MASTER THESIS 13-07-2016

FACTORS INFLUENCING DROPOUT BEHAVIOUR OF GIFTED STUDENTS

The influence of giftedness indicators and environmental, personal, and demographical factors on gifted students' dropout behaviour in giftedness programs

Researcher
Elke Hartman
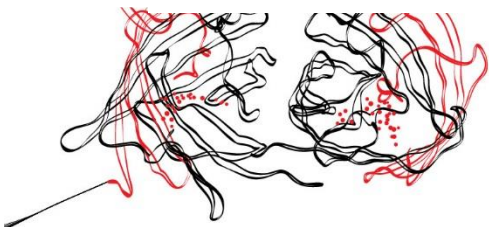e.h.m.hartman@student.utwente.nl

Supervisors University of Twente
dr. Tessa Eysink
t.h.s.eysink@utwente.nl

dr. Hans Luyten
j.w.luyten@utwente.nl

twents CARMEL college

UNIVERSITEIT TWENTE.

Table of content

Acknowledgment

This research was made possible by Twents Carmel College (TCC), a secondary high school, who requested an evaluative research at their giftedness program. This research will give more insight in factors influencing dropout behaviour of gifted students.

First, I would like to show my gratitude to my supervisors Tessa Eysink and Hans Luyten for sharing their knowledge and experience with me during the course of this research. They provided me with feedback on the research design and execution that continuously improved the research.

Secondly, I want to thank all the members of the giftedness work group at TCC with in particular Karin Staal who provided insight and expertise that largely assisted the conduction of this research. She gave me the space and opportunity to grow as a researcher during the design and conduction of the research.

Thirdly, I want to thank my family and friends for supporting me during the whole course of the research. Special thanks go out to Lynn Buschers for the valuable brainstorm and feedback sessions. Thanks to all of you.

Elke Hartman
Enschede, 2016

Summary

In Dutch education there is a growing interest in the intellectual stronger students (Blaas, Buurman, Hoogland, Kos, & Stam, 2012). One of the reasons for this growing interest is that these gifted students have a high risk of dropping out in regular education programs (Renzulli & Park, 2000). That is why many Dutch secondary schools have started giftedness programs to meet their gifted needs. Despite these specially designed giftedness programs, practice shows that gifted students still dropout when they participate in a giftedness program. According to Mönks and Ypenburg (1995), Gagné (1995), Heller (1992), and Renzulli and Park (2000) there are different environmental, personal, and demographical factors that have influence on students' achievements and therefore also on their dropout behaviour.

For this reason this study investigated which environmental, personal, and demographical factors contribute to gifted students' dropout behaviour (1), and to which extent giftedness indicators and environmental, personal, and demographic factors contribute to students dropping out of a giftedness program (2). The research started off with a qualitative part, consisting of context analysis based on interviews and a document analysis and a literature study. Output from the qualitative part functioned as input for the quantitative part, which consisted of gathering data by conducting a questionnaire and collecting existing data. A gifted dropout is defined as someone who did not complete the giftedness program due to; a) achieving below determined potential or b) achieving according to potential, but dropped out due to other reasons. Based on the results, the following conclusions can be made: first, the intelligence component (IST) and the motivational component (FES) of the giftedness indicator test from CBO are not good predictors of dropout behaviour of gifted students, whereas cito score is a (small) predictor of dropout due to achieving below determined potential. Secondly, location seems to have influence on dropping out due to other reasons. Thirdly, gifted male students are more inclined to drop out due to achieving below determined potential and females are more inclined to drop out due to other reasons. First, it is recommended to use the selection criteria flexible and to keep looking for other predicting selection criteria, because the current selection criteria are not comprehensive. Secondly, to overcome dropout due to other reasons at school locations it is recommended to increase students' intrinsic motivation by giving assignments that are new, challenging, and interesting for the students and by offering choices in their own learning. Thirdly, it is recommended for teachers to include task managing and -preparing into the daily curriculum, to help male students in carrying out executive functions.

1. Introduction

Generally, tailored education is given to the intellectually weaker students, while the stronger students are offered little or no cross-curricular material (Blaas, Buurman, Hoogland, Kos, & Stam, 2012). Regular classes often do not provide gifted students with the intellectual challenges they need (Van Tassel-Baska, Feldhusen, Seeley, Wheatley, Silverman, & Foster, 1998). It even seems that gifted students in the regular education programs have a high risk of dropping out (Renzulli & Park, 2000). Renzulli and Park (2000) state that approximately 20% of the high school students that dropout, are gifted. This dropout of gifted students is caused by the social and emotional difficulties they experience in the traditional school setting, because the curriculum is not adapted to their level and pace of learning (Neihart, Reis, Robinson, & Moon, 2002). So, the traditional curriculum does not meet the needs of gifted students. This is remarkable, since one of the tasks of Dutch education is to reveal the talents of all students in such a way that they can continuously develop themselves (Wet op Primair Onderwijs, artikel 8). Therefore, the current Ministry of Education aims to give more attention to the excellent performances of students in school curricula, as well as giving attention to the weaker students (OCW, 2011). Specific solutions of the Ministry of Education aim at improving the performances of the best performing students in primary education, pre-university education, and higher education (OCW, 2011). This research focuses on trajectories for pre-university education.

To meet the needs of these gifted students and reduce dropout, all kinds of different, specific measures are applied. Examples are: enrichment within the class, pull-out programs, summer programs, acceleration, separate classes, and separate schools (Hoogeveen, van Hell, Mooij, & Verhoeven, 2004). *Enrichment* occurs when the gifted students are offered a more challenging curriculum than typical (Doolaard & Oudbier, 2010). Forms of enrichment are *pull-out programs* where the gifted students are educated separately, or school programs, where the gifted students participate in extra-curricular activities. Research has shown that gifted students participating in enrichment programs benefit from them, because the program provides them with peers of the same intellectual level (Colangelo & Davis, 2002). *Acceleration* occurs when the student passes through the regular curriculum more rapidly than typical. Forms of acceleration are grade skipping, early entrance to following education, and subject-matter acceleration (Rogers, 2002). Research on acceleration has shown multiple academic benefits for gifted students and states that acceleration does not negatively affect them (Colangelo, Assouline, & Gross, 2004). In programs where both acceleration and enrichment occurs, gifted students are enabled to make continuous progress in school (Loveless, Farkas, & Duffett, 2008). These forms can be found in both full time and part time gifted education programs. With for example *summer schools* as a part time program and full-time *separate classes* or *schools* as full time programs (van Boxtel, Daemberg, Ermans, van Gerven, Kremens, & Minderman, 2013). In the separate class variant, the class consists of only gifted students, where they are separated from the non-gifted.

Even though many initiatives in the curriculum are implemented in the Dutch education system, practice shows that gifted students in giftedness programs still dropout. As mentioned before, the gifted students benefit from the special giftedness programs (Colangelo & Davis, 2002; Colangelo, Assouline, & Gross, 2004; Loveless, Farkas, & Duffett, 2008), meaning that it is not the curriculum that causes gifted students to drop out. Other factors may therefore have led gifted students to drop out. To get insight in other factors that contribute to gifted students' dropout behaviour, it is necessary to explain what is meant by the concept 'giftedness'. In literature, there are many different terms referring to giftedness: highly potential, highly gifted/intelligent, gifted, highly talented, and excellent students. In this study we will use the term *gifted*. But even though there are many different definitions, there seems to be consensus about characteristics that indicate giftedness. Much research has been done to determine fundamental characteristics underlying the term giftedness. According to Heylighen (2007), Renzulli (1977), Gagné, (1995), and Gardner (2002) fundamental characteristics and indicators of giftedness are high intelligence, creativity, and complex motivational traits. All three characteristics need to exist in order to be gifted. According to Zonnefeld (2011), students who have high intelligence and creativity, but lack the necessary

motivation, will not fully develop their giftedness, which in turn might influence dropout behaviour. In this study, the way in which gifted students are indicated is important.

Even though there is consensus about the characteristics and indicators of gifted individuals, the meaning of giftedness differs in underlying elements and the interaction between these elements. The relationship between these elements is displayed in several giftedness models. Examples of well-known models are: Multifactor model of Mönks (1985), Multifactor model of Heller (1992); and Differentiated Model of Giftedness and Talent (DMGT) of Gagné (1995). There are many differences and similarities between the models. The Multifactor model of Mönks involves the interaction between (intellectual) ability, persistence (task orientation), and creativity. Mönk and Ypenburg (1995) state that environmental factors determine to what extent or whether giftedness will be realized. More specifically, according to them, school, friends, and family are the crucial factors. The Multifactor Model of Heller (1992) agrees and adds that there is a dynamic between ability factors, non-cognitive personality traits, and environmental factors on whether gifted behaviour is realized. Gagné (1995) agrees with this by stating that both environmental and personal factors influence gifted potential. Gagné (1995) looks at giftedness as a natural ability and talent, as something that can be developed. Because of two catalysts (intrapersonal catalyst and environment catalyst) on the learning process, the natural ability will be converted into talent. Renzulli and Park (2000) state the importance of demographic factors like, for example, gender and socioeconomic status, in research at gifted students.

Mönks and Ypenburg (1995), Gagné (1995), Heller (1992), and Renzulli and Park (2000) state that there are different environmental, personal, and demographical factors that might have influence on students' achievements and therefore also on their dropout behaviour. In this study all three categories are important, although the underlying context dependent factors are still unknown.

First, this study focuses on identifying the underlying factors of the environmental, personal, and demographical categories that have direct influence on dropout behaviour. Secondly, the focus is on looking at the relation of these factors and giftedness indicators with gifted students' dropout behaviour. The purpose is to learn from the past and to allow educationalists to consider changes for gifted students in the future. This study, therefore, focuses on answering the following research question:

'To what extents do giftedness indicators, environmental, personal, and demographical factors directly influence students' dropout behaviour?'

