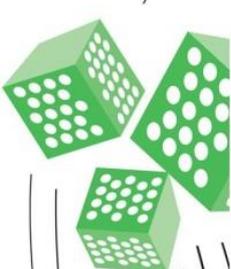




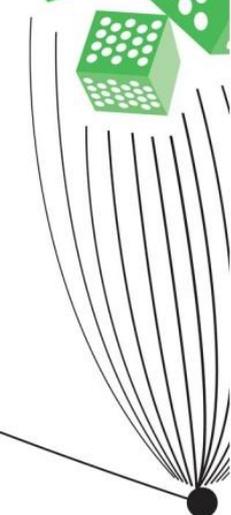
EXCELLENCE IN HIGHER EDUCATION

Bachelor thesis



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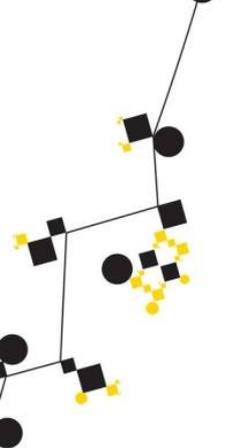
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Abstract

High-ability students possess distinct characteristics compared to regular students; especially in terms of ‘above-average ability’, ‘creativity’ and ‘task commitment’. As a result, they require more difficult and challenging educational opportunities to satisfy their drive to learn and know. The research objective of this study is to describe what aspects of excellence programmes high-ability students find ideal and to examine to what extent different types of high-ability students are attracted to particular types of excellence programmes. A cross-sectional study is performed based on primary data gathered by means of a questionnaire (n = 259). The data showed that high-ability students first and foremost want to be rewarded for the completion of an excellence programme in terms of a formal acknowledgement or the resulting opportunities to pursue more advanced educational opportunities or acquire a better position in the labour market. They are not prepared to pay an additional tuition fee. Furthermore, an excellence programme is ideally extracurricular and organised in a small-scale learning environment. It should focus on academic thinking as well as on the development of the students’ competences and skills. In this light, high-ability students want freedom to discover their own field of interest and teachers who coach students. Moreover, in contrast to regular students, high-ability students prefer an excellence programme that is highly selective and exclusive, offered during the full bachelor phase and challenging and demanding in terms of content as well as in time and effort. Regarding the preferences of different types of high-ability students, the following results were revealed: [1] Students scoring high on ‘above-average ability’ indicators also want a highly selective and exclusive excellence programme that includes only well-performing students. They flourish in a small-scale learning environment organised apart from the rest of the university. The programme is ideally demanding in content and it should allow students to pursue more advanced educational opportunities. [2] Excellence programmes aimed at students scoring high on ‘creativity’ indicators should address a variety of subjects (multi- or interdisciplinary) and is extracurricular as well as totally different from the regular curriculum. It should require a substantial amount of time and effort and follow a student-centred approach. The focus is ideally on the personal development of competences and skills as well as academic thinking. Upon completion, these students want to be able to follow more advanced educational alternatives. [3] Students manifesting high levels of ‘task commitment’ also prefer a highly selective and exclusive excellence programme with well-performing students only. A programme aimed at these students should be disciplinary and follow a student-centred approach. It preferably discusses both academic and practical knowledge. Ideally, it has a challenging content and is demanding in time and effort. Furthermore, completion of the programme ideally results in a formal acknowledgement as well as opportunities to pursue more advanced educational alternatives and to obtain a better position in the labour market. Since the provision of dedicated education for high-ability students is in its infancy in the EU, these results can provide relevant suggestions for European universities with the ambition to provide such education.

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List of Abbreviations

ANCOVA	- Analysis of Covariance
ANOVA	- Analysis of Variance
CEI	- International Campus of Excellence (Spain)
ECTS	- European Credit Transfer and Accumulation System
EHEA	- European Higher Education Area
ET 2020	- Education and Training 2020 framework
EU	- European Union
E&T	- Education and Training
GPA	- Grade Point Average
IDEX	- Initiative d'Excellence (France)
OMC	- Open Method of Coordination
TFEU	- Treaty on the Functioning of the European Union
UK	- United Kingdom
USA	- United States of America

1. Introduction

In Ancient Greece, philosophers such as Aristotle and Plato stressed the central role of education for individual fulfilment and societal well-being (Smith, 2001). In contemporary Western civilisations, investments in the quality of education and high-skilled qualifications consistently and over time have resulted in both social and economic benefits (Schleicher, 2006). Social benefits include the improvement of health and civic engagement (OECD, 2013). Economic benefits can also be identified, such as economic growth, prosperity and the creation of employment (European Commission, 2015). Moreover, at the individual level, education improves the opportunity to perform well in the labour market as well as subjective well-being (OECD, 2013). Therefore, education generates extensive societal as well as individual benefits and consensus exists about the importance and added value of education.

In this light, especially highly skilled human capital performs a crucial role (Schleicher, 2006). In order for the European Union's (EU) member states to maintain a competitive edge in the world of knowledge-based economies and to drive forward growth, the acquired skills of higher education graduates are essential. According to Robertson (2010), “[h]igher education bec[a]me deeply incorporated into the EU’s drive to improve its economic position and influence in the world” (Robertson, 2010, p. 31). The EU has formulated a target of 40% attainment of a higher education qualification among young Europeans by 2020 in its ‘Europe 2020 strategy’ (European Commission, 2015). In line with this goal, participation in tertiary education has increased explosively over the last decade (Wolfensberger, 2015). Due to this expansion, the higher education student population is becoming more and more heterogeneous, which entails increasing differences between students and their educational demands. Consequently, the philosophy of offering each student the opportunity to realise his or her capabilities requires the provision of differentiated education. Thus, offering variety in content, format and level of education is imperative to respond to different types of students (Offerte ITS/ROA/CHEPS, 2013).

The best and brightest higher education students are the high-ability students, who “in comparison to average-ability students [...] are quicker thinkers, more flexible in their use of strategies, have better memories, know more, and prefer complexity” (Scager, Akkerman, Pilot, & Wubbels, 2012, p. 659). High-ability students should be provided with the opportunity to develop, explore and challenge their excellence (Pruvot & Estermann, 2014).

According to Wolfensberger (2015), there exists an “obligation in higher education to help all [...] students reach their highest potential, particularly if they are among [the] most capable who deserve the specialised pedagogical approaches that address their needs” (Wolfensberger, 2015, p. vi). Excellence programmes (e.g. honours programmes and honours colleges) offer a more challenging and demanding education compared to regular programmes in order to satisfy the educational needs of these students (Scager, Akkerman, Pilot, et al., 2012; Wolfensberger, Eijl, & Pilot, 2012).

The United States (US) is viewed as the frontrunner in the provision of excellence programmes. Already in the 1920s, the American competitive learning culture induced the creation and development of special educational opportunities for high-ability students (Gerrity, Lawrence, & Sedlacek, 1993). Nowadays, the presence of excellence programmes in the US is considered to be widespread and institutionalised (Long, 2002). In contrast to the American competitive learning environment, continental European universities demonstrate an egalitarian tradition (Brusoni et al., 2014). Despite this egalitarian culture, a cultural shift can be witnessed away from imposing the same educational requisites on all students regardless of differences in capabilities and motivations (Coppoolse, Eijl, & Pilot, 2013). Even though extra guidance for students that are less likely to succeed in higher education has existed for a longer period of time, dedicated programmes for high-ability students have surfaced more recently. The ambition to enhance excellence in higher education has received recognition and promotion across Europe (Pruvot & Estermann, 2014; Rostan & Vaira, 2011). Within the EU, a “growing trend [can be observed] to establish [...] policies and program[me]s for inspiring excellence among motivated, bright students” (Wolfensberger, 2015, p. vi).

Different European countries and their higher education institutions have adopted a variety of approaches in providing differentiated education. This trend is essential because high-ability students might be restrained and limited in the development of their intellectual capabilities through the imposition of equal requirements on all students (Lamb, 2012). At the individual level, it is imperative that high-ability students are challenged by their education, because, “[they often] experience boredom, leading to a loss of motivation, which in turn can lead to underachievement” (Scager, Akkerman, Pilot, et al., 2012, p. 659). Furthermore, at the societal level, the EU member states cannot permit that talent is unnoticed and thus unused. High-ability students must be facilitated in their educational needs to prevent a brain drain

whereby highly skilled people leave for other parts of the world and also to remain competitive in the world of knowledge-based economies (Eijl, Wolfensberger, Schreve-Brinkman, & Pilot, 2007).

Nevertheless, empirical research on excellence in higher education, on the specific characteristics of high-ability students and on providing challenging learning environments for high-ability university students is scarce (Scager, Akkerman, Keesen, et al., 2012; Scager, Akkerman, Pilot, et al., 2012). In the literature, there is a severe lack of descriptive information, comparisons, or empirical data as well as a deficiency regarding “specific information about provisions for [high-ability] students in European higher education” (Wolfensberger, 2015, p. vi). Therefore, more research should be done in this field in order to match excellence programmes to the qualities of the student (Scager, Akkerman, Keesen, et al., 2012).

1.1 Research objective

High-ability students have distinct characteristics in comparison to regular, non-honours students, i.e. students who do not qualify for participation in excellence education e.g. due to their grades and/or motivation. However, these students are not identical considering that they have distinctive personal characteristics and individual preferences. In this light, it is anticipated that different types of high-ability students are attracted to different types of excellence programmes (Wolfensberger, 2015). Much is still to be understood and discovered about how to specifically design effective education for high-ability students (Scager, Akkerman, Pilot, et al., 2012). Therefore, the research objective of this study is to examine whether and to what extent there is a match between the type of high-ability student and the type of preferred excellence programme.

1.2 Research question and sub-questions

The research objective outlined above leads to the following research question:

To what extent do different types of high-ability students participating in excellence programmes at Dutch universities prefer particular types of excellence programmes?

In order to answer the main research question, the following sub-questions will be examined:

1. Where do high-ability students differ from other students in terms of their characteristics and demands they place in their education?
2. What are excellence programmes and what types of excellence programmes may be distinguished in the EU?
3. What distinct characteristics do the high-ability students ascribe to themselves and what are the preferred characteristics of an excellence programme according to high-ability students?
4. What aspects of excellence programme do different types of high-ability students consider to be ideal?
5. Based on the results from the Netherlands, what recommendations can be made to other member states of the European Union regarding excellence programmes?

1.3 Outline of the study

This thesis will proceed as follows: First, in the theoretical framework, the conceptualisation of excellence, characteristics and educational demands of high-ability students, excellence programmes as well as available EU governance mechanisms to disseminate recommendations are discussed. Second, the methodology section begins with the research design, data collection method, case selection and data analysis methods, followed by the operationalisation of the relevant variables. Additionally, strengths and limitations of this study are identified. Third, the results obtained from the respondents are outlined in the empirical evidence. Finally, conclusions are drawn concerning how the respondents view themselves, what an ideal excellence programme looks like and what type of high-ability student prefers which characteristics of excellence programmes. These results are relevant for other EU member states with the ambition to design dedicated education for high-ability students.

2. Theoretical framework

To answer the above mentioned research question, first, ‘excellence in higher education’ is conceptualised. Second, together with literature on the topic of excellence in higher education, this conceptualisation is used to characterise high-ability students and their need for differentiated education. Third, different types of excellence programmes in higher educations throughout the EU are described. This literature study provides the basis for the operationalisation and resulting questionnaire to be administered to bachelor students participating in excellence programmes at Dutch universities. Finally, the priority that the topic of excellence in higher education receives within the EU is discussed and the available governance mechanisms to provide other EU member states with recommendations are described.

2.1 Excellence and high-ability students

According to the Oxford Dictionary, the concept ‘excellence’ can be defined as “the quality of being outstanding or extremely good” (“Excellence in Oxford Dictionary,” n.d.). In the context of higher education, excellence generally refers to three fields, namely excellence in teaching, research or learning (Rostan & Vaira, 2011). The focus of this study will be on the latter; excellent students capable of performing better than average (also known as giftedness or high-ability students) (Brusoni et al., 2014).

A student’s educational success and performance are influenced by a combination of factors, such as the study environment and personal characteristics (Weerheijm & Weerheijm, 2012). This study will not focus on external factors such as the study environment, but attention is concentrated on the internal human traits and thinking processes of high-ability students (Scager, Akkerman, Keesen, et al., 2012). Research has demonstrated that high-ability students constitute a heterogeneous group in terms of learning style, creativity, speed of development, social behaviour and personality (Freeman, 2010). Despite this heterogeneity, high-ability students are capable of better performance and thus display distinctive characteristics in comparison to regular students, i.e. students that do not qualify for participation in excellence education e.g. due to their grades and/or motivation (Brusoni et al., 2014). Based on the existing literature, a set of characteristics of high-ability students and what they demand from their education is identified (Table 2.1, Table 2.2).

According to Renzulli's three-ring conception of giftedness (Figure 2.1), "giftedness consists of an interaction among three basic clusters of human traits – these cluster being above-average general abilities, high levels of creativity and high levels of task commitment" (Renzulli, 2011, p. 185).

Figure 2.1: Three ring-conception of giftedness



Source: From "What Makes Giftedness? Re-examining a Definition" by J.S. Renzulli, 2011, *Phi Delta Kappan*, 60

First, [1] above average ability encompasses characteristics related to general intelligence that can be applied across all domains as well as specific sub-domains. These abilities include analytical and critical thinking skills and academic achievement (Renzulli, 2012). This can be further defined as a capacity that "involves the ability to reason, solve problems, think abstractly, comprehend complex ideas, think fast, learn quickly and learn from experience" (Scager, Akkerman, Keesen, et al., 2012, p. 22). In line with this, additional characteristics are the capacity to process information, spatial visualisation, memory and language proficiency (Renzulli, 1984). Moreover, high-ability students appear to prefer complexity as well as challenge and they are able to guide their own thinking (Freeman, 2010; Freyman, 2005; Shore & Kanevsky, 1993; Wiegant, Boonstra, Peeters, & Scager, 2012). Second, [2] creativity focuses on the originality of thinking and inventiveness of approaches to tasks (Renzulli, 1984). Creativity includes (intellectual) curiosity, active imagination, originality, ingenuity and a willingness to challenge or even set aside convention, procedure and tradition (Freyman, 2005; Renzulli, 1984, 2012). Creativity is the human trait that induces a cognitive process leading to new solutions, inventions or syntheses (Scager, Akkerman, Keesen, et al., 2012). In line with this, high-ability students seem to be more flexible in strategies, express less need for structure and appreciate diversity due to a broad interest (Freeman, 2010). Finally, [3] task commitment is the ability to engage fully in a subject or area for an extended period of time and persevere despite obstacles, difficulties and setbacks (Renzulli, 2012).

High-ability students appear to demonstrate more need for achievement, more competitiveness, (Hébert & McBee, 2007) and especially intrinsic motivation (Wolfensberger & Offringa, 2012). Motivation can be divided into intrinsic and extrinsic motivation; whereas intrinsic motivation refers to engaging in an activity for the individual’s own sake, extrinsic motivation is driven by external rewards such as academic achievement or a better outlook in the post-education career (Renzulli, 1984). Additionally, task commitment is related to the desire to learn and the drive to succeed and excel (Scager, Akkerman, Keesen, et al., 2012). A high-ability student is typically ambitious and willing as well as eager to devote time and effort to a certain activity in order to master it (Freyman, 2005).

Table 2.1: Characteristics of high-ability students

Above average ability	General intelligence
	Analytical and critical thinking skills
	Academic achievement
	Ability to reason
	Problem-solving skills
	Ability to think abstractly
	Ability to comprehend complex ideas
	Ability to think/learn quickly
	Ability to learn from experience
	Capacity to process information
	Spatial visualisation ability
	Memorisation
	Language proficiency
	Preference for complexity and challenge
Ability to guide own thinking	
Creativity	Creativity
	Originality
	Inventiveness of approaches
	Curiosity: need for diversity/broad interest
	Active imagination
	Ingenuity
	Willingness to challenge or set aside convention, procedure and tradition
	Flexible in strategies/approaches
	Less need for structure
Task commitment	Task commitment; ability to fully engage in a subject
	Persistence despite obstacles, difficulties, setbacks
	Need for achievement
	Need for competitiveness
	Intrinsic motivation
	Extrinsic motivation: academic achievement
	Extrinsic motivation: strong focus on post-education career
	Desire to learn
	Desire to succeed
	Ambition
Willingness to devote time and effort	

Note: Adapted from Renzulli (2011); Renzulli (2012); Scager, Akkerman, Keesen, et al. (2012); Renzulli (1984); Freeman (2010); Freyman (2005); Shore & Kanevsky (1993); Wiegant, Boonstra, Peeters, et al. (2012); Hébert & McBee (2007); Wolfensberger & Offringa (2012).

According to the literature, a combination of the mentioned characteristics is necessary, since the aptitude of a student to achieve excellence is determined by both attitude and accomplishment. (Freyman, 2005; Renzulli, 2011). While above-average ability tends to remain stable over time, creativity and task commitment depend on the context, situation and

time (Renzulli, 2012). Therefore, high-ability students are heterogeneous considering the extent to which they possess above-average ability, creativity and task commitment.

Based on the literature discussed above, Table 2.1 outlines a set of characteristics of high-ability students. Overlap between the clusters and between the rather abstract characteristics is unavoidable due to the adjacency of the characteristics and relationships between them.

2.2 Educational demands of high-ability students

Due to their differences compared to other students, high-ability students appear to “require a different, more challenging curriculum and other learning opportunities to satisfy [their] drive to learn, know and do” (Achterberg, 2005, p. 81). First, an educational context that appeals to these students’ wish for freedom seems suitable. High-ability students appear to value firstly the freedom to discover and explore their own fields of interest and secondly, the freedom to take initiative and responsibility (Gorp, Wolfensberger, & Jong, 2012; Wolfensberger & Offringa, 2012). Instead of teacher-centred learning, students seem to favour a student-centred approach, where the teacher’s role is to coach and facilitate instead of supervising the entire learning process (Scager, Akkerman, Pilot, et al., 2012; Wiegant et al., 2012). High-ability students express less need for assistance and feedback in their academic performance than regular students (Gerrity et al., 1993). This also includes a limited structure with a great deal of freedom and little guidelines and obligatory requirements (Gorp et al., 2012; Wolfensberger & Offringa, 2012). Even so, high-ability students indicate to prefer some degree of guidance instead of complete autonomy, so that there is a balance between structure and freedom (Coppoolse et al., 2013). Second, a focus on competence and high expectations is preferred (Scager, Akkerman, Pilot, et al., 2012; Wolfensberger & Offringa, 2012). High-ability students seem to favour education that is more demanding in both content and quantity. In terms of more demanding in content, education should be difficult, complex and challenging (Wiegant et al., 2012). More demanding in quantity indicates that education should require students to devote a substantial amount of time and effort in order to succeed. Furthermore, high-ability students prefer a focus on personal development in skills, competence and knowledge as well as a focus on academic thinking instead of only practical applications of knowledge (Coppoolse et al., 2013). Third, high ability-students appear to thrive in a small-scale learning environment with like-minded peers (Eijl, Wolfensberger, Schreve-Brinkman, & Pilot, 2007).

Table 2.2 summarises the educational demands of high-ability students as described above.

Table 2.2: Educational demands of high-ability students

Freedom	Freedom to discover and explore own fields of interest
	Freedom to take initiative and responsibility
	Student-centred approach
	Teachers to coach and facilitate
	Students are not restricted by guidelines or obligatory requirements
	Balance between structure and freedom
Focus on competence and high expectations	More demanding in content: difficulty, complexity, challenge
	More demanding in quantity: time and effort
	Focus on personal development: competences and skills
	Focus on academic thinking, instead of only practical applications
Learning environment	Small-scale learning environment
	Like-minded peers

Note: Adapted from Achterberg (2005); Van Gorp, Wolfensberger & De Jong (2012); Wolfensberger & Offringa (2012); Scager, Akkerman, Pilot, et al. (2012); Wiegant, Boonstra, Peeters, et al. (2012); Gerrity, Lawrence & Sedlaeck (1993); Coppoolse, Van Eijl & Pilot (2013); Van Eijl, Wolfensberger, Schreve-Brinkman, et al. (2007).

2.3 Excellence programmes in higher education

2.3.1 What are excellence programmes?

To fully realise the potential of high-ability students, these students require different instructional conditions and educational methods, which are often not provided in the regular curriculum (Coppoolse et al., 2013; Freeman, 2010; Hébert & McBee, 2007; Renzulli, 2011; Shore & Kanevsky, 1993; Wiegant et al., 2012). Accordingly, universities have developed dedicated excellence programmes for their top-tier students (Scager, Akkerman, Pilot, et al., 2012). Excellence programmes (i.e. honours programmes and honours colleges) can be defined as “selective study programmes linked to higher education institutions. They are designed for motivated and gifted students who want to do more than the regular programme offers. These programmes have clear admission criteria and offer educational opportunities that are more [difficult and] challenging and demanding [in terms of time and effort] than regular programmes” (Wolfensberger, 2015, p. 12). Active participation, interaction and community formation are expected of the selected students. This communication with like-minded peers is enhanced by the organisation of the excellence programmes via small-scale educational methods. In excellence programmes, the number of participating students is typically small due to their exclusiveness and consequently, student-student as well as student-teacher relationships are close and personal (Wolfensberger et al., 2012). Based on this definition, Table 2.3 classifies the characteristics of excellence programmes in the categories: student composition, programme organisation and programme content.

Table 2.3: Characteristics of excellence programmes

Student composition	Target group: high-ability students, i.e. students that perform well in their regular study programme
	Selection/exclusiveness: admission criteria
	Active participation, peer interaction and community formation
Programme organisation	Small-scale educational methods
Programme content	Differentiation from regular programme: more challenging and more demanding

Note: Adapted from Coppoolse, Van Eijl & Pilot (2013); Freeman (2010); Hébert & McBee (2007); Renzulli (2011); Shore & Kanevsky (1993); Wiegant, Boonstra, Peeters, et al. (2012); Scager, Akkerman, Pilot, et al. (2012); Wolfensberger (2015); Wolfensberger, Van Eijl & Pilot (2012).

2.3.2 Types of excellence programmes

Despite a common set of features, excellence programmes are essentially highly diverse (Wolfensberger, 2015). A wide variety of approaches to providing education aimed at high-ability students exists in terms of the student composition, programme organisation, programme content and incentives for participation. First, concerning the student composition, two differences between excellence programmes become apparent. The [1] selection and admission procedures vary per programme. Whereas some programmes select students based on motivation, others merely look at the academic achievement by means of Grade Point Average (GPA). Furthermore, whereas most excellence programmes focus on the [2] bachelor phase, programmes also exist for the master phase.

In terms of programme organisation, excellence programmes make use of [3] different educational methods such as lectures, seminars, assignments, group work, individual work, etc. Excellence programmes also differ with regard to [4] duration, program size and associated credits (ECTS). Moreover, [5] the degree to which an excellence programme is embedded into the university is not identical. Some excellence programmes are organised by a separate faculty or department and some are taught at a location apart from the rest of the university. Additionally, some excellence programmes are organised [6] on top of the regular curriculum i.e. extracurricular, while others are intracurricular, either partly replacing courses from the regular curriculum or serving as a total replacement of all regular courses (e.g. liberal arts and sciences colleges).

With regard to the programme content, a typology of excellence programmes can be made: [7] disciplinary, interdisciplinary and multidisciplinary (Wolfensberger et al., 2012). Disciplinary programmes aim at specialisation in a sub-discipline of the regular curriculum and thus deepening understanding and knowledge of subjects, methodologies and research within a discipline. Other excellence programmes are interdisciplinary and focus on broadening the knowledge and skills of students by incorporating perspectives from a variety

of fields and disciplines. Multidisciplinary programmes (e.g. liberal arts and science colleges) offer a full honours bachelor degree which aim at both deepening and broadening the knowledge of students (Wolfensberger et al., 2012). Furthermore, other differences in terms of programme content between excellence programmes exist. [8] The content and subjects that are dealt with are unique for each programme. This also includes the extent of freedom to which the student is bounded by an established programme or whether he or she is able to pursue an individual field of interest. Also [9] the intended learning outcomes and competences vary per excellence programme, such as specific academic skills. Besides, [10] the feedback and assessment processes differ between excellence programmes.

Table 2.4: Differences between excellence programmes

Student composition	Selection and admission procedures
	Bachelor or master phase
Programme organisation	Educational methods: lectures, seminars, assignments, group work, individual work, etc.
	Duration, program size and associated credits (ECTS)
	Excellence programme is embedded into the university
	(Partly) intra- or extracurricular
Programme content	Disciplinary, interdisciplinary, multidisciplinary
	Content and subjects; including extent of freedom for students
	Intended learning outcomes and competences
	Feedback and assessment procedures
Incentives for participation	Financial issues: additional tuition fees or scholarships
	Rewards for the completion of the programme: extra ECTS and formal acknowledgement
	How the programme is evaluated by the field: higher education sector and labour market

Note: Adapted from Wolfensberger (2015); Wolfensberger, Van Eijl & Pilot (2012); Coppoolse, Van Eijl & Pilot (2013); Van Eijl, Wolfensberger, Schreve-Brinkman, et al. (2007); ITS/ROA/CHEPS (2013).

