

Simplifying and pre-testing the Dweck
Mindset Instrument and Self-Efficacy
Formative Questionnaire among VMBO
students

Using the Three-Step Test-Interview (TSTI)

Bachelor Thesis

Name: Jill Wesselink

Supervisor 1: dr. P.M. ten Klooster

Supervisor 2: dr. A.M. Sools

Abstract

Previous studies showed that pre-vocational secondary education (VMBO) students tend to see their future perspectives more negative compared to higher educated students. This might be the consequence of the existing stereotypes that VMBO students have to deal with. These stereotypes might, in turn, alter a students' mindset in which he or she will start to have a fixed mindset and, thus, believes that he or she is not capable of becoming better at something or being able to develop a talent. This, again, can influence a students' self-efficacy believe (if they are capable of doing or learning a certain thing) in a negative way. In order to test if these students have a growth or fixed mindset and if they believe they are capable of learning a certain thing (their self-efficacy believes) there is a need for appropriate measurements. However, many questionnaires are developed by university professors and tested among university or higher educated students. To use these tests on lower educated students, these tests need to be adapted and pre-tested.

In this study, the Dweck Mindset Instrument and the Self-Efficacy Formative Questionnaire were chosen to be translated, simplified and pre-tested among 15 VMBO students all attending a Dutch high school. The participants were interviewed using the Three-Step Test-Interview.

The results showed that on both questionnaires the first item caused the most problems. This may be due to the participants not reading the instructions and, thus, having a low concentration. The participants also indicated the Dweck Mindset Instrument as a less pleasant questionnaire to fill in, considering the similarity and the length of the items. The participants also experienced difficulties with the word 'intelligence' in this questionnaire. Lastly, participants seemed to prefer the bipolar scale used as a response sheet for the Self-Efficacy Formative Questionnaire instead of the Likert scale used as a response sheet for the Dweck Mindset Instrument.

Based on these results suggestions were made to improve both questionnaires. However, the results of this study show that both questionnaires are not ready to be used as qualified instruments yet. However, this research does give suggestions for rewriting and simplifying these questionnaires and similar questionnaires in order to create usable instruments for the use among VMBO students in the future. This study also shows the importance of pre-testing a questionnaire before using it on a particular target group.

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Introduction

Stereotypes such as “boys are better at mathematics than girls” and “black students underperform at an academic level compared to white students” can have major consequences for one’s future. Stereotype threats seem to have a negative influence on the academic performance of students (Good, Aronson, & Inzlicht, 2003). The reason for this is mainly that these stereotype threats come with certain anxiety which puts pressure on students. Not only gender and race stereotype exist, but also stereotypes exist toward the level of education. In particular stereotypes about students attending pre-vocational secondary education (VMBO) in comparison with an academic education (Arnot, David, & Weiner, 1996).

The difference between pre-vocational secondary education and academic education is that VMBO prepares students to go immediately into the labor market whereas academic education prepares students for college or university (Shavit & Müller, 2000). Results of the study by Shavit and Müller (2000) showed that pre-vocational education students remained to attain lower occupational prestige compared to academic students. This may eventually result in those students believing that they will never be chosen for the desirable jobs when compared to the academic educated students.

Research by Miller and colleagues (1996) focused on the underlying factors that play a role in student engagement with school. In their study, they focused on different factors including pleasing others and perceived ability. Students seemed to set their goals considering to what amount they please others, but also to what level they consider themselves to be competent enough to reach that goal. Results from this study showed that perceived ability was highly related to cognitive engagement and effort for completing that certain task. With this, it was meant that when a student thought that he or she was highly capable of performing well on the task he or she would also be more likely to finish the task with success. Not only was the perceived ability of the students related to the prediction of their achievement it was also related to predictions of persistence and predictions of effort.