This research question is translated into a research model (Figure 1). The relationship between giftedness indicators and dropout behaviour is indicated as A. According to many researchers, environmental, personal, and demographical factors could influence gifted achievements (Gagné, 1995; Mönk & Ypenburg, 1995) and, therefore, their dropout behaviour. In the research model this relationship is indicated as B.
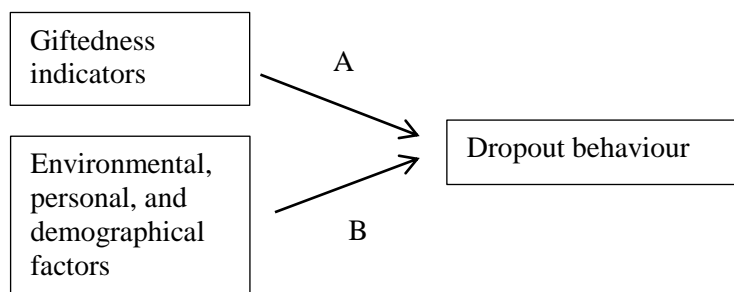

Figure 1. Research model

The research question will be answered on basis of the following sub questions:

- Sub question 1: *Which giftedness indicators and environmental, personal, and demographical factors contribute to gifted students' dropout behaviour?*
- Sub question 2: *To what extent do giftedness indicators have an influence on students' dropout behaviour?(A)*
- Sub question 3: *To what extent do the different environmental, personal, and demographical factors influence dropout behaviour? (B)*

The design of this study is a cross-sectional correlational study based on sequential qualitative input and quantitative data. In the first part, this study focuses on a qualitative measure, being context analysis based on interviews and documents and a literature study. From the context analysis a listing of factors flows, which offer a starting point for the literature study. The literature study gives further insight in the listed factors and a final selection of the factors will be made based on hypotheses. In the second part, this study focuses on the quantitative measurement of the factors that flow from the context analysis and literature study in the form of a questionnaire.

To answer the research questions, a secondary school that faces the problem of early drop out in their giftedness program, was investigated. The school that was selected is Twents Carmel College (TCC), a Dutch secondary school. Four schools of TCC in the East of the Netherlands participated: two in Oldenzaal, one in Losser, and one in Denekamp. In the school year 2010-2011 they started with giftedness program for the more intellectually and cognitively gifted pre-university (in Dutch: VWO) students on all four locations.

     The giftedness program at TCC is given in both the junior and senior classes. The junior classes' giftedness program and the senior classes' giftedness program are fundamentally different. In the senior classes, the students are not in the same, separate giftedness class anymore and they work with a personal program without whole classroom instruction. Besides that, more students have participated in the junior classes in comparison with the senior classes. Because of these two reasons, this study focuses on the junior classes (classes 1, 2, and 3).

2. Qualitative method

The goal of the qualitative method is to identify which factors belong to indicate giftedness and the environmental, personal, and demographical categories according to the context. This qualitative part consists of a context analysis based on interviews and a document analysis and a literature study.

2.1 Respondents

For the interviews in the qualitative part five members of educational personnel of the TCC giftedness program were interviewed. Three of the educational staff members were teacher leaders and three were also teaching staff of the giftedness classes. Two interviewed persons were from location Thij, one from location Lyceum, one from location Denekamp, and one from location Losser. Three of the educational staff members were part of a work group of the giftedness program. This work group gets together once every two months, to discuss topics related to the giftedness program.

2.2 Instrument

The instrument that was used in the qualitative part of this study was a semi-structured interview scheme. The interview scheme was based on five global questions; (a) the way students are being selected, (b) the way the gifted curriculum is offered, (c) students' reasons for dropping out of the program, (d) factors that

contribute to students' dropout, and (e) possible measures that could reduce dropout. These questions gave further insight into the context of TCC. The interview scheme is shown in Appendix A.

2.3 Procedure and data analysis
The interviews with the educational personnel lasted approximately 60 minutes and were held individually. In this way comparison between the different interviews outcomes could be made to create a clear image of present issues at TCC concerning dropout within the giftedness program. The interviews had an informal structure, thereby stimulating that an extensive conversation would start. The researcher recorded the semi-structured interviews in writing. After the interviews, the written recordings were elaborated digitally. Subsequently the digital interview fragments were linked to set concepts: giftedness and environmental, personal, and demographical factors.

Besides interviews, the context analysis also consisted of a document analysis. The sources of documents were; public records, website, private papers, and meeting agendas. First, the researcher gathered information from the school. Secondly, the researcher identified and inductively linked important components from the documents to set concepts (giftedness and environmental, personal, and demographical factors). Thirdly, the interrelationships among the documents and set concepts were specified. All the important factors that were covered at least one time in the interviews or in the document analysis were mentioned in the context analysis.

3. Context analysis Twents Carmel College (TCC)
In this chapter, information about giftedness and environmental, personal, and demographical factors influencing dropout of gifted students in the context of TCC, are elaborated. These factors are underlined, because they are important factors according to the context analysis.

3.1 Giftedness
The giftedness program at TCC is exclusively for students who are gifted. Whether students are labelled as gifted depends on the selection procedure that TCC operates. The selection procedure is based on 5 components: (a) primary school advice, (b) cito score, (c) the CBO test, (d) motivation interview, and (e) personal letter of motivation. The first important selection tool of giftedness is the cito score, which indicates whether a student has eligible intelligence for making the CBO test. The cito test is a test that students make at the end of primary school and, which helps teachers to determine the type of secondary education that is suitable for the student. During the interviews it turned out that three out of the five interviewed teachers wondered whether this cito score of students could predict their dropout behaviour. For that reason cito score will be included in this study as a (pre-)giftedness indicator of intelligence. The most decisive selection tool at TCC is the CBO test, whereas the personal letter of motivation and the motivation interview are of less importance. This is because the letter of motivation and the motivational interview function as making acquaintance. According to two of the interviewed persons, the choice whether a student participates in the giftedness program is generally already made before the motivational letter and interview takes place. When it is doubtful if a gifted student is suitable for the program, the motivational letter and interview will be used as decision maker.

In this study, students' gifted abilities are indicated by a giftedness test called the CBO test. CBO (Centrum voor Begaafdheidsonderzoek) is a Dutch giftedness expertise centre for giftedness research and focuses, among other things, on the diagnosis of the gifted in forms of screening days or (group) tests with varying possible components (Centrum voor begaafdheidsonderzoek, 2016). The CBO test consists of two components, being IST (Intelligentie Structuur Test) and FES (Fragebogen zur Erfassung des Erkenntnisstrebens). The IST is an intelligence test and consists of three parts: intelligence, memory, and knowledge. The FES is a questionnaire that measures willingness to learn. Willingness to learn is defined as: 'willingness to provide (cognitive) effort, to gain knowledge in an independent manner' (Centrum voor Begaafdheidsonderzoek, 2016). This test gives insight in the motivation of students for gaining

knowledge. Together with a giftedness expert of CBO, TCC analyses and judges the IST- and FES scores. Potential gifted students are thus researched extensively on whether they are indeed gifted or not. In this study, the score on the CBO test mostly indicates the degree of students' giftedness. Even though the CBO test indicates whether students are gifted or not, the majority of the interviewed personnel doubts whether the CBO test is a good predictor of students' success in the giftedness program.

In the context of this study, a gifted dropout is defined as someone who did not complete the giftedness program due to; 1) achieving below determined potential or 2) achieving according to potential, but dropped out due to other reasons. Besides dropout due to achieving below determined potential and dropout due to other reasons, non-dropout students are involved. Whether or not students achieved according to their gifted potential is indicated as follows: gifted achievement means whether students achieve according to their gifted potential determined in the selection procedure. Students who perform below determined potential in this study are indicated by their lack of sufficient grades. The written guidelines for dropping out of the giftedness program state that a gifted student becomes a discussion case when he or she has one inadequate grade (grades are given from 1 to 10, where a 1 is lowest and 10 is the highest possible grade. Students must achieve at least a 5.5 grade for it to be a sufficient grade). Non-dropout students are students that still participate in the giftedness program or have finished the giftedness program sufficiently.

3.2 Environmental factors
Different forms of environmental factors were found when analysing the interview recordings: study environment and social environment. Study environment includes location, school switching, and class enrolment. Social environment includes skills and factors concerning parental support and peer grouping.

3.3.1 Study environment
The locations Denekamp and Losser only offer education to junior classes (grade 1 and 2) in their schools. Lyceumstraat and Thij both offer education to junior and senior classes. When students from Denekamp and Losser pass from grade 2 to grade 3 they are obliged to move to another location and as a result have to switch schools. The difference between Denekamp and Losser, and Thij and Lyceum is that the former schools are located in a small town with a small student population, whereas the latter are located in a relatively big city with a large student population.

Currently, there are 6 classes that enrolled in the giftedness program in the junior classes. Small changes in the giftedness program are made in between the years and that is why it is important to take the year of enrolment of the class into account. The first gifted class enrolled in the school year 2010/2011 and this class is currently (school year 2015/2016) in their graduation year. The students that enrolled in 2010/2011 are not included in this study, because the amount of students from that school year is very small. This is due to the fact that those students have indeed finished the giftedness program appropriately in the junior classes, but dropped a level once they went to the senior classes. Some of these students dropped out in the senior classes to HAVO, and graduated in school year 2014/2015. Graduated students of that school year are already removed from the school's student file. Students that enrolled in the giftedness program in school year 2015/2016 are also not included in this study, because they have just started the program and therefore had a smaller chance to drop out.

3.3.2 Social environment
One interviewed teacher states that the home situation of students could be of influence on their dropout behaviour. Taking time for offering sufficient support from family, or specifically parents, on their children's learning positively influences their study performances. The interviewed teacher mentioned that unsupportive parents might give their children the idea that their work is unimportant and they will

therefore take less effort in schoolwork. The teacher expects that this is more often the case in families with a low socio-economic status.

All interviewed persons state that TCC uses two different kinds of peer grouping in their giftedness programs. Students of two locations (Thij and Lyceum) are grouped on ability, which means that only gifted students are put in one separate class. Students of the other two locations (Denekamp and Losser) are not grouped on ability, which means that gifted students and non-gifted students are grouped together in one class. The reason for this difference is that the classes must at least contain 30 students. In Denekamp and Losser there are less than 30 gifted students available and, for that reason, the class must be added with non-gifted students.

3.3 Personal factors

As mentioned before, classes at TCC must contain at least approximately 30 students due to practical reasons. According to two of the interviewed teachers this does not only account for the classes that are not grouped on ability, but also for the separate ability classes. These separate giftedness classes are not homogeneously distributed, meaning that not all placed students are equally suited to follow the giftedness program. Furthermore there are too little gifted students to fill an entire class. The students are divided into having low (-), medium (+/-), and high (+) potential. According to one of the teacher leaders, the highly potential gifted students are students that have a high potential in attending and completing the giftedness program. Opposite to the high potential students are the so-called low potential students. They are still suitable for participating in the giftedness program, but have less potential in completing it, in comparison to the high potential gifted students. This giftedness level seems to be an important factor, because the workgroup of the giftedness program of TCC has done informal evaluations over the years and it seems that a large amounts of gifted students characterized as having high (+) potential according to the selection procedure ultimately perform worse in the program than was expected of them and drop out of the giftedness program. The giftedness level is relative, which means that the giftedness scores of the students' in the same year are compared with each other.