Concerning the incentives for students to participate, there are [11] financial issues associated with participation in some excellence programme. These can be classified as potential deterrents such as an additional tuition fee or as potential incentives via the provision of scholarships. Further differences between excellence programmes can be observed concerning [12] rewards for the completion of the programme. Some programmes provide participants with extra ECTS or with a formal acknowledgement for the completion of the programme, such as a certificate or testimony on the diploma. [13] How the programme is perceived in the field is also important for high-ability students in choosing an excellence programme. Whereas some excellence programmes allow participants to pursue a more advanced education career after completion (e.g. a selective master at the world's best universities), participation in other excellence programmes is expected to enable them to acquire a better position in the labour market (Coppoolse et al., 2013; Eijl et al., 2007; Offerte ITS/ROA/CHEPS, 2013; Wolfensberger, 2015; Wolfensberger et al., 2012). Table 2.4 provides an overview of the various elements on which excellence programmes differ according to the above mentioned literature.

2.3.3 Excellence programmes in Europe

The Netherlands can be considered a frontrunner in the field of excellence programmes within the EU, with the majority of its higher education institutions offering extra educational opportunities for high-ability students. Out of 17 Dutch universities, 14 offer an excellence programme of some sort and many offer more than one programme (Wolfensberger, 2015). The typology described above is from a Dutch perspective and mainly based on Dutch literature, because there is a lack of information in the current literature about excellence programmes for high-ability students in other European higher education institutions. Some excellence programmes in the EU countries do exist, but these are marginal and limited in scope (Wolfensberger, 2015). Some other European higher education systems are more selective and more hierarchical than in the Netherlands, therefore implicitly incorporating dedicated education for high-ability students.

An overview of excellence policies in France, Germany, Spain and the United Kingdom (UK) confirms that these countries principally focus on excellence in research and that the provision of dedicated education for high-ability students in other European member states is still in its infancy (Privot & Estermann, 2014; Wolfensberger, 2015). Parallel to French universities, the elite Grandes Écoles provide high quality education, but selection does not take place on the basis of student merit ("French Grandes Ecoles and the Diplôme d'Ingénieur," 2015). In France, the Initiative d'Excellence (IDEX) makes available funds for the creation of internationally competitive centres of excellence, i.e. higher education and research institutions that belong to the top universities of the world (Marshall, 2011). Nevertheless, resources are not devoted to excellence in education, i.e. dedicated education for high-ability students. Instead, research, training, socio-economic partnerships and campus life receive funds to develop centres of excellence (L'Etat de France, 2010). Also in Germany, the Excellence Initiative aims to strengthen excellence in research, while other policies aim primarily at innovation, competitiveness and attractiveness of its higher education. Policies on excellence at the national level are only present in relation to research, not education designed for high-ability students (Ostermeier, 2015). In Spain, the aim for international prominence and top-rankings among the best universities has led to the launch of the International Campus of Excellence (CEI) programme. Whereas resources are devoted to the quality of teaching as well as research and advances in innovation, the design of excellence programmes is not one of the goals of the CEI (Delgado, 2010). Furthermore, universities in the UK do not provide more challenging educational programmes for high-ability students. Rather the

concept ‘honours’ is embedded in its system as a classification rank instead of a national excellence policy (Offerte ITS/ROA/CHEPS, 2013).

2.4 EU attention to excellence and soft-law cooperation

As described above, initiatives concerning excellence in higher education within the EU are incidental and the development of excellence programmes has only just started in most member states (Wolfensberger, 2015). Even though excellence programmes are still limited in scope, the actual implementation is beginning and high-ability students in higher education increasingly receive attention (Rostan & Vaira, 2011). The “modernisation agenda for universities in every EU member state [contains the topic of] promoting system differentiation in higher education, including the trend to concentrate talents and resources in one or more institutions (elite universities) or in centres of excellence” (Maassen, 2008, p. 100). The European Higher Education Area (EHEA) specifically articulates the ambition of recognition and promotion of excellence in higher education across Europe (Brusoni et al., 2014; McGrath, 2000; Schleicher, 2006). Furthermore, the EU’s ‘Education and Training 2020’ framework (ET 2020) devotes explicit attention to the issue of excellence (Drachenberg, 2011; Robertson, 2010). According to the second objective of the ET 2020, “the major challenge is to ensure the acquisition of key competences by everyone, while developing the excellence and attractiveness at all levels of education and training that will allow Europe to retain a strong global role” (European Council, 2009).

Recommendations concerning the design of excellence programmes based on this thesis to other member states can be disseminated via the EU. The Treaty on the Functioning of the European Union (TFEU) provides a framework for European cooperation in the field of Education and Training (E&T). According to Article 165 TFEU: “The [EU] shall contribute to the development of quality education by encouraging cooperation between Member States and, if necessary, by supporting and supplementing their action” (TFEU, 2008, p. 100). The EU will aim its action *inter alia* at “promoting cooperation between educational establishments” and at “developing exchanges of information and experience on issues common to the education systems of the Member States” (TFEU, 2008, p. 100). Moreover, the Open Method of Coordination (OMC) is a European-level governance tool that aims at soft policy cooperation. In the design of excellence programmes, the EU member states can benefit from the Dutch experience in this field by means of the mechanisms provided within the OMC. Using voluntary and flexible arrangements, the OMC is adaptable to national

educational systems and to specific national political priorities. While not imposing on the member states with legally binding regulatory frameworks, the voluntary arrangements have proven to play a significant role in the area of E&T and these function as a very powerful governance tool (Drachenberg, 2011). Three key elements define the cooperation between member states within the OMC. First, the member states establish common objectives and benchmarks on which they work according to an agreed programme and timetable. Second, best practices and mutual learning are ensured by clusters and peer learning activities, such as working groups in which good practices are exchanged between experts on a specific topic. Third, a continued checking and monitoring on the implementation occurs by means of reports, benchmarks and indicators (Drachenberg, 2011). Concluding, the OMC is a governance tool that is able to disseminate good practices in a flexible manner.

3. Methodology

The methodology for this study is outlined in this chapter. First, the research design and the data collection method are discussed. Afterwards, the case selection is considered, the relevant variables are operationalised into questionnaire items and the data analysis methods are presented. Finally, the strengths and limitations of the study are debated.

3.1 Research design

The research question is answered by means of a cross-sectional research design in which data is collected at one moment in time. The units are students participating in excellence programmes of Dutch universities, who are not subject to a treatment or manipulation, because a cross-sectional research design relies on existing differences between the units (Stone-Romero, 2002; Vaus, 2001).

3.2 Data collection method

In this thesis, data is collected for this study in particular by means of a questionnaire. A direct measurement is obtained and the type of data is therefore obtrusive, because respondents are aware of the fact that they are studied (Babbie, 2013). A study of existing datasets relating to excellence programmes showed that appropriate data on the subject of this thesis was unavailable.

The questionnaire is administered to bachelor students participating in excellence programmes, i.e. honours programmes at Dutch universities. All excellence programmes select students on the basis of certain admission criteria, such as GPA and motivation, but whether a respondent is a high-ability student according to the characteristics described in the theoretical framework is not ensured. It is not assumed that all respondents are high-ability students. First, to identify the preferred aspects of an excellence programme according to high-ability students, respondents ascribing characteristics of high-ability to themselves are compared to respondents indicating to be similar to regular students. Second, it is investigated whether respondents can be characterised with the clusters ‘above-average ability’, ‘creativity’ and ‘task commitment’. Respondents scoring high on one of these clusters are compared to respondents indicating to be similar to regular students regarding that cluster. For the purpose of this study, to identify the match between the type of high-ability student and the preferred type of excellence programme, the focus is on the extent to which the respondents ascribe to themselves certain characteristics in terms of ‘above-average ability’,

‘creativity’ or ‘task commitment. Therefore, it is not problematic if students do not score high on every characteristic. Students have been approached via the programme coordinators of honours programmes, honours communities and honours associations.

3.3 Case selection

The Netherlands has been selected for this study, because of its leading position within the EU (see section 2.3.3). The Dutch national government has made funds available to encourage the creation of excellence programmes via its Sirius programme (Sirius Programma, n.d.). Only the research universities in the Netherlands are included in this study, while the universities of applied sciences are excluded. The research universities are more comparable on an EU level, since the professional education offered by Dutch universities of applied sciences does not have a comparable equivalent in all EU member countries. Another reason for the exclusion of universities of applied science is the extensive variation between research universities and universities of applied sciences in type of students and in excellence programmes. Furthermore, liberal arts and sciences colleges, i.e. university colleges that provide a full honours bachelor programme, also fall outside the scope of this study. The reason for this is two-fold. First, students at university colleges will not be able to compare themselves to regular students that are not eligible for excellence education, since the university colleges are organised in structures that stand separate from the rest of the university and their students do not have lectures together with students that are not enrolled in excellence programmes. Second, in light of the formulation of recommendations in an EU context, it is expected that excellence programmes in other member states are offered by universities instead of stand-alone liberal arts and sciences colleges. Therefore, the responses of university college students may not provide a sound basis for recommendations. Moreover, this study only includes excellence programmes designed for the bachelor phase, since these are the most institutionalised and little information is available on the modest amount of programmes in the master phase (Wolfensberger, 2015).

The Netherlands has been selected as a case with the aim to explicate elements of a broader class of similar units (Gerring, 2006). In this study, the broader class of units are all European universities with the ambition to provide dedicated education for high-ability students. Nonetheless, representativeness is not ensured for all European universities due to the large variety of education systems. However, the purpose of this study is not to generalise to all European universities, but to provide recommendations in an EU context.

3.4 Operationalisation and questionnaire

The characteristics of high-ability students and the elements of excellence programmes as identified in the theoretical framework are operationalised into corresponding questionnaire items in order to examine the match between these variables.

3.4.1 Questionnaire

The design of the questionnaire is as follows: First, background questions are asked regarding gender, age, university, major study programme, year of study and name of the honours programme. Next, the focus is on the characteristics of high-ability students as identified in the theoretical framework. Finally, respondents are asked about the characteristics of their ideal excellence programme. At the end, they are given the opportunity to leave their email address behind, so that results can be sent to them after the finalisation of the study. The questionnaire items are formulated in English, because many excellence programmes are taught in this language and the majority of higher education students have sufficient English language skills to understand the questionnaire. The questionnaire took a maximum of 10 minutes to complete. All answers are treated anonymously and are kept confidential. The questionnaire as administered to the students can be found in Appendix 1.

3.4.2 High-ability students

Although constituting a heterogeneous group, high-ability students can be described with various characteristics. Respondents are asked to indicate to what extent they ascribe a certain characteristic to themselves compared to regular students, i.e. students in their study programme that do not qualify for participation in excellence/honours education e.g. due to their grades and/or motivation. Therefore, students who meet the selection criteria, but have decided not to participate in excellence programmes are excluded from the comparison. This questionnaire item is designed by means of a scale, measuring the extent to which a specific characteristic is applicable to the respondent (Babbie, 2013). The characteristics are implicitly categorised in three clusters, in line with Renzulli's three-ring conception of giftedness. For each cluster, the corresponding characteristics identified in the theoretical framework (Table 2.1) are operationalised into questionnaire statements. Due to overlap between characteristics and their abstractness, a clear-cut operationalisation is impossible. As a result, overlapping characteristics are combined into a single statement and a small amount of characteristics are not mentioned in a statement. The matrix question format is used (Babbie, 2013) and each statement is preceded with 'Compared to regular students, ...'. A 7-point Likert scale is provided ranging from 1 not at all true of me, 4 similar to regular students, 7 very true of me.

3.4.2.1 Above-average ability

The characteristics of high-ability students concerning the first cluster, above-average ability (Table 2.1), are operationalised into four questionnaire items. Table 3.1 presents the operationalisation by showing the questionnaire items in the left column and the corresponding above-average ability characteristics in the right column.

Table 3.1 Questionnaire items about above-average ability

Statement	Corresponding characteristics
1. I am better at thinking and reasoning in an analytical and critical way	Analytical and critical thinking skills
	Ability to reason
	Ability to think abstractly
	Ability to guide own thinking
2. I am more able to understand complex topics and I prefer to tackle difficult and challenging topics	Ability to comprehend complex ideas
	Preference for complexity and challenge
3. I think and learn faster	Ability to think/learn quickly
	Ability to learn from experience
	Memorisation
4. I am better at solving problems	Problem solving skills

Note: Adapted from Table 2.1 and based on the author's own considerations about the operationalisation.

When looking at Table 2.1, not all characteristics are mentioned in the questionnaire. 'General intelligence' and 'capacity to process information' have been excluded, since these are too broad as well as too abstract and both are implicitly included in the other elements. Furthermore, 'academic achievement' is not asked about as such, because respondents have demonstrated academic achievement by meeting the selection criteria for an excellence programme. Moreover, 'spatial visualisation ability' and 'language proficiency' are also excluded from the statements, since these are specific competences that high-ability students often display but are not high-ability or excellent per se.

3.4.2.2 Creativity

For the cluster creativity, three questionnaire items are formulated. Table 3.2 shows which statement includes which characteristics with regard to creativity (Table 2.1).

Table 3.2 Questionnaire items about creativity

Statement	Corresponding characteristics
5. My ideas and solutions are more original, creative and inventive	Creativity
	Originality
	Inventiveness of approaches
	Active imagination
	Ingenuity
6. I am more prepared to put aside structured methods and standard procedures in order to follow a flexible approach	Flexible in strategies/approaches
	Willingness to challenge or set aside convention, procedure and tradition
	Less need for structure
7. I prefer diversity in subjects and my curiosity is aroused by a broader range of topic	Flexible in strategies/approaches
	Curiosity: need for diversity/broad interest

Note: Adapted from Table 2.1 and based on the author's own considerations about the operationalisation.

3.4.2.3 Task commitment

Regarding the operationalisation of the characteristics related to task commitment, Table 3.3 shows the questionnaire statements and the corresponding characteristics (Table 2.1)

Table 3.3 Questionnaire items about task commitment

Statement	Corresponding characteristics
8. I am more willing to devote time and effort to a subject to which I am fully committed	Task commitment: ability to fully engage in a subject Willingness to devote time and effort
9. I am more persistent in case of difficulties or setbacks	Persistence despite obstacles, difficulties, setbacks
10. Learning in itself motivates me more and gives me a lot of satisfaction	Intrinsic motivation Desire to learn
11. I am more motivated to succeed in a course and get a higher grade	Extrinsic motivation: academic achievement Desire to succeed Need for achievement Need for competitiveness
12. I am more ambitious regarding my future post-education career	Extrinsic motivation: strong focus on post-education career Ambition

Note: Adapted from Table 2.1 and based on the author's own considerations about the operationalisation.

3.4.2.4 Open question

At the end of this part, respondents are posed an open question: 'According to you, what is a typical characteristic of a high-ability student that was not included in the statements above?' This question has been included to account for characteristics that were left out of the questionnaire.

3.4.3 Excellence programmes

The subsequent questions focus on what respondents find ideal aspects of an excellence programme. Respondents are asked 'How should an ideal excellence programme look like if it were up to you?' Respondents are requested to address aspects under the following four headings: student composition, programme organisation, programme contents and incentives for participation. For each heading, the aspects of excellence programmes as discussed in the theoretical framework (Table 2.3, Table 2.4) are operationalised into questionnaire statements. Overlapping aspects are combined into a single statement, some aspects are split in two statements and some aspects are excluded. Furthermore, the educational demands of high-ability students (Table 2.2) are integrated in the relevant statements. Also for these questionnaire items, the matrix format is used (Babbie, 2013). Each group of statements starts with 'My ideal-type of excellence programme, ...'. A 7-point Likert scale is provided ranging from 1 strongly disagree, 4 neutral, 7 strongly agree.

3.4.3.1 Student composition

At first, respondents are asked to indicate aspects of their ideal excellence programme in terms of student composition. The left column of Table 3.4 shows the questionnaire items, the right column shows the corresponding aspects of excellence programmes and the middle

column indicates whether the aspect is an educational demand (Table 2.2), a characteristic of excellence programmes (Table 2.3) or a difference between them (Table 2.4).

Table 3.4 Questionnaire items about student composition

Statement	Table	Aspect of excellence programmes
1. includes only well-performing students (that received high grades in our study programme)	2.3	Target group: high-ability students, i.e. students that perform well in their regular study programme
2. is highly selective and exclusive, i.e. only the best x% students are invited	2.2	Like-minded peers
	2.3	Selection/exclusiveness: admission criteria
3. stimulates the creation of a close community through active participation and student-student interaction	2.3	Active participation, peer interaction and community formation

Note: Adapted from Table 2.2, Table 2.3 and based on the author's own considerations about the operationalisation.

Differences between excellence programmes regarding student composition are not included in the questionnaire items. The type of selection and admission procedures is not considered relevant as long as there is a mechanism in place to ensure that only high-ability students participate. Also, the difference between programmes for the bachelor and for the master phase is not formulated into a statement, since the focus of this study is on the bachelor phase as justified in the section case selection.

3.4.3.2 Programme organisation

Afterwards, questionnaire statements about the preferred excellence programme concern the programme organisation. Table 3.5 shows how these aspects are operationalised into corresponding questionnaire statements.

Table 3.5 Questionnaire items about programme organisation

Statement	Table	Aspect of excellence programmes
1. provides a small-scale learning environment i.e. the amount of students is limited and the student-student and student-teacher relationships are close and personal	2.2	Small-scale learning environment
	2.3	Small-scale educational methods
2. contains great deal of group work as opposed to individual work	2.4	Educational methods: lectures, seminars, assignments, group work, individual work, etc.
3. makes use of lectures and seminars as the primary educational method as opposed to assignments		
4. is offered during the full bachelor phase, instead of in a limited period (e.g. only one semester)	2.4	Duration, program size and associated credits (ECTS)
5. is organised apart from the regular study programmes at the university (e.g. separate faculty, other location)	2.4	Excellence programme is embedded into the university
6. is followed on top of the regular curriculum (i.e. extracurricular), not as a (partial) replacement of regular components of my study programme (i.e. intracurricular)	2.4	(Partly) intra- or extracurricular

Note: Adapted from Table 2.2, Table 2.3, Table 2.4 and based on the author's own considerations about the operationalisation.

The fourth statement operationalises the 'duration, program size and associated credits (ECTS)'. For the purpose of this study, it is not relevant to identify the precise duration, exact program size or amount of associated credits (ECTS), because this is too detailed and too much variation exists.

3.4.3.3 Programme content

Subsequently, the respondents are asked to indicate their ideal excellence programme in terms of the programme content. Table 3.6 shows which questionnaire items include which aspects of excellence programmes and whether these have been identified as an educational demand (Table 2.2), characteristic of excellence programmes (Table 2.3) or difference (Table 2.4).

Table 3.6 Questionnaire items about programme content

Statement	Table	Aspect of excellence programme
1. is totally different from the regular programme in terms of content	2.3	Differentiation from regular programme: more challenging and more demanding
2. has a challenging and demanding content: subjects are difficult	2.2	More demanding in content: difficulty, challenge, complexity
3. requires students to devote a substantial amount of time and effort	2.2	More demanding in quantity: time and effort
4. focuses on broadening the knowledge and skills of students by incorporating perspectives from a variety of fields and disciplines (multi- or interdisciplinary) 5. focuses on deepening the knowledge and skills of students in the field of their regular study programme (disciplinary)	2.4	Disciplinary, interdisciplinary, multidisciplinary
6. provides a great deal of freedom to discover and explore my own field of interest	2.4	Content and subjects; including extent of freedom for students
	2.2	Freedom to discover and explore own fields of interest
7. focuses on the initiative and responsibility of the student	2.4	Content and subjects: including extent of freedom for students
	2.2	Freedom to take initiative and responsibility
	2.2	Student-centred approach
8. has little or no guidelines and obligatory requirements, i.e. a limited structure	2.4	Content and subjects: including extent of freedom for students
	2.2	Students are not restricted by guidelines or obligatory requirements
9. focuses on personal development of competences and skills	2.4	Intended learning outcomes and competences
	2.2	Focus on personal development: competences and skills
10. focuses on academic thinking 11. focuses on practical applications of knowledge	2.4	Intended learning outcomes and competences
	2.2	Focus on academic thinking, instead of only practical applications
12. has teachers that coach students, rather than teachers that supervise the entire learning experience, as is usually done in the regular curriculum	2.4	Feedback and assessment procedures
	2.2	Teachers to coach and facilitate

Note: Adapted from Table 2.2, Table 2.3, Table 2.4 and based on the author's own considerations about the operationalisation.

For the sixth till the twelfth statement, the educational demands of high-ability students are integrated with the differences between excellence programmes. Because there is too much variation and because these are too specific for the purpose of this study, the questionnaire statements do not address these detailed differences. Moreover, even though high-ability students indicate to value a 'balance between structure and freedom', this is not included in a questionnaire item. Both elements are already covered in separate statements to determine the extent of freedom or structure. Also, the answer to the question if there must be a balance between these is yes almost by definition.

3.4.3.4 Incentives for participation

The final heading in the identification of an ideal excellence programme is the incentives for participation. The operationalisation of these aspects into statements is presented in Table 3.7.

Table 3.7 Questionnaire items about incentives for participation

Statement	Table	Aspect of excellence programme
1. comes at no additional costs (no fee on top of the regular tuition fee)	2.4	Financial issues: additional tuition fees or scholarships
2. provides participants with extra ECTS 3. provides participants with a formal acknowledgement for the completion of the programme (e.g. a certificate or testimony on the diploma)	2.4	Rewards for the completion of the programme - extra ECTS - formal acknowledgement
4. allows me to – after completion – pursue more advanced educational alternatives (e.g. a master at the world’s best universities) 5. allows me to – after completion – acquire a better job position in the labour market (e.g. well-known company, highly ranked job position)	2.4	How the programme is evaluated by the field - higher education sector - labour market

Note: Adapted from Table 2.2, Table 2.3, Table 2.4 and based on the author’s own considerations about the operationalisation.

The first statement is formulated to inquire whether students are prepared to devote additional financial resources for participation in an excellence programme. The second element of the financial issues, scholarships, is not included in the questionnaire. If no extra costs are associated with participation in an excellence programme, as is the case with all excellence programmes at Dutch universities, asking about a scholarship makes no sense.

3.5 Data analysis

The data analysis is divided into three stages. First, descriptive statistics provide information about which characteristics the respondents ascribe to themselves in comparison to regular students and what they find their most important characteristics. Also, the open question is examined to check whether a crucial characteristic has been left out. A factor analysis technique, principal components analysis¹, is used to determine whether the data corresponds to the theoretically anticipated clusters ‘above-average ability’, ‘creativity’ and ‘task commitment’.² Furthermore, to see whether it makes sense to include all inquired items in the computation of the new variables identified by the principal components analysis, Cronbach’s

¹ Principal components analysis provides conclusions about which items/statements together form one component/cluster (Dell, 2015; Laerd, 2013c).

² The data is affirmed suitable for principal components analysis by the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett’s Test of Sphericity (Appendix 3.1) (IBM, n.d.).

- Kaiser-Meyer-Olkin Measure of Sampling Adequacy: indication of the proportion of variance in the items that might be caused by underlying factors (high values indicate factor analysis is useful, below 0.6 is unacceptable).

- Bartlett’s Test of Sphericity: test hypothesis on correlation matrix that items are unrelated (significance level less than 0.05 indicate that factor analysis is useful).

Alpha is used (De Heus, Van der Leeden, & Gazendam, 1992; UCLA, n.d.).³ Second, descriptive statistics provide insight into what aspects of excellence programmes high-ability students find most important. Third, descriptive statistics are used to determine whether there is a difference between the score the respondents attach to the characteristics of high-ability students in relation to their scores on ideal aspects of excellence programmes. On the one hand, the answers of respondents that view themselves as a high-ability are compared to the answers of respondents indicating to be similar to regular students. On the other hand, students manifesting high levels ‘above-average ability’, ‘creativity’ or ‘task commitment’ are compared to students scoring similar to regular students on these clusters.⁴ Whether the differences in means for the groups are statistically significant is tested by means of analysis of variance (ANOVA).⁵ The partial eta squared value⁶ is used to rank the items for which a statistical difference exists. Finally, an analysis of covariance (ANCOVA) is performed to statistically control for confounding variables adversely affecting the relationships.⁷ The following confounding variables are checked: gender, age and year of study.⁸ Even though ANCOVA is rather robust against the normality assumption, a Type I error⁹ may still occur, especially in case of small group sizes. Therefore, when a spurious relationship is discovered by means of ANCOVA, this will be checked by with the Kruskal-Wallis H Test (Laerd, 2013b).¹⁰ In case the Kruskal-Wallis H Test reveals a significant relationship, firstly the data

³ Cronbach’s Alpha is a reliability check to observe whether multiple items may together form one scale by assessing the correlation between the various items. For each cluster, internal consistency between the statements must be present ($\alpha > 0.7$ is considered acceptable). The inter-item correlation must be positive ($r > 0.3$ is considered acceptable) and it is checked whether Cronbach’s Alpha increases if one item is left out.

⁴ For this purpose, the variables ‘high-ability’, ‘above-average ability’, ‘creativity’ and ‘task commitment’ are recoded into the following: ≤ 3 low, medium, ≥ 5 high.