Knowing that the perceived ability of the students plays an important role when looking at the engagement in school, researchers were questioning what causes this perceived ability to be either high or low. In a study focusing on mathematic abilities, it was found that especially due to the parents’ stereotypic beliefs, girls scored lower on mathematic tests than boys (Jacobs & Eccles, 1992). These stereotypic beliefs consisted of the parents’ idea that their daughter would underperform when compared with a boy on a mathematic test and vice versa. Results showed that not only the outcomes of the girls on the test were lower, it was

also shown that these girls also had lower ability beliefs. These girls believed they were not as able to perform well on the test when compared to boys who believed they were quite able to do well on the test. Therefore, these beliefs of the students might be the reason why the girls underperformed on the test.

Much is already known about these gender stereotypes in a learning environment. More recently, researchers started to question if stereotypical beliefs can also cause one to attend lower education like for instance pre-vocational secondary education (Steele, 2013). In the past, scholars have been asked what they think of students attending pre-vocational secondary education. Many of them thought that these students attending pre-vocational secondary education are typically placed in lower tracks which reduces their chances of getting into university and, thus, getting the more privileged jobs (Shavit & Müller, 2000). They also viewed the students attending pre-vocational secondary education as academically weaker students. All of these comments can be considered a stereotype, and with this comes the stereotype threat.

These stereotypes seem to have a major influence on how one thinks about his or her future. A study by Rudolph, Kooij, Rauvola, and Zachner (2018) showed that these stereotypes, and in general education levels, seem to influence how one thinks of his or her future. Results showed that people with higher education levels are likely to perceive their future, in terms of opportunities, in a much more positive way than lower educated people.

Johnson and Sherman (1990) also found that peoples' thoughts about their future can influence their current feelings, motives, and behaviour. It was found that people who positively imagined their future seem to be better able to articulate their goals (Vasquez & Buehler, 2007). This, in turn, seems to result in behaving in a way in which they are most likely going to achieve these goals. In the experiment created by Vasquez and Buehler (2007) people were either asked to imagine success or failure on an upcoming task. The people who imagined success seemed to perform better and outperformed the people that imagined failure. This study, thus, showed that whenever a person thought of his future in a negative or less desirable way, this can negatively influence a persons' motivation.

In sum, students attending pre-vocational secondary education thus seem to experience stereotype threats that seem to negatively affect their future time perspective. This again seems to affect their motivation to reach their goal in a negative way. This may result in a vicious circle in which a students' motivation and future time perspective gets more negative each time.

A pre-condition for having a positive future time perspective seems to be if the person holds a growth mindset instead of holding a fixed mindset (Husman, McCann, & Crowson, 2000). For a long time, people thought that a person's talent was fixed and could not be changed. Mueller and Dweck (1998) proved the opposite. In their research students were praised for several different things including praised for their talents in general, praised for effort and some were simply told that their scores were very high. Later in the study, several problems were given to them which were a lot harder than the previously received ones. The students that were praised for their talents, in general, scored significantly higher than the other students. The results thus showed that talent in a certain area is malleable and not at all fixed.

Dweck (2008) found that this idea about talent, of either being fixed or malleable, plays an important factor in the minds of students, thereby resulting in, for instance, higher or lower academic achievement. For example, when a student has a fixed mindset he or she believes that his or her talent for a certain school subject is unchangeable, meaning that he or she cannot become better at that subject (O'Rourke, Haimovitz, Ballweber, Dweck, & Popović, 2014). On the contrary, students that have a growth mindset believe that his or her talent for that certain school subject is malleable and that he or she can learn from the mistakes that he or she makes and become better at this subject. These results suggest that holding a fixed mindset will result in a decrease of academic performance over time, whereas holding a growth mindset will improve academic performance in the long run (Blackwell, Trzesniewski, & Dweck, 2007; Good, Aronson, & Inzlicht, 2003). These past positive experiences on an academic level may cause a student's future time perspective to become more positive, in turn.