According to a couple of interviewed teachers, some students might be disadvantaged in the giftedness program because of personal disorders that influence their performance, like dyslexia or forms of autism. Despite the possible influence of these disorders, other interviewed teachers state that gifted students are capable of hiding their disorders because they excel in other parts.

One hour is scheduled every week for classical time for students with their mentor, where they focus on 'learning to learn'. The majority of the interviewed teachers state that many gifted students might not have enough of these learning skills; in particular, they lack in their self-regulatory skills, which are needed in secondary schools to invest time and plan homework and exams. Some students' never had to put effort into learning study material and so they are not used to learn. According to educational personnel, that is the reason why gifted students lack self-regulatory skills. This lack of practical learning skills, according to the interviewed teachers, influences their achievement and also their dropout behaviour.

Every school subject at TCC is structured into four learning strategies. The first two are strategies where students need to remember and understand content and the second two are strategies where students need to integrate and apply learned content. According to two interviewed teachers gifted students mostly have difficulties with remembering and understanding learning content, but are very good at integrating and applying learning content. Students need both strategies to score high on tests and to go through the program without difficulty.

3.4 Demographical factors

The majority of the interviewed teachers state that there are <u>gender</u> differences when it comes to drop out behaviour. More boys than girls seem to drop out from the giftedness program. They feel that girls perform better in comparison with boys, because they are more serious and are more determined to finish the giftedness program.

Most interviewed teachers think that some students in the junior classes are already smarter than their parents because of lower achieved educational levels, so that they cannot help them with the content of their schoolwork. They state that parents with a higher <u>educational level</u> are better capable of helping their gifted children with their school work than parents with a lower educational level. As a result the interviewed educational personnel think that some students might be slightly (dis)advantaged.

3.5 Selected factors based on the context analysis

Giftedness indicators and different environmental, personal, and demographical factors emerged from the context analysis. In Table 1 the results of the context analysis are displayed. The factors that flowed from the context analysis are further researched in a literature study. The literature study will provide information about what is known about the abovementioned factors. On basis of expectations from research, multiple hypotheses were drawn to investigate in this study.

Table 1

Factors associated with giftedness and environmental, personal, and demographical factors
.

Giftedness indicators	Environmental factors		Personal factors	Demographical factors
	Study environment	Social environment		
Intelligence (Cito and IST) Motivation (FES)	Location Switching schools Year of enrolment	Parental support Ability grouping	Relative giftedness level Disorders Self-regulation skills Remembering, Understanding, Integrating, and Applying	Gender Educational level of parents

4. Literature study

In this chapter the literature study on the factors from the context analysis are elaborated in the different paragraphs. Literature that focuses on dropout, dropout due to other reasons, and dropout due to achieving below determined potential are examined. Informed choices are made whether this study will examine these factors or not. Based on the informed choices, hypotheses are made.

4.1 Giftedness

In the context of TCC, giftedness is based on intelligence (cito and IST) and motivation (FES) and is not indicated by creativity levels. Therefore, the focus in this study will be on intelligence and motivation as giftedness indicators. In research, no clear definition of intelligence is given (Gardner, 1983; Sternberg, 1986) and the terms intelligence, aptitude, and ability are used interchangeably (Gardner, 1983; Sternberg, 1986; Kerr, 2009). For that reason, this study approaches intelligence in terms of characteristics instead of

one definition. Kerr (2009) states that intelligent persons learn more quickly, deeply, and broadly than their peers. They have high verbal comprehension, fluid reasoning, excellent working memory, a large vocabulary, perceptual reasoning ability, processing speed, and advanced knowledge (Kerr, 2009). No specific literature was found on intelligence in combination with gifted dropout behaviour. However, it will be taken into consideration in this study because research indicates that it is an important giftedness indicator.

Motivation is the degree of invested effort and attention in different activities (Christensen, 2007), which can influence gifted students' dropout decisions (Matthews, 2008). A lack of self-motivation can result in underachieving (Reis, Colbert, & Hebert, 2005). Research by Phillips and Linsday (2006) proposes that both intrinsic and extrinsic motivations are important for maximum gifted achievement. According to Lewis (2011), intrinsic motivation is "a person's desire that flows from a person's internal desire for self-satisfaction and pleasure in performing the task itself" (p. 1). Even though both motivational components are important, Phillips and Lindsay (2006) emphasize that intrinsic motivation plays a more significant role in students' gifted achievements than extrinsic motivation, because high intrinsic motivation seems to be more valuable in the learning process (Phillips & Lindsay, 2006). For that reason this study will focus on intrinsic motivation of gifted students.

> *H1: Students with a high intrinsic motivation are less inclined to drop out from the giftedness program than students who have a low intrinsic motivation.*

4.2 Study environment

<u>Switching schools.</u> When students switch schools, they have a higher chance at the risk of dropping out of high school (Gasper, DeLuca, & Estacion, 2014). This particularly depends on the reason why they switch schools. When students switch school for reasons different than improving from one grade to the next one, for example, switching schools has a higher risk of dropping out (Gasper, DeLuca, & Estacion, 2014). Even though the abovementioned is not the case in this study, switching schools can still have some impact. In a stable condition, parents can monitor their child's progress in school and provide guidance (Gasper, DeLuca, & Estacion, 2014). Moving from school could disrupt this stable condition which can disturb routines, which influences the relationship with parents and limits the degree to which parents rely on social networks to gain knowledge about the quality of the school and the availability of educational programs (Hagan, MacMillan, & Wheaton, 1996). Kerbow, Azcoitia, and Buell (2003) state that changing schools might have a negative influence on students' educational achievements. This has for instance to do with altering connections with teachers. Next to that it causes disruption in learning environment, goals, and assessment between the former and the new school. This might work as a disadvantage on the students who switch schools with regard to academic performances, educational aspirations, and satisfaction with the school (Gasper, DeLuca, & Estacion, 2014). In the context of this study, students from Denekamp and Losser have to switch schools, but only minor changes in their learning environment occur. The schools in which they switch are part of the same school organization, which means that the way in which education is given is fundamentally the same. Next to that, students switch as a group. That is why this factor is not taken into account in this study.

<u>Location.</u> The environmental condition 'school location' could be explained in terms of urban or rural (Osokoya & Akuche, 2012) or in terms of student population size. Urban means that the school is located in a city and rural means a school located in a small village environment. According to Osokoya and Akuche (2012), school location influences students' learning outcomes in general. Literature shows different perspectives on whether urban or rural schools are more or less beneficial for students' outcomes and their dropout behaviour (Osokoya & Akuche, 2012). Schools with a lower student population size seem more beneficial for quality of academic outcomes (Cotton, 2001). Evidence on small schools being more beneficial than larger schools especially increased over the past few years (Cotton, 2001). Barker

(2008) states that small schools are more beneficial in comparison to bigger schools, because they provide a better quality of education. This higher quality in education is caused by benefits in the areas of personal relationships, students, teachers, administration, and curriculum and instruction (Beckner, 1983). Cotton (2001) agrees and adds that small schools generate better academic outcomes and produce a better school climate.

Literature suggests that small schools are more beneficial than bigger schools on students' outcomes (Beckner, 1983; Cotton, 2001; Barker, 2008). This suggestion is based on students in general and not specifically on gifted students. Because there is no literature specifically on the influence of school location on the learning outcomes of gifted students, this study will take a closer look at small schools being a more beneficial location for gifted students than large schools.

H2: Gifted students in large schools are more inclined to drop out from the giftedness program than gifted students in small schools.

Year of enrolment. Even though there was no literature found on the year of enrolment and gifted dropout behaviour, it will be taken into consideration in this study, based on the importance stated in the context analysis.

4.3 Social environment
Parental support. Over the years, many giftedness studies looked at the relationship of dropout and difficulties in the family situation (Fine, 1977; Morrow & Wilson, 1964). Parents play a fundamentally important role in the positive education and development of the gifted (O'Neill, 1978). Research shows that the underachieving dropouts repeatedly experienced unsupporting parents, parental rejection, and aggression, when in fact the achievers had accepting and caring parents (Colangelo & Dettmann, 1983). Fine (1977) also mentions that when parents pressure their children to achieve, also cause them to achieve below potential. On the other hand, when parents give their children independence, personal autonomy, support, and assistance they are more likely to develop their giftedness in a positive manner (Fine, 1977). Therefore, family should cope with their gifted child in a healthy way. That is, the child must be given space to develop his talents and that parents should encourage this development in a balanced manner (Subotnik, Olszewski-Kubilius, & Worrell, 2011). Because most of the literature about parental support in the home situation in relation to giftedness is done in between the years 1960 and 1980, this research will take a further look into the parental support and its possible influence in current education.

H3: Gifted students that dropped out due to underachieving, had less supportive parents than gifted students that have not dropped out of the giftedness program.

Ability grouping. When students are grouped on ability they are divided on basis of their perceived learning abilities and students of the same educational level are placed together in the same group for instruction (Adodo & Agbayewa, 2011). Johnson, Johnson, and Taylor (2001) compared the achievements and attitudes of gifted students in homogeneous and heterogeneous classes. They found out that gifted students in a homogeneous class are committed in higher level thinking and had a higher level of self-esteem. Hunt and Seney's (2001) agree and add that homogeneous grouping increases academic performances. Therefore, homogeneous ability groups achieve better than heterogeneous groups (Adodo & Agbayewa, 2011; Plucker & Callahan, 2014) and are less inclined to drop out. Research of Emily, Robert, and Michael (2003) state something different: their research indicates that both homogeneous and heterogeneous ability grouping are not better in promoting achievements of students.

Because of the contradicting outcomes in literature, this study takes ability grouping into account, based on the following hypothesis:

H4: The gifted students in the homogeneous ability class are less inclined to drop out than the gifted students in the heterogeneous ability class.

