

The Effect of Pupils' Attributes and the Dutch Placement Guide on Teachers' Track Recommendations for Secondary Education

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Masters' thesis Onderwijsinnovatie (PAMAOW04.2021-2022)

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31-05-2022

Abstract

Pupils' attributes such as pupils' gender, migrant background, achievement motivation and parents' educational level, influence how teachers formulate track recommendations for secondary education (De Boer et al., 2010; Krolak-Schwerdt et al., 2018; Timmermans et al., 2015). In the Netherlands, a tool called the Placement Guide is used to support teachers in formulating track recommendations, and since this tool only takes the pupils' academic achievement into account, it could prove to be a valuable tool to control other pupils' attributes. Therefore, the following was investigated in the current study: to what extent do pupils' attributes influence teachers' track recommendations, and to what extent are these effects influenced using the Placement Guide? To answer this question, an experimental study using a within-subjects design was conducted in which primary school teachers ($N = 80$) were presented with vignettes ($N = 32$) in a digital questionnaire. The results showed that there are indications that all the pupils' attributes researched influence the recommendations of teachers, but that follow-up research is necessary to be able to make a statement about the Placement Guide. However, these results are not all trustworthy, since the vignettes were flawed, and this has presumably influenced the results. Follow-up research is necessary to confirm the results concerning the pupils' attributes found in this study. Moreover, follow-up research is also necessary to be able to generalise the results to all teachers in the Netherlands.

The Effect of Pupils' Attributes and the Dutch Placement Guide on Teachers' Track Recommendations for Secondary Education

In the Dutch school system, teachers formulate track recommendations for their pupils at the end of primary school for the placement of their pupils in different school tracks in secondary education. This is called giving track recommendations (e.g., Dijks et al., 2020; Klapproth & Fischer, 2019; Klapproth et al., 2012; Van Leest, 2021). Almost all primary schools in the North of the Netherlands use a tool called “De Plaatsingswijzer” (The Placement Guide) to support the formulation of track recommendations. The Placement Guide aims to help teachers develop well-thought-out and well-founded recommendations based on pupils' academic achievement data from pupil monitoring systems (<https://www.plaatsingswijzer.nl/>). The tool only takes the pupils' academic achievement into account and does not consider other pupils' attributes, such as gender or achievement motivation. Hence, this tool could potentially reduce biased track recommendations originating from other pupils' attributes and could improve the fairness of teachers' recommendations. However, it has not yet been scientifically investigated whether this tool actually achieves this goal. Therefore, this study aims to investigate the effectiveness of the Placement Guide in reducing bias in track recommendations in the Netherlands. In the following, a description will be given on track recommendations first. Second, the Dutch secondary school system will be described. Third, the process of giving track recommendations and the accuracy of track recommendations will be discussed. Fourth, pupils' attributes associated with track recommendations provided by teachers are described. Finally, the research questions will be stated.

Track Recommendations

The process of placing pupils in different secondary school tracks is called tracking (Geven, 2019). Tracking should ensure that pupils with the same achievement levels are grouped for targeted instruction. To help place pupils on the secondary school track that suits them best, primary school teachers give their pupils track recommendations (e.g., Glock et al., 2012; Pit-ten Cate & Glock, 2018; Timmermans et al., 2015). For the Dutch context, this means that at the end of primary school (comparable to US grade 6), teachers recommend a secondary school track that, according to them, complies with the pupils' capacities. When pupils' capacities do not comply with one specific track, teachers may give double recommendations, for example for the tracks senior general secondary education (havo)/pre-university education (vwo) (Inspectie van het Onderwijs, 2014). However, not every

secondary school has the option to attend classes that comply with the level of double recommendations, so the implementation of these recommendations is not always possible.

The tracks pupils are finally placed in should ensure the optimal evolution of the pupils both cognitively and non-cognitively during secondary education (Korpershoek et al., 2016) since secondary education determines to a great extent pupils' educational pathways, future education, and future employment (Pit-ten Cate et al., 2016). It is therefore especially important that the teachers' track recommendations are accurate, which means the recommendations correspond with the academic achievement of the pupils and thus their cognitive capacities (Geven et al., 2018).

Dutch Secondary School System

In Dutch secondary education, pupils can be placed on six different regular school tracks; the seventh school track is meant for pupils with learning disabilities. The tracks differ in length and in qualifications the pupils receive after finishing the track. There are three general tracks pupils can be placed in (1) pre-vocational secondary education, called vmbo in Dutch; (2) senior general secondary education, called havo; and (3) pre-university education called vwo (Government of the Netherlands, n.d.).

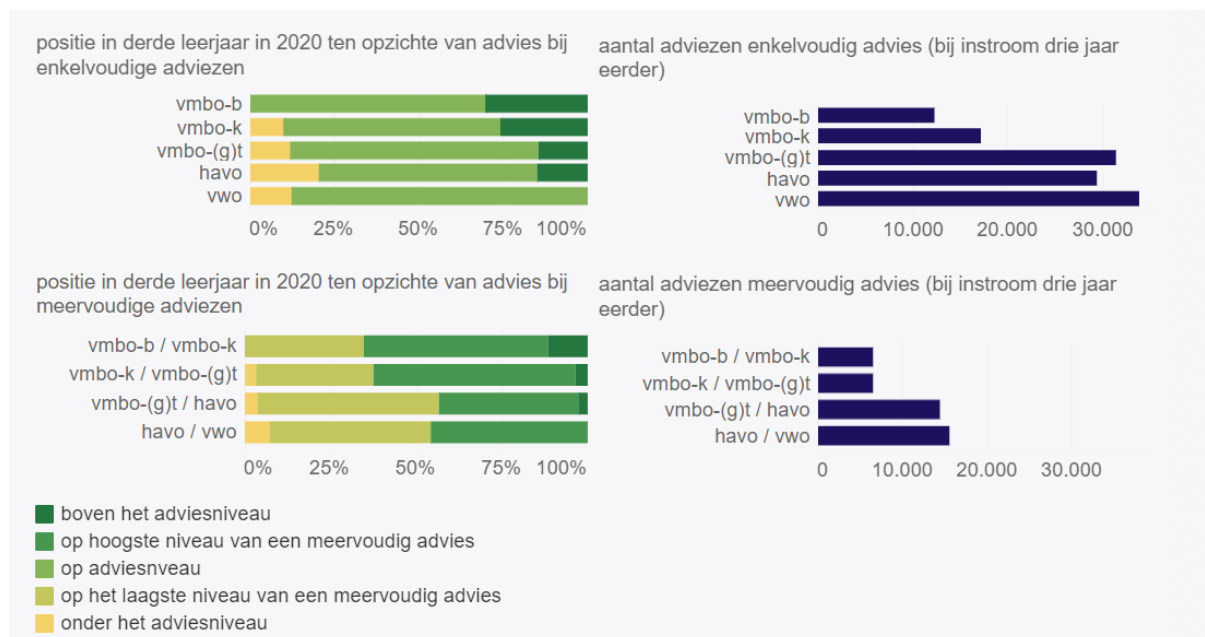
The pre-vocational secondary education track generally takes four years and offers pathways consisting of both theoretical and practical courses. The track is split into four different pathways. The first pathway is called the basic vocational programme (basisberoepsgericht onderwijs; vmbo-b). The second pathway is called middle management vocational programme (kaderberoepsgericht onderwijs; vmbo-k). The third pathway is called the theoretical programme (theoretische leerweg; vmbo-t). The pupils mainly take general subjects in this last pathway in comparison to more practical courses in the two programmes above. There is an option for pupils to replace one theoretical subject with four hours of vocational training in the theoretical programme. This is a fourth pathway called the combined programme (gemengde leerweg; vmbo-gt). This pathway is considered similar to the theoretical programme. It differs only in the last two years of secondary education and has similar further educational opportunities to the theoretical programme. Moreover, there is quite a small group of pupils that chooses this pathway. Therefore, for the current study, the theoretical programme and the combined programme will be seen as the same pathway with the name theoretical programme. The basic vocational programme prepares pupils for basic vocational training, the middle management vocational programme prepares pupils for professional training and the theoretical programme prepares pupils for middle-management training (Government of the Netherlands, n.d.).