⁵ Variance analysis partitions the total variance in two components, one that is due to random error, i.e. within-group variability and the others that are due to differences between the means, i.e. between-group variability. The between-group variability is tested for statistical significance ($\alpha < 0.05$) (StatsDirect, 2015). If ANOVA provides a significant between-group variability, the null hypothesis of no differences between the means ($H_0: \mu_1 = \mu_2 = \mu_3$) can be rejected and the alternative hypothesis that the means are different ($H_a: \mu_1 \neq \mu_2 \neq \mu_3$) can be accepted. Additionally, an F-score of 1 indicates that the null hypothesis is accepted, whereas $F > 1$ implies the rejection of the null hypothesis. (Dell, 2015a; IBM, n.d.; Moore & McCabe, 2013).

⁶ Partial eta squared is an estimate of effect size. It describes the proportion of total variability attributable to an independent variable (Levine & Hullett, 2002).

⁷ Confounding variables are analysed to control for spurious relationships between the dependent and independent variable in order to ensure that a relationship between the confounding variable and the dependent variable is ruled out. Therefore, when this relationship is insignificant, the occurring differences must be attributed to the relationship between the independent and dependent variable (Laerd, 2013a).

⁸ In order to be checked as a confounding variable, the data must be quantitative in nature. This is not the case for university, study programme and name of excellence programme and therefore these are not controlled for as confounding variables. Furthermore, it should be noted that precaution is necessary for the ANCOVA test, because the confounding variables are skewed while these should ideally be normally distributed (Appendix 2).

⁹ Type I error: incorrect rejection of a true null hypothesis (Laerd, 2013a).

¹⁰ The Kruskal-Wallis H Test is a non-parametric test to determine whether differences between groups are statistically significant, but it does not require the assumption of normality (Laerd, 2013a). When the Kruskal-

is split in the categories of the confounding variable and secondly, descriptive statistics as well as ANOVA will be used to draw conclusions about how the confounding variable influences the relationship.

3.6 Strengths of the study

By selecting the Netherlands as a case for this thesis, a major strength of this study becomes apparent. It is evident that the Netherlands is – in Europe – a frontrunner in the field of excellence programmes and there is variation in the design of excellence programmes. Therefore, the results from the Netherlands are expected to be applicable to different settings and contexts. The conclusions can provide relevant suggestions for other European universities with the ambition to provide dedicated education for high-ability students.

Furthermore, an important advantage of direct measurement and the resulting primary data is that the data is specific to the problem under study. The questionnaire is tailored to obtain the data necessary for this thesis (Babbie, 2013). Therefore, the validity of the thesis is enhanced, because the statements (i.e. operationalisation) are designed to accurately reflect the concept it is intended to measure (Babbie, 2013). The chosen data collection method generates further advantages. First, a questionnaire is an appropriate method to describe the characteristics of a large population, since large samples are feasible due to its standardised format (Babbie, 2013). Second, a questionnaire is cost effective for large areas in comparison to other primary data collection methods, such as face-to-face interviews or focus groups. Third, the standardised setup is an important strength with regard to measurement, since this limits the researcher to “having to ask exactly the same questions of all subjects and having to impute the same intent to all respondents giving a particular response” (Babbie, 2013, p. 263). Therefore, interviewer bias is minimised and the provision of accurate answers is promoted. As a result, the usage of a questionnaire generates a high level of reliability (Babbie, 2013).

Moreover, the sample of universities to which the questionnaire is administered is not reduced, because the chosen research method allows the inclusion of a large sample. A sufficient number of students is approached to guarantee an adequate amount of respondents and thus representativeness for all universities in the Netherlands. A large sample is also

Wallis H Test is not significant ($\alpha > 0.05$), there is no influence of a confounding variable as there is not enough evidence to reject the null hypothesis.

favourable for the reliability of the study. With a large amount of respondents, sampling error is reduced because random error cancels out with large numbers (Babbie, 2013).

3.7 Limitations of the study

The set-up of this study results in multiple limitations. The disadvantage of the focus on the perceptions of students is threefold. First, the vision and opinion of these students are indirect observables, which cannot be observed simply and directly (Babbie, 2013). Therefore, the conclusions are based on subjective views instead of objectively measured variables. Second, excellence programmes do not uniformly select high-ability students from the pool of students, which include both high-ability and regular students (Scager, Akkerman, Keesen, et al., 2012). Not all high-ability students participate in excellence programmes and therefore the excellence programmes might be directed towards a subgroup of high-ability students. Third, by focusing on students only, the view presented in this thesis is one-sided. The perceptions of other actors are not considered, even though these might be valuable to provide a full picture on the topic, such as the view of the initiators and/or coordinators of the excellence programmes.

Primary data collection brings about disadvantages. An inherent problem of questionnaires is the loss of detailed information, which puts a strain on the validity of the data. Due to the standardised format, questionnaires cannot deal with the context of social life and the full spectrum of attitudes, orientations and experiences (Babbie, 2013). Another disadvantage is caused by the administration of the questionnaire via a third person. Consequently, the respondents are not randomly selected and it is impossible to calculate the response rate.

The Hawthorne effect might bias the results since individuals change their responses and behaviour due to their awareness of being tested (Achterberg, 2005). The act of asking questions on a certain issue may affect the answers of the respondent (Babbie, 2013). This is an inevitable consequence of the obtrusive data collection method (Stone-Romero, 2002).

Finally, the purposive case selection of this study potentially results in a limited generalisation from the studied Dutch universities to other European universities. The choice for the Netherlands as a case is not based on random selection from all European countries. The chosen research setting and sample implies the observation of a unique combination of actors, tasks, subjects and other features (Stone-Romero, 2002).

4. Empirical evidence

The data collected from the students participating in an excellence programme are presented in this chapter. First, the focus is on characteristics of the respondents. Second, the preferences of the students who view themselves as high-ability are discussed. Afterwards, results are presented regarding what type of high-ability student prefers what type of excellence programme.

4.1 Description of the sample

The 259 respondents are bachelor students at a Dutch university participating in an excellence programme. A majority of the respondents is female (69.5%) compared to male (30.5%) and most respondents are 20 or 21 years old (59.1%). From the 14 Dutch universities offering an excellence programme, students from 10 universities filled out the questionnaire. The majority is from the Radboud University Nijmegen (35.9%), Utrecht University (20.1%) or Tilburg University (12.4%). Most respondents study Psychology (49), followed by Medicine (25), Law (21), Biomedical Sciences (16), International Business Administration (11) or Economics and Business Economics (10). Furthermore, only 6.6% of the respondents is a first year student, whereas 45.9% is in the second year and 47.1% in the third year of their bachelor programme (Appendix 2).

4.2 Characteristics of high-ability students

A description of what characteristics the respondents ascribe to themselves is provided to determine which characteristics are regarded as most typical of high-ability students.

4.2.1 Characteristics of high-ability students

From the identified clusters¹¹, the respondents indicate to differ the most from regular student with regard to ‘task commitment’ ($m = 5.56$, $SD = 0.82$, $n = 259$) and ‘above-average ability’ ($m = 5.34$, $SD = 0.75$, $n = 259$). The respondents consider ‘creativity’ as the least differing aspect ($m = 4.93$, $SD = 0.84$, $n = 259$), although on average they view themselves to be more creative than regular students ($m = 4$: similar to regular students) (Table 4.1). As can be seen in Table 4.1, the top 5 most distinctive characteristics of high-ability students are distributed

¹¹Principal components analysis is performed to determine whether the twelve questionnaire statements about the characteristics the respondents ascribe to themselves can be taken together into the clusters ‘above-average ability’, ‘creativity’ and ‘task commitment’. According to the ‘Total Variance Explained’ (Appendix 3.1), three components have an eigenvalue above 1.0 and together they explain 57% of the variance, indicating that the twelve items can be categorised into three components. Furthermore, the ‘Rotated Component Matrix’ (Appendix 3.1) indicates which item/statement belongs to which component. As can be seen, the three components include the relevant statements as operationalised in the methodology section. Therefore, in line with the clusters identified the theoretical framework, the three components correspond to ‘above-average ability’, ‘creativity’ and ‘task commitment’.

across the clusters, which implies the equal importance of ‘above-average ability’, ‘creativity’ and ‘task commitment’ for being a high-ability student.

4.2.2 Above-average ability

According to the respondents, the biggest differences between themselves and regular students regarding ‘above-average ability’ are being [1] ‘more able to understand complex topics and a preference for difficult and challenging topics’ ($m = 5.46$, $SD = 0.93$, $n = 259$), [2] ‘better at thinking and reasoning in an analytical and critical way’ ($m = 5.45$, $SD = 0.94$, $n = 259$) and [3] ‘thinking and learning faster’ ($m = 5.41$, $SD = 1.07$, $n = 259$) (Table 4.1).¹²

Table 4.1 Descriptive statistics: characteristics of high-ability students

Cluster	Statement	M	SD
Above-average ability	Better at thinking and reasoning in an analytical and critical way	5.45	0.94
	More able to understand complex topics and preference difficult and challenging topics	5.46	0.93
	Think and learn faster	5.41	1.07
	Better at solving problems	5.05	0.98
		5.34	0.75
Creativity	More original, creative and inventive ideas and solutions	4.51	1.07
	More prepared to put aside structured methods and standard procedures (flexible approach)	4.76	1.13
	Prefer diversity in subjects and curiosity aroused by broader range of topics	5.53	1.20
		4.93	0.84
Task commitment	More willing to devote time and effort to subject to which fully committed	5.86	1.07
	More persistent in case of difficulties or setbacks	5.20	1.14
	Learning in itself motivates more and gives satisfaction	5.43	1.15
	More motivated to succeed in a course and get higher grade	5.78	1.13
	More ambitious regarding future post-education career	5.55	1.19
		5.56	0.82

Source: own data.

4.2.3 Creativity

Regarding ‘creativity’, the respondents indicated that high-ability students are best characterised as [1] curious, with a preference for diversity and a broad interest ($m = 5.53$, $SD = 1.20$, $n = 259$). To a lower extent, the respondents expressed to be [2] ‘more prepared to put aside structured methods and standard procedures’ ($m = 4.76$, $SD = 1.13$, $n = 259$) and to come up with [3] ‘more original, creative and inventive ideas and solutions’ ($m = 4.51$, $SD = 1.07$, $n = 259$) (Table 4.1).¹³

¹² To determine whether the four statements concerning ‘above-average ability’ indeed constitute one variable, a reliability check is executed by means of Cronbach’s Alpha. A Cronbach’s Alpha of 0.76 suggests that the items have a high internal consistency. Moreover, the inter-item correlation between the four statements is sufficient ($r > 0.36$). Also, the Cronbach’s Alpha if item deleted shows lower numbers than the total Cronbach’s Alpha, thus it makes no sense to delete an item from the scale (see Appendix 3.2)

¹³ Cronbach’s Alpha for the statements about creativity is 0.59, which is lower than the acceptable reliability coefficient identified in the methodology section. Nevertheless, for a smaller number of statements, this number should be interpreted less strictly. Moreover, the inter-item correlations are sufficiently high ($r > 0.31$) and Cronbach’s Alpha only decreases when one of the items is deleted (see Appendix 3.3). Therefore, the three statements sufficiently measure the underlying concept and all items are included in the computation of the variable ‘creativity’.

4.2.4 Task commitment

The cluster ‘task commitment’ includes the most important characteristics of high-ability students according to the respondents. From all statements, the most important difference is that high-ability students are [1] ‘more willing to devote time and effort to a subject to which they are fully committed’ ($m = 5.86$, $SD = 1.07$, $n = 259$), followed by that they are [2] ‘more motivated to succeed in a course and get a higher grade’ ($m = 5.78$, $SD = 1.13$, $n = 259$) and that they are [3] ‘more ambitious regarding their future post-education career’ ($m = 5.55$, $SD = 1.19$, $n = 259$). High-ability students on average demonstrate more extrinsic motivation than intrinsic motivation, since they attach a lower score to [4] ‘learning in itself motivates more and gives satisfaction’ ($m = 5.43$, $SD = 1.15$, $n = 259$). Furthermore, the respondents also indicate to differ relatively much from regular students in being [5] ‘more persistent in case of difficulties or setbacks’ ($m = 5.20$, $SD = 1.14$, $n = 259$) (Table 4.1).¹⁴

4.2.5 Open question

To the question whether a typical characteristic of high-ability students was not included in the statements, 137 out of 259 respondents explicitly stated that everything was included or implicitly indicated this by not answering the open question. The remaining respondents argued that high-ability students are more inquisitive, enthusiastic, dedicated, disciplined, competitive, independent, perfectionist/precise and assertive/self-confident than regular students. The drive to improve yourself, getting the best out of yourself, personal development, intellectual growth and seeing studying as a passion are also typical characteristics. Furthermore, respondents stated that high-ability students know what they want to achieve, work hard to get there and aim to distinguish themselves from other students. Discussing and thinking about complex topics and philosophical questions is also seen as typical for high-ability students as well as that these students take nothing for granted and question everything. Moreover, the typical high-ability student shows initiative and an active attitude, has interests besides studying i.e. extracurricular activities, is good at planning and time management and has social skills (Appendix 4).

4.3 Ideal-type of excellence programme for high-ability students

What aspects an ideal excellence programme should have according to high-ability students is described to provide information about their priorities and preferences in the design of excellence programmes. Also, aspects of excellence programmes on which the high-ability

¹⁴ The Cronbach’s Alpha for the five statements under ‘task commitment’ is 0.78, which signals a high internal consistency. Also, the inter-item correlations are sufficiently high ($r > 0.33$) and it makes no sense to delete a statement since the Cronbach’s Alpha only decreases if an item is deleted (see Appendix 3.4).

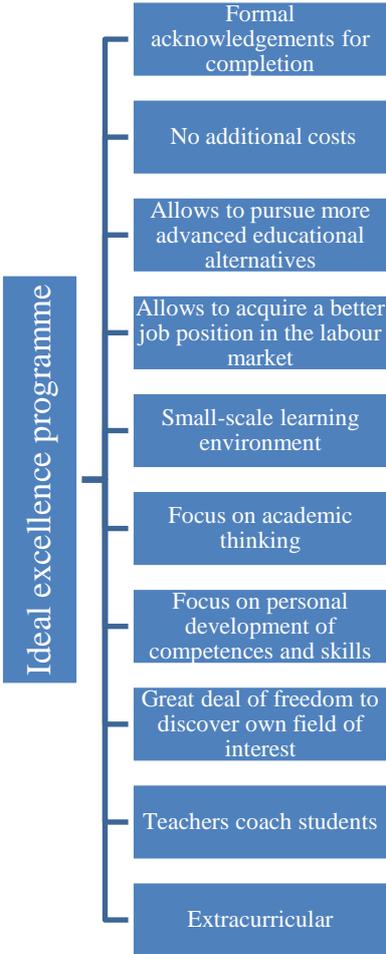
students remain inconclusive are discussed. Moreover, respondents ascribing to themselves the characteristics of high-ability are compared to respondents who view themselves as similar to regular students. The significant differences resulting from this comparison are used to draw conclusions on how to specifically direct an excellence programme towards high-ability students.

4.3.1 Top 10 most important aspects of an excellence programme

According to high-ability students, the top 10 most important aspects of an excellence programme predominantly include the incentives for participation. An excellence programme should provide the participants first and foremost with a [1] ‘formal acknowledgement for completion, e.g. a certificate or testimony on the diploma’ ($m = 6.66$, $SD = 0.70$, $n = 180$). Moreover, high-ability students are [2] not prepared to pay additional tuition fees for participation in an excellence programme ($m = 6.49$, $SD = 1.15$, $n = 180$). Moreover, due to their extrinsic motivation (Table 2.1), the opportunities associated with the completion of an excellence programme are appreciated. The high-ability students indicate that an ideal excellence programme [3] ‘allows to pursue more advanced educational alternatives such as a master at the world’s best universities’ ($m = 6.19$, $SD = 1.01$, $n = 180$) and that it [4] ‘allows to acquire a better position in the labour market with regards to a well-known company or a highly ranked job position’ ($m = 6.13$, $SD = 1.17$, $n = 180$). The fifth most important aspect regards the programme organisation via a [5] ‘small-scale learning environment, with a limited amount of students and close and personal student-student and student-teacher relationships’ ($m = 6.07$, $SD = 1.00$, $n = 180$). Furthermore, in line with the literature discussed in the theoretical section, the ideal excellence programme for high-ability students [6] ‘focuses on academic thinking ($m = 5.92$, $SD = 1.11$, $n = 180$). These students have to ability to think abstractly instead of concentrating on practical applications of knowledge only. Additionally, in accordance with the educational demands discussed in the theoretical section (Table 2.2), their ideal excellence programme concentrates on [7] their ‘personal development of competences and skills ($m = 5.87$, $SD = 1.13$, $n = 180$). As mentioned above, the respondents correspondingly indicated that typical characteristics of high-ability students include ‘the drive to improve yourself’, ‘getting the best out of yourself’, ‘personal development’ and ‘intellectual growth’ (Appendix 4). The eighth most important aspect according to high-ability students is that the excellence programme [8] ‘provides a great deal of freedom to discover and explore their own field of interest’ ($m = 5.86$, $SD = 1.11$, $n = 180$). In this light, it is important that high-ability students have the autonomy to pursue a subject that appeals to their individual interests (Table 2.2). Also, high-ability students want [9]

‘teachers who coach students, not supervise the entire learning experience’ (m = 5.84, SD = 1.09, n = 180). These preferences can be linked to these students’ ‘ability to think and reason in an analytical and critical way’, their ‘preference for complexity and challenge’ and their ‘ability to guide their own thinking’ (Table 2.1). Finally, an ideal excellence programme is [10] ‘extracurricular, not (partially) intracurricular’ according to high-ability students (m = 5.76, SD = 1.36, n = 180) (Figure 4.1, Table 4.2). These students thus want additional educational opportunities on top of their regular study programme.

Figure 4.1: Aspects of an ideal excellence programme according to high-ability students



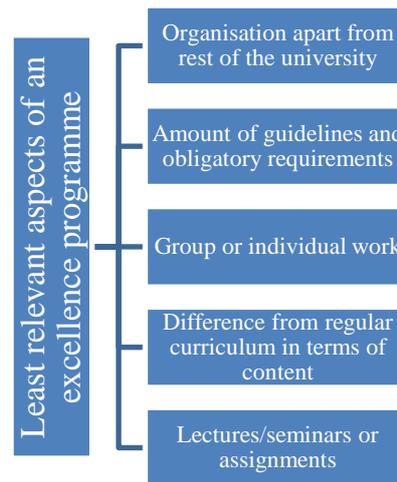
Source: own data.

4.3.2 Top 5 least relevant aspects of an excellence programme

High-ability students are on average neutral about the issue whether their excellence programme is [1] ‘organised apart from the regular study programme at the university, e.g. separate faculty, other location’ (m = 4.02, SD = 1.73, n = 180), whether there are [2] ‘little or no guidelines and obligatory requirements’ (m = 4.02, SD = 1.71, n = 179) and to what extent their ideal excellence programme contains [3] a ‘great deal of group work as opposed to individual work’ (m = 4.13, SD = 1.56, n = 180). Furthermore, an ideal excellence

programme is not per se [4] ‘totally different from the regular programme in terms of content’ (m = 4.23, SD = 1.71, n = 180). Also, there is no indication for an explicit preference for [5] ‘lectures and seminars as the primary educational method as opposed to assignments’ (m = 4.42, SD = 1.51, n = 180). As indicated by the relatively high standard deviations for these five items, whereas some high-ability students indicated to (strongly) agree on these aspects, others stated the opposite (Figure 4.2, Table 4.2).

Figure 4.2: Least relevant aspects of an excellence programme according to high-ability students



Source: own data.

Table 4.2 Descriptive statistics: aspects of excellence programmes for high-ability students

Category	Statement	Mean	SD
Student composition	Only well-performing students (high grades)	5.04	1.62
	Highly selective and exclusive (only best x% students invited)	4.92	1.67
	Creation of a close community through active participation and student-student interaction	5.44	1.39
Programme organisation	Small-scale learning environment (limited amount students + close and personal relationships)	6.07	1.00
	Great deal of group work as opposed to individual work	4.13	1.56
	Lectures and seminars as the primary educational method as opposed to assignments	4.42	1.51
	During the full bachelor phase, instead of in a limited period	5.31	1.59
	Organised apart from the regular study programmes at the university	4.02	1.73
	Extracurricular, not (partially) intracurricular	5.76	1.36
Programme content	Totally different from the regular programme in terms of content	4.23	1.71
	Challenging and demanding content: subjects are difficult	5.53	1.02
	Requires students to devote a substantial amount of time and effort	4.96	1.19
	Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	5.50	1.53
	Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	5.46	1.49
	Great deal of freedom to discover and explore own field of interest	5.86	1.11
	Focuses on the initiative and responsibility of the student	5.53	1.16
	Little or no guidelines and obligatory requirements (limited structure)	4.02	1.71
	Focuses on personal development of competences and skills	5.87	1.13
	Focuses on academic thinking	5.92	1.11
	Focuses on practical applications of knowledge	5.48	1.31
Teachers coach students, not supervise the entire learning experience	5.84	1.09	
Incentives for participation	No additional costs (no fee on top of the regular tuition fee)	6.49	1.15
	Provides participants with extra ECTS	5.66	1.58
	Provides participants with formal acknowledgement for completion	6.66	0.70
	Allows to pursue more advanced educational alternatives	6.19	1.01
	Allows to acquire a better job position in the labour market	6.13	1.17

Source: own data.

Students scoring high on ‘above-average ability’, ‘creativity’ or ‘task commitment’ indicators express the same preferences as described above, i.e. these specific types of high-ability students show the highest/lowest means for the same aspects (Appendix 5).

4.3.3 An excellence programme directed towards high-ability students

In comparison to students indicating to be similar to regular students, students ascribing to themselves the characteristics of high-ability have distinct preferences. The aspects of excellence programmes on which these high-ability students indicate a significant higher score are relevant in the design of an excellence programme directed towards high-ability students.

When asked what type of students should participate in their ideal excellence programme, high-ability students indicate that it must be [1] ‘highly selective and exclusive’ ($F(1, 259) = 10.92, p = .001$). In line with this, they prefer [2] a ‘small-scale learning environment’ ($F(1, 259) = 5.33, p = .022$) in which the number of participating students is limited and both the student-student as well as the student-teacher relationships are close and personal (Table 4.3, Figure 4.3).

Table 4.3 ANOVA: high-ability students

	Ideal excellence programme	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
High-ability students	Highly selective and exclusive	27.446	1	27.446	10.915	0.001	0.041
	Small-scale learning environment	5.180	1	5.180	5.333	0.022	0.020
	During the full bachelor phase, instead of in a limited period	17.139	1	17.139	6.662	0.010	0.025
	Challenging and demanding content: subjects are difficult	11.208	1	11.208	10.978	0.001	0.041
	Requires students to devote a substantial amount of time and effort	7.140	1	7.140	5.293	0.022	0.020
	Great deal of freedom to discover and explore my own field of interest	7.190	1	7.190	6.000	0.015	0.023
	Focuses on personal development of competences and skills	7.350	1	7.350	6.137	0.014	0.023
	Focuses on academic thinking	5.683	1	5.683	5.093	0.025	0.019
	Provides participants with formal acknowledgement for completion	3.106	1	3.106	5.626	0.018	0.021
	Allows to pursue more advanced educational alternatives	17.753	1	17.753	16.401	0.000	0.060
	Allows to acquire a better position in the labour market	5.990	1	5.990	4.626	0.032	0.018

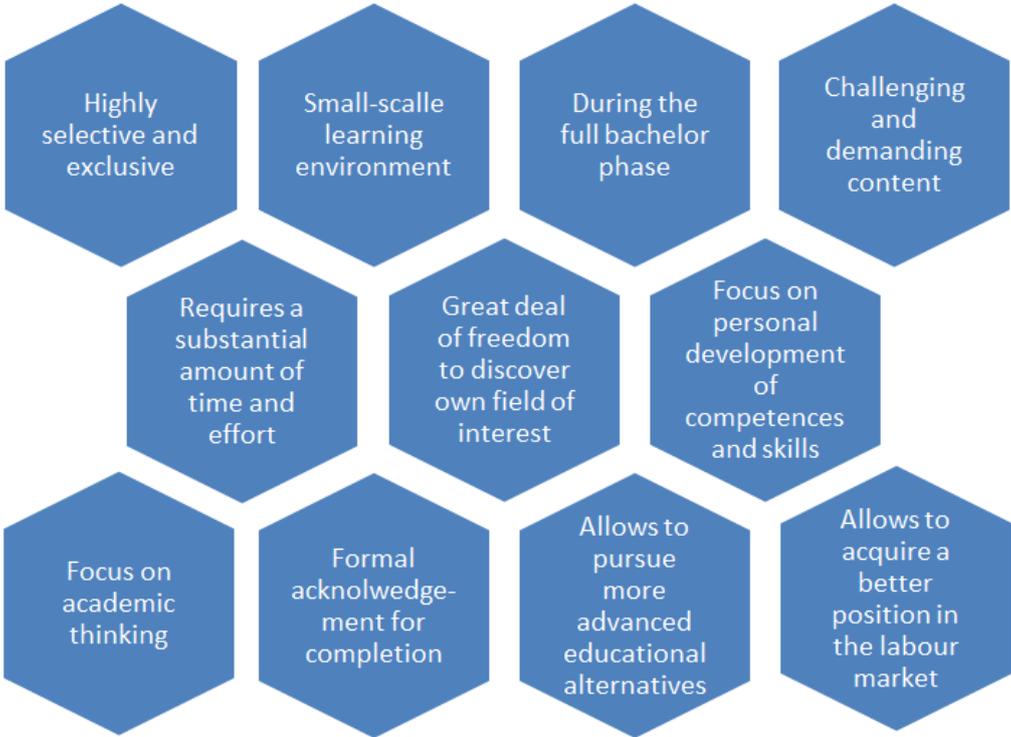
Source: own data.