4.4 Personal factors

Relative giftedness level. Literature shows that gifted students can be classified in different gifted potential categories. Heller, Monks, Sternberg, and Subotnik (2000) state that intellectually gifted students can be classified as gifted in the categories mild, moderate, high, exceptional, and profound. These categories of giftedness are mostly defined by IQ scores. Mildly gifted students have an IQ score between 115 and 129, moderately gifted students have an IQ score between 130 and 144, highly gifted students have an IQ score between 145 and 159, exceptionally gifted students have an IQ score between 160 and 179, and profoundly gifted students have an IQ score of 180 and above. The IQ score gives insight in understanding the differences in mental processing between mildly gifted and profoundly gifted students (Heller et al., 2000). The best way to educate these students in different giftedness levels varies widely with each student (Carolyn, 2012). For that reason it seems necessary for teachers to take the different levels of giftedness into account because the gifted students are not like the majority, but they are unique individuals for whom chances in the educational program must be made in-between for both gifted abilities and disabilities (Carolyn, 2012). Teachers are inclined to approach gifted students as one homogeneous group, with an equal giftedness distribution (Heller et al., 2000; Betts & Neihart, 1988). As mentioned, gifted students have different levels of giftedness. When these different levels are ignored by the teacher, gifted students that are different will be disadvantaged and this might result in dropout.

There are different ways in which distinctions in level of giftedness are made. This means that it is not generally standardized (Carolyn, 2012). In the context of this study, the relative levels of giftedness are distinguished based on the CBO test score. There is little research on the relative giftedness levels of gifted students and their dropout behaviour. Therefore, it seems interesting to take this into account to see whether the relative giftedness level where a student belongs predicts students' dropout behaviour.

H5: The relative giftedness level of students indicates the dropout behaviour of the gifted student.

Remembering, Understanding, Integrating, and Applying. Learning content in tests can be distinguished in 'knowing and understanding' and 'using' the learning material (Baum & Owen, 1988). This results in test questions with remembering and understanding aspects, which ensure reproductive learning, and integrating and applying aspects, which ensure insightful learning (Cheng, 1993). According to Cheng (1993), an essential component of giftedness is having excellent metacognitive ability, like high abstract reasoning ability. Clark (1992) and Porter (1999) add that gifted students have unusual well developed memory and advanced intelligence and are therefore rather good in remembering content. Intelligence is the capacity to reason, solve problems, obtain knowledge, adapt to situations, and memorize content (Sattler, 2008). Sattler (2008) continues with stating that gifted students have an advanced level of knowledge and a high ability to assimilate and integrate underlying patterns. They learn concepts quickly, but extremely dislike drill and practice tasks (which are used for remembering content); they prefer open-ended tasks and real-world problems (which are used for understanding, integrating, and applying) (Baum & Owen, 1988).

Research shows that gifted students are advanced in both remembering and understanding on the one hand and integrating and applying on the other hand and not specifically only in integrating and applying (Cheng, 1993; Clark, 1992; Porter, 1999). Research thus indicates no distinction is made in achievement with both remembering and understanding on the one hand and integrating and applying on the other hand. Hence, it is not important for the dropout behaviour of gifted students and it will not be taken into consideration in this study.

Self-regulated learning. According to Pintrich (2000), self-regulated learning is "an active constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual

features in the environment" (p. 453). A self-regulated learner uses learning strategies to facilitate learning and improve his/her achievements. When self-regulation skills are not present, it can result in underachievement of students. Successful academic achievements in school can be linked back at use of self-regulated learning strategies (Zimmerman, 1989). Teachers could teach self-regulated strategies for students to learn (Zimmerman, 1989). There are contradicting statements in research at the self-regulated learning strategies of gifted students. One the one hand, research indicates that gifted students have better self-regulated learning strategies than their peers with average ability. Risemberg and Zimmerman (2010) even state that gifted students spontaneously apply self-regulation strategies more often than non-gifted students. On the other hand, gifted students may have achieved high on school subjects with the absence of good self-regulation strategies, because of their high ability (Reis, Hébert, Diaz, Maxfield, & Ratley, 1995).When learning is relatively simple for a person, less effort, organizing, and other self-regulated activities are needed.

Literature suggests contradicting statements considering the self-regulated learning strategies of gifted students. This contradiction makes it interesting to investigate which statement is true. So this study makes the following assumption based on found literature:

H6: The extent to which gifted students possess self-regulated learning skills influences their dropout due to achieving below determined potential in the giftedness program.

Study disorders. Gifted individuals come in different forms, backgrounds, abilities, and disabilities (Reis and Renzulli, 2009). A gifted student with a disability is also called twice-exceptional. According to Brody and Mills (1997), twice-exceptional students are "gifted students with the potential for high performance, along with the characteristics of students with disabilities who struggle with many aspects of learning*"* (p. 282). So students can be gifted, but they can also have an autism spectrum disorder, learning or physical disabilities, vision, hearing or speech impairments, traumatic brain injuries, or emotional disabilities. Gifted students with a disability could show outstanding strengths in one area and disabling weaknesses in other areas (Baum, 1990). It is the contrast between the abilities and disabilities of a gifted student that creates struggle and makes school a discouraging experience for gifted students who have a disorder (Brody & Mills, 1997). Disorders might therefore be a reason for students to drop out and that is why this study takes a further look into disorders of gifted students that could have effect on their learning.

H7: When gifted students have a study disorder, they tend to drop out faster than gifted students without a study disorder.

4.5 Demographical factors

Gender. It is important to offer favourable circumstances in schools for both gifted boys and girls to develop their full potential. Preckel, Goetz, Pekrun, and Kleine (2008) did research on the gender differences in gifted and average-ability students. They found that the gender differences in gifted students where larger than in the average-ability students, with boys achieving higher tests scores and scoring higher on academic self-concept, interest, and motivation. Therefore, it is needed that curriculum resources and teaching approaches take gender differences into account, especially in gifted education (Preckel et al., 2008). For example, gifted girls are more inclined to take time to think and discuss their understanding, while boys are found to give up deeper understanding rather quickly (Boaler, Wiliam, & Brown, 2000). It seems that gifted girls react less positive to pace, pressure and competition than gifted boys (Boaler, Wiliam, & Brown, 2000).

Literature shows no evidence about whether boys or girls are more inclined to drop out due to achieving below their determined gifted potential or due to other reasons. Because of the stated importance of gender differences and the lack of evidence between boys or girls on this topic, this study will take a further look at the possible difference.

H8: There is a difference between gifted males and gifted females in their dropout behaviour in the giftedness program.

Educational level of parents. Students from enriched backgrounds usually perform better in school than those who do not come from enriched backgrounds (NAGC, 2008). Students from underprivileged households may have high potential of achieving in school, but are less likely to be identified as such due to low access to material and knowledge (Worrell, 2007). According to Worrell (2007), the educational level of parents has influence on the resource availability (both material and knowledge) and, therefore, also on students' academic performances in general. However, this information refers to average achieving students and no specific information on gifted students is found. Because of this lack on specific information regarding educational level of parents on their gifted children's dropout behaviour, this study takes a closer look at it, predicting that the educational level of parents has influence on the academic performances of their gifted children and also on their dropout behaviour.

H9: Gifted students with parents that have a low educational level are more inclined to drop out of the giftedness program than gifted students with parents that have a high educational level.

4.6 Final selection

The literature study gave further insight whether giftedness indicators and environmental, personal, and demographical factors might influence gifted students' dropout behaviour. Hypotheses about the selected factors were drawn to be investigated in the quantitative part of this study. These selected factors are presented in Table 2.

Table 2

Final selection with factors associated with giftedness and environmental, personal, and demographical factors
.

Giftedness indicators	Environmental factors		Personal factors	Demographical factors
	Study environment	Social environment		
Intelligence (Cito and IST) Motivation (FES)	Location Year of enrolment	Parental support Ability grouping	Relative giftedness level Disorders Self-regulation skills	Gender Educational level of parents

5. Quantitative method

The goal of the quantitative method was to look at the relation between giftedness indicators, environmental factors, personal factors, and demographical factors and dropout behaviour. Therefore, existing data was used and when extra data was necessary it was collected by conducting a questionnaire. Students' cito score, IST score, FES scores, school location, ability grouping, relative giftedness level, and gender were factors that were obtained by existing data from the school. Parental support, self-regulation strategies, students' disorders, and educational level of parents were factors that were obtained by conducting a questionnaire.

5.1 Respondents

The data from the questionnaire was collected among students who participated in the pre-university extra program at TCC. Over the last six school years a total of 407 students joined the giftedness program with an equal gender distribution (male 53% and female 47%). A total of 50.1% of these labelled gifted students dropped out early. A total of 19.4% dropped out due to achieving below potential, 30.7% dropped out due to other reasons, and 49.9% did not drop out of the giftedness program. That is a total of respectively 79, 125, and 203 students. Some of the 407 students had missing items. Therefore, the number of students differs per factor.

5.2 Instrument

The instrument that was used was a questionnaire. The questionnaire consisted of three parts: self-regulatory skills, parental support, and extra questions. Self-regulatory skills was measured by 24 questions, divided into time management, concentration skills, taking notes, test strategies, organizing, and processing information. Response options were ranging from 1 'totally agree' to 4 'totally disagree', with higher score indicating higher self-regulatory skills. Parental support was measured by 4 questions. The questions contained statements that could be scored from 1 '(almost) every day' to 4 '(almost) never', with a higher score indicating lower parental support. The questionnaire also contained extra questions concerning study disorders and the educational level of father and mother. The categories of the educational level of the father and mother were: VMBO, HAVO, VWO, and unknown. The categories for study disorders were: dyslexia, dyscalculia, anxiety, ADHD, depression, sight- or hear impairments, and autism. The complete questionnaire is shown in Appendix B.

The items of parental support and self-regulatory skills were entered were entered together in a first factor analysis together with the mean score on the scales. The factor structure was investigated by a principal component analysis with oblique rotation (direct oblimin), because the items were allowed to be related to each other. The factor analysis showed that Item 2 had low item total correlation (-.264), which indicates that this item did not belong to the factor 'self-regulated strategies'. Therefore, item 2: *"I studied the night before the test"* was removed. After removing item 2, a second factor analysis was conducted. A two-factor solution explained 28.4% of the variance. All 23 items about self-regulatory skills proved to be one scale. Most factor loadings were around .40 and .50 and explained 17.7% of the variance. The 4 items about parental support proved to be the other factor. The factor loadings were between .59 and .71 and explained 10.6% of the variance. Further, reliability analysis (Chronbach's alpha, α) was used to investigate the reliability of the constructed scales. Values around .6 are sufficient (Field, 2009). The reliability analysis showed that self-regulation strategies had a reliability of α = .77 (after deleting item 2) and parental support had a reliability of α = .63.