Senior general secondary education (havo) generally takes five years and prepares pupils for higher professional education (Government of the Netherlands, n.d.). The courses are mainly theoretical and include mandatory subjects for all pupils, namely Dutch language and English language. Pre-university education (vwo) generally takes six years and prepares pupils for university. The courses are constructed in a comparable way to senior general secondary education. In addition to the mandatory subjects is mathematics a mandatory course in pre-university education as well.

Inaccurate Track Recommendations

When pupils receive their track recommendations, it sometimes happens that the recommendations are inaccurate (Inspectie van het Onderwijs, 2018). This means that the level of the recommended tracks is either too high or too low in comparison with pupils' academic achievement and therefore does not suit their capacities (Hinnant et al., 2009; Timmermans et al., 2015). It may be the case that these inaccurate track recommendations are caused by inaccurate or biased teacher expectations (Timmermans et al., 2015). In the track recommendations provided, the teachers' expectations of pupils' future academic achievements are reflected (De Boer et al., 2010) and these expectations can be biased (Pit ten Cate et al., 2016).

In the Netherlands, inaccurate recommendations can be compensated by having pupils change their school track during secondary education (e.g., Tieben & Wolbers, 2010). In 2020, the VO-raad (council for secondary education) examined how many pupils changed to a higher or lower school track in comparison to their recommendations. Figure 1 presents the results of the VO-raad's examination in four charts. The first chart (upper left corner) shows how many pupils with a recommendation for a single track changed their school track during the first three years of secondary education. The chart next to this (upper-right corner) shows how many pupils received a particular recommendation three years earlier. This means that approximately 32,000 pupils received a senior general education recommendation (havo). The upper-left chart shows that nearly 25% of these pupils changed to a track of a lower level and another 15-20% changed to a track of a higher level. The charts in the lower-right and lower-left corners show the same information for pupils who received a recommendation for two adjacent tracks.

Figure 1*Changes in school tracks*

Note. Source: <https://www.vo-raad.nl/vo-in-cijfers-leerlingen-en-onderwijs>; the legend in the lower-left corner states from dark green to yellow: (1) above the recommended track, (2) on the highest level of a double recommendation, (3) on recommended level, (4) on the lowest track of a double recommendation, (5) under the recommended track

It is almost impossible to determine whether all pupils that changed school tracks during the first years of secondary education received track recommendations that did not comply with their abilities or whether there were other explanations for track mobility. Pupils changing a school track is caused by a complex set of factors including the track recommendation, the pupils' academic achievement, the pupils' attributes, and the quality of both the primary and secondary school (Inspectie van het Onderwijs, 2014). However, in some literature, it is believed that part of the pupils that transferred to other tracks received inaccurate track recommendations provided by their primary school teachers (Pit-ten Cate et al., 2016; Timmermans et al., 2015).

Bias in Track Recommendations

Research shows there are multiple attributes of pupils that teachers can consider while forming their expectations, which can cause bias and hence affect their recommendations. In this introduction, the attributes that will be discussed are the educational level of the parents, the migrant background of the pupils (based on research of Krolak-Schwerdt et al., 2018), the

pupils' gender (based on research of Timmermans et al., 2015) and the pupils' achievement motivation (based on research of De Boer et al., 2010).

Educational Level of Parents

The educational level of the parents is one of the aspects teachers can consider while giving track recommendations (e.g., Geven et al., 2018; Klapproth et al., 2012; Pit-ten Cate & Glock, 2018; Sneyers et al., 2018;). In studies from the Netherlands conducted by Timmermans et al. (2018) and Van Leest et al. (2021), it became clear that pupils from high-educated parents are more likely to receive higher track recommendations than pupils from low-educated parents. Research conducted in Germany (Caro et al., 2009) and Flanders (Sneyers et al., 2018) resulted in similar findings.

Migrant Background of Pupils

The migrant background of pupils is a second attribute teachers can consider while formulating track recommendations (e.g., Glock & Krolak-Schwerdt, 2013; Glock et al., 2013; Glock et al., 2015; Timmermans et al., 2015; Timmermans et al., 2018). Research by Glock et al. (2013) suggests that pupils with migrant backgrounds are at a disadvantage while receiving track recommendations in Luxembourg. In 2015, Glock et al. found that the recommendations for pupils with a migrant background were less accurate than the recommendations for pupils without a migrant background, which meant pupils with a migrant background were both under- and overestimated, though the underestimation occurred more often. This finding is consistent with studies conducted in Germany (Klapproth et al., 2018; Lüdemann & Schwerdt, 2013) and Flanders (Sneyers et al., 2018) where pupils with migrant backgrounds are also underestimated. In the Netherlands, on the other hand, pupils with a migrant background were found to be favoured over pupils of Dutch origin (Timmermans et al., 2018). This difference between pupils with migrant backgrounds and pupils without migrant backgrounds has decreased over time, possibly because policies considering minority pupils as a specific target group ceased. However, the difference was still existing in 2010.

Pupils' Gender

The pupils' gender is a third attribute teachers can consider while formulating track recommendations (e.g., Auwarter & Aruguete, 2010; De Boer et al., 2010; Timmermans et al., 2015). De Boer et al. (2010) found that teachers' expectations were higher for girls than for boys, which could lead to girls being more likely to be placed on higher secondary school tracks than boys. Timmermans et al. (2015) found this result for Dutch track recommendations as well, but the differences in teachers' expectations between boys and girls

decreased when they controlled for teachers' perceptions of pupils' classroom behaviour and working habits, such as motivation. Moreover, research from Klapproth and Fischer (2019) showed that boys are less likely to receive recommendations for higher secondary school tracks when their achievements are deteriorating during primary school than girls. Research conducted by Auwarter and Arugute (2010) showed that gender interacted with pupils' social economic status (SES). This study's findings suggested that teachers have lower expectations for boys from low-SES families than boys from high-SES families. With girls, this was exactly the other way around and teachers were more favourable towards girls from low-SES families than girls from high-SES families.

Pupils' achievement motivation

The pupils' achievement motivation is the fourth attribute teachers can consider while giving track recommendations (De Boer et al., 2010; Timmermans et al., 2016). Research from De Boer et al. (2010) has shown that the expectations from teachers for pupils with higher levels of achievement motivation are higher. A study conducted by Timmermans et al. (2016) found the same results. Pupils with higher achievement motivation were more likely to be placed in the higher secondary school tracks than pupils with lower achievement motivation.

The Placement Guide

In the Netherlands, a tool called the Placement Guide is available to teachers when formulating track recommendations. This tool aims to assist teachers in developing well-thought-out and well-founded track recommendations for their pupils based on data from pupil monitoring systems (<https://www.plaatsingswijzer.nl/>). The Placement Guide can create four different profiles for pupils based on their academic achievement: a basic profile (Basisprofiel), a plus profile (Plusprofiel), a discussion profile (Bespreekprofiel) and a disharmonic profile (Disharmonisch profiel). If pupils comply with one of the first two profiles, their placement should, given their academic performances in the final three years of primary education, be relatively straightforward. When a basis profile is observed for pupils, they comply perfectly with one of the six school tracks. When a plus profile occurs, pupils can achieve more than the level of the track that seems most fitting regarding their academic achievement, but it is not enough (yet) to recommend a higher track. These pupils might be able to change to a higher track later during their educational career. In case of the last two profiles, additional information about the pupils must be provided. The discussion profile occurs when pupils' academic achievement can almost comply with the level of a particular school track, but their academic achievement over the final three years of primary education

does not seem to be sufficient for the level of this track. In some cases, however, a situation may have occurred in pupils' lives which has negatively affected their performance in school. Using written substantiation, teachers can justify why pupils with a specific background should nevertheless be placed into the concerned school track. The disharmonic profile applies to pupils whose academic achievement does not comply with the level of a particular school track that their teachers find most appropriate, but a diagnostic explanation exists which can explain the discrepancy between the recommended track and the pupils' academic achievement. Teachers can justify their recommendation using written substantiation to argue why these pupils should nevertheless be placed on the concerned school track.

The Placement Guide only uses pupils' achievement data to build a profile. Therefore, it could potentially be a valuable tool to help overcome teachers' incorrect expectations and biases related to other pupils' attributes. However, it has not yet been scientifically investigated whether this tool actually reduces the bias if it exists in track recommendations.