When looking at the specific point of job opportunities in their future time perspective, past academic achievements seem to be very important (Taylor, & Wilson, 2016). Results of a study by Taylor and Wilson (2016) showed that students may get discouraged after failing time after time, which negatively affects their future time perspective. They were less likely to strive for future goals. Students attending pre-vocational secondary seem to experience stereotype threats that may cause them to experience more failures compared to students that do not experience these kinds of threats (Good, Aronson, & Inzlicht, 2003). This may cause them to negatively think of their future in a way that they are less willing to strive for certain goals. As such, academic performance may be a big influence on how one tends to see his or her future.

When looking at academic performance, not only the mindset and the existing stereotypes seem to be important. Also, motivation seems to be an important aspect when looking at the education level of students (Vallerand et al., 1992). Motivation is related to various outcomes like for instance curiosity, persistence, learning and performance. Motivation can enhance learning experiences in two ways, one of which is that motivation can encourage a student to study more concentrated and focused to study longer (Munoz-Merino, Molina, Munoz-Organero, & Kloos, 2014). When studying longer, learning outcomes tend to be more positive which can increase the motivation of students and lead to better-educated students. Results from the study from Fortier, Vallerand, and Guay (1995) showed that whenever a students' perceived academic competence was higher they tend to have a higher motivation level which resulted in a better academic performance.

Another relevant aspect for academic performance especially in adolescents is self-esteem. Researchers found that especially around the age of 12 there was a huge drop in self-esteem (Robins & Trzesniewski, 2005). Also, during adolescence self-esteem continues to decline. This research showed that especially around adolescence people started to think about one's self and one's future. At this age, they start to acknowledge missed opportunities and failed expectations. Another study pointed out that self-esteem was related to academic achievement, meaning that a greater academic achievement meant higher self-esteem and a higher motivation to perform well in school (Whitesell, Mitchell, & Spicer, 2009). A higher self-esteem and a higher motivation for school may cause a student to perceive his or her future in a much more desirable way.

When a student might, for instance, be good in mathematics, it is often said that this student is talented. So, one might say that talent is also a major predictor of how one might feel about his/her future. But is this talent innate or is it learned? Wu (2008) tried to find an answer to this question in a case study with three Chinese American families. Wu kept a close eye on the parents' influence on the child and whether or not this led to the development of a talent. Previous studies already indicated that various environmental factors could influence children's talent development. From these environmental factors, parents and family seemed to be the most important factor (Bloom & Sosniak, 1985). Results of this study showed that when a parent thought of a certain talent as being learned and not innate, children were likely to do better at this certain task or subject compared with children of whose parents thought that talent was just a thing you are born with and, thus, is not malleable. This was mainly because the children of the parents that thought of talent as malleable felt more confident to learn a certain task and tried to get better at it. The children of the parents that thought of

talent as something innate were less willing to learn the task and were also less confident of being able to do good at it.

Stereotypes and other influential factors like perceived ability, mindset, motivation and self-esteem seem to be of great influence on a students' perception of what one can achieve in the future. To broaden a students' future perspective, several programs have been developed. One of which is a new program focusing on students attending pre-vocational secondary education called 'Future Me' (FutureMe, n.d.). This program tries to broaden the students' future perspectives with regard to personal, cultural and talent development by using art. Especially for this group of students, it is important to broaden their future perspective, because they may suffer most from the existing stereotypes and opinions about their capabilities. To test if this program has any effect on the constructs mentioned above (e.g. motivation, perceived ability, self-esteem, and mindset) questionnaires are needed to measure these constructs.