5.3 Procedure

The research design consisted of one session where the questionnaire was administered. To administer the questionnaire, both the respondents and their parents had to accept the conditions of the informed and parental consent. This means that both the respondents and their parents were informed about the goals and method of the survey, the estimated time to complete it, and the privacy of the respondents at the beginning of the questionnaire. The researcher also explained the meaning and procedures of the questionnaire to the students in the classroom. Students had to fill in the questionnaire during their lessons with pen and paper. On average it took students about 10 to 15 minutes to complete the questionnaire. The quality of the procedures was guaranteed by the Ethics Commission of University of Twente, which indicated that the study is executed according to the rules and norms of University of Twente.

5.4 Data analysis

The data was analysed to test the hypotheses. First, the data was checked on multicollinearity. To make sure that the level of multicollinearity was not too high, a correlation analysis was made. The correlation matrix of the predictor variables showed that they do not correlate above .34, so this did not indicate a potential problem, meaning that there is no multicollinearity (Bowerman & O'Connell, 1990; Menard, 1995). After ensuring that there was no multicollinearity in the selected variables, the relationships between these variables were examined. A multinomial logistic regression analysis was conducted to test the factors on dropout. A multinomial logistic regression analysis is suitable to conduct when the dependent outcome variable is a nominal (Field, 2009). It is used to describe data and to clarify the relationship between the dependent categorical variable and one or more continuous or categorical independent variables (Field, 2009). The frequency of the dropout behaviour outcome variable informs the selection of a reference group. The non-dropout category is most frequent and is therefore set as the reference group.

6. Results

In this chapter the hypotheses were tested. This is done by elaborating the relations between giftedness indicators, environmental factors, personal factors, and demographical factors and dropout behaviour of gifted students.

6.1 Descriptive statistics

To gain insight in the direction of possible effects of the relationship between the predictors and the outcomes, descriptive statistics are presented in Table 3 and 4. Table 3 shows the descriptive statistics of the continuous predictors per dependent outcome category and Table 4 shows the descriptive statistics of the categorical predictors. The next paragraph will show the general outcomes to explain whether these relations between the predictors and the dependent outcome are significant effects.

Table 3

Means and standard deviations of continuous data

Predictor	Drop out due to achieving below determined potential (N=79)		Drop out due to other reasons (N=125)		Non-dropouts (N=203)	
	M	SD	M	SD	M	SD
Giftedness						
IST (N=401)	137.35	13.20	142.02	15.42	142.47	16.83
FES (N=401)	27.01	5.16	26.78	4.76	28.66	5.23
Cito score (N=375)	546.18	2.54	547.56	2.38	548.12	2.31
Parental support (N=407)	1.91	.38	1.88	.47	1.86	.45
Self-regulatory skills (N=407)	2.34	.20	2.30	.20	2.30	.23

Note. Total N=407

Table 4

Descriptive statistics of categorical data

Predictor	Drop out due to achieving below determined potential	Drop out due to other reasons	Non-dropouts
Location			
Thij (N=139)	20.1	16.6	63.3
Denekamp (N=87)	13.8	44.8	36.8
Lyceum (N=131)	19.1	32.8	48.1
Losser (N=50)	20.0	40.0	40.0
Year of enrolment			
11/12 (N=137)	20.4	47.4	32.2
12/13 (N=90)	24.4	35.6	40.0
13/14 (N=91)	16.5	26.4	57.1
14/15 (N=80)	8.8	2.5	88.8
Ability grouping			
Ability (N=270)	19.6	24.4	56.0
Non-ability (N=133)	16.5	44.4	39.1
Giftedness level			
High (N=78)	10.3	34.6	55.1
Middle (N=297)	20.5	31.7	47.8
Low (N=19)	36.8	21.1	42.1
Study disorder			
Disorder (N=45)	26.7	28.9	44.4
No disorder (N=362)	18.4	30.8	50.3
Gender			
Male (N=219)	26.7	26.7	46.5
Female (N=192)	10.9	35.0	54.0
Educational level mother			
VMBO (N=95)	21.1	40.0	38.9
HAVO (N=76)	13.2	30.3	56.6
VWO (N=67)	10.4	19.4	70.2
Unknown (N=169)	24.9	30.1	45.0
Educational level father			
VMBO (N=97)	18.6	28.9	52.5
HAVO (N=65)	16.9	40.0	43.1
VWO (N=75)	12.0	26.7	61.3
Unknown (N=170)	24.1	30.0	45.9

Note. Numbers are presented in percentages (%). Total N=407

6.2 General outcomes

A logistic regression analysis was conducted to predict the dropout behaviour of gifted students using giftedness (cito, IST and FES), location, year of enrolment, ability grouping, parental support, giftedness level, self-regulatory skills, study disorder, gender, and educational level of parents as predictors. Table 5 shows the outcomes of the predictors in the model.

The model was statistically significant, indicating that the predictors as a set reliably made a distinction (X^2 (44) = 194.36, p < 0.05). The explained variance of the predictors on the independent variable is 47% (Nagelkerke = .47).

Table 5

The effects of all the predictors in the model

Effect	Chi-square	df	*p*
Cito score	7.50	2	.00
IST	.28	2	.87
FES	4.36	2	.11
Location	19.69	4	.00
Year of enrolment	74.02	8	.00
Ability-grouping	.00	0	
Parental support	1.56	2	.46
Giftedness level	5.31	4	.26
Self-regulatory skills	.92	2	.63
Study disorder	2.13	2	.34
Gender	21.93	2	.00
Educational level mother	7.80	6	.25
Educational level father	9.31	6	.16

Note. Nagelkerke = .47

The analysis in SPSS showed that there are some significant predictors of dropout behaviour (cito score, location, year of enrolment, and gender). Only the effects that were significant were entered into a new model, together with the giftedness indicators IST and FES. By doing so, a parsimonious model was created. Table 6 shows this parsimonious model.

Table 6

The effect of the significant predictors in the model

Effect	Chi-square	df	*p*
Cito score	10.87	2	.00
IST	1.31	2	.52
FES	3.77	2	.15
Location	35.74	6	.00
Year of enrolment	71.15	8	.00
Gender	19.37	2	.00

Table 6 shows that IST and FES are still not significant, whereas cito score, location, year of enrolment and gender are significant effects. These effects are significant on dropout behaviour, but not specifically for the different dropout behaviours (due to achieving below determined potential and other reasons). In the next section these significant effects will be elaborated more extensively to check for which relation (dropout due to underachieving or dropout due to other reasons) these significant effects are precisely present.

6.2.1 Giftedness
To test whether the assumed relation between giftedness and dropout behaviour is present, the giftedness effect was tested by conducting a logistic regression analysis, with main outputs effect size and odds ratio. The odds ratio is the relation between the odds and the increase of 1 on the independent variable. When the odds ratio is smaller than 1 it means that the odds are smaller on the non-reference category and when the odds ratio is higher than 1 it means that the odds are higher on the non-reference category in comparison with the reference category (Field, 2009).

Students' score on the cito test significantly predicted whether they dropped out of the giftedness program due to achieving below determined potential b = -.21, Wald X^2 (1) = 9.15, p < .05. In other words, students who had a lower cito score are more inclined to drop out due to achieving below determined potential. However this effect seems rather small.
　　　　Students' score on the cito test did not significantly predict whether they dropped out of the giftedness program due to other reasons b = -.01, Wald X^2 (1) = .01, p > .05.

Whether students had a high score on IST or FES did not significantly predict whether they dropped out of the giftedness program due to achieving below determined potential IST: b = -.01, Wald X^2 (1) = 1.19, p > .05 and FES: b = -.03, Wald X^2 (1) = 1.08, p > .05. Table 7 shows the comparison of dropout students by achieving below determined potential versus non-dropouts.
　　　　Whether students had different scores on IST and FES did also not significantly predict their dropout behaviour due to other reasons IST: b = -.00, Wald X^2 (1) = .00, p > .05, and FES: b = -.05, Wald X^2 (1) = 3.53, p < .05. In other words, the IST and FES score are not able to predict dropout behaviour of students. Table 8 shows the comparison of drop out students by other reasons versus non-dropouts.

6.2.2 Environmental factors
Whether students followed the giftedness program on Thij, Denekamp, Lyceum or Losser did not significantly predict whether they dropped out of the giftedness program due to achieving below determined potential, with location Thij: b = -.61, Wald X^2 (1) = .62, p > .05, location Denekamp: b = -1.04, Wald X^2 (1) = 1.56, p > .05 and, location Lyceum b = -.84, Wald X^2 (1) = 1.11, p > .05 where location Losser is a reference category.
　　　　A second analysis of location showed a significant effect of Thij on the reference category Losser, locations b = -2.28, Wald X^2 (1) = 13.13. This led to a third analysis were the reference categories were changed to respectively Denekamp and Lyceum. These different references categories are indicated in Table 8 with Losser (a), Denekamp (b), and Lyceum (c). The location Thij also significantly predicts whether students dropped out due to other reasons than achieving below determined potential in comparison with Denekamp p < .05, b = -1.60, Wald X^2 (1) = 18.06, p < .05 and Lyceum b = -1.27, Wald X^2 (1) = 12.85, p < .05. In other words, students from location Thij seem less inclined to early dropout of the giftedness program due to other reasons than students from locations Losser, Denekamp and Lyceum.

The year of enrolment of students significantly predicted whether they dropped out of the giftedness program due to achieving below determined potential, with school year 2012/2013: b = -.00, Wald X^2(1) = .00, p > .05, 2013/2014: b = -.39, Wald X^2(1) = .90, p > .05, and 2014/2015: b = -1.61, Wald X^2(1) = 8.29, p < .05 where year of enrolment 2011/2012 is the reference category. In other words, students that enrolled in the year 2014/2015 are less inclined to drop out due to achieving below determined potential than students who enrolled in 2011/2012.
　　　　Years of enrolment 2013/2014 and 2014/2015 significantly predicted whether students dropped out of the giftedness program due to other reasons, with respectively: b = -1.00, Wald X^2(1) = 8.40, p < .05 and, b = -3.66, Wald X^2(1) = 22.99, p < .05. This means that students who enrolled in the school year 2013/2014 and 2014/2015 are more inclined to drop out due to other reasons than students that enrolled in 2011/2012.

6.2.3 Demographical factors

The gender of the person that participated in the giftedness program significantly predicted whether they dropped out of the giftedness program due to achieving below determined potential, $b = 1.04$, Wald X^2 (1) = 7.91, $p < 0.05$. This is the effect of males compared to females, with gender 'female' as reference category. So the odds are higher for males to drop out than for females to drop out due to achieving below potential.