Furthermore, high-ability students differ from regular students regarding the ideal length of an excellence programme. High-ability students indicate that an excellence programme should be offered [3] ‘during the full bachelor phase’ ($F(1, 259) = 6.66, p = .010$) (Table 4.3, Figure 4.3). Consequently, these students express a demand for dedicated education throughout their

entire study period, instead of only a limited period of time. This implies that their regular curriculum does not sufficiently address their educational needs.

With regards to the programme content, in contrast to regular students, high-ability students give priority to challenges, difficulty and complexity. In line with the literature discussed in the theoretical framework (Table 2.2), dedicated programmes for high-ability students preferably have [4] a ‘challenging and demanding content, i.e. subjects are challenging’ (F (1, 259) = 10.98, p = .001) and [5] ‘require students to devote a substantial amount of time and effort’ (F (1, 259) = 5.29, p = .022). The ‘above-average abilities’ of high-ability students provide them the capacity to deal with difficult matter and, due to their ‘task commitment’, they are willing to fully engage in a challenging subject. Moreover, in line with the educational demands of high-ability students identified in the theoretical framework (Table 2.2), an excellence programme ideally includes [6] a ‘great deal of freedom to discover and explore their own field of interest’ (F (1, 259) = 6.00, p = .015) (Table 4.3, Figure 4.3). These students value the autonomy to engage in a subject that appeals to their individual interests.

Figure 4.3: Aspects of an excellence programme directed towards high-ability students



Source: own data.

As mentioned above, high-ability students differ from regular students in that they value [7] a ‘focus on personal development of competences and skills’ (F (1, 259) = 6.14, p = .014) and they furthermore confirm a preference for [8] a ‘focus on academic thinking’ (F (1, 259) = 5.09, p = .025) (Table 4.3, Figure 4.3).

Moreover, as discussed above, high-ability students first and foremost want [9] a ‘formal acknowledgement for completion of the excellence programme’ ($F(1, 259) = 5.63, p = .018$). According to these students, completion of the programme ideally results in opportunities in terms of [10] ‘more advanced educational alternatives’ ($F(1, 259) = 16.40, p = .000$) and [11] ‘a better position in the labour market’ ($F(1, 259) = 4.63, p = .032$) (Table 4.3, Figure 4.3).

4.4 What type of high-ability student matches what type of excellence programme?

A better comprehension of the interaction between high-ability students’ intellectual, creative and motivational competences on the one hand, and the learning environment and teaching methods on the other hand, could drive appropriate differentiated education for high-ability students (Scager, Akkerman, Keesen, et al., 2012). Students having different degrees of ‘above-average ability’, ‘creativity’ or ‘task commitment’ may have different views on the ideal design of an excellence programme. Therefore, students indicating high scores on a specific cluster are compared to students who view themselves as similar to regular students in terms of that cluster. The aspects of excellence programmes on which these types of high-ability students indicate a significant higher score are discussed in this section. Knowing to what extent students displaying particular manifestations of high-ability have a preference for particular types of excellence programmes can provide suggestions for the design of excellence programmes.

4.4.1 Above-average ability

Compared to students indicating to possess similar abilities to regular students, students who score high on ‘above-average ability’ indicators have distinct preferences. First, ‘above-average ability’ students’ ideal excellence programme is [1] ‘highly selective and exclusive’ ($F(1, 258) = 17.21, p = 0.000$) and secondly, in line with this, it [2] ‘includes only well-performing students’ ($F(1, 258) = 7.11, p = .008$) (Table 4.4, Figure 4.4). Thus, by allowing only the best x% of students to participate, excellence programmes designed specifically for ‘above-average ability’ students should include like-minded peers only.

With regard to the programme organisation, the students scoring high on ‘above-average ability’ indicators appreciate [3] a ‘small-scale learning environment, i.e. the amount of students is limited and the student-student and student-teacher relationships are close and personal’ ($F(1, 258) = 4.93, p = .027$). Furthermore, this learning environment should be [4] ‘organised apart from the regular study programmes at the university’ ($F(1, 258) = 5.61, p$

=.019) (Table 4.4, Figure 4.4). Therefore, ‘above-average ability’ students prefer a highly selective, small-scale learning environment at a separate location or organised by a separate faculty. This implies that these students wish to be segregated from regular students in their education and instead be surrounded by like-minded peers.

Table 4.4 ANOVA: above-average ability

	Ideal excellence programme	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Above-average ability	Highly selective and exclusive	42.263	1	42.263	17.214	.000	.063
	Only well-performing students	16.623	1	16.623	7.105	.008	.027
	Small-scale learning environment	4.744	1	4.744	4.933	.027	.019
	Organised apart from the regular study programmes at the university	15.728	1	15.728	5.606	.019	.021
	Challenging and demanding content: subjects are difficult	6.033	1	6.033	6.032	.015	.023
	Allows to pursue more advanced educational alternatives	4.760	1	4.760	4.244	.040	.016

Source: own data.

Furthermore, compared to students with similar abilities to regular students, high-ability students want a programme that is [5] ‘challenging and demanding in content’ ($F(1, 258) = 6.03, p = .015$) (Table 4.4, Figure 4.4). The appreciation of difficult subjects makes sense, since it addresses the ‘above-average abilities’ of these students, namely their ‘ability to think and reason in an analytical and critical way’ and their ‘preference for complexity and challenge’ (Table 2.1). Therefore, an excellence programme directed towards ‘above-average ability’ students should be demanding in content.

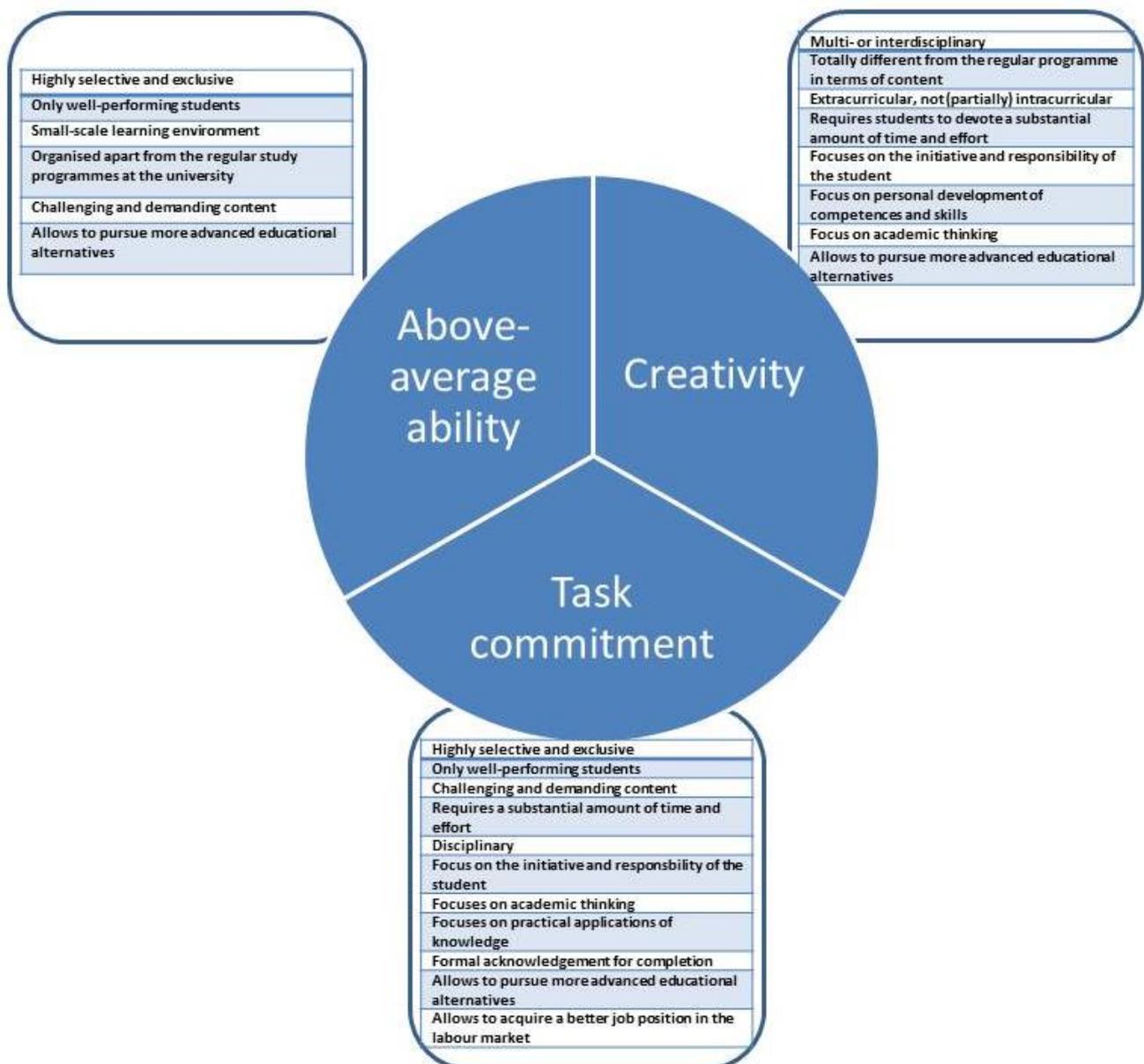
Finally, according to students scoring high on ‘above-average ability’ indicators, the completion of an excellence programme preferably results in the opportunity [6] ‘to pursue more advanced educational alternatives’ ($F(1, 258) = 4.24, p = .040$) (Table 4.4, Figure 4.4). That these students appreciate this aspect can be explained by their general intelligence, since this provides them with the capabilities to follow for example a selective master at the world’s best universities.

4.4.2 Creativity

Students expressing high scores on ‘creativity’ indicators have significantly different preferences in comparison to students indicating to be similar to regular students in terms of ‘creativity’. An excellence programme aimed at students manifesting a high level of ‘creativity’ should be [1] multi- or interdisciplinary so that it ‘focuses on broadening the knowledge and skills of students by incorporating perspectives from a variety of fields and disciplines’ ($F(1, 253) = 7.40, p = .007$). In line with this, these students prefer a programme that is [2] ‘totally different from the regular programme in terms of content’ ($F(1, 254) =$

6.09, $p = .014$). Accordingly, they value [3] an ‘extracurricular programme’ that does not fully or partially replace courses from the regular curriculum ($F(1, 254) = 3.93, p = .049$) (Table 4.5, Figure 4.4). Therefore, excellence programmes targeting ‘creative’ students should fulfil their broad interest and need for diversity (Table 2.1) by addressing a variety of disciplines and thus being extracurricular and totally different from the regular curriculum.

Figure 4.4: Aspects of an excellence programme directed towards different types of high-ability students



Source: own data.

Furthermore, in comparison with students indicating similar levels of ‘creativity’ as regular students, students manifesting a high level of ‘creativity’ appreciate an excellence programme that [4] ‘requires students to devote a substantial amount of time and effort’ ($F(1, 254) = 3.95, p = .048$). These students want the participants to be committed, which should ideally result from their own [5] ‘initiative and responsibility’ ($F(1, 254) = 4.64, p = .032$) (Table

4.5, Figure 4.4). Therefore, excellence programme directed towards this type of high-ability student should follow a student-centred approach in which the freedom to take initiative and responsibility is embedded. Moreover, students scoring high on ‘creativity’ indicators value an excellence programme that [6] ‘focuses on personal development of competences and skills’ ($F(1, 254) = 11.11, p = .001$). Also, the ideal content for these students [7] ‘focuses on academic thinking’ ($F(1, 254) = 6.71, p = .010$) (Table 4.5, Figure 4.4).

Similar to the ‘above-average ability’ students, the incentive for participation in excellence programmes on which students manifesting a high level of ‘creativity’ significantly differ from regular students in terms of ‘creativity’ is the opportunity associated with completion to [8] follow ‘a more advanced educational alternative’ ($F(1, 254) = 5.03, p = .026$) (Table 4.5, Figure 4.4).

Students scoring high on ‘creativity’ indicators express no significant preferences regarding the student composition of an excellence programme.

Table 4.5 ANOVA: creativity

	Ideal excellence programme	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Creativity	Multi- or interdisciplinary	15.771	1	15.771	7.395	.007	.029
	Totally different from the regular programme in terms of content	16.367	1	16.367	6.093	.014	.024
	Extracurricular, not (partially) intracurricular	7.011	1	7.011	3.928	.049	.015
	Requires students to devote a substantial amount of time and effort	5.369	1	5.369	3.952	.048	.015
	Focuses on the initiative and responsibility of the student	5.842	1	5.842	4.637	.032	.018
	Focus on personal development of competences and skills	13.066	1	13.066	11.112	.001	.042
	Focus on academic thinking	7.405	1	7.405	6.706	.010	.026
	Allows to pursue more advanced educational alternatives	5.629	1	5.629	5.025	.026	.020

Source: own data.

4.4.3 Task commitment

Students manifesting a high level of ‘task commitment’ have distinct preferences in comparison with students indicating to be similar to regular students on ‘task commitment’ indicators. Similarly to ‘above-average ability’ students, there is a difference in that these students want an excellence programme that is [1] ‘highly selective and exclusive, i.e. only the best x% of students’ participate ($F(1, 258) = 25.04, p = .000$). In accordance, it preferably [2] ‘includes only well-performing students’ ($F(1, 258) = 14.23, p = .000$) (Table 4.6, Figure 4.4). Therefore, excellence programmes directed towards students manifesting high levels of ‘task commitment’ should consist of similar students only. When other students without this

character trait also participate, the motivated and committed students are potentially restrained in their achievement.

Also with regard to the programme contents, these students show identical preferences to ‘above-average ability’ students. In contrast to students scoring similar to regular students on ‘task commitment’ indicators, their ideal excellence programme has [3] a ‘challenging and demanding content’ ($F(1, 258) = 9.63, p = .002$) and accordingly, students indicating a high level of ‘task commitment’ prefer that the programme [4] ‘requires a substantial amount of time and effort’ ($F(1, 258) = 5.44, p = .020$). ‘Task commitment’ is necessary in this respect, because a more demanding education requires the student to be motivated and committed (Table 2.1). Furthermore, these students are able to fully engage in a subject (Table 2.1) and accordingly value [5] a disciplinary programme that ‘focuses on deepening the knowledge and skills of students in the field of their regular study programme’ ($F(1, 258) = 6.29, p = .013$). Moreover, similar to ‘creative’ students, a student-centred approach with [6] a ‘focus on the initiative and responsibility of the student’ is favoured by students manifesting a high degree of ‘task commitment’ ($F(1, 258) = 4.03, p = .046$) Table 4.6, Figure 4.4).

Table 4.6 ANOVA: task commitment

	Ideal excellence programme	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Task commitment	Highly selective and exclusive	59.374	1	59.374	25.042	.000	.089
	Only well-performing students	32.413	1	32.413	14.228	.000	.053
	Challenging and demanding content: subjects are difficult	9.821	1	9.821	9.626	.002	.036
	Requires students to devote a substantial amount of time and effort	7.337	1	7.337	5.442	.020	.021
	Disciplinary	12.933	1	12.933	6.293	.013	.024
	Focuses on the initiative and responsibility of the student	5.241	1	5.241	4.029	.046	.015
	Focuses on academic thinking	6.976	1	6.976	6.286	.013	.024
	Focuses on practical applications of knowledge	10.480	1	10.480	6.759	.010	.026
	Provides participants with formal acknowledgement for completion	2.287	1	2.287	4.109	.044	.016
	Allows to pursue more advanced educational alternatives	20.828	1	20.828	19.450	.000	.071
	Allows to acquire a better job position in the labour market	7.052	1	7.052	5.457	.020	.021

Source: own data.

In addition, these students’ desire to learn and their ability to fully engage in a subject (Table 2.1) should be facilitated by focusing simultaneously on [7] ‘academic thinking’ ($F(1, 258) = 6.29, p = .013$) as well as [8] ‘practical applications of knowledge’ ($F(1, 258) = 6.76, p = .010$) (Table 4.6, Figure 4.4). By addressing both types of knowledge, a specific field can be covered to a great extent and therefore addressing these students’ demand for immersing fully in a topic.

In terms of the incentives for participation, compared to students with regular levels of ‘task commitment’, students scoring high on ‘task commitment’ indicators find it important that an excellence programme provides them with [9] a ‘formal acknowledgement for completion, such as a certificate or a testimony on the diploma’ ($F(1, 258) = 4.11, p = .044$). Moreover, ambition and extrinsic motivation are important for these students (Table 2.1). Firstly, in terms of academic achievement as an extrinsic motivation, the completion of an excellence programme ideally [10] ‘allows them to pursue more advanced educational alternatives’ ($F(1, 258) = 19.45, p = .000$). Secondly, albeit to a lesser extent, these students attach importance to their post-education career and thus an excellence programme ideally results in the opportunity [11] ‘to acquire a better position in the labour market’ ($F(1, 258) = 5.46, p = .020$) (Table 4.6, Figure 4.4).

4.4.4 Third variables

From the significant preferences of different types of high-ability students discussed above, 7 aspects suffer from the influence of a confounding variable, namely gender.¹⁵ The other tested confounding variables, namely age and year of study, have no significant influence on any preference described above (Appendix 6).

¹⁵ The ANCOVA and the Kruskal-Wallis H Test showed enough evidence ($\alpha < 0.05$) to reject the null hypothesis that the distribution of the following dependent variables is the same across the categories of gender:

- High-ability – Focus on academic thinking
Female high-ability students indicate a significant preference for a focus on academic thinking, while male high-ability students do not.
- High-ability – Allows to acquire a better job position in the labour market
Female respondents attach a higher score to whether an ideal excellence programme should result in the opportunity to acquire a better job position in the labour market than male respondents.
- Creativity – Focuses on academic thinking
Female students manifesting a high level of ‘creativity’ indicate a significant preference for a focus on academic thinking, while male students indicating a high level of ‘creativity’ do not.
- Task commitment – Challenging and demanding content: subjects are difficult
Both male and female students manifesting a high level of ‘task commitment’ indicate a significant preference for a challenging and demanding content. Nevertheless, as expressed by a higher mean, the male students attach more importance to this aspect than the female students.
- Task commitment – Focuses on academic thinking
Female students scoring high on ‘task commitment’ indicators express a significant preference for a focus on academic thinking, while male students manifesting a high level of ‘task commitment’ do not.
- Task commitment – Focuses on practical applications of knowledge
Female students scoring high on ‘task commitment’ indicators express a significant preference for a focus on practical applications of knowledge, while male students manifesting a high level of ‘task commitment’ do not.
- Task commitment – Allows to acquire a better job position in the labour market
Female students manifesting a high level of ‘task commitment’ indicate a significant preference for an excellence programme that - after completion - allows them to acquire a better position in the labour market, while male students indicating a high degree of ‘task commitment’ do not.

5. Conclusion and discussion

At the individual level, high-ability students should be challenged in their education to prevent boredom, a loss of motivation and underachievement. At the societal level, these students are believed to be essential for the EU member states to retain a competitive edge in the world of knowledge-based economies and to stimulate growth. Despite its importance, the provision of dedicated education for high-ability students in the European member states is still in its infancy. A better understanding of firstly, the educational demands of high-ability students and secondly, the interaction between high-ability students' intellectual, creative and motivational characteristics and the educational methods can provide guidelines to other European universities that have the ambition to introduce excellence programmes. Therefore, the following research question is posed: *To what extent do different types of high-ability students participating in excellence programmes at Dutch universities prefer particular types of excellence programmes?*

An analysis of the general priorities and preferences of high-ability students in terms of the design of an excellence programme reveals what aspects an ideal excellence programme should have according to them. Moreover, the analysis reveals to what extent students manifesting a high degree of 'above-average ability', 'creativity' or 'task commitment' have different ideal types of excellence programmes.

The ideal excellence programme for high-ability students and especially students manifesting high levels of 'above-average ability' and 'task commitment' is highly selective and exclusive and thus only includes well-performing students. These students thrive in the presence of like-minded peers, since these have similar intellectual capabilities and/or levels of motivation. Additionally, high ability students and students scoring high on 'above-average ability' indicators in particular find it important that the excellence programme is organised in a small-scale learning environment with a limited amount of students and close student-student and student-teacher relationships. In line with this, the students manifesting a high level of 'above-average ability' indicate that their ideal excellence programme is organised apart from the rest of the regular study programmes at the university. This implies that these students wish to be separate from regular student and instead be surrounded by like-minded peers only. Moreover, even though excellence programmes make use of an array of different educational methods, no preferences were expressed. High-ability students are neutral whether their excellence programme makes use of lectures and seminars instead of assignments or whether

it concentrates on groups work as opposed to individual work. Furthermore, in contrast to regular students, high-ability students prefer a programme that is offered during the full bachelor phase. This implies that the educational demands of these students are not satisfied by the regular curriculum. Moreover, high-ability students' ideal excellence programme is extracurricular instead of (partially) replacing courses from the regular curriculum. These students want to do something in addition to their regular study programme.

As identified in the theory, in contrast to regular students, high-ability students ideally want that the content of dedicated education is challenging and demanding. This is especially important for programmes directed at two types of students; 'above-average ability' is essential to deal with complex issues and 'task commitment' is necessary because the challenge associated with more difficult subjects requires the student to be motivated and committed. Accordingly, high-ability students also find it more important than regular students that an excellence programme requires a substantial amount of time and effort. In particular 'creative' students and students manifesting a high level on 'task commitment' prefer a programme that is demanding in time and effort.

On the one hand, a disciplinary excellence programme is ideal for students scoring high on 'task commitment' indicators. These students are able to fully engage in a subject, and a programme that focuses on deepening the knowledge and skills in the field of their regular study programme provides them the opportunity to do so. On the other hand, when targeting 'creative' students, the design of the programme should be multi- or interdisciplinary, i.e. it should focus on broadening the perspectives of students by incorporating a variety of fields and disciplines. Accordingly, only these students indicate a preference for an extracurricular programme with a totally different content than the regular curriculum, due to their wide interest and desire to broaden their knowledge.

In line with the literature on the subject, high-ability students' ideal excellence programme provides a great deal of freedom to discover and explore an individual field of interest. Programmes directed towards 'creative' and 'task committed' students should specifically follow a student-centred approach and concentrate on the initiative and responsibility of the student. Nevertheless, high-ability students remain inconclusive whether their ideal excellence programme has little or no guidelines and obligatory requirements. Moreover, a focus on personal development of competences and skills is valued by high-ability students,

especially by students manifesting a high level of ‘creativity’. In line with other literature, claims that excellence programmes should focus on academic thinking instead of only practical applications are confirmed, although the latter is also appreciated. ‘Creative’ students ideally concentrate on academic thinking, whereas ‘task committed’ students fulfil their desire to learn by engaging in both types of knowledge. Finally, teachers preferably coach and facilitate the high-ability students, instead of supervising their entire learning experience. These students are able to independently take care of their learning process, because they are able to guide their own thinking.

An excellence programme is ideally offered at no additional costs, since high-ability students express that they are not prepared to pay an extra fee for participation. These students most importantly want to be rewarded for the completion of the excellence programme, preferably with a formal acknowledgement such as a certificate or testimony on the diploma. For each type of high-ability student, this constitutes the most important incentive for participation. Finally, the completion of an excellence programme should firstly provide the high-ability students the opportunity to pursue more advanced educational alternatives. Participation in an excellence programmes aimed at each type of high-ability student should result in the possibility to for example follow a master at the world’s best universities. Secondly, completion of an excellence programme should also ideally result in the opportunity for participating students to acquire a better position in the labour market. Excellence programmes directed towards students scoring high on ‘task commitment’ indicators should concentrate on both opportunities to address the high levels of ambition and extrinsic motivation, although academic achievement is more important to them than their post-education career.

Summarising, this study has discovered that whereas high-ability students in general have specific preferences regarding the design of an excellence programme, different types of high-ability students highlight various aspects to be ideal for them. To further expand the body of knowledge regarding excellence in higher education, it would be of interest to include responses of students from excellence programmes in other EU countries. Cross-national differences might become apparent, which could turn out relevant in the dissemination of best practices in the EU. Furthermore, by including students from liberal arts and sciences colleges and students participating in excellence programmes at universities of applied sciences in the sample, more particular recommendations can be made for designing excellence programmes

directed towards these high-ability students. Moreover, by including the characteristics listed in the open question, advice can be formulated on how to make excellence programmes suitable for the students displaying those characteristics. Finally, repeating this study with a larger sample could shed further light on the impact of the confounding variable ‘gender’ and how this influences the preferences of high-ability students.