Current Study

It is useful to investigate the effectiveness of the Placement Guide because the tool is used regularly to give track recommendations to pupils in the North of the Netherlands. If it turns out that the use of the Placement Guide when formulating track recommendations can (partly) reduce biases in teachers' recommendations, this could prove the Placement Guide is a valuable tool to help teachers give accurate track recommendations, and the tool could be promoted in the rest of the Netherlands. The research questions asked in this study are:

- To what extent do pupils' attributes influence teachers' track recommendations?
- To what extent are these effects influenced using the Placement Guide?

Method

Design

This study was designed as a quantitative experimental study using a within-subjects design (American Psychological Association, 2020) with a scenario-based approach, also called a vignette approach (Klassen et al., 2011). Vignettes are brief descriptions of realistic events displayed in hypothetical situations that require a respondent's reaction (Wason et al., 2002). This design suits this research since vignettes are a valuable instrument to use in the social sciences to research attitudes, perceptions, beliefs, and standards (Wilks, 2004). Moreover, Wason et al. (2002) describe five more reasons for using vignettes in social research:

1. Vignettes provide a realistic situation since they cite situational and contextual factors that also occur in real-life decision-making.

2. Vignettes provide standardized stimuli to all participants, and this is favourable to the internal validity of the study, the reliability of the outcomes and the ease of replicating the study.
3. Vignettes promote the construct validity of the study by focusing the respondent's attention on specific characteristics of the research question.
4. Vignettes reduce the likelihood of socially desirable responses.
5. Vignettes increase the involvement of respondents and dramatize the problem presented.

The vignettes were displayed in a digital questionnaire. By having the participants first give recommendations to hypothetical pupils without using the Placement Guide (control condition) and then giving recommendations to pupils while using it (experimental condition), the participants were all exposed to both experimental conditions. This fits a within-subjects design (American Psychological Association, 2020).

Participants

80 grade 6 teachers from different schools in the Netherlands participated in this study. Grade 6 teachers were defined as teachers who are teaching at least one day of the week in grade 6. Other inclusion criteria were: 1) a good understanding of the Dutch language; 2) at least one year of experience with giving track recommendations, and 3) currently teaching at a Dutch primary school. 160 teachers started the questionnaire, but half of the participants did not finish it. 82 participants completed it fully. Two of the participants were excluded since one of the teachers had no former experience with giving track recommendations and the other teacher gave very unlikely answers to the questions. Finally, 80 teachers proved to be suitable for the analyses.

The mean age of the participants was $M = 40.06$ ($SD = 10.46$). On average, the participants had $M = 9.63$ ($SD = 7.82$) years of experience in teaching grade 6. 88.8% of the participants were female and 11.3% of the participants were male. Table 1 shows the province in which the participants were currently working. This table shows most of the participants worked in the provinces of Friesland and Drenthe.

Table 1*Current working province of the teachers*

Region	Percentage
Groningen	6.3
Friesland	25.0
Drenthe	18.8
Overijssel	3.8
Gelderland	10.0
Flevoland	0.0
Utrecht	3.8
Noord-Holland	8.8
Zuid-Holland	10.0
Zeeland	0.0
Noord-Brabant	8.8
Limburg	5.0

*Note. N=80***Instrument**

For this research, participants completed a digital questionnaire using Qualtrics. The participants were first asked some background questions about their age, gender, experience in teaching grade 6, the province of the Netherlands in which they were currently teaching, how they found the questionnaire, and if they had experience with the Placement Guide. Then, they were presented vignettes of eight hypothetical pupils for whom they had to formulate track recommendations. A database with vignettes of 16 hypothetical pupils was created. Each of these 16 vignettes was represented with and without the Placement Guide resulting in a total of 32 vignettes. The vignettes the participants were provided with were randomly selected from the database. A teacher could never be presented with the same pupil twice. Before the participants judged the pupils, they were presented with an example pupil.

The hypothetical pupils used for the vignettes were created using performance information of real pupils, so the pupils would feel realistic to the participants. The vignettes were then piloted by one grade 6 teacher from the researcher's network. Several vignettes were adapted based on the feedback to make sure the hypothetical pupils felt sufficiently realistic.

Dependent variable

For this research, teachers gave track recommendations to eight hypothetical pupils. There were five tracks that teachers could choose from: (1) basic vocational programme, (2) middle management vocational programme, (3) theoretical programme, (4) senior general education, and (5) pre-university education.

Independent variables

The independent variables of this study were the pupils' gender, migrant background, achievement motivation, achievements in grades 4 to 6, and the level of parental education. Table 2 shows how these variables varied over the sixteen hypothetical pupils. The pupils' achievement is also presented in more detail in the vignette in Appendix A (Dutch) and Appendix B (English).

Table 2*Pupils' characteristics used for the vignettes*

Name	Gender	Educational level father	Educational level mother	Migrant background	Achievement motivation
Ahmed Salhi	Boy	University+	University+	Moroccan	1
Amy Visser	Girl	SVE	SVE	Dutch	5
Annemijn de Jong	Girl	University+	HPE	Dutch	1
Deniz Kaya	Girl	SVE	SE	Turkish	5
Esra Demir	Boy	SE	SE	Turkish	2
Gabriël Smit	Boy	SE	SVE	Dutch	4
Jordy van Dijk	Boy	SVE	SE	Dutch	2
Laila Tahiri	Girl	HPE	HPE	Moroccan	5
Levi de Vries	Boy	University+	University+	Dutch	4
Nadia Al numan	Girl	SE	SE	Syrian	5
Noortje Jansen	Girl	HPE	HPE	Dutch	3
Said Mohamed	Boy	HPE	HPE	Syrian	1
Samir Ali	Boy	SVE	SVE	Syrian	2
Susanna Bakker	Girl	SVE	SVE	Dutch	3
Tim van den Berg	Boy	WO+	HPE	Dutch	3
Zahra Khaled	Girl	HPE	University+	Syrian	4

Note: University+: bachelor's degree or higher; HPE: Higher Professional Education; SVE: Secondary Vocational Education; SE: Secondary Education

The two variables gender and the educational level of the parents were balanced over the pupils. High-educated parents were defined as parents who completed at least higher professional education. Low-educated parents were defined as parents who completed secondary vocational education as their highest form of education. Moreover, the names of the pupils were designed to suit the educational level of the parents and their educational level (Onland & Bloothoof, 2008). The pupils' migrant background was Dutch, Moroccan, Turkish or Syrian. These backgrounds were chosen using information from Statistics Netherlands (CBS). The two largest migrant groups in the Netherlands are people with Moroccan and Turkish backgrounds (CBS, 2022). The fastest-growing migrant group in the Netherlands is people with a Syrian background (CBS, 2016). This variable was randomized for the pupils that were created so far. The pupils' achievement and achievement motivation were also randomly created. The achievement motivation was generated using a random number generator. The scores were presented with a Likert scale from 1 (low) to 5 (high). The pupils' achievement was presented using the standardized test scores from Cito. Pupils in the Netherlands make these tests normally twice a year from grade 1 to 5, once halfway through the school year and once when at its end. In grade 6, the test is only taken in the middle of the school year and not at the end since the pupils have already received their track recommendations by then.

The number of questions pupils answer correctly on the Cito test, is linked to a latent skill score that is made comparable across tests using IRT modelling (Cito, 2019). Furthermore, these skill scores are linked to the general categories I to V as presented in Figure 2. Both scores are used in the vignettes to illustrate the achievements of the pupils as clearly as possible. The categories I-V represent quantiles to compare the pupils' scores with one another. The categories are also believed to be linked to the different secondary school tracks. The category I complies with pre-university education and the category V complies with the basic vocational programme.

The academic level of the hypothetical pupils was designed to be ambiguous, so it was uncertain if, for example, a pupil would be most suited for senior general secondary education or pre-university education. This resulted in four groups the pupils could be assigned to basic vocational programme/middle management vocational programme (1), middle management vocational programme/theoretical programme (2), theoretical programme/senior general secondary education (3), and senior general secondary education/pre-university education (4).

Figure 2

Distribution of Cito test scores I-V

I - V

I 20%	20% hoogst scorende leerlingen
II 20%	20% boven het landelijk gemiddelde
III 20%	20% landelijk gemiddelde
IV 20%	20% onder het landelijk gemiddelde
V 20%	20% laagst scorende leerlingen

Note. From above to below, the translation states: (I) 20% the highest scoring pupils; (II) 20% above national average scoring pupils; (III) 20% national average scoring pupils; (IV) 20% under national average scoring pupils; (V) 20% lowest scoring pupils.