The gender also significantly predicted whether students dropped out of the giftedness program due to other reasons, $b = -.58$, Wald X^2 (1) = 4.02, $p < 0.05$. The direction of the effect is the other way around: the odds are higher for females to drop out than for males to drop out due to other reasons.

Table 7

Dropout by achieving below determined potential vs. non-dropouts

Dropout by achieving below determined potential vs. non-drop outs	95% CI for Odds Ratio	
	B (*p*)	*OR*
Cito score	-.21 (.00)	.81
IST	-.01 (.27)	.99
FES	-.03 (.30)	.97
Location		
Thij	-.61 (.43)	.54
Denekamp	-1.04 (.21)	.35
Lyceum	-.84 (.29)	.43
Losser*		
Year of enrolment		
11/12*		
12/13	-.00 (.99)	.99
13/14	-.39 (.34)	.67
14/15	-1.61 (.00)	.20
Gender		
Male	1.04 (.01)	2.82
Female*		

Note. CI = confidence interval, OR = odds ratio. *Reference category

Table 8

Dropout by other reasons vs. non-dropouts

Dropout by other reasons vs. non-drop outs	95% CI for Odds Ratio	
	B (*p*)	*OR*
Cito Score	-.01 (.92)	.99
IST	-.00 (.95)	.99
FES	-.05 (.06)	.95
Location (a)		
Thij	-2.28 (.00)	.10
Denekamp	-.68 (.28)	.51
Lyceum	-1.02 (.10)	.36
Losser*		
Location (b)		
Thij	-1.60 (.00)	.20
Losser	.68 (.28)	1.98
Lyceum	-.34 (.34)	0.72
Denekamp*		
Location (c)		
Thij	-1.27 (.00)	.28
Denekamp	.34 (.34)	1.40
Losser	1.02 (.10)	2.76
Lyceum*		
Year of enrolment		
11/12*		
12/13	-.26 (.46)	.77
13/14	-1.00 (.00)	.37
14/15	-3.66 (.00)	.03
Gender		
Male	-.58 (.05)	.56
Female*		

Note. CI = confidence interval, OR = odds ratio. *Reference category

7. Discussion

The goal of this study was first to identify the underlying factors of the environmental, personal, and demographical categories that have direct influence on dropout behaviour. Secondly, the goal was to identify the relation between these factors and gifted students' dropout behaviour.

One of the main results of this study is that both IST (which measures intelligence) and FES (which measures intrinsic motivation) have no significant effect on dropout behaviour. This means that the CBO test at TCC has no predicting value on dropout behaviour in the giftedness program. An explanation of the lack of significant effect of IST could be that the validity of the Dutch version of the IST test has not been researched extensively ("De Intelligentie Structuur Test", 2014). So, this indicates that the IST test possibly does not measure what it intended to measure. No research on the connection between IST scores and actual intelligence levels and general school performances has been done before. Therefore the IST test has not been approved by the Dutch Committee on Test Affairs (COTAN) yet ("De Intelligentie Structuur Test", 2014). It is important to not let IST be the only method to make a decision about a students' curriculum, but to keep other criteria involved in the decision, for example the cito score. The results in this study show that the other selection measure, the cito score, has a significant effect on the dropout behaviour of gifted students. Meaning that a student with a relative low cito score is more inclined to drop out than a student with a high cito score. It can be concluded that the cito score has more predicting value than the IST test in the selection procedure; however this effect is rather small. The cito test consists of multiple choice questions, is made to measure aptitude, instead of content knowledge, and gives an indication which approach fits best for a student. A student, who scores low, needs an intensive approach, an average scoring student needs a basic approach, and a high scoring student needs an enriched approach (Cito, 2016). The cito test tries to identify what the student has learned so far, while the CBO test, tries to identify what possibilities a student has (de Jong & van der Wateren, 2011). It seems that these students' possibilities can only be achieved when there is consensus with the curriculum. It is important that, the skills measured in the CBO test are integrated in the curriculum. In this way students can reach their possibilities indicated by the CBO test. When there is no consensus between what is being measured in the CBO test and what is being treated in the giftedness curriculum, the selection measurement is not valid.

An explanation for the lack of significant effect of FES could be that the FES part of the CBO-test consists of questions that are subjective. This means that students had the opportunity to manipulate and give desirable answers to get a higher score on that part of the test. Literature confirms by stating that students are inclined to provide social desirable answers instead of accurate answers in questionnaires (Pintrich & Schunk, 2002; Stiggins, 2001). The reason for students to do this is to make a good impression on the teachers (Paulhus & Reid, 1991). To reduce desirable responses a recommendation would be to test students' motivation in form of indirect open-ended questions concerning motivation were students have to answer what they do (or should do) in different situations instead of what they think (Steenkamp, de Jong, & Baumgartner, 2009) . It is important to be tactical in introducing the purpose of the test, so that students are not primed to answer socially. In this way students' motivation can be measured without their awareness of being measured on motivation (Steenkamp, de Jong, & Baumgartner, 2009). It is also possible to use this form of indirect measurement in an oral form, instead of paper-based test. These forms of individual research on motivation, might give better insight in to the true motivation of students, when methods for decreasing desirable responses are used.

It can be said that this study did not determine which selection criteria are good predictors, but this study did determine which selection criteria are not good predictors. Therefore it is recommended to use the selection criteria flexible. When the selection criteria are used too strictly, then there is an increased risk that eventually only a small amount of students are selected for the giftedness program. The selection criteria do not predict everything, and therefore wrong conclusions can be made on the small effects that this study found and eventually still cause students to drop out. It is therefore also recommended to keep looking for new measures in the selection procedure that might be better predictors. Literature, for example, indicates that creativity is the best way to measure giftedness (Subotnik, Olszewski-Kubilius,

and Worrell, 2011). Therefore, it is recommended to further investigate whether creativity is a good predictor.

Another main result of this study is that the environmental factor 'location' influences dropout due to other reasons and not significant influences dropout due to achieving below determined potential. The expectations in this study were that schools with a smaller student population would be more advantaged and would, therefore, have a lower dropout percentage than the bigger schools. Despite that the results interestingly show that one big school (Thij) has a significant lower dropout rate than the two smaller schools (Denekamp and Losser), indicating the opposite of the expectation made in this study. However the other big school (Lyceum) has no significant lower dropout rate than the two smaller schools. Which in turn means it can be ruled out that bigger schools in generally have a lower dropout rate than smaller schools. It is noteworthy that the bigger school Thij also has significant influence on bigger school Lyceum, meaning that Thij has lower dropout rate due to other reasons than Lyceum. To find out how this result can be explained, further investigation is needed on the reasons why students drop out of the giftedness program. It is recommended to do qualitative research on students' reasons, because qualitative data provides information about needs and behaviours of respondents. Then a comparison between the four schools can be made to see why students attending the locations Lyceum, Denekamp, and Losser are more inclined to drop out due to other reasons than students attending location Thij.

Because location is significant on specifically dropout due to other reasons it can be explained in terms of intrinsic motivation during the program. In practice, this means that students not only need to be intrinsically motivated for being selected in the giftedness program (like measured with FES), but they also need to be highly intrinsically motivated for participating and finishing in the giftedness program, because there is no extrinsic reward that has significant meaning. A practical recommendation would be to motivate students more intrinsically, so that they think it worth to stay in the giftedness program. This could be done by giving tasks that are novel, optimal challenging, and interesting for the students and to offer students that they can make their own choices in learning (Ryan and Deci, 2000).

One of the results of this study shows no effect of ability grouping on the dropout behaviour of gifted students. This contradicts the hypothesis made, stating that students in a homogeneous ability group are less inclined to drop out than students from a heterogeneous ability group. A possible reason that no effect is found is that the factor ability grouping had overlap with the factor location, because ability grouping was based on school location. So, all the variance in ability grouping is explained by the factor location, according to this model. An essential component of ability grouping is collaboration among different students. In future research, instead of looking at ability grouping in the most general form, a more specific look at the collaboration skills of gifted students could give more insight. This study did not take a closer look at collaboration skills, because context analysis gave no direct lead to the need to investigate this particular part. Nevertheless Van Tassel-Baska (1992) states that collaboration should be an integral part of a giftedness program. Kulik and Kulik (1992) agree and add that gifted students learn faster and more effectively, develop a better attitude towards their ability and towards the school environment, and are less inclined to achieve under their potential, when they work together in groups. Therefore in future research it would be interesting to take collaboration into consideration.

The results also show that the demographical factor 'gender' is of influence on whether gifted students achieve according to potential. More specifically, male students are more inclined to drop out from the giftedness program than female students. This is in line with the expectation, that there would be a difference between males' and females' dropout behaviour. An explanation for the result that males are more inclined to drop out due to achieving below determined potential is that girls in the age region of 12 to 14 are faster in their brain development than boys of the same age (Jolles, 2010). This results in girls being better in the executive functions like planning, structuring, and ordering of tasks (Jolles, 2010), which are tasks that are especially important in the junior classes. In order to rule this out, future research should also take a look at the dropout of students achieving below determined potential within other age

regions, like the senior classes of the giftedness programs. A practical recommendation could be for the teacher to support boys more in preparing and managing responsibilities and given tasks and assignments. This way, gifted male students will be compensated for the possible lack in executive functions.

Gender also seems to be of influence on dropout due to other reasons. In fact, female students are more inclined to drop out due to other reasons than male students. This is remarkable since literature suggests that boys are more disposed to distractions like, part-time jobs, TV, internet, and other hobbies than girls (Driessen & van Langen, 2010). This is a remarkable result which needs to be further investigated.

Results indicate that both self-regulatory skills and parental support did not significantly predict dropout behaviour of gifted students. This is in contrast with the expectations that higher self-regulatory skills and higher parental support results in less dropout. This could be explained as follows: in this study the results of self-regulatory skills and parental support were based on self-assessment of the students, meaning that it is based on one source and self-assessment. Evaluating self-regulatory skills and parental support is recommended in this area by literature (Risemberg & Zimmerman, 2010; Subotnik, Olszewski-Kubilius, & Worrell, 2011). Therefore, it is recommended for future research to include different data sources from parents and teachers to compare students' skills on different perspectives. This could broaden the understanding of students' self-regulatory skills and parental support from different social contexts and reduce potential biases in self-assessment.

