐ 2 | Noen ganger i måneden ☐ 3 | Noen ganger i uken ☐ 4 | Daglig eller nesten daglig ☐ 5

**47. Hvor ofte i løpet av de siste 12 mnd. var du ikke i stand til å stoppe å drikke etter at du hadde begynt?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Sjeldnere enn månedlig ☐ 2 | Noen ganger i måneden ☐ 3 | Noen ganger i uken ☐ 4 | Daglig eller nesten daglig ☐ 5

**48. Hvor ofte i løpet av de siste 12 mnd. unnlot du å gjøre ting du skulle gjøre på grunn av drikking?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Sjeldnere enn månedlig ☐ 2 | Noen ganger i måneden ☐ 3 | Noen ganger i uken ☐ 4 | Daglig eller nesten daglig ☐ 5

**49. Hvor ofte i løpet av de siste 12 mnd. har du trengt en drink om morgenen for å komme i gang etter sterk drikking dagen før?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Sjeldnere enn månedlig ☐ 2 | Noen ganger i måneden ☐ 3 | Noen ganger i uken ☐ 4 | Daglig eller nesten daglig ☐ 5

**50. Hvor ofte i løpet av de siste 12 mnd. har du hatt skyldfølelse eller samvittighetsnag på grunn av drikkingen?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Sjeldnere enn månedlig ☐ 2 | Noen ganger i måneden ☐ 3 | Noen ganger i uken ☐ 4 | Daglig eller nesten daglig ☐ 5

**51. Hvor ofte i løpet av de siste 12 mnd. har det vært umulig å huske hva som hendte kvelden før på grunn av drikking?** *(Sett bare ett kryss)*

Aldri ☐ 1 | Sjeldnere enn månedlig ☐ 2 | Noen ganger i måneden ☐ 3 | Noen ganger i uken ☐ 4 | Daglig eller nesten daglig ☐ 5

**52. Har du eller noen andre blitt skadet som følge av din drikking?** *(Sett bare ett kryss)*

NEI ☐ 1 | Ja, men ikke i løpet av de siste 12 mnd. ☐ 2 | Ja, i løpet av de siste 12 mnd. ☐ 3

**53. Har en slektning eller venn, eller lege (eller annen helsearbeider) engstet seg over drikkingen din, eller antydet at du burde redusere?** *(Sett bare ett kryss)*

NEI ☐ 1 | Ja, men ikke i løpet av de siste 12 mnd. ☐ 2 | Ja, i løpet av de siste 12 mnd. ☐ 3

**54. Røyker du, eller har du røykt** *(Sett bare ett kryss)*

Nei, aldri ☐ 1 | Ja, men jeg har sluttet ☐ 2 | Ja, av og til ☐ 3 | Ja, hver dag ☐ 4

Hvis du har svart "Nei, aldri"; **hopp til spørsmål 56**

**55. Hvor gammel var du da du begynte å røyke?** ☐☐ år

**56. Bruker du, eller har du brukt snus, skrå eller lignende?** *(Sett bare ett kryss)*

Nei, aldri ☐ 1 | Ja, men jeg har sluttet ☐ 2 | Ja, av og til ☐ 3 | Ja, hver dag ☐ 4

**57. Røyker noen av de du bor sammen med?**

Ja, mor ☐ | Ja, far ☐ | Ja, søsken ☐ | Ja, andre ☐ | Nei ☐

⊥

***Takk for hjelpen!***

# Appendix B:

Distribution of faculty registrations

| | Females | | Males | | Total | |
|---|---|---|---|---|---|---|
| | N | % | N | % | n | % |
| Faculty registration | | | | | | |
| Registered at one faculty | 295 | 68.7 | 144 | 66.4 | 439 | 68 |
| Registered at > 1 faculty | 96 | 22.4 | 47 | 21.7 | 143 | 22.1 |
| Not registered at a faculty | 38 | 8.9 | 26 | 11.9 | 64 | 9.9 |
| Total | 429 | | 217 | | 646 | |
| | # registrations | % | # registrations | % | # registrations | % |
| Faculties | | | | | | |
| Faculty of Theology | 12 | 2.3 | 6 | 2.4 | 18 | 2.4 |
| Faculty of Law | 87 | 16.8 | 38 | 15.4 | 125 | 16.4 |
| Faculty of Humanities | 152 | 29.4 | 53 | 21.5 | 205 | 26.8 |
| Faculty of Mathematics and Natural Sciences | 72 | 13.9 | 75 | 30.4 | 147 | 19.2 |
| Faculty of Social Sciences | 139 | 26.9 | 54 | 21.9 | 193 | 25.3 |
| Faculty of Education | 52 | 10.1 | 19 | 7.7 | 71 | 9.3 |
| Other smaller units | 3 | .6 | 2 | .8 | 5 | .7 |
| Total | 517 | 69.3 | 247 | 33.1 | 764 | 100 |