Procedure

In December 2021, the ethical committee of the University of Groningen approved this research. From 20 March 2022 to 1 May 2022 the questionnaire was available online. The participants were recruited through the personal network of the researcher and different teacher groups on social media (Facebook and LinkedIn). Furthermore, three school foundations in the north of the Netherlands were approached to distribute the questionnaire among their grade 6 teachers, since the Placement Guide is most widely used here. Lastly, a magazine for educational research in the Netherlands was approached to give attention to the questionnaire.

The teachers were informed about the study and their rights in an information letter at the beginning of the questionnaire. They actively gave their consent for the use of their data for this study by ticking three boxes. Participants were not asked for any personal data, so participation in this study was anonymous and fully voluntarily. Before the participants gave their track recommendations, they answered some background questions. They stated their age, gender, how many years of experience they have giving track recommendations, in which Dutch province they currently work in grade 6 and if they have worked with the

Placement Guide before. All these questions were mandatory, and the teachers could not continue the questionnaire without answering them. At the end of the questionnaire, teachers were able to leave behind their thoughts and opinions on the Placement Guide and/or the questionnaire. This latter question was not mandatory.

Analyses

First, to gain some more insight into the collected data, descriptive statistics were calculated using SPSS version 28.0.1. Firstly, it was mapped out how often each vignette was judged by the participants. The means and standard deviations were calculated for the participants' age and their experience in teaching grade 6. Secondly, frequencies were calculated for the background information of the participants.

Next, the mean differences for gender, migrant background, and parents' educational level regarding the track recommendations were studied. Correlations were used to study the relationships between pupils' achievement and achievement motivation on the recommended track. After these descriptive analyses, the main analyses were conducted, using multilevel analysis. First, the assumptions were checked for the sample. The normality of the sample (histograms) and the variability of the dependent variable (standard deviations) were checked for the various categories of the groups. Second, four interaction variables were created to model interaction with the Placement Guide variable, namely gender, migrant background, educational level of the parents and motivation. Next, the multilevel analyses were conducted. These analyses were used to model the within-subjects design: judgements of vignettes nested within teachers (Snijders & Bosker, 2012). To perform the multilevel analyses the software MLwiN version 3.0.4 was used. First, a model with variance components only was calculated (Model 0). In a second model, all independent variables were added (Model 1). In a third model, the interaction variables were added (Model 2). In a fourth model, the non-significant interaction variables were removed one by one, starting with the variable with the highest associated *p*-value until only significant interaction variables remained.

In addition to the statistical significance of the effects, interpretation of the fixed regression parameters as effect sizes was also considered. If the absolute value of a regression parameter was between 0.0 and .25, was between .25 and .50, or was equal to or higher than .50, the effect size was referred to as, respectively, small, moderate and large. The absolute value of a regression parameter of .50 was equal to half of a level of a track recommendation.

Results

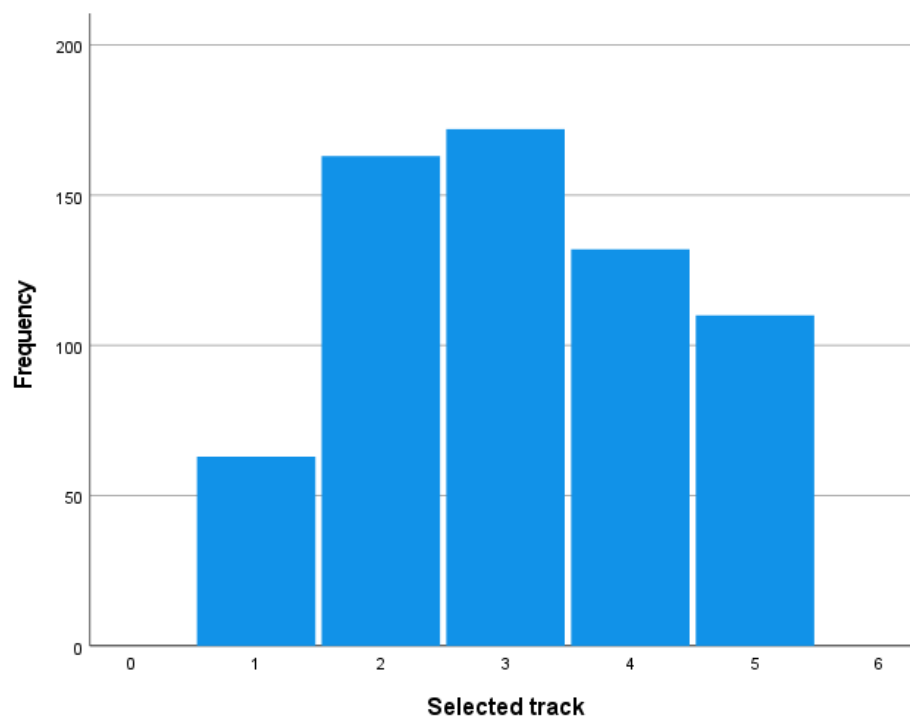
The frequency with which each vignette was presented to the respondents, was examined. It was noticeable that vignette 6 was judged the least often, namely 16 times. Vignette 8 was

judged the most often, namely 28 times. Vignette 6 was a Dutch boy with low-educated parents who scored 4 for achievement motivation and was, concerning his academic achievements, aimed to be a middle-management vocational programme/theoretical programme pupil. Vignette 8 was a Moroccan girl with high-educated parents who scored 1 for motivation and who was, concerning her academic achievements, aimed to be a senior general secondary education/theoretical programme pupil. The frequencies of the other vignettes are presented in Appendix C-1.

Figure 3 presents a histogram of the dependent variable, which was the recommended track. The figure shows that tracks 1 and 5 were recommended the least often. This makes sense since these two tracks were part of fewer vignettes. The third track was selected the most often.

Figure 3

Frequencies recommended tracks



Note: N=640

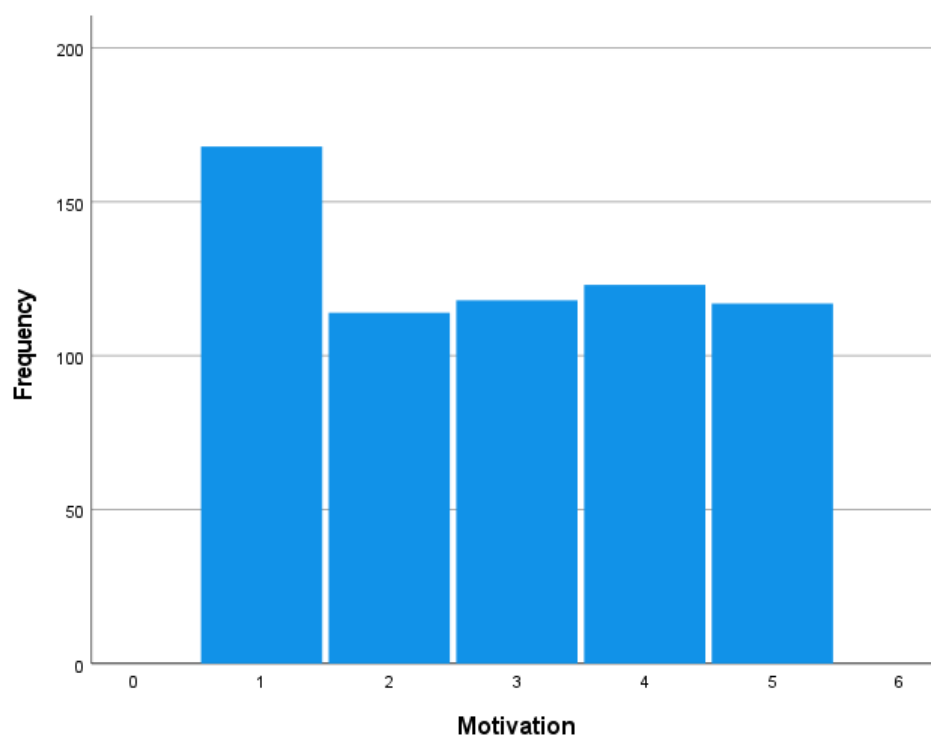
Of the presented vignettes, 48% represented boys, 50% of the vignettes represented pupils from low-educated parents, 50% of the vignettes represented pupils from a Dutch background and 50% of the pupils were judged without the Placement Guide. The mean difference for gender was $M = .099$ ($SD = .098$), which means in this case that boys received

on average a .099 higher track recommendation than girls. For the educational level of the parents, pupils from low-educated parents received on average a $M = .335$ ($SD = .097$) higher track recommendation than pupils from high-educated parents. For the migrant background, Dutch pupils received on average a $M = .623$ ($SD = .095$) higher recommendation than pupils with a migrant background. For the Placement Guide, pupils who were presented with the Placement Guide received on average a $M = .072$ ($SD = .098$) higher recommendation than pupils who were presented without the Placement Guide. However, the mean difference of the migrant background of the hypothetical pupils needs a disclaimer: since the migrant background of the pupils was randomly distributed over the created pupils, it happened that no vignettes were created where pupils with a migrant background had the academic achievements that were related to a senior general secondary education/pre-university education. This means that it was impossible for pupils with a migrant background to receive a recommendation for the pre-university secondary education track.