Several self-report tests are available to measure these constructs. However, many of these questionnaires are developed by professors and tested on higher educated students. People attending lower education have to fill in the same questionnaire as people attending higher education. For instance, to measure the mindset of a student, the Dweck Mindset Instrument can be used (Dweck, 2008). This instrument is a self-completion questionnaire and consists of 16 items. This instrument is developed by a professor at Stanford University and there are no alternative forms for either higher or lower educated participants. In a previous study, the need for an alternative version for this questionnaire for use among lower educated students already emerged (Vlijmen, 2018). This study tried to measure the mindset of students in primary school. In this study, the Dweck Mindset Instrument needed to be rewritten before letting the children participate in this study. This rewritten questionnaire was not pre-tested but does show that there is a need for an alternative versions of this instrument for the use among lower educated students.

The same problem arises with the questionnaire available to measure perceived ability or self-efficacy beliefs among students. An instrument that tries to measure this construct is the Self-Efficacy Formative Questionnaire (Erickson & Noonan, 2018). This questionnaire consists of 13 items and has been mainly used in high school students attending higher education. Again, no alternative forms are available that make a distinction between higher or lower educated participants.

As can be concluded from the existing tests to measure these constructs they are mostly developed by professors and tested among students attending higher education. This

raises the question if tests are appropriate to use on students attending lower education, like students attending pre-vocational secondary education. To use these tests in programs like the Future Me program in VMBO students, it is necessary to make sure that the tests are fully understood by the students. Especially for this group problems may occur with understanding the questions used in the questionnaire. To test whether a questionnaire is appropriate to use on a certain group of people these need to pre-tested.

Considering that the mindset and self-efficacy beliefs of students play a key role in creating a positive or negative future time perspective it is important to test these constructs (Dweck, 2008). This could be done with existing instruments such as the Dweck Mindset Instrument and the Self-Efficacy Formative Questionnaire. However, these instruments have been mainly used, developed and evaluated in relatively highly educated student samples. The question remains if these tests are understandable for lower educated students. The goal of this research is to simplify and pre-test the rewritten forms of the Dweck Mindset Instrument and the Self-Efficacy Formative Questionnaire to use these tests on lower educated students.

Questionnaires

The chosen questionnaires for this research are the Dweck Mindset Instrument and the Self-Efficacy Formative Questionnaire. These were selected because these two questionnaires measure ability beliefs and mindsets from students, which may have a great influence on how these students see their future and to what extent they think they are able to reach their goals. The existing questionnaires are mainly used and developed for higher educated students. Both of these tests do not have a validated Dutch version. To use these instruments on lower educated students the questionnaires needed to be translated, simplified and pre-tested.

The Dweck Mindset Instrument

The Dweck Mindset Instrument is a frequently used self-completion questionnaire to test whether a student holds a fixed or a growth mindset (Dweck, 2008). This questionnaire consists of 16 items and respondents answer the questions with either strongly agree, agree, mostly agree, mostly disagree, disagree and strongly disagree. The questionnaire claims to measure the construct of the mindset of a person validly and reliably (Dweck's Growth Mindset, n.d.). Even though the Dweck Mindset Instrument is an often-used self-completion questionnaire no exact numbers were found about the reliability and validity of this questionnaire.

The Self-Efficacy Formative Questionnaire

The Self-Efficacy Formative Questionnaire is also a self-completion questionnaire (Noonan, & Erickson, 2018). This questionnaire measures a students' believe that ability can grow with effort and that the student can achieve a specific goal and/or expectation by believing in his or her ability. The questionnaire consist of 13 items and the students has to rate the statements on a bipolar scale rating the items with 1, 2, 3, 4, 5. With 1 meaning not very like me and 5 meaning very like me. This questionnaire was mainly developed and evaluated in high school students. This questionnaire was pre-tested by students with different educational levels and turned out to be highly reliable ($\alpha=.89$) (Noonan & Erickson, 2018).

Rewritten forms

First, the questionnaires were translated to Dutch by the researcher. After this process, words that might cause problems were simplified. The researcher and first supervisor discussed which words might cause trouble when reading the questions. Words like 'significant' were

left out, 'basic intelligence' was changed into 'the level of intelligence that you are born with', 'considerably' was changed into 'quite a lot' and words like 'substantially' were changed into 'strongly'.