This study has an evaluative design where measurements are done at one particular moment in time. A disadvantage could be that over time certain factors or students changed. Therefore, in future research it would be interesting to use another experimental design, like longitudinal research with observational methods. In this way it is possible to figure out precisely where the change takes place and what factors caused those changes.

Literature suggests that gifted students benefit from the special giftedness programs (Colangelo & Davis, 2002; Colangelo, Assouline, & Gross, 2004; Loveless, Farkas, & Duffett, 2008). Therefore, this study adopted the assumption that dropout was not caused by the curriculum, but by giftedness, and environmental, personal, and demographical factors. Since this study indicated that some giftedness and environmental, personal, and demographical factors did not cause dropout, it is recommended to still investigate whether curriculum has influence on dropout behaviour.

8. Conclusion

The intelligence component (IST) and the motivational part (FES) of the giftedness test from CBO are not good predictors of dropout behaviour of gifted students, whereas cito score is a (small) predictor of dropout due to achieving below determined potential. It is recommended to use the selection criteria flexible and to keep looking for other predicting selection criteria, because the current selection criteria are not comprehensive.

Location seems to have influence on dropping out due to other reasons. To overcome this it is recommended to increase students' intrinsic motivation by giving assignments that are new, challenging, and interesting for the students and by offering choices in their own learning.

The gender of gifted students is able to predict their dropout behaviour. Gifted, male students are more inclined to drop out due to achieving below determined potential and females are more inclined to drop out due to other reasons. It is recommended for teachers to include task managing and -preparing into the daily curriculum, to help male students in carrying out executive functions.

9. Reference list

Adodo, S.O., & Agbayewa, J.O. (2011). Effect of homogenous and heterogeneous ability grouping class teaching on student's interest, attitude and achievement in integrated science. *International Journal of Psychology and Counselling, 3*(3), 48-54. Retrieved from http://www.academicjournals.org/article/article1380364076_Adodo%20and%20Agbayewa.pdf

Baum, S. (1990). Gifted but learning disabled: a puzzling paradox. *Gifted Child Quarterly, 34*(1), 11-14. Retrieved from http://www.ericdigests.org/1994/paradox.htm

Baum, S., & Owen, S. (1988). High ability/learning disabled students: how are they different? *Gifted Child Quarterly, 32*, 226-230.

Baum, S. M., Renzulli, J. S., & Hébert, T. P. (1995). The prism metaphor: a new paradigm for reversing underachievement. *The National Research Centre on the Gifted and Talented, 44*(3), 152-170. doi: 10.1177/001698620004400302

Barker, B. O. (2008). The advantages of small schools. *Educational Resource Information Centre*. Retrieved from http://www.titahibaynorth.school.nz/docs/2015/advantqges_small_schools.pdf

Beckner, W. (1983). *The case for the smaller school*. Bloomington, Indiana: Phi Delta Kappa Educational Foundation

Betts, G. T. & Neihart, M. (1988). Profiles of the gifted and talented. *Gifted Child Quarterly, 32*(2), 248-253. doi: 10.1177/001698628803200202

Blaas, J., Buurman, B., Hoogland, C., Kos, M., & Stam, M. (2012). Zijn scholen klaar voor excellentie? *Centrum voor Onderwijs en Leren*. Retrieved from: http://igitur-archive.library.uu.nl/student-theses/2012-0815-200549/PGO-%20Excellente%20leerlingen.pdf

Boaler, J., Wiliam, D., & Brown M. (2000). Students' experiences of ability grouping—disaffection, polarisation and the construction of failure. *British Educational Research Journal, 26*(5), 631-648. doi: 10.1080/713651583

Boxtel, L. van, Daemberg, L., Ermans, M., Gerven, V. M. van, Kremens, K., Minderman, … Urner, M. (2013). *Giftedness and gifted education. Handling of gifted pupils in the Dutch and German educational systems.* Unpublished manuscript, Radboud Honours Academy, Radboud University Nijmegen, Nijmegen, The Netherlands.

Brody, L. E., & Mills, C. (1997). Gifted children with learning disabilities: a review of the issues. *Journal of Learning Disabilities, 30*(3), 282-286.

Carolyn K. (2012). *Is gifted education elitist?* Retrieved from http://www.hoagiesgifted.org/elitist.htm

Cheng, P. W. (1993). Metacognition and giftedness: the state of the relationship. *Gifted Child Quarterly, 37*(3), 105-112. doi: 10.1177/001698629303700302

Chessman, A. (2007). *Distinguishing levels of giftedness: what does it mean for our practice? NSW Department of Education and Training.* Retrieved from http://www.curriculumsupport.education.nsw.gov.au/policies/gats/assets/pdf/plk12gtlvls.pdf

Colangelo, N., Assouline, S., & Gross, M. U. M. (2004). *A nation deceived: how schools hold back America's brightest students.* Retrieved from: http://www.accelerationinstitute.org/nation_deceived/nd_v1.pdf

Clark, B. (1992). *Growing up gifted*. New York: MacMillan Publishing Company.

Colangelo, N. & Davis G. A. (2002). *Handbook of gifted education*. Boston, MA: Allyn & Bacon

Colangelo, N., & Dettmann, D. (1983). A review of research on parents and families of gifted children. *Exceptional Children, 50*, 20-27.

Cotton, K. (2001). *New small learning communities: findings from recent research*. Portland, OR: Northwest Regional Education Laboratory.

De Intelligentie Structuur Test: een kritische onderbouwing. (2014, January). *Edu&ik*. Retrieved from http://www.edu-en-ik.nl/publicaties/intelligentieonderzoek/de-intelligentie-structuur-test-een-kritische-beschouwing/

Doolaard, S., & Oudbier, M. (2010). *Onderwijsaanbod aan (hoog)begaafde leerlingen in het basisonderwijs*. Groningen: GION.

Driessen, G., & Van Langen, A. (2010). *De onderwijsachterstand van jongens: omvang, oorzaken en interventies*. Retrieved from
http://www.parlementairemonitor.nl/9353000/1/j4nvgs5kjg27kof_j9vvij5epmj1ey0/vigo6j7k9oyj

Emily F., Robert E., Michael K. (2003). The effect of ability grouping on students achievements in science laboratory work. *International Journal of Psychology and Counselling, 25*(4), 212-220.

Field, A. P. (2009). *Discovering statistics using SPSS*. London, England: SAGE.

Fine, M. J. (1977). Facilitating parent-child relationships for creativity. *Gifted Child Quarterly, 21*, 487-500.

Gagné, F. (1995). From giftedness to talent: a developmental model and its impact on the language of the field. *Roeper Review, 18*, 103-111. doi: 10.1080/02783199509553709

Gardner, H. (2002). *Soorten intelligentie. Meervoudige intelligenties voor de 21ste eeuw.* Amsterdam: Nieuwezijds B.V.

Gasper, J., DeLuca, S., & Estacion, A. (2014). Switching Schools: revisiting the relationship between school mobility and high school dropout. *American Educational Research Journal, 49*(3), 487-519. doi: 10.3102/0002831211415250

Hagan, J., MacMillan, R., & Wheaton, B. (1996). New kid in town: social capital and the life course effects of family migration on children." *American Sociological Review, 61*, 368- 385.

Heller, K. A., Monks, F. J., Sternberg, R. J., & Subotnik, R. F. (2000). *International handbook of research and development of giftedness and talent.* New York: Pergamon.

Heylighen, F. (2007). Characteristics and problems of the gifted: neural propagation depth and flow motivation as a model of intelligence and creativity. Retrieved from
http://pespmc1.vub.ac.be/papers/giftednessmodel.pdf

Hoogeveen, L., Hell van, J., Mooij, T., & Verhoeven, L. (2004). Onderwijsaanpassingen voor hoogbegaafde leerlingen: meta-analyses en overzicht van internationaal onderzoek. Centrum voor Begaafdheidsonderzoek. Internet publication, retrieved from
http://www.ru.nl/publish/pages/612478/onderwijsaanpassingen_1.pdf

Johnson, D. W., Johnson, R., T., & Taylor, B. (2001). Impact of cooperative and individual learning on high-ability students' achievement, self-esteem, and social acceptance. *The Journal of Social Psychology, 133*(6), 839-844.

Jolles, J. (2010). *Ellis en het verbreinen. Over hersenen, gedrag en educatie*. Amsterdam: Neuropsych Publishers

Kerbow, D., Azcoitia, C., & Buell, B. (2003). Student mobility and local school improvement in Chicago. *The Journal of Negro Education, 72* (1), 158-164.

Kulik, J. A., & Kulik, C. C. (1992). Meta-analytic findings on grouping programs. *Gifted Child Quarterly, 36*(2), 73-77.

Lamb, S., Glover S., & Walstab, A. (2014). Educational disadvantage and regional and rural schools. Retrieved from
http://research.acer.edu.au/cgi/viewcontent.cgi?article=1228&context=research_conference

Loveless, T., Farkas, S., & Duffett, A. (2008). *High-achieving students in the era of NCLB.* Washington, DC: Thomas B. Fordham Institute. Retrieved from: http://edex.s3-us-west-2.amazonaws.com/publication/pdfs/20080618_high_achievers_7.pdf

Matthews, D. J., & Foster, J. F. (2009). *Being smart about gifted education: a guidebook for educators and parents.* Scottsdale, AZ: Great Potential Press.

Mooij, T., & Fettelaar, D. (2010). *Naar excellente scholen, leraren, leerlingen en studenten.* Nijmegen: ITS.

Mönks, F. J., & Ypenburg, I. H. (1995). *Hoogbegaafde kinderen thuis en op school*. Alphen aan den Rijn: Samson.

Mönks, F. J. (1992). Development of gifted children: the issue of identification and programming. *Talent for the future*, 191-202.

Morrow, W.R., & Wilson, R.C. (1964). Family relations of bright high-achieving and under-achieving high school boys. *Child Development, 35*, 1041-1049.

National Association for Gifted Children. (2008). The history of gifted and talented education. Retrieved from: www.nagc.org/index.aspx?id=607

Neihart, M., Reis, S. M., Robinson, N. M., & Moon, S. M. (2002). *The social and emotional development of gifted children: What do we know?* Washington, DC: National Association for Gifted Children.

OCW (2011). *Actieplan Beter Presteren: opbrengstgericht en ambitieus*. Den Haag: Ministerie voor Onderwijs, Cultuur en Wetenschap.

Osokoya, M. M., & Akuche, U. E. (2012). Effects of school location on students' learning outcomes in practical physics. *Ife Psychologia, 20*(1).