The literature on excellence programmes in higher education is scarce and much is still unclear about how to design dedicated education for high-ability students. Therefore, this study has contributed to the understanding of how the developers of excellence programmes can target high-ability students by focusing on the aspects indicated to be ideal by them, whereas they can also deliberately choose to direct their excellence programme towards a specific sub-type of high-ability student. These results are especially relevant for higher education institutions in the EU, since the implementation of excellence programmes has just started in most member states.

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Appendix 1: Questionnaire on Excellence in Higher Education

Thank you for participating in this study on the match between excellence (or honours) education and the students participating in excellence programmes. This questionnaire will only take around 10 minutes to complete. Be assured that all answers you provide will be treated anonymously and will be kept confidential.

This questionnaire will proceed as follows: First, you are asked to answer some background questions. Next, we focus on distinct characteristics you ascribe to yourself compared to students in your study programme that do not qualify for participation in excellence/honours education (e.g. due to their grades and/or motivation). These students are indicated as ‘regular students’. Finally, you are asked to list the characteristics of your ideal-type excellence programme in terms of student composition, programme organisation, programme contents, and incentives for participation.

Please click “Next” to begin.

Background questions

Gender	Male/Female
Age	...
University	...
Study programme (major)	...
Year of study (BA/BSc year)	First/Second/Third
Name of the excellence/honours programme	...

To what extent do you possess the characteristics/competences outlined below?

A list of characteristics/competences is given below. Please indicate for each of them how you judge yourself compared to regular students. Regular students are students in the same bachelor study programme as you are, but not meet the minimum admission requirements (in terms of grades and/or motivation) to qualify for excellence/honours education.

To what extent do the following statements apply to you? [7-point scale: 1 not at all true of me, 4 similar to regular students, 7 very true of me].

Compared to regular students, ...

1. I am better at thinking and reasoning in an analytical and critical way
2. I am more able to understand complex topics and I prefer to tackle difficult and challenging topics
3. I think and learn faster
4. I am better at solving problems
5. My ideas and solutions are more original, creative and inventive
6. I am more prepared to put aside structured methods and standard procedures in order to follow a flexible approach
7. I prefer diversity in subjects and my curiosity is aroused by a broader range of topics
8. I am more willing to devote time and effort to a subject to which I am fully committed

9. I am more persistent in case of difficulties or setbacks
10. Learning in itself motivates me more and gives me a lot of satisfaction
11. I am more motivated to succeed in a course and get a higher grade
12. I am more ambitious regarding my future post-education career

According to you, what is a typical characteristic of a high-ability student that was not included in the statements above?

How should an ideal excellence programme look like if it were up to you?

Please indicate for each of the following aspects what your ideal excellence programme looks like. You are requested to address characteristics that are categorised under the following four headings: student composition, programme organisation, programme contents, and incentives for participation.

To what extent do you agree with the following statements? [7-point scale: 1 strongly disagree, 7 strongly agree]

1 |strongly disagree | disagree | neutral | agree | strongly agree | 7

STUDENT COMPOSITION

My ideal-type of excellence programme...

1. includes only well-performing students (that received high grades in our study programme)
2. is highly selective and exclusive, i.e. only the best x% students are invited
3. stimulates the creation of a close community through active participation and student-student interaction

PROGRAMME ORGANISATION

My ideal-type of excellence programme...

1. provides a small-scale learning environment i.e. the amount of students is limited and the student-student and student-teacher relationships are close and personal
2. contains a great deal of group work as opposed to individual work
3. makes use of lectures and seminars as the primary educational method as opposed to assignments
4. is offered during the full bachelor phase, instead of in a limited period (e.g. only one semester)
5. is organised apart from the regular study programmes at the university (e.g. separate faculty, other location)
6. is followed on top of the regular curriculum (i.e. extracurricular), not as a (partial) replacement of regular components of my study programme (i.e. intracurricular)

PROGRAMME CONTENTS

My ideal-type of excellence programme...

1. is totally different from the regular programme in terms of content
2. has a challenging and demanding content: subjects are difficult
3. requires students to devote a substantial amount of time and effort
4. focuses on broadening the knowledge and skills of students by incorporating perspectives from a variety of fields and disciplines (multi- or interdisciplinary)
5. focuses on deepening the knowledge and skills of students in the field of their regular study programme (disciplinary)
6. provides a great deal of freedom to discover and explore my own field of interest
7. focuses on the initiative and responsibility of the student
8. has little or no guidelines and obligatory requirements, i.e. a limited structure
9. focuses on personal development of competences and skills
10. focuses on academic thinking
11. focuses on practical applications of knowledge
12. has teachers that coach students, rather than teachers that supervise the entire learning experience, as is usually done in the regular curriculum.

INCENTIVES FOR PARTICIPATION

My ideal-type of excellence programme...

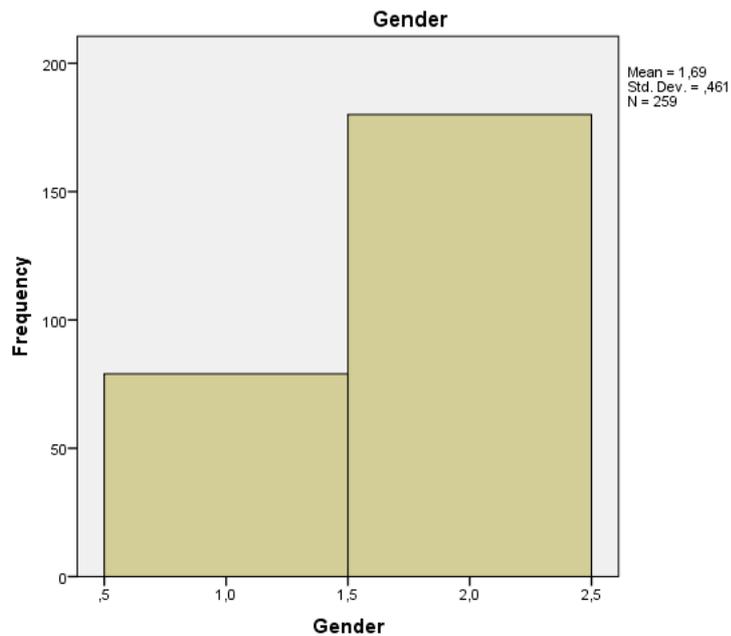
1. comes at no additional costs (no fee on top of the regular tuition fee)
2. provides participants with extra ECTS
3. provides participants with a formal acknowledgement for the completion of the programme (e.g. a certificate or testimony on the diploma)
4. allows me to – after completion – pursue more advanced educational alternatives (e.g. a master at the world's best universities)
5. allows me to – after completion – acquire a better job position in the labour market (e.g. well-known company, highly ranked job position)

If you leave your email address, the results will be sent to you after the finalisation of this study (NOT obligatory)

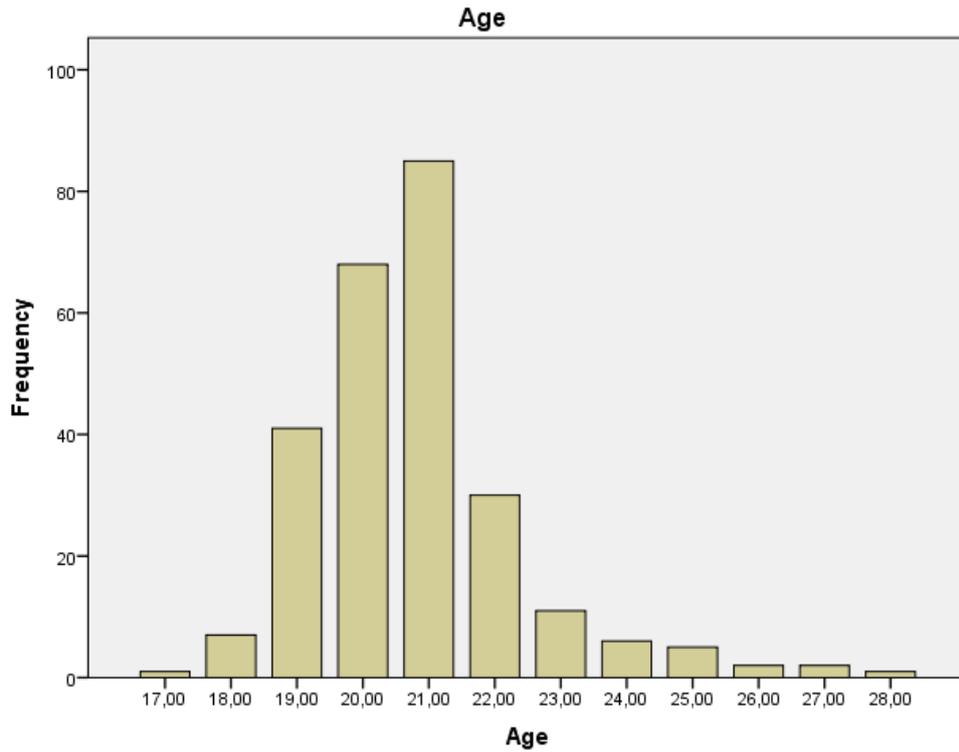
Thank you for your participation!

Appendix 2: Descriptive statistics of the sample

		Gender			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Male	79	30,5	30,5	30,5
	Female	180	69,5	69,5	100,0
Total		259	100,0	100,0	

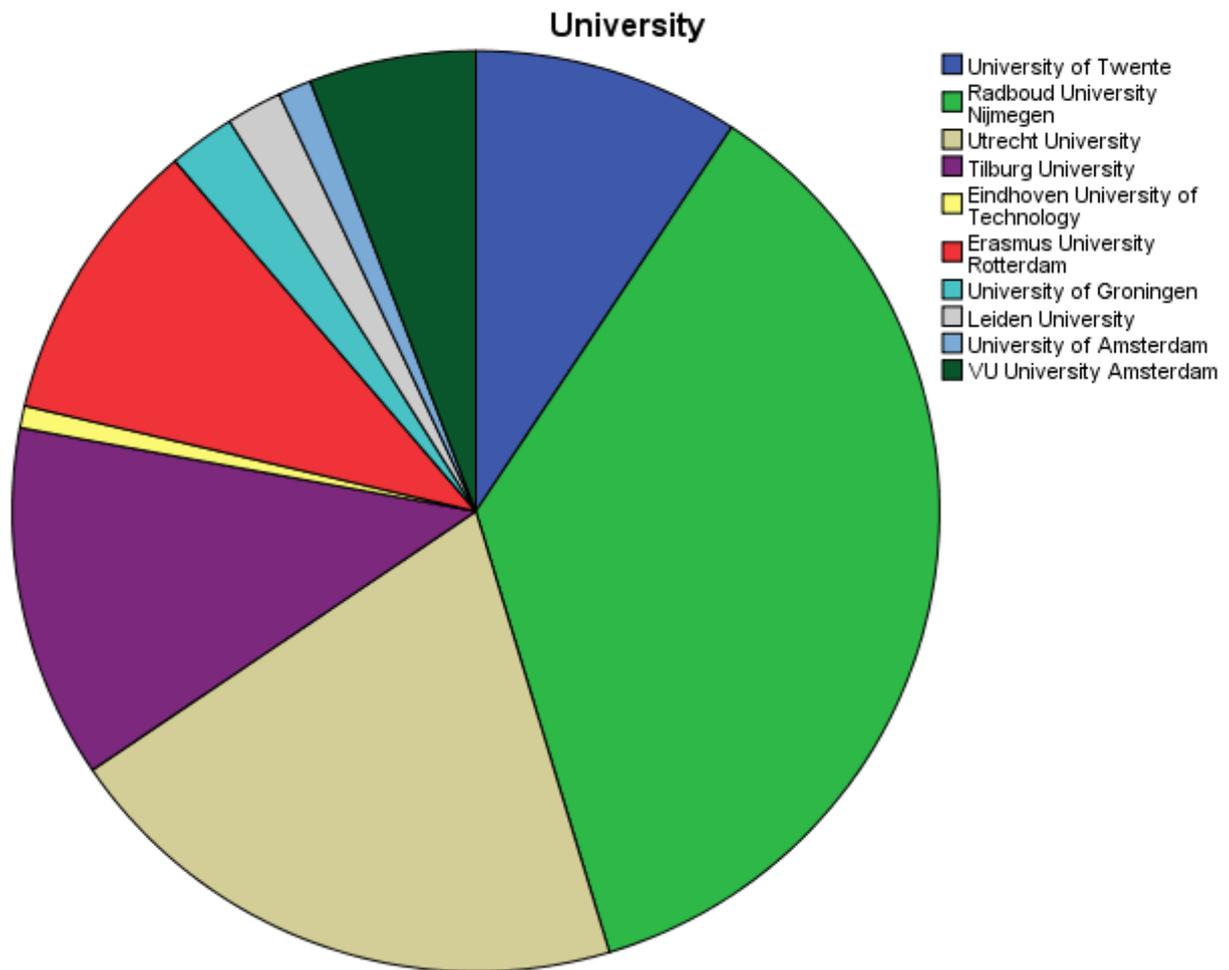


		Age			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	17,00	1	,4	,4	,4
	18,00	7	2,7	2,7	3,1
	19,00	41	15,8	15,8	18,9
	20,00	68	26,3	26,3	45,2
	21,00	85	32,8	32,8	78,0
	22,00	30	11,6	11,6	89,6
	23,00	11	4,2	4,2	93,8
	24,00	6	2,3	2,3	96,1
	25,00	5	1,9	1,9	98,1
	26,00	2	,8	,8	98,8
	27,00	2	,8	,8	99,6
	28,00	1	,4	,4	100,0
Total		259	100,0	100,0	



University

		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	University of Twente	24	9,3	9,3	9,3	
	Radboud University Nijmegen	93	35,9	36,0	45,3	
	Utrecht University	52	20,1	20,2	65,5	
	Tilburg University	32	12,4	12,4	77,9	
	Eindhoven University of Technology	2	,8	,8	78,7	
	Erasmus University Rotterdam	26	10,0	10,1	88,8	
	University of Groningen	6	2,3	2,3	91,1	
	Leiden University	5	1,9	1,9	93,0	
	University of Amsterdam	3	1,2	1,2	94,2	
	VU University Amsterdam	15	5,8	5,8	100,0	
	Total	258	99,6	100,0		
	Missing	System	1	,4		
	Total		259	100,0		



Study programme

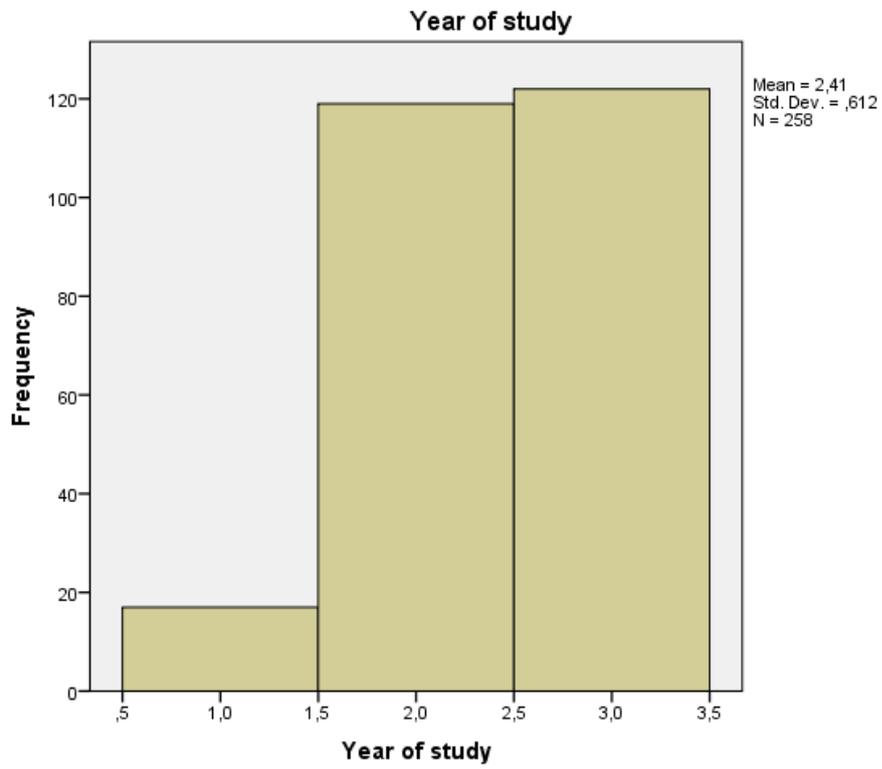
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medicine	25	9,7	9,7	9,7
	Pedagogical Sciences	7	2,7	2,7	12,4
	Educational Sciences	2	,8	,8	13,2
	Pedagogical Sciences and Educational Sciences	6	2,3	2,3	15,5
	Sociology	8	3,1	3,1	18,6
	Anthropology	1	,4	,4	19,0
	Cultural Anthropology	2	,8	,8	19,8
	Cultural Anthropology and Development Sciences	2	,8	,8	20,5
	Criminology	1	,4	,4	20,9
	Philosophy	1	,4	,4	21,3
	Business Economics	2	,8	,8	22,1
	Dentistry	3	1,2	1,2	23,3

History and Philosophy	1	,4	,4	23,6
Philosophy and Economics	1	,4	,4	24,0
Media and Communication	4	1,5	1,6	25,6
Linguistics	9	3,5	3,5	29,1
American Studies	1	,4	,4	29,5
International Relations and International Organizations	1	,4	,4	29,8
International Studies	1	,4	,4	30,2
Earth Sciences	2	,8	,8	31,0
Geography Planning and Environment	1	,4	,4	31,4
Spatial Planning	1	,4	,4	31,8
Veterinary Medicine	1	,4	,4	32,2
Human Geography and Planning	2	,8	,8	32,9
Organization Sciences	1	,4	,4	33,3
Human Resource Science	1	,4	,4	33,7
Law	21	8,1	8,1	41,9
Law and Economics	1	,4	,4	42,2
Economics	4	1,5	1,6	43,8
Business Economics	6	2,3	2,3	46,1
Economics and Business Economics	10	3,9	3,9	50,0
Economics and Finance	1	,4	,4	50,4
Economics and Econometrics	1	,4	,4	50,8
Biomedical Sciences	16	6,2	6,2	57,0
Tax Economics	1	,4	,4	57,4
Business Administration	7	2,7	2,7	60,1
International Business Administration	11	4,2	4,3	64,3
Political Sciences	2	,8	,8	65,1
Public Administration	3	1,2	1,2	66,3
European Studies	2	,8	,8	67,1
European Public Administration	2	,8	,8	67,8
Life Sciences and Social Sciences	1	,4	,4	68,2
Interdisciplinary Social Science	1	,4	,4	68,6

Business & IT	1	,4	,4	69,0
Computer Science	3	1,2	1,2	70,2
Mathematics	1	,4	,4	70,5
(Applied) Physics	2	,8	,8	71,3
Mathematics and Physics	2	,8	,8	72,1
Electrical Engineering	4	1,5	1,6	73,6
Advanced Technology	3	1,2	1,2	74,8
Civil Engineering	1	,4	,4	75,2
Industrial Design Engineering	2	,8	,8	76,0
Chemistry	2	,8	,8	76,7
Chemical Engineering	3	1,2	1,2	77,9
Health and Life	1	,4	,4	78,3
Mechanical Engineering	1	,4	,4	78,7
Psychology	49	18,9	19,0	97,7
Neuropsychology	1	,4	,4	98,1
Dutch law	1	,4	,4	98,4
Industrial Design Engineering	1	,4	,4	98,8
psychology	1	,4	,4	99,2
Psychology	1	,4	,4	99,6
Rechtsgeleerdheid	1	,4	,4	100,0
Total	258	99,6	100,0	
Missing	1	,4		
Total	259	100,0		

Year of study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First	17	6,6	6,6	6,6
	Second	119	45,9	46,1	52,7
	Third	122	47,1	47,3	100,0
	Total	258	99,6	100,0	
Missing	System	1	,4		
Total		259	100,0		



Appendix 3: Principal Components Analysis and Cronbach's Alpha

Appendix 3.1 Principle Components Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,841
Bartlett's Test of Sphericity	Approx. Chi-Square	836,030
	df	66
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,206	35,048	35,048	4,206	35,048	35,048	2,718	22,653	22,653
2	1,430	11,920	46,968	1,430	11,920	46,968	2,312	19,266	41,918
3	1,165	9,711	56,679	1,165	9,711	56,679	1,771	14,760	56,679
4	,822	6,851	63,530						
5	,723	6,027	69,557						
6	,686	5,720	75,277						
7	,628	5,232	80,509						
8	,578	4,815	85,324						
9	,525	4,378	89,702						
10	,491	4,091	93,794						
11	,407	3,395	97,189						
12	,337	2,811	100,000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component		
	1	2	3
More motivated to succeed in a course and get higher grade	,750		
Learning in itself motivates more and gives satisfaction	,709		
More willing to devote time and effort to subject to which fully committed	,702		
More persistent in case of difficulties or setbacks	,687		
More ambitious regarding future post-education career	,630		
Think and learn faster		,760	
Better at thinking and reasoning in an analytical and critical way		,729	
Better at solving problems		,709	,309
More able to understand complex topics and preference difficult and challenging topics	,394	,655	
Prefer diversity in subjects and curiosity aroused by broader range of topics			,726
More prepared to put aside structured methods and standard procedures (flexible approach)			,713
More original, creative and inventive ideas and solutions		,327	,665

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in 5 iterations.

Appendix 3.2 Cronbach's alpha for above-average ability

Reliability Statistics: above-average ability

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
,761	,766	4

Inter-Item Correlation Matrix: above-average ability

	Better at thinking and reasoning in an analytical and critical way	More able to understand complex topics and preference difficult and challenging topics	Think and learn faster	Better at solving problems
Better at thinking and reasoning in an analytical and critical way	1,000	,565	,356	,512
More able to understand complex topics and preference difficult and challenging topics	,565	1,000	,369	,461
Think and learn faster	,356	,369	1,000	,434
Better at solving problems	,512	,461	,434	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Better at thinking and reasoning in an analytical and critical way	15,91	5,469	,603	,405	,683
More able to understand complex topics and preference difficult and challenging topics	15,91	5,565	,584	,374	,693
Think and learn faster	15,95	5,471	,471	,231	,758
Better at solving problems	16,32	5,318	,595	,358	,686

Appendix 3.3 Cronbach's alpha for creativity

Reliability Statistics: creativity

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
,592	,594	3

Inter-Item Correlation Matrix: creativity

	More original, creative and inventive ideas and solutions	More prepared to put aside structured methods and standard procedures (flexible approach)	Prefer diversity in subjects and curiosity aroused by broader range of topics
More original, creative and inventive ideas and solutions	1,000	,351	,314
More prepared to put aside structured methods and standard procedures (flexible approach)	,351	1,000	,317
Prefer diversity in subjects and curiosity aroused by broader range of topics	,314	,317	1,000

Item-Total Statistics: creativity

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
More original, creative and inventive ideas and solutions	10,29	3,571	,409	,169	,481
More prepared to put aside structured methods and standard procedures (flexible approach)	10,03	3,383	,411	,171	,475
Prefer diversity in subjects and curiosity aroused by broader range of topics	9,27	3,266	,384	,147	,519

Appendix 3.4 Cronbach's alpha for task commitment

Reliability Statistics: task commitment

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
,775	,775	5

Inter-Item Correlation Matrix: task commitment

	More willing to devote time and effort to subject to which fully committed	More persistent in case of difficulties or setbacks	Learning in itself motivates more and gives satisfaction	More motivated to succeed in a course and get higher grade	More ambitious regarding future post-education career
More willing to devote time and effort to subject to which fully committed	1,000	,438	,451	,380	,404
More persistent in case of difficulties or setbacks	,438	1,000	,415	,357	,392
Learning in itself motivates more and gives satisfaction	,451	,415	1,000	,451	,332
More motivated to succeed in a course and get higher grade	,380	,357	,451	1,000	,466
More ambitious regarding future post-education career	,404	,392	,332	,466	1,000

Item-Total Statistics: task commitment

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
More willing to devote time and effort to subject to which fully committed	21,96	11,692	,563	,325	,729
More persistent in case of difficulties or setbacks	22,62	11,501	,534	,294	,738
Learning in itself motivates more and gives satisfaction	22,39	11,339	,551	,326	,732
More motivated to succeed in a course and get higher grade	22,04	11,405	,557	,331	,730
More ambitious regarding future post-education career	22,27	11,299	,531	,305	,739

Appendix 4: Responses to open question

Maybe the diversity of topics can have more emphasis, at least that is what I experienced as something important during the Honours Programme
Interests, reading etc besides studying maybe?