Figure 4 presents a distribution of the motivation levels over the vignettes presented. The lowest level of motivation was presented the most often.

Figure 4

Distribution of the frequencies the levels of motivation were presented

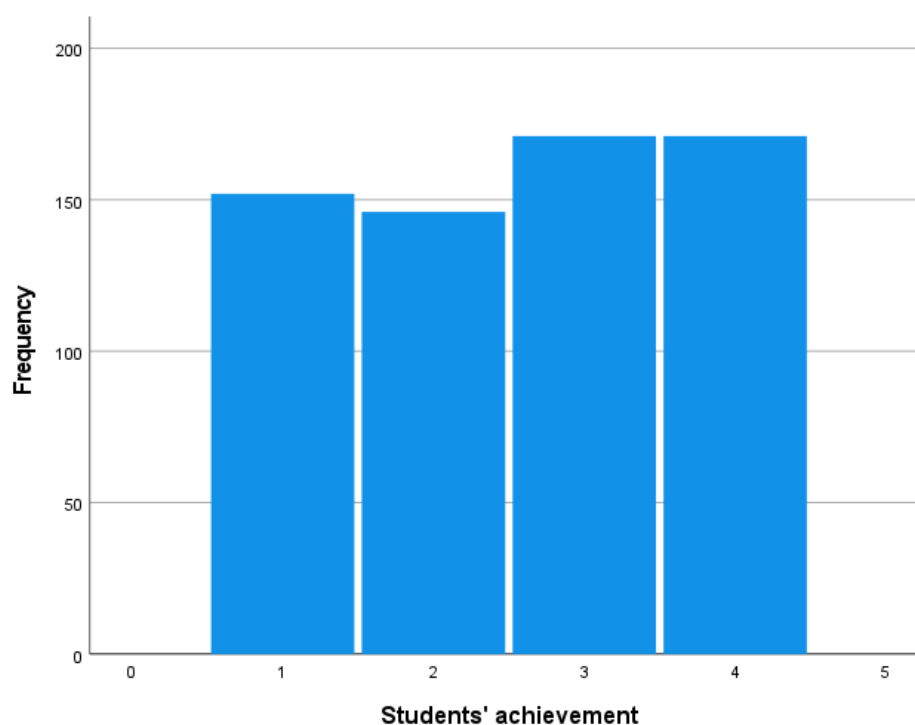


Note: $N=640$

Figure 5 presents a distribution of the academic achievement of the pupils over the vignettes presented. Academic achievement levels 1 and 2 were shown fewer to the participants than academic levels 3 and 4.

Figure 5

Frequencies academic achievements



Note: N=640

A Pearson correlation was calculated with the selected track for the two variables achievement motivation and academic achievements. For achievement motivation, there was a positive, significant correlation between the selected track and the motivation level of the pupils ($r = .21$, $N = 640$). For the academic achievement, there was a positive, significant correlation between the selected track and the level of academic achievement ($r = .904$, $N = 640$).

The assumptions for a multilevel analysis were checked. Whether normality and homoscedasticity were reasonable assumptions was checked for the sample. No patterns were found that suggested strong violations of the assumptions. Table 3 presents the output of the first three estimated multilevel models to study the effects of the independent variables on the participants' recommendations. The random parts of Model 0 show that the variance is completely explained by the participants ($\beta = 1.532$, $z = 17.814$, $p < .001$) and not by the

vignettes ($\beta = 0.0$, $z = 0.0$, $p = 1$). The intercept of Model 0 ($\beta = 3.098$, $z = 63.224$, $p < .001$) shows that the average recommendation was 3, which corresponds to a theoretical programme recommendation. In Model 1, the independent variables were added, and the intercept was significant ($\beta = 2.691$, $z = 16.114$, $p < .001$). Furthermore, four of the five independent variables were significant. Gender influenced the participants' recommendation in favour of girls; they received $\beta = .338$ ($z = 3.130$, $p < .001$) recommendation higher than boys, which was a moderate effect. The migrant background of pupils influenced the participants' recommendation in favour of Dutch pupils; Dutch pupils received $\beta = .556$ ($z = -6.220$, $p < .001$) recommendation higher than pupils with a migrant background, which was a large effect. However, as described above, this result needs a disclaimer, since the migrant background of the pupils was not balanced over the vignettes. The parents' educational level influenced the participants' track recommendations in favour of pupils from low-educated parents; pupils from low-educated parents received $\beta = .512$ ($z = -5.389$, $p < .001$) recommendation higher than pupils from high-educated parents, which was a large effect. Lastly, the achievement motivation of the pupils influenced the track recommendations in favour of pupils with higher levels of motivation; pupils with high levels of motivation received $\beta = .262$ ($z = 6.895$, $p < .001$) recommendation higher than pupils with lower levels of motivation, which was a moderate effect. The Placement Guide was the one non-significant variable ($\beta = .048$, $z = 0.527$, $p = .598$).

For Model 2, interaction variables were added, but they were non-significant, as is presented in Table 3. One by one, the interaction effects were removed, starting with the variable with the highest p -value, but this did not result in the other p -values changing to a significant value. In the end, all interaction variables were removed, and this resulted in the same values for the significant independent variables as Model 1.

Table 3*Multilevel analyses*

	Model 0	Model 1	Model 2
Fixed part			
Intercept	3.098 (.049) *	2.691 (.167) *	2.400 (.230) *
Gender		.338 (.108) *	.506 (.156) *
Migrant background		-.566 (.091) *	-.538 (.129) *
Educational level parents		-.512 (.095) *	-.455 (.135) *
Achievement motivation		.262 (.038) *	.316 (.053) *
Placement Guide (PG)		.048 (.091)	.616 (.315)
PG x gender			-.336 (.216)
PG x migrant background			-.032 (.182)
PG x SES			-.133 (.189)
PG x motivation			-.109 (.076)
Random part			
Level 1 (e)	1.532 (.086) *	1.310 (.073) *	1.301 (.073) *
Level 2 (u)	.000 (.000)	.000 (.000)	.000 (.000)
Fit			
Deviance	2089.457	1988.986	1984.666

*Note: N = 640, * p < .01*

Discussion

The main aim of the current study was to investigate to what extent pupils' attributes affect the track recommendations primary school teachers formulate for their pupils when they are about to enter secondary education. Furthermore, it was examined if and how the Placement Guide, a tool used in the North of the Netherlands, influences the recommendations of teachers, and how pupils' attributes interact with the Placement Guide. Therefore, a quantitative experimental study using a within-subjects design with a scenario-based approach was conducted.