O'Neill, K.K. (1978). Parent involvement: a key to the education of gifted children. *Gifted Child Quarterly, 22*, 235-242.

Paulhus, D. L., & Reid, D.B. (1991). Enhancement and denial in socially desirable responding. *Journal of Personality and Social Psychology,* 307-317.

Plucker, J., & Callahan, C. M. (2014). *Critical issues and practices in gifted education: what the research says.* Waco, TX: Prufrock Press.

Porter, L. (1999). *Gifted Young Children: A Guide for Teachers and Parents*. Australia: Allen & Unwin

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology, 92*(3), 544.

Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications*. Upper Saddle River, NJ: Prentice Hall.

Preckel, F., Goetz, T., Pekrun R., & Kleine, M. (2008). Gender Differences in gifted and average-ability students: comparing girls' and boys' achievement, self-concept, interest, and motivation in mathematics. *Gifted Child Quarterly, 52*(2), 146-159. doi: 10.1177/0016986208315834

Reis, S. M., Hébert, T. P., Diaz, E. P., Maxfield, L. R., & Ratley, M. E. (1995). Case studies of talented students who achieve and underachieve in an urban high school. *National Research Center on the Gifted and Talented.* Retrieved from http://files.eric.ed.gov/fulltext/ED414687.pdf

Renzulli, J. (1977). *The enrichment triad*. Mansfield Center, CT: Creative Learning Press.

Renzulli, J., & Park, S. (2000). Gifted dropouts: the who and the why. *Gifted Child Quarterly, 44*(4), 261-271. doi: 10.1177/001698620004400407

Risemberg, R., & Zimmerman, B. J. (2010). Self-regulated learning in gifted students. *Roeper Review, 15*(2), 98-101. doi: 10.1080/02783199209553476

Rogers, K. B. (2002). A content analysis of gifted education research and literature. *Journal for the Education of the Gifted, 13*(1)*,* 78-88. Retrieved from: https://www.nagc.org/resources-publications/gifted-education-practices/curriculum-compacting#sthash.ku11X2Oj.dpuf

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist.* Retrieved from https://selfdeterminationtheory.org/SDT/documents/2000_RyanDeci_SDT.pdf

Sattler, J. M. (2008). *Assessment of children's cognitive functions*. San Diego, CA: Author.

Steenkamp, J. E. M., de Jong, M. G., & Baumgartner, H. (2009). Socially Desirable Response Tendencies in Survey Research. *Journal of Marketing Research, 47*(2), 199-214.

Stiggins, R. (2001). *Student Involved Classroom Assessment.* Columbus, OH: Merrill Publishing

Subotnik, R. F., Olszewski-Kubilius, P., & Worrell, F. C. (2011). Rethinking giftedness and gifted education: a proposed direction forward based on psychological science. *Psychological Science in the Public Interest 12*(1), 3–54. Retrieved from https://www.apa.org/ed/schools/gifted/rethinking-giftedness.pdf

Tassel-Baska, J. van, Feldhusen, J., Seeley, K., Wheatley, G., Silverman, L., & Foster, W. (1998). *Comprehensive curriculum for gifted learners. A comprehensive guide to planning and implementing an effective curriculum for gifted learners.* Boston: Allsyn and Bacon.

Tassel-Baska, J. van (1992). Educational decision making on acceleration and grouping. *Gifted Child Quarterly, 36*(2), 187-191. doi: 10.1177/001698629203600203

Van der Wateren, D. & de Jong, E. (2012, December). Twijfels over les aan hoogbegaafden. Twijfels over onderzoek. *Blogcollectief Onderzoek Onderwijs*. Retrieved from

https://onderzoekonderwijs.net/2012/12/13/twijfels-over-les-aan-hoogbegaafden-twijfels-over-onderzoek/

Worrell, F. C. (2007). *Identifying and including low-income learners in programs for gifted and talented: Multiple complexities*. Washington, DC: National Association for Gifted Children.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology 81*(3), 329-339. Retrieved from http://anitacrawley.net/Articles/ZimmermanSocCog.pdf

Appendix A. Semi-structured interview scheme

Er staan vijf vragen centraal in de interviews met de docenten en teamleiders. De interviewer gaat aan de hand van antwoorden van de geïnterviewde op de centrale vragen doorvragen, zodat een volledig beeld van de context gecreëerd wordt. De interviewer notuleert de antwoorden tijdens het interview.

1. *Hoe worden leerlingen gekenmerkt als begaafd en op welke manier worden leerlingen toegelaten tot het extra programma?*

2. *Kunt u uitleggen hoe het onderbouw extra programma aangeboden wordt op uw locatie?*

3. *Wat zijn volgens u redenen voor begaafde leerlingen om vroegtijdig het extra programma te verlaten en waarom?*

4. *Wat zijn volgens u factoren die mee hebben gespeeld bij het feit dat sommige leerlingen lager presteerden dan vooraf vastgesteld en daardoor afstroomden en waarom?*

5. *Welke acties heeft uw school ondernomen om het aantal terug te dringen en welke acties denkt u dat er ondernomen moeten worden om de lage prestaties terug te dringen en dus de afstroom te verminderen?*

De geïnterviewde wordt bedankt voor zijn/haar medewerking en bijdrage aan het onderzoek.

Appendix B. Questionnaire

Vragenlijst 'Studievaardigheden en ouderbetrokkenheid'

Het doel van deze vragenlijst is te achterhalen hoe jij het vwo-extra programma in de onderbouw hebt ervaren. Het Twents Carmel College wil je daarom vragen om deze vragenlijst zo eerlijk mogelijk in te vullen. Het invullen van de vragenlijst is anoniem en kost je ongeveer 15 minuten. Als je een vraag niet begrijpt, laat het dan even weten. Alvast bedankt voor je medewerking!

Geslacht:
- o Man
- o Vrouw

Kruis aan wanneer een van de onderstaande studiebeperkingen bij jou van toepassing is:

o Dyslectie	o Slechthorendheid
o Dyscalculie	o Slechtziendheid
o Faalangst	o Depressie
o ADHD	o Autisme stoornis
	o Anders, namelijk ……………

Deel 1 van deze vragenlijst gaat over studievaardigheden en deel 2 van deze vragenlijst gaat over ouderbetrokkenheid. Hieronder staan situaties beschreven die te maken hebben met deze beide onderdelen. Geef zo eerlijk mogelijk aan of deze **situaties bij jou van toepassing waren in de onderbouw**. Dit kan je doen door het vakje in te vullen dat volgens jou van toepassing is.

BELANGRIJK: Probeer om alle vragen te maken, sla geen vraag over! Beantwoord de stellingen door terug te denken aan je vwo-extra klas in de onderbouw

Deel 1: Studievaardigheden

		Zeer mee eens	Mee eens	Mee oneens	Zeer mee oneens
Tijd management					
1.	Ik plande tijd in om te leren en/of huiswerk te maken	O	O	O	O
2.	Ik leerde de avond van te voren voor een toets	O	O	O	O
3.	Ik gebruikte verschillende aanpakken om te leren	O	O	O	O
4.	Ik kwam op tijd bij de lessen of bij afspraken	O	O	O	O
5.	Ik gebruikte evenveel tijd voor alle vakken om te leren	O	O	O	O
6.	Ik gebruikte dagelijks een 'to-do' list	O	O	O	O
7.	Ik vermeed activiteiten die mijn geplande schema in de war bracht	O	O	O	O
8.	Aan het begin van ieder blok maakte ik een studieplanning	O	O	O	O
9.	Ik begon met belangrijkere opdrachten eerder te werken dan met minder belangrijkere opdrachten	O	O	O	O
Concentratie					
10.	Ik studeerde in een ruimte die vrij was van afleiding	O	O	O	O
11.	Ik was in staat om mijn volledige aandacht voor 20 minuten op dezelfde taak te houden.	O	O	O	O
Aantekeningen maken				N.V.T. :	O
12.	Terwijl ik aantekeningen maakte, dacht ik na over hoe ik ze zou gaan gebruiken later	O	O	O	O
13.	Ik kon tegelijk aantekeningen maken en begrijpen wat de docent uitlegde	O	O	O	O
14.	Ik maakte aantekeningen in mijn schrift over mijn tekstboek.	O	O	O	O
Toets strategie					
15.	Ik probeerde er achter te komen wat er in de toets zou komen en hoe die zou worden beoordeeld	O	O	O	O
16.	Ik probeerde mogelijke toets vragen voor te stellen tijdens	O	O	O	O

		Zeer mee eens	Mee eens	Mee oneens	Zeer mee oneens
	mijn voorbereiding op de toets				
17.	Ik zorgde voor een goede nachtrust voorafgaand aan een geplande toets	O	O	O	O
18.	Ik nam de tijd om de toets vragen te begrijpen voordat ik ze ging beantwoorden	O	O	O	O
Organiseren en verwerken van informatie					
19.	Tijdens het lezen was ik goed in het onderscheiden van onbelangrijke en belangrijke stof	O	O	O	O
20.	Ik splitste opdrachten op in handelbare delen	O	O	O	O
21.	Ik stelde vragen om de lesstof beter te begrijpen	O	O	O	O
22.	Tijdens het leren van stof, probeerde ik de stof in eigen woorden samen te vatten	O	O	O	O

Deel 2: Ouderbetrokkenheid

23. Welk niveau heeft je vader gedaan op de middelbare school?
Basisschool
VMBO
HAVO
VWO
Opleiding niet afgerond
Anders, namelijk ………………

24. Welk niveau heeft je moeder gedaan op de middelbare school?
Basisschool
VMBO
HAVO
VWO
Opleiding niet afgerond
Anders, namelijk ………………

		Zeer mee eens	Mee eens	Mee oneens	Zeer mee oneens
25.	Als ik vragen had over mijn huiswerk dan konden mijn ouders mij daar mee helpen	O	O	O	O
26.	Mijn ouders waren op de hoogte over hoe ik er voor stond op school	O	O	O	O

27.	Hoe vaak gebeurden de volgende situaties bij jou thuis?	(bijna) iedere dag	Eén of twee keer per week	Eén of twee keer per maand	Nooit of bijna nooit
	a) Mijn ouders vroegen me wat ik geleerd had op school:	O	O	O	O
	b) Ik praatte over mijn schoolwerk met mijn ouders	O	O	O	O
	c) Mijn ouders moesten ervoor zorgen dat ik tijd vrij maakte voor mijn huiswerk	O	O	O	O
	d) Mijn ouders moesten checken of ik mijn huiswerk gemaakt had	O	O	O	O