I regard the study I am following as my passion

Critical

Enthusiastic

Enthusiasm

Everything was included

Good in planning and starting on time with projects

Discipline

Knowing what you want to achieve later in life and being able to plan ahead to achieve it

Getting bored easily in the regular courses

If a course has a too slow pace, or students slow it down, this annoys me to a large extent

Kunnen combineren van sociaal leven en studie

Nothing

I think differently: I make connections between different topics faster and am able to get an overview faster via this connecting

Social capability

Critical thinking or the opposite of it: obsession with CV

To find joy in learning and think deeper about a subject

Wickedly smart

Ability to think about more complex problems

Willing to develop yourself for a better future/world

Being able to talk well / being convince

Doorzettingsvermogen

Curiosity

Enthusiasm for working in an interdisciplinary manner

Interested in more than their field of studies

Studying because to want to learn more, not because it is expected of you

Interdisciplinary

Willingness to give up personal time for extra courses & studying for regular exams to get a higher grade

Motivated

Perseverance

Ability to have deep philosophical thoughts

Cares about the society as a whole

Open-mindedness

Niks zomaar aannemen

Competitive

The desire to distinguish oneself from other students

The important characteristics are already included in the form: being persistent and smart/creative

Persistence

Philosophical thinking and questioning everything

Open mindedness

Enthusiastic

Competitive

Cultural awareness

Willingness to do more than strictly necessary

Disciplined

Ambitious

Narcissistic

Self-confidence, wanting to make a difference and being able to present oneself

Self-assertive

Passionate about their study program

Higher grades

Initiative

Being down to earth

Self-critical

Better in writing papers in a formal and accurate way and being better in linking aspects to each other

Always looking for new challenges

The fact that honours students never take the course content for granted

They always challenge what is taught to them and engage in discussions with the professors

Like to exchange thoughts with other high-ability students

Active participation in lectures

Being able to reflect upon oneself

More time left after regular study

Dedication

Clear ideas on what you would like to achieve and work hard to reach that goal

Self-Confident

Ambition

Puts his study in the first place

Good social skills

Independence

Conducting discussions and supplying arguments

Perfectionism; maybe failure-anxiety even

More extracurricular activities

Good time-management in order to combine all activities and courses

Desire to learn more than the regular program consists

Don't give up when you find something difficult

All characteristics are included

Doing extracurricular activities

outside the regular study programme

None, all were mentioned

Perseverance

Confidence in yourself

Planning skills

Self-worth

Disciplined

A deeper curiosity in a specific topic

Willing to study at the expense of leisure

The drive for improving yourself

Curiosity

Curiosity

To study more than just the course content to get a broader insight and a better understanding of the material

Extracurricular activities

Social skills

The prestige that comes with the Honours Programme, and the willingness to put in time and effort just for this prestige

High-ability students should hold themselves to higher standards (eg 6/10 is not good enough)

Willingness to spend free time on education

Inquisitive

Always looking for challenges

Discipline

Doing the least amount of work for the maximal result

Ability to make and keep oneself to a proper planning

Get the best out of him/herself

Motivation and determination

Perseverance

Better way of planning and organizing, showing initiative

None

Knowing what you want and don't want

Ambition

Are able to do more and to get more information

Disciplined

Diligent

Accurate, precise

Energetic

The discipline to put aside certain distractions and not postpone the assigned work/literature

Critical to what is told in the lecture, asking questions

He/she likes to work autonomously (with little to no instruction)

Active attitude and independent

Not studying for a grade, but for your personal development and intellectual growth

Precision and perfectionism

Has better overview of what is asked or necessary

Good teamwork

They are very sociable

Socially strong

Persistence

Not being satisfied with just one solution

Overzealous

Curiosity

More efficient time management

Planning skills, not procrastinating and punctuality for deadlines

Appendix 5: ANOVA

Appendix 5.1 ANOVA: High-ability students

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Only well-performing students (high grades)	similar to regular students	79	4,75	1,373	,154	4,44	5,05	2	7
	very true of me	180	5,04	1,616	,120	4,81	5,28	1	7
	Total	259	4,95	1,549	,096	4,76	5,14	1	7
Highly selective and exclusive (only best x% students invited)	similar to regular students	79	4,22	1,384	,156	3,91	4,53	1	7
	very true of me	180	4,92	1,666	,124	4,68	5,17	1	7
	Total	259	4,71	1,616	,100	4,51	4,90	1	7
Creation of a close community through active participation and student-student interaction	similar to regular students	79	5,51	1,085	,122	5,26	5,75	2	7
	very true of me	180	5,44	1,391	,104	5,24	5,65	1	7
	Total	259	5,46	1,304	,081	5,30	5,62	1	7
Small-scale learning environment (limited amount students + close and personal relationships)	similar to regular students	79	5,76	,964	,108	5,54	5,98	3	7
	very true of me	180	6,07	,995	,074	5,92	6,21	2	7
	Total	259	5,97	,994	,062	5,85	6,09	2	7
Great deal of group work as opposed to individual work	similar to regular students	79	4,03	1,536	,173	3,68	4,37	1	7
	very true of me	180	4,13	1,555	,116	3,90	4,36	1	7
	Total	259	4,10	1,547	,096	3,91	4,29	1	7
Lectures and seminars as the primary educational method as opposed to assignments	similar to regular students	79	4,58	1,226	,138	4,31	4,86	2	7
	very true of me	180	4,42	1,509	,112	4,19	4,64	1	7
	Total	259	4,47	1,428	,089	4,29	4,64	1	7
During the full bachelor phase, instead of in a limited period	similar to regular students	79	4,75	1,629	,183	4,38	5,11	1	7
	very true of me	180	5,31	1,593	,119	5,07	5,54	1	7
	Total	259	5,14	1,621	,101	4,94	5,33	1	7
Organised apart from the regular study programmes at the university	similar to regular students	79	3,94	1,596	,180	3,58	4,29	1	7
	very true of me	180	4,02	1,729	,129	3,76	4,27	1	7
	Total	259	3,99	1,687	,105	3,79	4,20	1	7
Extracurricular, not (partially) intracurricular	similar to regular students	79	5,48	1,270	,143	5,20	5,77	2	7
	very true of me	180	5,76	1,359	,101	5,56	5,96	1	7
	Total	259	5,68	1,336	,083	5,51	5,84	1	7
Totally different from the regular programme in terms of content	similar to regular students	79	4,20	1,556	,175	3,85	4,55	1	7
	very true of me	180	4,23	1,707	,127	3,98	4,48	1	7
	Total	259	4,22	1,659	,103	4,02	4,42	1	7

Challenging and demanding content: subjects are difficult	similar to regular students	79	5,08	,984	,111	4,86	5,30	2	7
	very true of me	180	5,53	1,022	,076	5,38	5,68	2	7
	Total	259	5,39	1,030	,064	5,26	5,52	2	7
Requires students to devote a substantial amount of time and effort	similar to regular students	79	4,59	1,104	,124	4,35	4,84	1	7
	very true of me	180	4,96	1,186	,088	4,78	5,13	1	7
	Total	259	4,85	1,171	,073	4,70	4,99	1	7
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	similar to regular students	79	5,38	1,362	,153	5,07	5,68	1	7
	very true of me	179	5,50	1,526	,114	5,27	5,72	1	7
	Total	258	5,46	1,476	,092	5,28	5,64	1	7
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	similar to regular students	79	5,20	1,334	,150	4,90	5,50	1	7
	very true of me	180	5,46	1,492	,111	5,24	5,68	1	7
	Total	259	5,38	1,448	,090	5,20	5,56	1	7
Great deal of freedom to discover and explore my own field of interest	similar to regular students	79	5,49	1,048	,118	5,26	5,73	2	7
	very true of me	180	5,86	1,114	,083	5,69	6,02	1	7
	Total	259	5,75	1,105	,069	5,61	5,88	1	7
Focuses on the initiative and responsibility of the student	similar to regular students	79	5,35	1,133	,127	5,10	5,61	2	7
	very true of me	180	5,53	1,155	,086	5,36	5,70	1	7
	Total	259	5,47	1,149	,071	5,33	5,62	1	7
Little or no guidelines and obligatory requirements, i.e. a limited structure	similar to regular students	79	4,03	1,396	,157	3,71	4,34	1	7
	very true of me	179	4,02	1,714	,128	3,76	4,27	1	7
	Total	258	4,02	1,621	,101	3,82	4,22	1	7
Focuses on personal development of competences and skills	similar to regular students	79	5,51	1,011	,114	5,28	5,73	2	7
	very true of me	180	5,87	1,129	,084	5,71	6,04	1	7
	Total	259	5,76	1,105	,069	5,63	5,90	1	7
Focuses on academic thinking	similar to regular students	79	5,59	,913	,103	5,39	5,80	3	7
	very true of me	180	5,92	1,113	,083	5,75	6,08	1	7
	Total	259	5,82	1,065	,066	5,69	5,95	1	7
Focuses on practical applications of knowledge	similar to regular students	79	5,33	1,118	,126	5,08	5,58	1	7
	very true of me	180	5,48	1,314	,098	5,29	5,68	1	7
	Total	259	5,44	1,257	,078	5,28	5,59	1	7
Teachers coach students, not supervise the entire learning experience	similar to regular students	78	5,67	1,015	,115	5,44	5,90	3	7
	very true of me	180	5,84	1,094	,082	5,68	6,00	1	7
	Total	258	5,79	1,072	,067	5,66	5,92	1	7
No additional costs (no fee on top of the regular tuition fee)	similar to regular students	79	6,23	1,165	,131	5,97	6,49	1	7
	very true of me	180	6,49	1,146	,085	6,32	6,66	1	7
	Total	259	6,41	1,156	,072	6,27	6,55	1	7
Provides participants with extra ECTS	similar to regular students	79	5,67	1,185	,133	5,41	5,94	3	7
	very true of me	180	5,66	1,579	,118	5,43	5,89	1	7
	Total	259	5,66	1,468	,091	5,48	5,84	1	7

Provides participants with formal acknowledgement for completion	similar to regular students	79	6,42	,826	,093	6,23	6,60	3	7
	very true of me	180	6,66	,704	,052	6,55	6,76	2	7
	Total	259	6,58	,750	,047	6,49	6,67	2	7
Allows to pursue more advanced educational alternatives	similar to regular students	79	5,62	1,101	,124	5,37	5,87	1	7
	very true of me	180	6,19	1,013	,075	6,04	6,34	1	7
	Total	259	6,02	1,071	,067	5,88	6,15	1	7
Allows to acquire a better job position in the labour market	similar to regular students	79	5,80	1,067	,120	5,56	6,04	1	7
	very true of me	180	6,13	1,168	,087	5,96	6,30	1	7
	Total	259	6,03	1,146	,071	5,89	6,17	1	7

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Only well-performing students (high grades)	Between Groups	4,863	1	4,863	2,034	,155
	Within Groups	614,581	257	2,391		
	Total	619,444	258			
Highly selective and exclusive (only best x% students invited)	Between Groups	27,446	1	27,446	10,915	,001
	Within Groups	646,253	257	2,515		
	Total	673,699	258			
Creation of a close community through active participation and student-student interaction	Between Groups	,210	1	,210	,123	,726
	Within Groups	438,191	257	1,705		
	Total	438,402	258			
Small-scale learning environment (limited amount students + close and personal relationships)	Between Groups	5,180	1	5,180	5,333	,022
	Within Groups	249,630	257	,971		
	Total	254,811	258			
Great deal of group work as opposed to individual work	Between Groups	,641	1	,641	,267	,606
	Within Groups	616,749	257	2,400		
	Total	617,390	258			
Lectures and seminars as the primary educational method as opposed to assignments	Between Groups	1,506	1	1,506	,737	,391
	Within Groups	524,965	257	2,043		
	Total	526,471	258			
During the full bachelor phase, instead of in a limited period	Between Groups	17,139	1	17,139	6,662	,010
	Within Groups	661,131	257	2,572		
	Total	678,270	258			
Organised apart from the regular study programmes at the university	Between Groups	,351	1	,351	,123	,726
	Within Groups	733,634	257	2,855		
	Total	733,985	258			
Extracurricular, not (partially) intracurricular	Between Groups	4,307	1	4,307	2,425	,121
	Within Groups	456,449	257	1,776		
	Total	460,757	258			

Totally different from the regular programme in terms of content	Between Groups	,035		1	,035	,013	,911
	Within Groups	710,421		257	2,764		
	Total	710,456		258			
Challenging and demanding content: subjects are difficult	Between Groups	11,208		1	11,208	10,978	,001
	Within Groups	262,405		257	1,021		
	Total	273,614		258			
Requires students to devote a substantial amount of time and effort	Between Groups	7,140		1	7,140	5,293	,022
	Within Groups	346,682		257	1,349		
	Total	353,822		258			
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	Between Groups	,756		1	,756	,346	,557
	Within Groups	559,356		256	2,185		
	Total	560,112		257			
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	Between Groups	3,515		1	3,515	1,681	,196
	Within Groups	537,404		257	2,091		
	Total	540,919		258			
Great deal of freedom to discover and explore my own field of interest	Between Groups	7,190		1	7,190	6,000	,015
	Within Groups	307,991		257	1,198		
	Total	315,181		258			
Focuses on the initiative and responsibility of the student	Between Groups	1,650		1	1,650	1,251	,264
	Within Groups	338,937		257	1,319		
	Total	340,587		258			
Little or no guidelines and obligatory requirements, i.e. a limited structure	Between Groups	,004		1	,004	,002	,969
	Within Groups	674,899		256	2,636		
	Total	674,903		257			
Focuses on personal development of competences and skills	Between Groups	7,350		1	7,350	6,137	,014
	Within Groups	307,808		257	1,198		
	Total	315,158		258			
Focuses on academic thinking	Between Groups	5,683		1	5,683	5,093	,025
	Within Groups	286,788		257	1,116		
	Total	292,471		258			
Focuses on practical applications of knowledge	Between Groups	1,306		1	1,306	,826	,364
	Within Groups	406,393		257	1,581		
	Total	407,699		258			
Teachers coach students, not supervise the entire learning experience	Between Groups	1,614		1	1,614	1,407	,237
	Within Groups	293,661		256	1,147		
	Total	295,275		257			

No additional costs (no fee on top of the regular tuition fee)	Between Groups	3,741		1	3,741	2,821	,094
	Within Groups	340,877		257	1,326		
	Total	344,618		258			
Provides participants with extra ECTS	Between Groups	,005		1	,005	,002	,961
	Within Groups	555,771		257	2,163		
	Total	555,776		258			
Provides participants with formal acknowledgement for completion	Between Groups	3,106		1	3,106	5,626	,018
	Within Groups	141,860		257	,552		
	Total	144,965		258			
Allows to pursue more advanced educational alternatives	Between Groups	17,753		1	17,753	16,401	,000
	Within Groups	278,185		257	1,082		
	Total	295,938		258			
Allows to acquire a better job position in the labour market	Between Groups	5,990		1	5,990	4,626	,032
	Within Groups	332,821		257	1,295		
	Total	338,811		258			

Appendix 5.2 ANOVA: Above-average ability

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Only well-performing students (high grades)	similar to regular students	71	4,55	1,412	,168	4,22	4,88	1	7
	very true of me	187	5,12	1,572	,115	4,89	5,34	1	7
	Total	258	4,96	1,548	,096	4,77	5,15	1	7
Highly selective and exclusive (only best x% students invited)	similar to regular students	71	4,06	1,492	,177	3,70	4,41	1	7
	very true of me	187	4,96	1,594	,117	4,73	5,19	1	7
	Total	258	4,71	1,616	,101	4,52	4,91	1	7
Creation of a close community through active participation and student-student interaction	similar to regular students	71	5,46	1,053	,125	5,22	5,71	2	7
	very true of me	187	5,47	1,392	,102	5,26	5,67	1	7
	Total	258	5,47	1,306	,081	5,31	5,63	1	7
Small-scale learning environment (limited amount students + close and personal relationships)	similar to regular students	71	5,76	1,007	,119	5,52	6,00	3	7
	very true of me	187	6,06	,971	,071	5,92	6,20	2	7
	Total	258	5,98	,988	,062	5,86	6,10	2	7
Great deal of group work as opposed to individual work	similar to regular students	71	4,35	1,374	,163	4,03	4,68	1	7
	very true of me	187	4,01	1,605	,117	3,77	4,24	1	7
	Total	258	4,10	1,550	,096	3,91	4,29	1	7
Lectures and seminars as the primary educational method as opposed to assignments	similar to regular students	71	4,61	1,270	,151	4,30	4,91	2	7
	very true of me	187	4,43	1,477	,108	4,21	4,64	1	7
	Total	258	4,48	1,423	,089	4,30	4,65	1	7

During the full bachelor phase, instead of in a limited period	similar to regular students	71	4,99	1,517	,180	4,63	5,34	1	7
	very true of me	187	5,19	1,664	,122	4,95	5,43	1	7
	Total	258	5,14	1,625	,101	4,94	5,33	1	7
Organised apart from the regular study programmes at the university	similar to regular students	71	3,59	1,618	,192	3,21	3,97	1	7
	very true of me	187	4,14	1,696	,124	3,90	4,39	1	7
	Total	258	3,99	1,690	,105	3,79	4,20	1	7
Extracurricular, not (partially) intracurricular	similar to regular students	71	5,59	1,226	,145	5,30	5,88	2	7
	very true of me	187	5,71	1,381	,101	5,51	5,91	1	7
	Total	258	5,67	1,339	,083	5,51	5,84	1	7
Totally different from the regular programme in terms of content	similar to regular students	71	4,00	1,568	,186	3,63	4,37	1	7
	very true of me	187	4,31	1,691	,124	4,07	4,55	1	7
	Total	258	4,22	1,661	,103	4,02	4,43	1	7
Challenging and demanding content: subjects are difficult	similar to regular students	71	5,15	,980	,116	4,92	5,39	3	7
	very true of me	187	5,50	1,007	,074	5,35	5,64	2	7
	Total	258	5,40	1,010	,063	5,28	5,53	2	7
Requires students to devote a substantial amount of time and effort	similar to regular students	71	4,79	,940	,112	4,57	5,01	3	7
	very true of me	187	4,88	1,234	,090	4,70	5,06	1	7
	Total	258	4,86	1,160	,072	4,71	5,00	1	7
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	similar to regular students	71	5,37	1,466	,174	5,02	5,71	2	7
	very true of me	186	5,49	1,486	,109	5,28	5,71	1	7
	Total	257	5,46	1,479	,092	5,28	5,64	1	7
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	similar to regular students	71	5,38	1,280	,152	5,08	5,68	1	7
	very true of me	187	5,39	1,510	,110	5,17	5,60	1	7
	Total	258	5,38	1,448	,090	5,21	5,56	1	7
Great deal of freedom to discover and explore my own field of interest	similar to regular students	71	5,58	1,142	,136	5,31	5,85	2	7
	very true of me	187	5,80	1,087	,079	5,65	5,96	1	7
	Total	258	5,74	1,105	,069	5,60	5,88	1	7
Focuses on the initiative and responsibility of the student	similar to regular students	71	5,55	,953	,113	5,32	5,77	3	7
	very true of me	187	5,44	1,218	,089	5,27	5,62	1	7
	Total	258	5,47	1,151	,072	5,33	5,61	1	7
Little or no guidelines and obligatory requirements, i.e. a limited structure	similar to regular students	70	3,81	1,563	,187	3,44	4,19	1	7
	very true of me	187	4,09	1,642	,120	3,85	4,33	1	7
	Total	257	4,02	1,623	,101	3,82	4,21	1	7
Focuses on personal development of competences and skills	similar to regular students	71	5,62	1,061	,126	5,37	5,87	2	7
	very true of me	187	5,81	1,123	,082	5,65	5,97	1	7
	Total	258	5,76	1,107	,069	5,62	5,90	1	7
Focuses on academic thinking	similar to regular students	71	5,72	,974	,116	5,49	5,95	3	7
	very true of me	187	5,86	1,098	,080	5,70	6,02	1	7
	Total	258	5,82	1,066	,066	5,69	5,95	1	7

Focuses on practical applications of knowledge	similar to regular students	71	5,48	1,169	,139	5,20	5,76	1	7
	very true of me	187	5,42	1,294	,095	5,23	5,60	1	7
	Total	258	5,43	1,259	,078	5,28	5,59	1	7
Teachers coach students, not supervise the entire learning experience	similar to regular students	71	5,72	1,017	,121	5,48	5,96	2	7
	very true of me	186	5,83	1,077	,079	5,67	5,98	1	7
	Total	257	5,80	1,060	,066	5,67	5,93	1	7
No additional costs (no fee on top of the regular tuition fee)	similar to regular students	71	6,38	1,126	,134	6,11	6,65	1	7
	very true of me	187	6,42	1,172	,086	6,25	6,59	1	7
	Total	258	6,41	1,157	,072	6,27	6,55	1	7
Provides participants with extra ECTS	similar to regular students	71	5,76	1,177	,140	5,48	6,04	3	7
	very true of me	187	5,63	1,568	,115	5,40	5,86	1	7
	Total	258	5,67	1,470	,092	5,49	5,85	1	7
Provides participants with formal acknowledgement for completion	similar to regular students	71	6,45	,752	,089	6,27	6,63	4	7
	very true of me	187	6,63	,746	,055	6,52	6,74	2	7
	Total	258	6,58	,751	,047	6,49	6,67	2	7
Allows to pursue more advanced educational alternatives	similar to regular students	71	5,80	1,077	,128	5,55	6,06	1	7
	very true of me	187	6,11	1,052	,077	5,96	6,26	1	7
	Total	258	6,02	1,066	,066	5,89	6,15	1	7
Allows to acquire a better job position in the labour market	similar to regular students	71	5,85	1,104	,131	5,58	6,11	1	7
	very true of me	187	6,11	1,150	,084	5,94	6,27	1	7
	Total	258	6,03	1,141	,071	5,89	6,17	1	7

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Only well-performing students (high grades)	Between Groups	16,623	1	16,623	7,105	,008
	Within Groups	598,989	256	2,340		
	Total	615,612	257			
Highly selective and exclusive (only best x% students invited)	Between Groups	42,263	1	42,263	17,214	,000
	Within Groups	628,513	256	2,455		
	Total	670,775	257			
Creation of a close community through active participation and student-student interaction	Between Groups	,000	1	,000	,000	,998
	Within Groups	438,186	256	1,712		
	Total	438,186	257			
Small-scale learning environment (limited amount students + close and personal relationships)	Between Groups	4,744	1	4,744	4,933	,027
	Within Groups	246,160	256	,962		
	Total	250,903	257			
Great deal of group work as opposed to individual work	Between Groups	6,188	1	6,188	2,592	,109
	Within Groups	611,192	256	2,387		
	Total	617,380	257			

Lectures and seminars as the primary educational method as opposed to assignments	Between Groups	1,627	1	1,627	,803	,371
	Within Groups	518,733	256	2,026		
	Total	520,360	257			
During the full bachelor phase, instead of in a limited period	Between Groups	2,197	1	2,197	,832	,363
	Within Groups	676,055	256	2,641		
	Total	678,252	257			
Organised apart from the regular study programmes at the university	Between Groups	15,728	1	15,728	5,606	,019
	Within Groups	718,257	256	2,806		
	Total	733,984	257			
Extracurricular, not (partially) intracurricular	Between Groups	,673	1	,673	,374	,541
	Within Groups	459,978	256	1,797		
	Total	460,651	257			
Totally different from the regular programme in terms of content	Between Groups	4,951	1	4,951	1,800	,181
	Within Groups	704,011	256	2,750		
	Total	708,961	257			
Challenging and demanding content: subjects are difficult	Between Groups	6,033	1	6,033	6,032	,015
	Within Groups	256,044	256	1,000		
	Total	262,078	257			
Requires students to devote a substantial amount of time and effort	Between Groups	,451	1	,451	,334	,564
	Within Groups	345,243	256	1,349		
	Total	345,694	257			
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	Between Groups	,848	1	,848	,387	,535
	Within Groups	558,973	255	2,192		
	Total	559,821	256			
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	Between Groups	,001	1	,001	,001	,981
	Within Groups	539,010	256	2,106		
	Total	539,012	257			
Great deal of freedom to discover and explore my own field of interest	Between Groups	2,598	1	2,598	2,138	,145
	Within Groups	311,003	256	1,215		
	Total	313,601	257			
Focuses on the initiative and responsibility of the student	Between Groups	,572	1	,572	,431	,512
	Within Groups	339,738	256	1,327		
	Total	340,310	257			
Little or no guidelines and obligatory requirements, i.e. a limited structure	Between Groups	3,897	1	3,897	1,483	,224
	Within Groups	670,040	255	2,628		
	Total	673,938	256			

Focuses on personal development of competences and skills	Between Groups	1,919	1	1,919	1,569	,212
	Within Groups	313,182	256	1,223		
	Total	315,101	257			
Focuses on academic thinking	Between Groups	1,047	1	1,047	,922	,338
	Within Groups	290,751	256	1,136		
	Total	291,798	257			
Focuses on practical applications of knowledge	Between Groups	,196	1	,196	,123	,726
	Within Groups	407,184	256	1,591		
	Total	407,380	257			
Teachers coach students, not supervise the entire learning experience	Between Groups	,618	1	,618	,549	,459
	Within Groups	286,861	255	1,125		
	Total	287,479	256			
No additional costs (no fee on top of the regular tuition fee)	Between Groups	,070	1	,070	,052	,820
	Within Groups	344,198	256	1,345		
	Total	344,267	257			
Provides participants with extra ECTS	Between Groups	,864	1	,864	,399	,528
	Within Groups	554,470	256	2,166		
	Total	555,333	257			
Provides participants with formal acknowledgement for completion	Between Groups	1,673	1	1,673	2,993	,085
	Within Groups	143,118	256	,559		
	Total	144,791	257			
Allows to pursue more advanced educational alternatives	Between Groups	4,760	1	4,760	4,244	,040
	Within Groups	287,100	256	1,121		
	Total	291,860	257			
Allows to acquire a better job position in the labour market	Between Groups	3,529	1	3,529	2,728	,100
	Within Groups	331,157	256	1,294		
	Total	334,686	257			