To answer the first research question concerning the pupils' attributes that possibly influence teachers' track recommendations, this study suggests that all four investigated variables have a significant influence on the track recommendations teachers formulate. The multilevel analyses showed that girls receive higher recommendations than boys even though

gender and academic achievements were balanced over the vignettes. The effect found was moderate. This finding is in line with the literature, which states that girls have more chance of receiving higher track recommendations than boys (Auwarter & Aruguete, 2010; De Boer et al., 2010; Timmermans et al., 2015). Additionally, the results showed pupils' achievement motivation has a moderate, positive effect on the track recommendations teachers give, which is in line with the research of De Boer et al. (2010) and Timmermans et al., (2016). The results found for the educational level of the parents, however, were not in line with the literature. A large effect was found in favour of pupils from low-educated parents, which is quite the opposite of what was expected from the literature. Various studies have shown that pupils from high-educated parents tend to receive higher track recommendations (e.g., Auwarter & Aruguete, 2010; Caro et al., 2009; Dijks et al., 2020; Sneyers et al., 2018; Timmermans et al., 2018; Van Leest et al., 2021), but in this study, the pupils from low-educated parents received higher recommendations. This was different than was expected based on the design of the study. A possible explanation is that teachers were aware of their bias in favour of pupils from high-educated parents and they tried to compensate for this in the current study, resulting in favour towards the pupils from low-educated parents. Timmermans et al. (2018) have studied this trend of compensating before concerning the migrant background of pupils. This compensation is partly explained in the article by "a fear among teachers of being accused of racism" (Timmermans et al., 2018, p.852). It is a possibility that teachers were afraid of discriminating the pupils from low-educated parents and they compensated for this in their recommendations. However, before any conclusions can be drawn, follow-up research is essential.

The results for pupils' migrant backgrounds were compromised in the study. The effects found were large and in favour of pupils of Dutch origin, but this outcome has probably been corrupted by a design flaw in the vignettes. Because of the randomisation of the migrant background of the pupils, no pupils with migrant backgrounds were coupled with the academic achievements suited for a senior general secondary education/pre-university education track. Therefore, it was impossible for the hypothetical pupils with migrant backgrounds to receive a pre-university track recommendation. This flaw has resulted in on average lower recommendations for pupils with migrant backgrounds and therefore it was impossible to make a reliable statement about this variable in this study. Follow-up research should ensure that this attribute is balanced over the vignettes.

To answer the second research question, the effect of the Placement Guide was studied. The created interaction variables from the independent variables with the Placement

Guide variable showed that all of the effect sizes of these interaction variables were small and seemed to have little influence on the data in this experiment. This study provides no proof that the Placement Guide influences the recommendations teachers formulate.

When reading these conclusions and interpreting this study, it is important to keep in mind that this study had some limitations. First, the creation of the vignettes was not optimal. The goal was to create vignettes that were fully balanced with all the independent variables that were considered, but for this experiment, this would have resulted in too many vignettes given the number of participants that were expected to participate. It was decided to randomise the variables motivation and migrant background over the hypothetical pupils that were created with the variables academic achievement, gender, and educational level of the parents, which were balanced over the vignettes. Moreover, 80 teachers completed the questionnaire used in this research, and roughly 40% were working in the provinces of Friesland and Drenthe. For these two provinces, the results may to some extent be generalised to all teachers who formulate track recommendations, but this is probably not the case for the other 10 provinces of the Netherlands. Follow-up research is recommended to confirm if the findings of this study can be generalised to the other provinces of the Netherlands as well. Future research should have a larger sample size containing teachers from all the twelve provinces of the Netherlands.

These findings suggest that teachers are biased by the attributes of their pupils when they formulate track recommendations instead of only considering the academic achievement of pupils, which is believed by some to be the correct way to formulate accurate track recommendations (e.g., Boone & Van Houtte, 2013; Luyten & Bosker, 2004). However, one can wonder if this is truly the best way and if it is reasonable to only consider pupils' academic achievement. The Dutch government, for example, is commenting on whether track recommendations should be based on academic achievement or other attributes as well (Ministerie van Onderwijs, Cultuur en Wetenschap, 2022). What is needed is a public deliberation with stakeholders, e.g., researchers, parents, secondary school representatives and even pupils how track recommendations should be established. Track recommendations currently formulated seem to be biased by several types of pupils' attributes and more considered guidelines could potentially ensure more fair recommendations, especially for the pupils who might be disadvantaged by some of their attributes nowadays. For schools, it is recommended that they keep a close eye on the recommendations they formulate to monitor if their recommendations ensure equal opportunities for their pupils while considering their academic achievement. This could be achieved by, for example, teachers formulating more

double recommendations when the academic achievement of pupils does not comply with the level of one of the secondary school tracks or choosing the higher school track more often in case of doubt between two tracks. Moreover, schools should be aware and informed of the biases they potentially have, so they can actively try to formulate fair recommendations for each pupil.

In case of the validity of this study, the statistical conclusion validity and the construct validity will be discussed. The assumptions for multilevel analyses were checked for this sample and no patterns were found that suggested strong violations of the assumptions. This strengthens the statistical conclusion validity of this study. Regarding construct validity, one can ask whether vignettes are an appropriate method for researching the questions asked in this study. The vignettes were piloted by one grade 5/6 teacher from the researcher's network. This teacher assisted the researchers with finalising the vignettes. Furthermore, this teacher stated that the vignettes felt realistic and were easy to understand, which ensured the researchers it was a valuable tool to investigate the research question. However, the teacher did note that it was hard to formulate accurate recommendations because the pupils were hypothetical, and the teacher did not know them in person. One could wonder if vignettes are an appropriate method for investigating track recommendations since teachers normally formulate recommendations for pupils they have known for a while. Nevertheless, one could also assume the thinking process of teachers when formulating recommendations is probably similar for the hypothetical pupils and their real pupils. Vignettes are therefore probably a valuable tool to investigate the process of formulating track recommendations, but it is perhaps essential that the pupils feel realistic to ensure the teachers apply a similar thinking process as they do when formulating track recommendations for their real pupils.

Overall, probably all teachers would agree that the track recommendations they formulate have high stakes for their pupils and that accurate recommendations are of the utmost importance. It is therefore essential to continue research into this phenomenon to make sure all pupils are given the chance to optimally evolve themselves during secondary education. This study is one of the first to consider that pupils' attributes could have a direct effect on teachers' recommendations and the results suggest these effects do exist. If this is truly the case, researchers and teachers must be aware of the bias these attributes could cause, so they can ensure fair recommendations for all their pupils.

References

- American Psychological Association (2020). *Within-subjects design*.
<https://dictionary.apa.org/within-subjects-design>
- Auwarter, A. E., & Aruguete, M. S. (2010). Effects of pupil gender on socioeconomic status on teacher perceptions. *The Journal of Educational Research*, *101*(4), 242-246.
<https://doi.org/10.3200/JOER.101.4.243-246>
- CBS. (2016, 21 november). Bevolking naar migratieachtergrond. <https://www.cbs.nl/nl-nl/achtergrond/2016/47/bevolking-naar-migratieachtergrond#:~:text=De%20vier%20grootste%20niet%20westerse,geboorte%20van%20de%20tweede%20generatie>.
- CBS. (2022). Hoeveel mensen met een migratieachtergrond wonen in Nederland?
<https://www.cbs.nl/nl-nl/dossier/dossier-asiel-migratie-en-integratie/hoeveel-mensen-met-een-migratieachtergrond-wonen-in-nederland>
- Cito (2019). *Toetsscore, vaardigheidsscore... en dan?* <https://www.cito.nl/-/media/files/ve-en-po/cito-flyer-toetsscore-vaardigheidsscore-en-dan.pdf>
- De Boer, H., Bosker, R. J., & Van der Werf, M. P. C. (2010). Sustainability of teacher expectation bias effects on long-term pupil performance. *Journal of Educational Psychology*, *102*(1), 168-179. <https://doi.org/10.1037/a0017289>
- Boone, S., & Van Houtte, M. (2013). Why are teacher recommendations at the transition from primary to secondary education socially biased? A mixed-methods research. *British Journal of Sociology of Education*, *34*(1), 20-38.
<https://doi.org/10.1080/01425692.2012.704720>.
- Caro, D. H., Lenkeit, J., Lehmann, R., & Schwippert, K. (2009). The role of academic achievement growth in school track recommendations. *Studies in Educational Evaluation*, *35*. 183-192. <https://doi.org/10.1016/j.stueduc.2009.12.002>
- Dijks, M. A., Warrens, M. J., Fleur, E., Korpershoek, H., Wichgers, I. J. M., & Bosker, R. J. (2020). The predictive power of track recommendations in Dutch secondary education. *Pedagogische Studiën*, *97*(4), 263-280.
- Government of the Netherlands. (n.d.). *Pre-vocational secondary education (VMBO)*.
<https://www.government.nl/topics/secondary-education/different-types-of-secondary-education/pre-vocational-secondary-education-vmbo>
- Government of the Netherlands. (n.d.). *Secondary education*.
<https://www.government.nl/topics/secondary-education>
- Government of the Netherlands. (n.d.). *Secondary vocational education (MBO)*.