Once the questions were translated and simplified, the questionnaires were sent to an elementary school teacher to check if the questionnaires were still too difficult. No changes were made, and the rewritten version was again discussed with the first supervisor. In this process, several discussions emerged about the word 'intelligence' and whether this word was too difficult to use or not. Also, a discussion occurred whether or not there was a big difference between 'intelligence' and 'talent' and if the questions for both concepts had to be kept in the questionnaire. It was decided that the word intelligence would probably not be too difficult and that there was a difference between intelligence and talent and, thus, both needed to be kept in. Some questions about this topic were added to the Three-Step Test-Interview to ask participants how they felt about this discussion.

After finishing the rewritten and simplified questionnaire, a reading-ease calculation was made using the Flesch Reading Ease-test. This test gives an impression of how hard it is for people to understand the questionnaires. A score of 56.1 for the Dweck Mindset Instrument and a score of 69.8 for the Self-Efficacy Formative Questionnaire were obtained. This indicated that it was rather difficult to understand the rewritten Dweck Mindset Instrument (between 50-60 is rather difficult, higher secondary education), but the Self-Efficacy Formative Questionnaire would be easier to read (between 60-70 standard readability, lower secondary education) (Understanding Readability Scores, 2019).

Once the preliminary questions were created, two different answering categories were chosen for the separate questionnaires. For the Dweck Mindset Instrument it was chosen to give the answering options 'strongly agree', 'agree', 'mostly agree', 'mostly disagree', 'disagree', and 'strongly disagree'. The participant had to mark the box that suited his/her answer best. For the Self-Efficacy Formative Questionnaire answers had to be chosen on a scale from 1 to 5. With 1 being 'does not fit me at all' and 5 being 'totally fits me'. The participant had to circle the number that suited his/her answer best.

Methods

Participants

To recruit students to participate in this study an email was sent to two different high schools. When there was no response after waiting for around two weeks the interviewer visited one of the high schools and asked if they were interested in participating in this study. This high school agreed on participating and the informed consent was handed out the day after this visit to the high school 'De Thij' located in Oldenzaal. Five days later the interviewer returned to the high school to conduct the interviews. The rewritten Dweck Mindset Instrument and the rewritten Self-Efficacy Formative Questionnaire were pretested on the 17th of April 2019 in an interview setting with a convenience sample of 15 participants collected from high school De Thij in Oldenzaal The Netherlands. Of these 15 participants, 8 (53.3%) were men and 7 (46.7%) were women. The mean age of the men was 13.8 (SD = 0.5; Range = 13:14) and an average age was 13.4 (SD = 0.5; Range = 13:14) for the women. In total the mean age was 13.6 years (SD = 0.5; Range = 13:14). This sample only included Dutch-speaking students attending pre-vocational secondary education in the second grade.

Materials and procedure

Pre-test of the Dweck Mindset Instrument and Self-Efficacy Formative Questionnaire
The pre-test study was approved by the ethical committee of the University of Twente (190362). A few days before the interview, participants were given the informed consent (Appendix a) to give them some time to collect an autograph from their parent or caregiver. Only those who had filled in the informed consent, including an autograph from the student itself and an autograph from their parent or caregiver, were allowed to take part in the interview. The interview included the rewritten instructions, questions and response options from the Dweck Mindset Instrument and the Self-Efficacy Formative Questionnaire (Appendix d). Both questionnaires were tested after each other in the same order in each participant. First, the Dweck Mindset Instrument was given to the student and then the student could proceed with filling in the Self-Efficacy Formative Questionnaire. To test how the rewritten and simplified questions were understood, the Three-Step Test-Interview method was used. At the end of the interview several additional questions were asked concerning their preferences and suggestions (Appendix e).