Appendix 5.3 ANOVA: Creativity

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Only well-performing students (high grades)	similar to regular students	118	5,00	1,402	,129	4,74	5,26	1	7
	very true of me	136	4,95	1,666	,143	4,67	5,23	1	7
	Total	254	4,97	1,546	,097	4,78	5,16	1	7
Highly selective and exclusive (only best x% students invited)	similar to regular students	118	4,60	1,366	,126	4,35	4,85	1	7
	very true of me	136	4,85	1,766	,151	4,55	5,15	1	7
	Total	254	4,74	1,595	,100	4,54	4,93	1	7

Creation of a close community through active participation and student-student interaction	similar to regular students	118	5,34	1,214	,112	5,12	5,56	2	7
	very true of me	136	5,56	1,376	,118	5,33	5,79	1	7
	Total	254	5,46	1,305	,082	5,30	5,62	1	7
Small-scale learning environment (limited amount students + close and personal relationships)	similar to regular students	118	5,84	,987	,091	5,66	6,02	3	7
	very true of me	136	6,08	1,004	,086	5,91	6,25	2	7
	Total	254	5,97	1,001	,063	5,84	6,09	2	7
Great deal of group work as opposed to individual work	similar to regular students	118	4,08	1,559	,144	3,79	4,36	1	7
	very true of me	136	4,19	1,513	,130	3,93	4,45	1	7
	Total	254	4,14	1,532	,096	3,95	4,33	1	7
Lectures and seminars as the primary educational method as opposed to assignments	similar to regular students	118	4,58	1,323	,122	4,34	4,83	1	7
	very true of me	136	4,40	1,507	,129	4,14	4,65	1	7
	Total	254	4,48	1,425	,089	4,31	4,66	1	7
During the full bachelor phase, instead of in a limited period	similar to regular students	118	4,94	1,676	,154	4,64	5,25	1	7
	very true of me	136	5,32	1,534	,132	5,06	5,58	1	7
	Total	254	5,15	1,610	,101	4,95	5,34	1	7
Organised apart from the regular study programmes at the university	similar to regular students	118	3,79	1,557	,143	3,50	4,07	1	7
	very true of me	136	4,18	1,780	,153	3,87	4,48	1	7
	Total	254	4,00	1,688	,106	3,79	4,20	1	7
Extracurricular, not (partially) intracurricular	similar to regular students	118	5,48	1,299	,120	5,25	5,72	2	7
	very true of me	136	5,82	1,367	,117	5,58	6,05	1	7
	Total	254	5,66	1,344	,084	5,50	5,83	1	7
Totally different from the regular programme in terms of content	similar to regular students	118	3,93	1,573	,145	3,65	4,22	1	7
	very true of me	136	4,44	1,694	,145	4,15	4,73	1	7
	Total	254	4,20	1,655	,104	4,00	4,41	1	7
Challenging and demanding content: subjects are difficult	similar to regular students	118	5,26	,973	,090	5,09	5,44	2	7
	very true of me	136	5,50	1,054	,090	5,32	5,68	2	7
	Total	254	5,39	1,022	,064	5,26	5,52	2	7
Requires students to devote a substantial amount of time and effort	similar to regular students	118	4,69	1,099	,101	4,49	4,89	1	7
	very true of me	136	4,98	1,220	,105	4,77	5,18	1	7
	Total	254	4,84	1,172	,074	4,70	4,99	1	7
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	similar to regular students	117	5,21	1,477	,137	4,93	5,48	1	7
	very true of me	136	5,71	1,446	,124	5,46	5,95	1	7
	Total	253	5,47	1,479	,093	5,29	5,66	1	7

Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	similar to regular students	118	5,46	1,196	,110	5,24	5,68	1	7
	very true of me	136	5,30	1,643	,141	5,02	5,58	1	7
	Total	254	5,37	1,452	,091	5,19	5,55	1	7
Great deal of freedom to discover and explore my own field of interest	similar to regular students	118	5,63	1,019	,094	5,44	5,81	3	7
	very true of me	136	5,87	1,127	,097	5,68	6,06	1	7
	Total	254	5,76	1,083	,068	5,62	5,89	1	7
Focuses on the initiative and responsibility of the student	similar to regular students	118	5,31	1,122	,103	5,11	5,52	2	7
	very true of me	136	5,62	1,123	,096	5,43	5,81	1	7
	Total	254	5,48	1,131	,071	5,34	5,62	1	7
Little or no guidelines and obligatory requirements, i.e. a limited structure	similar to regular students	118	3,87	1,477	,136	3,60	4,14	1	7
	very true of me	135	4,12	1,715	,148	3,83	4,41	1	7
	Total	253	4,00	1,610	,101	3,80	4,20	1	7
Focuses on personal development of competences and skills	similar to regular students	118	5,51	1,138	,105	5,30	5,72	2	7
	very true of me	136	5,96	1,036	,089	5,79	6,14	1	7
	Total	254	5,75	1,106	,069	5,62	5,89	1	7
Focuses on academic thinking	similar to regular students	118	5,64	,984	,091	5,46	5,82	3	7
	very true of me	136	5,98	1,105	,095	5,79	6,17	1	7
	Total	254	5,82	1,063	,067	5,69	5,95	1	7
Focuses on practical applications of knowledge	similar to regular students	118	5,36	1,099	,101	5,16	5,56	2	7
	very true of me	136	5,54	1,327	,114	5,31	5,76	1	7
	Total	254	5,46	1,227	,077	5,31	5,61	1	7
Teachers coach students, not supervise the entire learning experience	similar to regular students	117	5,74	1,003	,093	5,55	5,92	3	7
	very true of me	136	5,85	1,128	,097	5,65	6,04	1	7
	Total	253	5,79	1,071	,067	5,66	5,93	1	7
No additional costs (no fee on top of the regular tuition fee)	similar to regular students	118	6,30	1,172	,108	6,08	6,51	1	7
	very true of me	136	6,51	1,135	,097	6,32	6,71	1	7
	Total	254	6,41	1,155	,072	6,27	6,56	1	7
Provides participants with extra ECTS	similar to regular students	118	5,53	1,400	,129	5,28	5,79	1	7
	very true of me	136	5,74	1,530	,131	5,48	6,00	1	7
	Total	254	5,65	1,472	,092	5,46	5,83	1	7
Provides participants with formal acknowledgement for completion	similar to regular students	118	6,50	,760	,070	6,36	6,64	3	7
	very true of me	136	6,65	,734	,063	6,53	6,78	2	7
	Total	254	6,58	,749	,047	6,49	6,68	2	7
Allows to pursue more advanced educational alternatives	similar to regular students	118	5,86	1,040	,096	5,67	6,05	1	7
	very true of me	136	6,15	1,074	,092	5,97	6,34	1	7
	Total	254	6,02	1,067	,067	5,88	6,15	1	7

Allows to acquire a better job position in the labour market	similar to regular students	118	5,90	1,081	,100	5,70	6,10	1	7
	very true of me	136	6,14	1,187	,102	5,94	6,34	1	7
	Total	254	6,03	1,143	,072	5,89	6,17	1	7

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Only well-performing students (high grades)	Between Groups	,167	1	,167	,070	,792
	Within Groups	604,640	252	2,399		
	Total	604,807	253			
Highly selective and exclusive (only best x% students invited)	Between Groups	3,988	1	3,988	1,572	,211
	Within Groups	639,338	252	2,537		
	Total	643,327	253			
Creation of a close community through active participation and student-student interaction	Between Groups	3,054	1	3,054	1,798	,181
	Within Groups	427,970	252	1,698		
	Total	431,024	253			
Small-scale learning environment (limited amount students + close and personal relationships)	Between Groups	3,697	1	3,697	3,726	,055
	Within Groups	250,051	252	,992		
	Total	253,748	253			
Great deal of group work as opposed to individual work	Between Groups	,834	1	,834	,354	,552
	Within Groups	593,343	252	2,355		
	Total	594,177	253			
Lectures and seminars as the primary educational method as opposed to assignments	Between Groups	2,226	1	2,226	1,097	,296
	Within Groups	511,211	252	2,029		
	Total	513,437	253			
During the full bachelor phase, instead of in a limited period	Between Groups	9,261	1	9,261	3,611	,059
	Within Groups	646,349	252	2,565		
	Total	655,610	253			
Organised apart from the regular study programmes at the university	Between Groups	9,528	1	9,528	3,375	,067
	Within Groups	711,468	252	2,823		
	Total	720,996	253			
Extracurricular, not (partially) intracurricular	Between Groups	7,011	1	7,011	3,928	,049
	Within Groups	449,871	252	1,785		
	Total	456,882	253			
Totally different from the regular programme in terms of content	Between Groups	16,367	1	16,367	6,093	,014
	Within Groups	676,987	252	2,686		
	Total	693,354	253			
Challenging and demanding content: subjects are difficult	Between Groups	3,557	1	3,557	3,437	,065
	Within Groups	260,856	252	1,035		
	Total	264,413	253			

Requires students to devote a substantial amount of time and effort	Between Groups	5,369	1	5,369	3,952	,048
	Within Groups	342,332	252	1,358		
	Total	347,701	253			
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	Between Groups	15,771	1	15,771	7,395	,007
	Within Groups	535,312	251	2,133		
	Total	551,083	252			
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	Between Groups	1,541	1	1,541	,730	,394
	Within Groups	531,928	252	2,111		
	Total	533,469	253			
Great deal of freedom to discover and explore my own field of interest	Between Groups	3,655	1	3,655	3,142	,078
	Within Groups	293,211	252	1,164		
	Total	296,866	253			
Focuses on the initiative and responsibility of the student	Between Groups	5,842	1	5,842	4,637	,032
	Within Groups	317,516	252	1,260		
	Total	323,358	253			
Little or no guidelines and obligatory requirements, i.e. a limited structure	Between Groups	3,799	1	3,799	1,469	,227
	Within Groups	649,197	251	2,586		
	Total	652,996	252			
Focuses on personal development of competences and skills	Between Groups	13,066	1	13,066	11,112	,001
	Within Groups	296,308	252	1,176		
	Total	309,374	253			
Focuses on academic thinking	Between Groups	7,405	1	7,405	6,706	,010
	Within Groups	278,264	252	1,104		
	Total	285,669	253			
Focuses on practical applications of knowledge	Between Groups	1,877	1	1,877	1,248	,265
	Within Groups	379,147	252	1,505		
	Total	381,024	253			
Teachers coach students, not supervise the entire learning experience	Between Groups	,769	1	,769	,669	,414
	Within Groups	288,544	251	1,150		
	Total	289,312	252			
No additional costs (no fee on top of the regular tuition fee)	Between Groups	3,005	1	3,005	2,263	,134
	Within Groups	334,589	252	1,328		
	Total	337,594	253			
Provides participants with extra ECTS	Between Groups	2,753	1	2,753	1,272	,260
	Within Groups	545,357	252	2,164		
	Total	548,110	253			

Provides participants with formal acknowledgement for completion	Between Groups	1,506	1	1,506	2,707	,101
	Within Groups	140,257	252	,557		
	Total	141,764	253			
Allows to pursue more advanced educational alternatives	Between Groups	5,629	1	5,629	5,025	,026
	Within Groups	282,308	252	1,120		
	Total	287,937	253			
Allows to acquire a better job position in the labour market	Between Groups	3,682	1	3,682	2,836	,093
	Within Groups	327,125	252	1,298		
	Total	330,807	253			

Appendix 5.4 ANOVA: Task commitment

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Only well-performing students (high grades)	similar to regular students	53	4,26	1,416	,195	3,87	4,65	1	7
	very true of me	205	5,14	1,532	,107	4,93	5,35	1	7
	Total	258	4,96	1,548	,096	4,77	5,15	1	7
Highly selective and exclusive (only best x% students invited)	similar to regular students	53	3,77	1,436	,197	3,38	4,17	1	7
	very true of me	205	4,96	1,565	,109	4,75	5,18	1	7
	Total	258	4,72	1,610	,100	4,52	4,91	1	7
Creation of a close community through active participation and student-student interaction	similar to regular students	53	5,26	1,303	,179	4,90	5,62	1	7
	very true of me	205	5,51	1,301	,091	5,33	5,69	1	7
	Total	258	5,46	1,303	,081	5,30	5,62	1	7
Small-scale learning environment (limited amount students + close and personal relationships)	similar to regular students	53	5,79	1,007	,138	5,51	6,07	4	7
	very true of me	205	6,01	,988	,069	5,88	6,15	2	7
	Total	258	5,97	,994	,062	5,85	6,09	2	7
Great deal of group work as opposed to individual work	similar to regular students	53	4,15	1,549	,213	3,72	4,58	1	7
	very true of me	205	4,10	1,547	,108	3,88	4,31	1	7
	Total	258	4,11	1,544	,096	3,92	4,30	1	7
Lectures and seminars as the primary educational method as opposed to assignments	similar to regular students	53	4,62	1,362	,187	4,25	5,00	1	7
	very true of me	205	4,44	1,439	,101	4,24	4,64	1	7
	Total	258	4,48	1,423	,089	4,30	4,65	1	7

During the full bachelor phase, instead of in a limited period	similar to regular students	53	4,79	1,714	,235	4,32	5,26	1	7
	very true of me	205	5,23	1,585	,111	5,02	5,45	1	7
	Total	258	5,14	1,619	,101	4,94	5,34	1	7
Organised apart from the regular study programmes at the university	similar to regular students	53	4,13	1,721	,236	3,66	4,61	1	7
	very true of me	205	3,97	1,679	,117	3,73	4,20	1	7
	Total	258	4,00	1,685	,105	3,79	4,21	1	7
Extracurricular, not (partially) intracurricular	similar to regular students	53	5,51	1,339	,184	5,14	5,88	1	7
	very true of me	205	5,71	1,336	,093	5,53	5,90	1	7
	Total	258	5,67	1,336	,083	5,51	5,83	1	7
Totally different from the regular programme in terms of content	similar to regular students	53	4,32	1,491	,205	3,91	4,73	1	7
	very true of me	205	4,20	1,700	,119	3,97	4,44	1	7
	Total	258	4,23	1,657	,103	4,03	4,43	1	7
Challenging and demanding content: subjects are difficult	similar to regular students	53	5,00	,961	,132	4,74	5,26	2	7
	very true of me	205	5,48	1,022	,071	5,34	5,62	2	7
	Total	258	5,38	1,027	,064	5,26	5,51	2	7
Requires students to devote a substantial amount of time and effort	similar to regular students	53	4,51	1,234	,170	4,17	4,85	1	7
	very true of me	205	4,93	1,142	,080	4,77	5,08	1	7
	Total	258	4,84	1,171	,073	4,70	4,98	1	7
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	similar to regular students	53	5,53	1,367	,188	5,15	5,91	1	7
	very true of me	204	5,44	1,506	,105	5,23	5,64	1	7
	Total	257	5,46	1,476	,092	5,27	5,64	1	7
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	similar to regular students	53	4,94	1,669	,229	4,48	5,40	1	7
	very true of me	205	5,50	1,367	,095	5,31	5,69	1	7
	Total	258	5,38	1,448	,090	5,21	5,56	1	7
Great deal of freedom to discover and explore my own field of interest	similar to regular students	53	5,49	1,103	,151	5,19	5,79	2	7
	very true of me	205	5,80	1,099	,077	5,65	5,96	1	7
	Total	258	5,74	1,105	,069	5,60	5,88	1	7
Focuses on the initiative and responsibility of the student	similar to regular students	53	5,19	1,128	,155	4,88	5,50	3	7
	very true of me	205	5,54	1,144	,080	5,38	5,70	1	7
	Total	258	5,47	1,147	,071	5,33	5,61	1	7
Little or no guidelines and obligatory requirements, i.e. a limited structure	similar to regular students	53	4,19	1,545	,212	3,76	4,61	1	7
	very true of me	204	3,97	1,643	,115	3,74	4,20	1	7
	Total	257	4,02	1,623	,101	3,82	4,21	1	7
Focuses on personal development of competences and skills	similar to regular students	53	5,64	1,058	,145	5,35	5,93	2	7
	very true of me	205	5,79	1,117	,078	5,63	5,94	1	7
	Total	258	5,76	1,105	,069	5,62	5,89	1	7

Focuses on academic thinking	similar to regular students	53	5,49	1,049	,144	5,20	5,78	3	7
	very true of me	205	5,90	1,055	,074	5,75	6,04	1	7
	Total	258	5,81	1,064	,066	5,68	5,94	1	7
Focuses on practical applications of knowledge	similar to regular students	53	5,04	1,358	,187	4,66	5,41	1	7
	very true of me	205	5,54	1,215	,085	5,37	5,70	1	7
	Total	258	5,43	1,259	,078	5,28	5,59	1	7
Teachers coach students, not supervise the entire learning experience	similar to regular students	53	5,68	1,052	,145	5,39	5,97	3	7
	very true of me	204	5,81	1,077	,075	5,66	5,96	1	7
	Total	257	5,78	1,071	,067	5,65	5,91	1	7
No additional costs (no fee on top of the regular tuition fee)	similar to regular students	53	6,23	1,154	,159	5,91	6,54	1	7
	very true of me	205	6,45	1,156	,081	6,29	6,61	1	7
	Total	258	6,41	1,157	,072	6,27	6,55	1	7
Provides participants with extra ECTS	similar to regular students	53	5,40	1,306	,179	5,04	5,76	1	7
	very true of me	205	5,73	1,503	,105	5,52	5,93	1	7
	Total	258	5,66	1,468	,091	5,48	5,84	1	7
Provides participants with formal acknowledgement for completion	similar to regular students	53	6,40	,817	,112	6,17	6,62	4	7
	very true of me	205	6,63	,727	,051	6,53	6,73	2	7
	Total	258	6,58	,751	,047	6,49	6,67	2	7
Allows to pursue more advanced educational alternatives	similar to regular students	53	5,45	1,030	,141	5,17	5,74	1	7
	very true of me	205	6,16	1,036	,072	6,01	6,30	1	7
	Total	258	6,01	1,071	,067	5,88	6,14	1	7
Allows to acquire a better job position in the labour market	similar to regular students	53	5,70	1,137	,156	5,38	6,01	1	7
	very true of me	205	6,11	1,137	,079	5,95	6,26	1	7
	Total	258	6,02	1,147	,071	5,88	6,16	1	7

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Only well-performing students (high grades)	Between Groups	32,413	1	32,413	14,228	,000
	Within Groups	583,199	256	2,278		
	Total	615,612	257			
Highly selective and exclusive (only best x% students invited)	Between Groups	59,374	1	59,374	25,042	,000
	Within Groups	606,971	256	2,371		
	Total	666,345	257			
Creation of a close community through active participation and student-student interaction	Between Groups	2,490	1	2,490	1,470	,226
	Within Groups	433,541	256	1,694		
	Total	436,031	257			

Small-scale learning environment (limited amount of students + close and personal relationships)	Between Groups	2,079	1	2,079	2,115	,147
	Within Groups	251,673	256	,983		
	Total	253,752	257			
Great deal of group work as opposed to individual work	Between Groups	,120	1	,120	,050	,823
	Within Groups	612,841	256	2,394		
	Total	612,961	257			
Lectures and seminars as the primary educational method as opposed to assignments	Between Groups	1,420	1	1,420	,700	,403
	Within Groups	518,941	256	2,027		
	Total	520,360	257			
During the full bachelor phase, instead of in a limited period	Between Groups	8,216	1	8,216	3,161	,077
	Within Groups	665,478	256	2,600		
	Total	673,694	257			
Organised apart from the regular study programmes at the university	Between Groups	1,164	1	1,164	,409	,523
	Within Groups	728,836	256	2,847		
	Total	730,000	257			
Extracurricular, not (partially) intracurricular	Between Groups	1,731	1	1,731	,969	,326
	Within Groups	457,265	256	1,786		
	Total	458,996	257			
Totally different from the regular programme in terms of content	Between Groups	,565	1	,565	,205	,651
	Within Groups	704,942	256	2,754		
	Total	705,508	257			
Challenging and demanding content: subjects are difficult	Between Groups	9,821	1	9,821	9,626	,002
	Within Groups	261,190	256	1,020		
	Total	271,012	257			
Requires students to devote a substantial amount of time and effort	Between Groups	7,337	1	7,337	5,442	,020
	Within Groups	345,148	256	1,348		
	Total	352,484	257			
Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)	Between Groups	,356	1	,356	,163	,687
	Within Groups	557,379	255	2,186		
	Total	557,735	256			
Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)	Between Groups	12,933	1	12,933	6,293	,013
	Within Groups	526,079	256	2,055		
	Total	539,012	257			
Great deal of freedom to discover and explore my own field of interest	Between Groups	4,160	1	4,160	3,442	,065
	Within Groups	309,440	256	1,209		
	Total	313,601	257			

Focuses on the initiative and responsibility of the student	Between Groups	5,241	1	5,241	4,029	,046
	Within Groups	333,011	256	1,301		
	Total	338,252	257			
Little or no guidelines and obligatory requirements, i.e. a limited structure	Between Groups	2,001	1	2,001	,759	,384
	Within Groups	671,937	255	2,635		
	Total	673,938	256			
Focuses on personal development of competences and skills	Between Groups	,872	1	,872	,713	,399
	Within Groups	312,745	256	1,222		
	Total	313,616	257			
Focuses on academic thinking	Between Groups	6,976	1	6,976	6,286	,013
	Within Groups	284,094	256	1,110		
	Total	291,070	257			
Focuses on practical applications of knowledge	Between Groups	10,480	1	10,480	6,759	,010
	Within Groups	396,900	256	1,550		
	Total	407,380	257			
Teachers coach students, not supervise the entire learning experience	Between Groups	,706	1	,706	,615	,434
	Within Groups	293,091	255	1,149		
	Total	293,798	256			
No additional costs (no fee on top of the regular tuition fee)	Between Groups	2,175	1	2,175	1,627	,203
	Within Groups	342,093	256	1,336		
	Total	344,267	257			
Provides participants with extra ECTS	Between Groups	4,603	1	4,603	2,145	,144
	Within Groups	549,382	256	2,146		
	Total	553,984	257			
Provides participants with formal acknowledgement for completion	Between Groups	2,287	1	2,287	4,109	,044
	Within Groups	142,504	256	,557		
	Total	144,791	257			
Allows to pursue more advanced educational alternatives	Between Groups	20,828	1	20,828	19,450	,000
	Within Groups	274,137	256	1,071		
	Total	294,965	257			
Allows to acquire a better job position in the labour market	Between Groups	7,052	1	7,052	5,457	,020
	Within Groups	330,809	256	1,292		
	Total	337,860	257			

Appendix 6: ANCOVA and the Kruskal-Wallis H Test

Appendix 6.1 ANCOVA: high-ability students

Tests of Between-Subjects Effects

Dependent Variable: Highly selective and exclusive (only best x% students invited)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	32,204 ^a	4	8,051	3,245	,013
Intercept	33,871	1	33,871	13,652	,000
BG_1	2,187	1	2,187	,881	,349
BG_2	,071	1	,071	,029	,866
BG_5	1,166	1	1,166	,470	,494
HA_	29,683	1	29,683	11,964	,001
Error	627,703	253	2,481		
Total	6410,000	258			
Corrected Total	659,907	257			

a. R Squared = ,049 (Adjusted R Squared = ,034)

Tests of Between-Subjects Effects

Dependent Variable: Small-scale learning environment (limited amount students + close and personal relationships)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9,584 ^a	4	2,396	2,483	,044
Intercept	41,397	1	41,397	42,895	,000
BG_1	3,858	1	3,858	3,998	,047
BG_2	,173	1	,173	,179	,673
BG_5	1,054	1	1,054	1,092	,297
HA_	4,345	1	4,345	4,503	,035
Error	244,167	253	,965		
Total	9446,000	258			
Corrected Total	253,752	257			

a. R Squared = ,038 (Adjusted R Squared = ,023)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of High-ability (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,748	Retain the null hypothesis.
2	The distribution of Small-scale learning environment (limited amount students + close and personal relationships) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,091	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: During the full bachelor phase, instead of in a limited period

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	23,993 ^a	4	5,998	2,319	,058
Intercept	17,278	1	17,278	6,681	,010
BG_1	4,396	1	4,396	1,700	,193
BG_2	1,304	1	1,304	,504	,478
BG_5	,076	1	,076	,029	,864
HA_	16,791	1	16,791	6,493	,011
Error	654,259	253	2,586		
Total	7483,000	258			
Corrected Total	678,252	257			

a. R Squared = ,035 (Adjusted R Squared = ,020)

Tests of Between-Subjects Effects

Dependent Variable: Challenging and demanding content: subjects are difficult

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16,985 ^a	4	4,246	4,229	,002
Intercept	67,916	1	67,916	67,642	,000
BG_1	3,777	1	3,777	3,761	,054
BG_2	1,599	1	1,599	1,593	,208
BG_5	,014	1	,014	,014	,907
HA_	10,649	1	10,649	10,606	,001
Error	254,027	253	1,004		
Total	7749,000	258			
Corrected Total	271,012	257			

a. R Squared = ,063 (Adjusted R Squared = ,048)