- <https://www.government.nl/topics/secondary-vocational-education-mbo-and-higher-education/secondary-vocational-education-mbo>
- Government of the Netherlands. (n.d.). *Senior general secondary education (HAVO) and pre university education (VWO)*. <https://www.government.nl/topics/secondary-education/different-types-of-secondary-education/senior-general-secondary-education-havo-and-pre-university-education-vwo>
- Geven, S. (2019). The impact of school tracking on school misconduct: Variations by migration background in England, The Netherlands, and Sweden. *Journal of Ethnic and Migration Studies*, 45(15), 2864-2887.
https://doi.org/10.1080/1369183X_2019.1600402
- Geven, S., Batruch, A., & Van de Werfhorst, H. (2018). *Inequality in teacher judgements, expectations and track recommendations: A review study*. Universiteit van Amsterdam. https://pure.uva.nl/ws/files/33184714/blg_864911.pdf
- Glock, S., Krolak-Schwerdt, S., Klapproth, F., & Böhmer, M. (2012). Improving teachers' judgments: Accountability affects teachers' tracking decision. *International Journal of Technology and Inclusive Education*, 1(2), 86-95.
- Glock, S., & Krolak-Schwerdt, S. (2013). Does nationality matter? The impact of stereotypical expectations on pupil teacher' judgments. *Social Psychology of Education*, 16, 111-127. <https://doi.org/10.1007/s11218-012-9197-z>
- Glock, S., Krolak-Schwerdt, S., Klapproth, F., & Böhmer, M. (2013). Beyond judgment bias: How pupil' ethnicity and academic profile consistency influence teachers' tracking judgments. *Socials Psychology of Education*, 16, 555-573.
<https://doi.org/10.1007/s11218-013-9227-5>
- Glock, S., Krolak-Schwerdt, S., & Pit-ten Cate, I. M. (2015). Are school placement recommendations accurate? The effect of pupils' ethnicity or teachers' judgments and recognition memory. *European Journal of Psychology of education*, 30, 169-188.
<https://doi.org/10.1007/s10212-014-0237-2>
- Hinnant, J. B., O'Brien, M., & Ghazarian, S. R. (2009). The longitudinal relations of teacher expectations to achievement in the early school years. *Journal of Educational Psychology*, 101(3), 662-670. <https://doi.org.10.1037/a0014306>
- Inspectie van het Onderwijs. (2014). *De kwaliteit van het basisschooladvies: Een onderzoek naar de totstandkoming van het basisschooladvies en de invloed van het basisschooladvies op de verdere schoolloopbaan*.

- <https://www.onderwijsinspectie.nl/documenten/publicaties/2014/10/14/de-kwaliteit-van-het-basisschooladvies>
- Inspectie van het Onderwijs. (2018). *Onderwijsverslag: De staat van het onderwijs 2016/2017*.
https://www.onderwijsinspectie.nl/binaries/onderwijsinspectie/documenten/rapporten/2018/04/11/rapport-de-staat-van-hetonderwijs/108126_IvhO_StaatvanhetOnderwijs_TG.pdf
- Klapproth, F., & Fischer, B. D. (2019). Preservice teachers' evaluations of pupils' achievement development in the context of school-track recommendations. *European Journal of Psychology of Education, 34*, 825-846. <https://doi.org/10.1007/s10212-018-0405-x>
- Klapproth, F., Glock, S., Böhmer, M., Krolak-Schwerdt, S., & Martin, R. (2012). School placement decisions in Luxembourg: do teachers meet the Education Ministry's standards? *Literacy Information and Computer Education Journal, 1*(1), 856-862.
- Klapproth, F., Kärcher, H., & Glock, S. (2018). Do pupils' religion and school absences moderate the effect of ethnic stereotypes on school-placement recommendations? *The Journal of Experimental Education, 86*(2), 173-194.
<https://doi.org/10.1080/00220973.2017.1293602>
- Klassen, R. M., Perry, N. E., & Frenzel, A. C. (2011). Teachers' relatedness with pupils: An underemphasized component of teachers' basic psychological needs. *Journal of Educational Psychology, 104*(1), 105-165. <http://doi.org/10.1037/a0026253>
- Korpershoek, H., Beijer, C., Spithoff, M., Naaijer, H. M., Timmermans, A. C., Van Rooijen, M., Vugteveen, J., & Opdenakker, M-C. (2016). *Overgangen en aansluitingen in het onderwijs. Deelrapportage 1: Reviewstudie naar de po-vo en de vmbo-mbo overgang* (NRO-ProBO 405-14-402). GION Onderwijs/Onderzoek.
- Krolak-Schwerdt, S., Pit-ten Cate, I., & Hörstermann, T. (2018). Teachers' judgments and decision-making: studies concerning the transition from primary to secondary education and their implications for teacher education. In O. Zlatkin-Troitschanskaia, M. Toepper, H. A. Pant, C. Lautenback, & C. Kuhn (Red.), *Assessment of learning outcomes in higher education: Cross-national comparisons and perspectives* (pp. 73-101). Springer. https://doi.org/10.1007/978-3-319-74338-7_5
- Lüdemann, E., & Schwerdt, G. (2013). Migration background and educational tracking: Is there a double disadvantage for second-generation immigrants? *Journal of Population Economics, 26*(2), 455-481. <https://doi.org/10.2307/23354337>

- Luyten, H., & Bosker, R.J. (2004) Hoe meritocratisch zijn schooladviezen? *Pedagogische Studiën*, 81(2), 89–103.
- Ministerie van Onderwijs, Cultuur en Wetenschap. (2022). Handreiking schooladviesering (versie januari 2022). <https://www.rijksoverheid.nl/onderwerpen/schooladvies-en-eindtoets-basisschool/documenten/brochures/2020/10/12/handreiking-schooladviesering>
- Onland, D., & Bloothoofd, G. (2008). *Voornaamgroepen en sociaal-economische indicatoren*. Universiteit Utrecht. <http://www.gerritbloothoofd.nl/Publications/SKORapport-voornamen.pdf>
- Pit-ten Cate, I. M., & Glock, S. (2018). Teachers' attitudes towards pupils with high- and low-educated parents. *European Journal of Psychology of education*, 21, 725-742. <https://doi.org/10.1007/s11218-018-9436-z>
- Pit-ten Cate, I. M., Krolak-Schwerdt, S., & Glock, S. (2016). Accuracy of teacher' tracking decisions: Short- and long-term effects of accountability. *European Journal of Psychology of education*, 31, 225-243. <https://doi.org/10.1007/s10212-015-0259-4>
- Sneyers, E., Vanhoof, J., & Mahieu, P. (2018). Primary teachers' perceptions that impact upon track recommendations regarding pupils' enrolment in secondary education: A path analysis. *Social Psychology of Education*, 21, 1153-1173. <https://doi.org/10.1007/s11218-018-9458-6>
- Snijders, T. A. B., & Bosker, R. J. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modeling* (2nd ed.). SAGE Publications. https://books.google.nl/books?hl=nl&lr=&id=N1BQvcomDdQC&oi=fnd&pg=PP2&dq=multilevel+analysis&ots=Ai4nR_xJqM&sig=x85sYvbUBVMBmxdsc_-vFTWgnjs&redir_esc=y#v=onepage&q=multilevel%20analysis&f=false
- Tieben, N., & Wolbers, M. (2010). Success and failure in secondary education: Socio-economic background effects on secondary school outcome in the Netherlands, 1927–1998. *British Journal of Sociology of Education*, 31(3), 277–290. <https://doi.org/10.1080/01425691003700516>
- Timmermans, A. C., De Boer., H., Amsing, H. T. A., & Van der Werf, M. P. C. (2018). Track recommendation bias: Gender, migration background and SES bias over a 20-year period in the Dutch context. *British Educational Research Journal*, 44(5), 847-874. <https://doi.org/10.1002/berj.3470>
- Timmermans, A. C., De Boer, H., & Van der Werf, M. P. C. (2016). An investigation of the

- relationship between teachers' expectations and teachers' perceptions of pupil attributes. *Social Psychology of Education*, 19(2), 217-240.
<https://doi.org/10.1007/s11218-015-9326-6>
- Timmermans, A. C., Kuyper, H., & Van der Werf, G. (2015). Accurate, inaccurate, or biased teacher expectations: Do Dutch teachers differ in their expectations at the end of primary education? *British Journal of Educational Psychology*, 85, 459-478.
<https://doi.org/10.1111/bjep.12087>
- Van Leest, A., Hornstra, L., Van Tartwijk, J., & Van de Pol, J. (2021). Test-or judgement-based school track recommendations: Equal opportunities for pupils with different socio-economic backgrounds? *British Journal of Educational Psychology*, 91, 193-216. <https://doi.org/10.1111/bjep.12356>
- VO-Raad. (2020). *Vo in cijfers: Leerlingen en onderwijs*. VO-Raad: Vereniging van scholen in het voortgezet onderwijs. Accessed on 2 March 2022, from <https://www.vo-raad.nl/vo-in-cijfers-leerlingen-en-onderwijs>
- Wason, K. D., Polonsky, M. J., & Hyman, M. R. (2002). Designing vignette studies in marketing. *Australian Marketing Journal*, 10(3), 41-58.
[https://doi.org/10.1016/S1441-3582\(02\)70157-2](https://doi.org/10.1016/S1441-3582(02)70157-2)
- Wilks, T. (2004) The use of vignettes in qualitative research into social work values. *Qualitative Social Work*, 3(1), 78-87. <https://doi.org/10.1177/1473325004041133>

Appendix A

Vignette Annemijn de Jong Dutch

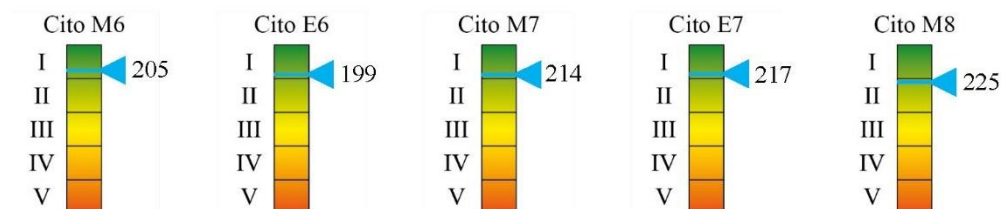
Schooladviesbeoordelingsformulier

Naam: Annemijn de Jong
 Geslacht: Meisje
 Opleiding Vader: WO+
 Opleiding Moeder: HBO
 Migratieachtergrond: Nederlandse

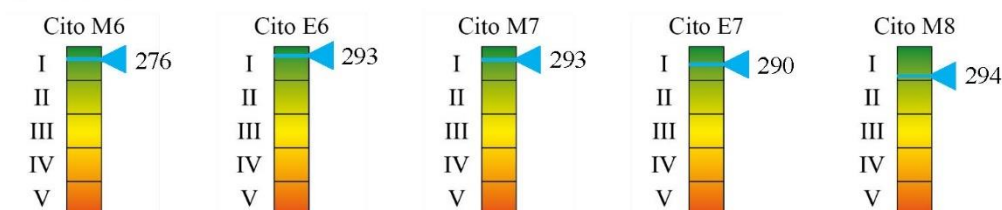
Motivatie



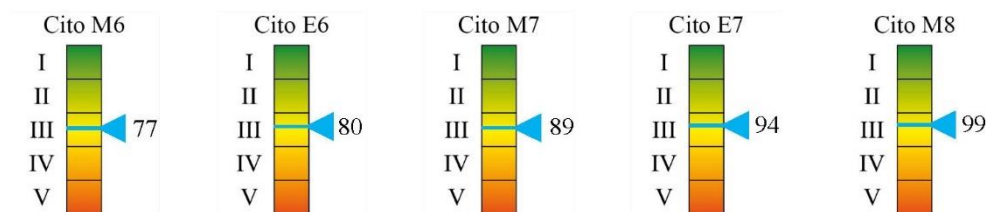
Begrijpend lezen



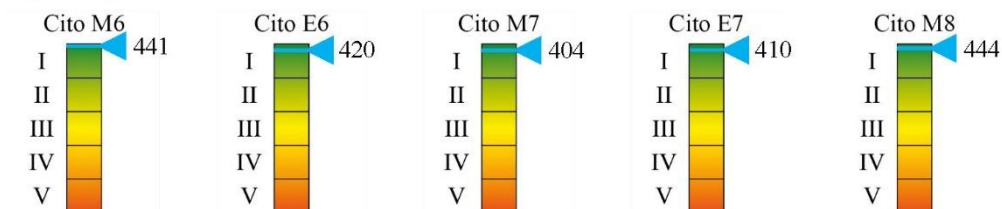
Rekenen



Technisch lezen - DMT



Spelling



Appendix B

Vignette Annemijn de Jong English

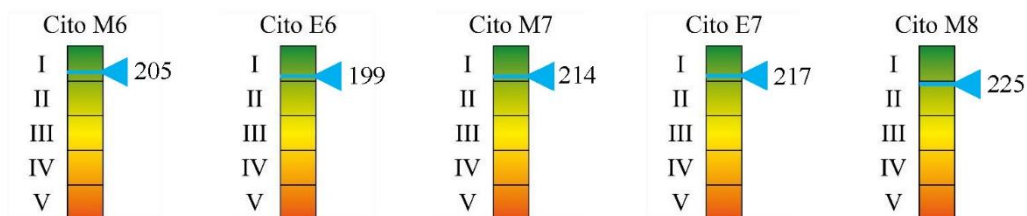
Track recommendation assessment form

Name: Annemijn de Jong
 Gender: Girl
 Educational level father: University+
 Educational level mother: HPE
 Migration background: Dutch

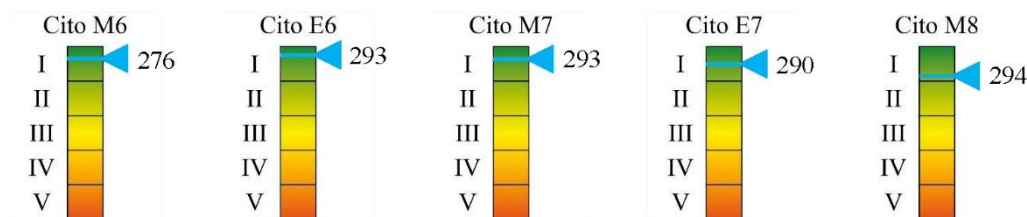
Motivation



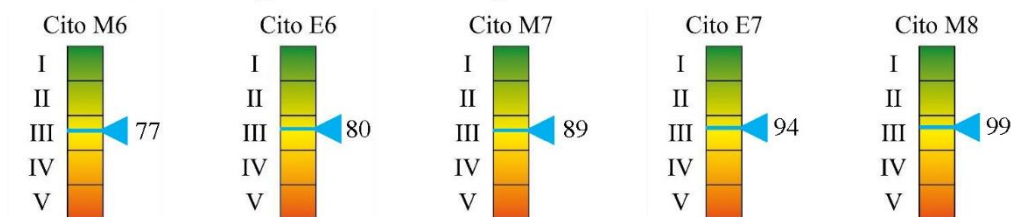
Reading Comprehension



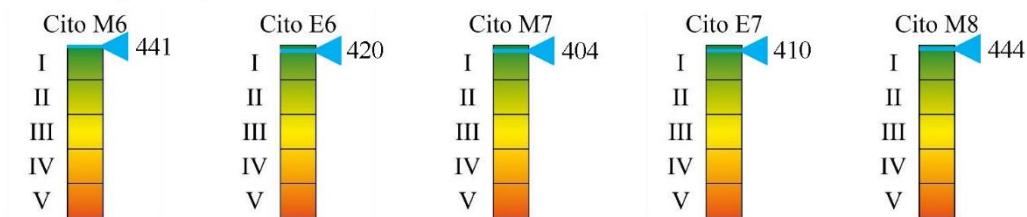
Mathematics



Technical Reading - Word Reading



Word Spelling



Appendix C
Frequencies vignettes

Table C-1*Vignettes frequencies*

Vignette number	Frequency	Vignette number	Frequency
1	21	17	19
2	17	18	18
3	26	19	17
4	27	20	20
5	21	21	15
6	14	22	21
7	24	23	25
8	28	34	20
9	15	25	23
10	15	26	23
11	21	27	20
12	16	28	18
13	20	29	18
14	15	30	26
15	18	31	18
16	22	32	19

Note. N=640