Tests of Between-Subjects Effects

Dependent Variable: Requires students to devote a substantial amount of time and effort

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9,357 ^a	4	2,339	1,722	,146
Intercept	37,414	1	37,414	27,537	,000
BG_1	1,978	1	1,978	1,456	,229
BG_2	2,598E-5	1	2,598E-5	,000	,997
BG_5	,001	1	,001	,001	,975
HA_	6,948	1	6,948	5,114	,025
Error	343,748	253	1,359		
Total	6419,000	258			
Corrected Total	353,105	257			

a. R Squared = ,026 (Adjusted R Squared = ,011)

Tests of Between-Subjects Effects

Dependent Variable: Great deal of freedom to discover and explore my own field of interest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	22,095 ^a	4	5,524	4,794	,001
Intercept	12,655	1	12,655	10,984	,001
BG_1	5,877	1	5,877	5,100	,025
BG_2	8,906	1	8,906	7,730	,006
BG_5	2,923	1	2,923	2,537	,112
HA_	4,964	1	4,964	4,308	,039
Error	291,506	253	1,152		
Total	8815,000	258			
Corrected Total	313,601	257			

a. R Squared = ,070 (Adjusted R Squared = ,056)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of High-ability (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,748	Retain the null hypothesis.
2	The distribution of Great deal of freedom to discover and explore my own field of interest is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,110	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of High-ability (recoded) is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,292	Retain the null hypothesis.
2	The distribution of Great deal of freedom to discover and explore my own field of interest is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,325	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: Focuses on personal development of competences and skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12,220 ^a	4	3,055	2,556	,039
Intercept	43,305	1	43,305	36,236	,000
BG_1	4,608	1	4,608	3,856	,051
BG_2	,099	1	,099	,083	,774
BG_5	,008	1	,008	,007	,933
HA_	7,624	1	7,624	6,379	,012
Error	302,358	253	1,195		
Total	8885,000	258			
Corrected Total	314,578	257			

a. R Squared = ,039 (Adjusted R Squared = ,024)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on academic thinking

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15,453 ^a	4	3,863	3,537	,008
Intercept	26,463	1	26,463	24,228	,000
BG_1	5,815	1	5,815	5,323	,022
BG_2	,455	1	,455	,416	,519
BG_5	1,361	1	1,361	1,246	,265
HA_	6,487	1	6,487	5,939	,015
Error	276,345	253	1,092		
Total	9036,000	258			
Corrected Total	291,798	257			

a. R Squared = ,053 (Adjusted R Squared = ,038)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of High-ability (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,748	Retain the null hypothesis.
2	The distribution of Focuses on academic thinking is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,036	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Focuses on academic thinking

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Male	similar to regular students	23	5,52	1,123	,234	5,04	6,01	3	7
	very true of me	56	5,61	1,246	,166	5,27	5,94	2	7
	Total	79	5,58	1,205	,136	5,31	5,85	2	7
Female	similar to regular students	56	5,63	,822	,110	5,40	5,85	3	7
	very true of me	124	6,06	1,023	,092	5,87	6,24	1	7
	Total	180	5,92	,983	,073	5,78	6,07	1	7

ANOVA

Focuses on academic thinking

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	,119	1	,119	,081	,777
	Within Groups	113,096	77	1,469		
	Total	113,215	78			
Female	Between Groups	7,181	1	7,181	7,713	,006
	Within Groups	165,730	178	,931		
	Total	172,911	179			

Tests of Between-Subjects Effects

Dependent Variable: Provides participants with formal acknowledgement for completion

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7,759 ^a	4	1,940	3,581	,007
Intercept	55,018	1	55,018	101,580	,000
BG_1	3,285	1	3,285	6,065	,014
BG_2	,162	1	,162	,300	,585
BG_5	1,022	1	1,022	1,886	,171
HA_	3,687	1	3,687	6,807	,010
Error	137,032	253	,542		
Total	11320,000	258			
Corrected Total	144,791	257			

a. R Squared = ,054 (Adjusted R Squared = ,039)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of High-ability (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,748	Retain the null hypothesis.
2	The distribution of Provides participants with formal acknowledgement for completion is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,053	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: Allows to pursue more advanced educational alternatives

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20,688 ^a	4	5,172	4,771	,001
Intercept	49,846	1	49,846	45,979	,000
BG_1	2,815	1	2,815	2,596	,108
BG_2	,313	1	,313	,289	,591
BG_5	,156	1	,156	,144	,704
HA_	17,996	1	17,996	16,600	,000
Error	274,277	253	1,084		
Total	9619,000	258			
Corrected Total	294,965	257			

a. R Squared = ,070 (Adjusted R Squared = ,055)

Tests of Between-Subjects Effects

Dependent Variable: Allows to acquire a better job position in the labour market

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14,450 ^a	4	3,612	2,826	,025
Intercept	54,619	1	54,619	42,728	,000
BG_1	7,805	1	7,805	6,106	,014
BG_2	,856	1	,856	,669	,414
BG_5	,033	1	,033	,026	,873
HA_	6,112	1	6,112	4,782	,030
Error	323,411	253	1,278		
Total	9698,000	258			
Corrected Total	337,860	257			

a. R Squared = ,043 (Adjusted R Squared = ,028)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of High-ability (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,748	Retain the null hypothesis.
2	The distribution of Allows to acquire a better job position in the labour market is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,015	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Allows to acquire a better job position in the labour market

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
						Male	similar to regular students		
	very true of me	56	5,89	1,330	,178	5,54	6,25	1	7
	Total	79	5,77	1,250	,141	5,49	6,05	1	7
Female	similar to regular students	56	5,93	1,076	,144	5,64	6,22	1	7
	very true of me	124	6,23	1,075	,097	6,04	6,43	1	7
	Total	180	6,14	1,082	,081	5,98	6,30	1	7

ANOVA

Allows to acquire a better job position in the labour market

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	2,802	1	2,802	1,812	,182
	Within Groups	119,096	77	1,547		
	Total	121,899	78			
Female	Between Groups	3,596	1	3,596	3,108	,080
	Within Groups	205,932	178	1,157		
	Total	209,528	179			

Appendix 6.2 ANCOVA: above-average ability

Tests of Between-Subjects Effects

Dependent Variable: Only well-performing students (high grades)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20,435 ^a	4	5,109	2,163	,074
Intercept	20,456	1	20,456	8,661	,004
BG_1	,893	1	,893	,378	,539
BG_2	,370	1	,370	,157	,693
BG_5	1,316	1	1,316	,557	,456
AAA_	17,387	1	17,387	7,362	,007
Error	595,176	252	2,362		
Total	6941,000	257			
Corrected Total	615,611	256			

a. R Squared = ,033 (Adjusted R Squared = ,018)

Tests of Between-Subjects Effects

Dependent Variable: Highly selective and exclusive (only best x% students invited)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	45,444 ^a	4	11,361	4,682	,001
Intercept	31,836	1	31,836	13,120	,000
BG_1	,593	1	,593	,244	,622
BG_2	,076	1	,076	,031	,860
BG_5	,750	1	,750	,309	,579
AAA_	43,060	1	43,060	17,745	,000
Error	611,490	252	2,427		
Total	6401,000	257			
Corrected Total	656,934	256			

a. R Squared = ,069 (Adjusted R Squared = ,054)

Tests of Between-Subjects Effects

Dependent Variable: Small-scale learning environment (limited amount students + close and personal relationships)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10,383 ^a	4	2,596	2,731	,030
Intercept	40,409	1	40,409	42,522	,000
BG_1	5,019	1	5,019	5,281	,022
BG_2	,173	1	,173	,182	,670
BG_5	1,127	1	1,127	1,186	,277
AAA_	5,130	1	5,130	5,399	,021
Error	239,477	252	,950		
Total	9430,000	257			
Corrected Total	249,860	256			

a. R Squared = ,042 (Adjusted R Squared = ,026)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Above-average ability (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,083	Retain the null hypothesis.
2	The distribution of Small-scale learning environment (limited amount students + close and personal relationships) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,077	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: Organised apart from the regular study programmes at the university

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21,495 ^a	4	5,374	1,911	,109
Intercept	49,899	1	49,899	17,750	,000
BG_1	1,274	1	1,274	,453	,501
BG_2	4,677	1	4,677	1,664	,198
BG_5	,187	1	,187	,066	,797
AAA_	15,161	1	15,161	5,393	,021
Error	708,443	252	2,811		
Total	4810,000	257			
Corrected Total	729,938	256			

a. R Squared = ,029 (Adjusted R Squared = ,014)

Tests of Between-Subjects Effects

Dependent Variable: Challenging and demanding content: subjects are difficult

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10,580 ^a	4	2,645	2,677	,032
Intercept	65,799	1	65,799	66,609	,000
BG_1	2,596	1	2,596	2,628	,106
BG_2	1,321	1	1,321	1,338	,249
BG_5	,065	1	,065	,066	,798
AAA_	5,068	1	5,068	5,130	,024
Error	248,938	252	,988		
Total	7745,000	257			
Corrected Total	259,518	256			

a. R Squared = ,041 (Adjusted R Squared = ,026)

Tests of Between-Subjects Effects

Dependent Variable: Allows to pursue more advanced educational alternatives

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8,487 ^a	4	2,122	1,893	,112
Intercept	47,674	1	47,674	42,540	,000
BG_1	3,792	1	3,792	3,384	,067
BG_2	,104	1	,104	,093	,761
BG_5	,002	1	,002	,002	,963
AAA_	5,567	1	5,567	4,968	,027
Error	282,416	252	1,121		
Total	9603,000	257			
Corrected Total	290,903	256			

a. R Squared = ,029 (Adjusted R Squared = ,014)

Appendix 6.3 ANCOVA: creativity

Tests of Between-Subjects Effects

Dependent Variable: Extracurricular, not (partially) intracurricular

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16,279 ^a	4	4,070	2,291	,060
Intercept	42,936	1	42,936	24,173	,000
BG_1	4,040	1	4,040	2,274	,133
BG_2	1,155	1	1,155	,650	,421
BG_5	4,333	1	4,333	2,439	,120
CREA_	7,618	1	7,618	4,289	,039
Error	440,488	248	1,776		
Total	8562,000	253			
Corrected Total	456,767	252			

a. R Squared = ,036 (Adjusted R Squared = ,020)

Tests of Between-Subjects Effects

Dependent Variable: Totally different from the regular programme in terms of content

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	28,212 ^a	4	7,053	2,661	,033
Intercept	55,524	1	55,524	20,949	,000
BG_1	,976	1	,976	,368	,545
BG_2	11,110	1	11,110	4,192	,042
BG_5	4,062	1	4,062	1,532	,217
CREA_	16,255	1	16,255	6,133	,014
Error	657,298	248	2,650		
Total	5135,000	253			
Corrected Total	685,510	252			

a. R Squared = ,041 (Adjusted R Squared = ,026)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Creativity (recoded) is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,538	Retain the null hypothesis.
2	The distribution of Totally different from the regular programme in terms of content is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,319	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: Requires students to devote a substantial amount of time and effort

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7,205 ^a	4	1,801	1,315	,265
Intercept	32,389	1	32,389	23,640	,000
BG_1	1,386	1	1,386	1,011	,316
BG_2	,157	1	,157	,115	,735
BG_5	,051	1	,051	,037	,847
CREA_	5,165	1	5,165	3,770	,053
Error	339,783	248	1,370		
Total	6288,000	253			
Corrected Total	346,988	252			

a. R Squared = ,021 (Adjusted R Squared = ,005)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on broadening the knowledge/skills: perspectives from variety of fields/disciplines (multi- or interdisciplinary)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	22,852 ^a	4	5,713	2,672	,033
Intercept	67,488	1	67,488	31,571	,000
BG_1	,004	1	,004	,002	,967
BG_2	1,463	1	1,463	,684	,409
BG_5	3,037	1	3,037	1,421	,234
CREA_	16,562	1	16,562	7,748	,006
Error	528,005	247	2,138		
Total	8108,000	252			
Corrected Total	550,857	251			

a. R Squared = ,041 (Adjusted R Squared = ,026)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on the initiative and responsibility of the student

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14,114 ^a	4	3,528	2,832	,025
Intercept	14,659	1	14,659	11,766	,001
BG_1	3,301	1	3,301	2,649	,105
BG_2	4,751	1	4,751	3,814	,052
BG_5	,179	1	,179	,144	,705
CREA_	5,904	1	5,904	4,739	,030
Error	308,969	248	1,246		
Total	7905,000	253			
Corrected Total	323,083	252			

a. R Squared = ,044 (Adjusted R Squared = ,028)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on personal development of competences and skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	18,993 ^a	4	4,748	4,063	,003
Intercept	39,327	1	39,327	33,653	,000
BG_1	5,528	1	5,528	4,731	,031
BG_2	,001	1	,001	,001	,981
BG_5	,150	1	,150	,129	,720
CREA_	14,605	1	14,605	12,498	,000
Error	289,813	248	1,169		
Total	8688,000	253			
Corrected Total	308,806	252			

a. R Squared = ,062 (Adjusted R Squared = ,046)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Creativity (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,303	Retain the null hypothesis.
2	The distribution of Focuses on personal development of competences and skills is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,112	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: Focuses on academic thinking

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	17,310 ^a	4	4,328	4,009	,004
Intercept	24,303	1	24,303	22,515	,000
BG_1	6,480	1	6,480	6,003	,015
BG_2	,861	1	,861	,798	,373
BG_5	,679	1	,679	,629	,428
CREA_	8,323	1	8,323	7,710	,006
Error	267,686	248	1,079		
Total	8861,000	253			
Corrected Total	284,996	252			

a. R Squared = ,061 (Adjusted R Squared = ,046)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Creativity (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,303	Retain the null hypothesis.
2	The distribution of Focuses on academic thinking is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,037	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Focuses on academic thinking

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Male	similar to regular students	32	5,47	1,077	,190	5,08	5,86	3	7
	very true of me	45	5,67	1,279	,191	5,28	6,05	2	7
	Total	77	5,58	1,196	,136	5,31	5,86	2	7
Female	similar to regular students	86	5,70	,946	,102	5,49	5,90	3	7
	very true of me	91	6,13	,980	,103	5,93	6,34	1	7
	Total	177	5,92	,985	,074	5,77	6,07	1	7

ANOVA

Focuses on academic thinking

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	,733	1	,733	,509	,478
	Within Groups	107,969	75	1,440		
	Total	108,701	76			
Female	Between Groups	8,336	1	8,336	8,974	,003
	Within Groups	162,557	175	,929		
	Total	170,893	176			

Tests of Between-Subjects Effects

Dependent Variable: Allows to pursue more advanced educational alternatives

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7,605 ^a	4	1,901	1,688	,153
Intercept	51,456	1	51,456	45,680	,000
BG_1	2,006	1	2,006	1,781	,183
BG_2	,150	1	,150	,133	,716
BG_5	,071	1	,071	,063	,803
CREA_	5,894	1	5,894	5,233	,023
Error	279,359	248	1,126		
Total	9431,000	253			
Corrected Total	286,964	252			

a. R Squared = ,027 (Adjusted R Squared = ,011)

Appendix 6.4 ANCOVA: task commitment

Tests of Between-Subjects Effects

Dependent Variable: Only well-performing students (high grades)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	35,441 ^a	4	8,860	3,849	,005
Intercept	22,492	1	22,492	9,769	,002
BG_1	,016	1	,016	,007	,933
BG_2	,137	1	,137	,059	,808
BG_5	1,958	1	1,958	,850	,357
TC_	33,093	1	33,093	14,374	,000
Error	580,170	252	2,302		
Total	6941,000	257			
Corrected Total	615,611	256			

a. R Squared = ,058 (Adjusted R Squared = ,043)

Tests of Between-Subjects Effects

Dependent Variable: Highly selective and exclusive (only best x% students invited)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	66,118 ^a	4	16,530	7,104	,000
Intercept	35,240	1	35,240	15,145	,000
BG_1	3,795	1	3,795	1,631	,203
BG_2	,300	1	,300	,129	,720
BG_5	1,508	1	1,508	,648	,422
TC_	64,033	1	64,033	27,520	,000
Error	586,357	252	2,327		
Total	6406,000	257			
Corrected Total	652,475	256			

a. R Squared = ,101 (Adjusted R Squared = ,087)

Tests of Between-Subjects Effects

Dependent Variable: Challenging and demanding content: subjects are difficult

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16,973 ^a	4	4,243	4,253	,002
Intercept	67,582	1	67,582	67,739	,000
BG_1	5,269	1	5,269	5,281	,022
BG_2	1,751	1	1,751	1,755	,186
BG_5	,034	1	,034	,034	,854
TC_	10,714	1	10,714	10,739	,001
Error	251,416	252	,998		
Total	7700,000	257			
Corrected Total	268,389	256			

a. R Squared = ,063 (Adjusted R Squared = ,048)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Task commitment (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,355	Retain the null hypothesis.
2	The distribution of Challenging and demanding content: subjects are difficult is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,041	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Challenging and demanding content: subjects are difficult

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
						Male	similar to regular students		
	very true of me	60	5,72	,958	,124	5,47	5,96	3	7
	Total	79	5,58	,928	,104	5,37	5,79	3	7
Female	similar to regular students	34	4,91	1,083	,186	4,53	5,29	2	7
	very true of me	145	5,39	1,035	,086	5,22	5,56	2	7
	Total	179	5,30	1,058	,079	5,14	5,45	2	7

ANOVA

Challenging and demanding content: subjects are difficult

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	4,506	1	4,506	5,532	,021
	Within Groups	62,710	77	,814		
	Total	67,215	78			
Female	Between Groups	6,200	1	6,200	5,682	,018
	Within Groups	193,108	177	1,091		
	Total	199,307	178			

Tests of Between-Subjects Effects

Dependent Variable: Requires students to devote a substantial amount of time and effort

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10,375 ^a	4	2,594	1,914	,109
Intercept	37,305	1	37,305	27,536	,000
BG_1	2,880	1	2,880	2,126	,146
BG_2	,004	1	,004	,003	,958
BG_5	,048	1	,048	,035	,851
TC_	7,931	1	7,931	5,854	,016
Error	341,400	252	1,355		
Total	6383,000	257			
Corrected Total	351,774	256			

a. R Squared = ,029 (Adjusted R Squared = ,014)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on deepening the knowledge/skills in field of regular study programme (disciplinary)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15,632 ^a	4	3,908	1,889	,113
Intercept	32,715	1	32,715	15,810	,000
BG_1	2,329	1	2,329	1,126	,290
BG_2	,033	1	,033	,016	,899
BG_5	,048	1	,048	,023	,879
TC_	11,880	1	11,880	5,741	,017
Error	521,458	252	2,069		
Total	8001,000	257			
Corrected Total	537,089	256			

a. R Squared = ,029 (Adjusted R Squared = ,014)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on the initiative and responsibility of the student

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9,950 ^a	4	2,488	1,911	,109
Intercept	19,417	1	19,417	14,917	,000
BG_1	1,593	1	1,593	1,224	,270
BG_2	2,728	1	2,728	2,096	,149
BG_5	,027	1	,027	,021	,886
TC_	4,098	1	4,098	3,148	,077
Error	328,019	252	1,302		
Total	8019,000	257			
Corrected Total	337,969	256			

a. R Squared = ,029 (Adjusted R Squared = ,014)

Tests of Between-Subjects Effects

Dependent Variable: Focuses on academic thinking

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16,177 ^a	4	4,044	3,716	,006
Intercept	26,337	1	26,337	24,202	,000
BG_1	4,463	1	4,463	4,101	,044
BG_2	,378	1	,378	,347	,556
BG_5	1,966	1	1,966	1,806	,180
TC_	7,043	1	7,043	6,472	,012
Error	274,228	252	1,088		
Total	8987,000	257			
Corrected Total	290,405	256			

a. R Squared = ,056 (Adjusted R Squared = ,041)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Task commitment (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,355	Retain the null hypothesis.
2	The distribution of Focuses on academic thinking is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,041	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Focuses on academic thinking

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Male	similar to regular students	19	5,32	1,336	,306	4,67	5,96	3	7
	very true of me	60	5,67	1,160	,150	5,37	5,97	2	7
	Total	79	5,58	1,205	,136	5,31	5,85	2	7
Female	similar to regular students	34	5,59	,857	,147	5,29	5,89	3	7
	very true of me	145	5,99	,996	,083	5,83	6,16	1	7
	Total	179	5,92	,982	,073	5,77	6,06	1	7

ANOVA

Focuses on academic thinking

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	1,777	1	1,777	1,228	,271
	Within Groups	111,439	77	1,447		
	Total	113,215	78			
Female	Between Groups	4,515	1	4,515	4,778	,030
	Within Groups	167,228	177	,945		
	Total	171,743	178			

Tests of Between-Subjects Effects

Dependent Variable: Focuses on practical applications of knowledge

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	24,988 ^a	4	6,247	4,139	,003
Intercept	43,697	1	43,697	28,953	,000
BG_1	12,735	1	12,735	8,438	,004
BG_2	,898	1	,898	,595	,441
BG_5	,611	1	,611	,405	,525
TC_	8,888	1	8,888	5,889	,016
Error	380,327	252	1,509		
Total	8010,000	257			
Corrected Total	405,315	256			

a. R Squared = ,062 (Adjusted R Squared = ,047)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Task commitment (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,355	Retain the null hypothesis.
2	The distribution of Focuses on practical applications of knowledge is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,007	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Focuses on practical applications of knowledge

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Male	similar to regular students	19	4,84	1,463	,336	4,14	5,55	1	7
	very true of me	60	5,18	1,359	,175	4,83	5,53	1	7
	Total	79	5,10	1,383	,156	4,79	5,41	1	7
Female	similar to regular students	34	5,15	1,306	,224	4,69	5,60	1	7
	very true of me	145	5,68	1,122	,093	5,50	5,87	2	7
	Total	179	5,58	1,175	,088	5,41	5,75	1	7

ANOVA

Focuses on practical applications of knowledge

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	1,680	1	1,680	,877	,352
	Within Groups	147,510	77	1,916		
	Total	149,190	78			
Female	Between Groups	7,904	1	7,904	5,886	,016
	Within Groups	237,672	177	1,343		
	Total	245,575	178			

Tests of Between-Subjects Effects

Dependent Variable: Provides participants with formal acknowledgement for completion

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6,511 ^a	4	1,628	2,970	,020
Intercept	54,723	1	54,723	99,854	,000
BG_1	2,715	1	2,715	4,954	,027
BG_2	,145	1	,145	,265	,607
BG_5	1,079	1	1,079	1,968	,162
TC_	2,406	1	2,406	4,390	,037
Error	138,104	252	,548		
Total	11271,000	257			
Corrected Total	144,615	256			

a. R Squared = ,045 (Adjusted R Squared = ,030)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Task commitment (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,355	Retain the null hypothesis.
2	The distribution of Provides participants with formal acknowledgement for completion is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,057	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Tests of Between-Subjects Effects

Dependent Variable: Allows to pursue more advanced educational alternatives

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	22,904 ^a	4	5,726	5,323	,000
Intercept	49,795	1	49,795	46,290	,000
BG_1	1,568	1	1,568	1,458	,228
BG_2	,410	1	,410	,382	,537
BG_5	,426	1	,426	,396	,530
TC_	20,400	1	20,400	18,964	,000
Error	271,081	252	1,076		
Total	9570,000	257			
Corrected Total	293,984	256			

a. R Squared = ,078 (Adjusted R Squared = ,063)

Tests of Between-Subjects Effects

Dependent Variable: Allows to acquire a better job position in the labour market

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14,216 ^a	4	3,554	2,776	,028
Intercept	54,477	1	54,477	42,543	,000
BG_1	6,418	1	6,418	5,012	,026
BG_2	,925	1	,925	,722	,396
BG_5	,000	1	,000	,000	,991
TC_	6,253	1	6,253	4,884	,028
Error	322,686	252	1,281		
Total	9649,000	257			
Corrected Total	336,903	256			

a. R Squared = ,042 (Adjusted R Squared = ,027)

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Task commitment (recoded) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,355	Retain the null hypothesis.
2	The distribution of Allows to acquire a better job position in the labour market is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	,017	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Descriptives

Allows to acquire a better job position in the labour market

Gender		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Male	similar to regular students	19	5,53	,964	,221	5,06	5,99	4	7
	very true of me	60	5,85	1,325	,171	5,51	6,19	1	7
	Total	79	5,77	1,250	,141	5,49	6,05	1	7
Female	similar to regular students	34	5,79	1,225	,210	5,37	6,22	1	7
	very true of me	145	6,21	1,035	,086	6,04	6,38	1	7
	Total	179	6,13	1,083	,081	5,97	6,29	1	7

ANOVA

Allows to acquire a better job position in the labour market

Gender		Sum of Squares	df	Mean Square	F	Sig.
Male	Between Groups	1,512	1	1,512	,967	,329
	Within Groups	120,387	77	1,563		
	Total	121,899	78			
Female	Between Groups	4,851	1	4,851	4,210	,042
	Within Groups	203,931	177	1,152		
	Total	208,782	178			