Cognitive interviewing

Several techniques can be used to pre-test a questionnaire, for instance, one can make use of a cognitive interview (Collins, 2015). A cognitive interview is an in-depth qualitative interviewing approach that tries to test whether a questionnaire is understood the way it is meant to be understood. This method can make use of techniques as paraphrasing, confidence ratings, observation, response latency, etc. This cognitive interviewing technique focuses mainly on the survey questions and not on the instrument in general.

Another technique that can be used to pre-test a questionnaire is the Three-Step Test-Interview (Hak, van der Veer, & Jansen, 2004). This interview is applied to the interaction between the respondent and the questionnaire and focuses not only on the question but also on the instrument in general. This method makes use of the think-aloud technique. The think-aloud technique can be used to collect data about the process of thinking. Cognitive interviewing can be experienced as something very unnatural for a human (De Leeuw, Borgers, & Smits, 2004). In early childhood, the process of doing a certain task and thinking-aloud is natural because their cognition has not yet developed in the way that they can do certain tasks without thinking-aloud. A turning point starts at the age of 7 in which the cognitive ability of the children is more developed and there is no need for doing certain tasks while talking about it. This is also why cognitive interviewing for high school students might be very unnatural because they are used to think without saying this out loud. By making use of the Three-Step Test-Interview the interview is not only focused on what the participant is saying/thinking but the interviewer will also take note of the behavioural observation he/she makes from the participants.

The Three-Step Test Interview

The purpose of Three-Step Test-Interview (TSTI) is to pre-test whether or not a questionnaire is understood in the way it is meant to be (Hak, van der Veer, & Jansen, 2008). Like the name of the interview suggests, this technique consists of three steps, with the first one being ‘observation of response behaviour (respondent-driven)’. The respondent is asked to think-aloud and read out loud while completing the respective questionnaire. The interviewer collects the data regarding the verbal expressions given by the respondent. Both questionnaires were read out loud and finished and then the interviewer continued to the next step of the interview.

The second step of this interview method is called ‘follow-up probing aimed at remedying gaps in observational data (interviewer driven)’. This step includes asking the respondent about the actions and thoughts the interviewer does not fully feel informed about yet. This with regard to filling in the gaps of the observational data, but also to check whether the interviewer correctly understood the information given by the respondent. For instance, when a participant read a question with hesitation or stuttered on a certain word the participant was asked to give a reason for this.

The last step in the three-step interview method is ‘debriefing aimed at eliciting experiences and opinions (interviewer-driven)’. In this step the respondent is allowed to add feelings, explanations or even preferences concerning the answers given on the previous questions. The third phase of this interview was mainly used to ask participants what they would change to create a better questionnaire. During the process of rewriting the questionnaire, several problems were encountered which the interviewer also wanted answers to. For instance, during the process of rewriting the interviews the problem of the word ‘intelligence’ was encountered. This word is often used in the current language but may be problematic or difficult to understand for younger students. In the third phase in this interview the participants were asked whether or not they properly understood the word intelligence or if they wanted to change it to another word. Also, the Dweck Mindset Instrument focuses on both talent and intelligence. Participants were asked whether or not they felt like there was an actual difference between these two concepts or if they are the same to them. All of the questions that were asked during this phase can be found in Appendix e. There was also room for the participants to freely express how they felt about the questionnaires.

Procedure

A few days before the actual interview, on the 13th of April 2019, the students were informed about the research and the informed consents were handed out. On the 17th of April 2019 the informed consents were collected, and the interviews were taken. Each participant was taken out of the classroom and situated in a closed and quiet room. Beforehand, the participant was asked whether or not he/she had any questions about the research. Once these questions were sufficiently answered, the participants were asked to read every question from the questionnaires out loud, starting with the question from the Dweck Mindset Instrument. If they experienced trouble with the question or if they did not understand it, they were asked to mention this. All of the interviews were audio-recorded and transcribed verbatim afterward.

Data Analysis

After the process of transcribing the interview these were imported into ATLAS.ti. Questions that seemed troubling were marked and categorized into the type of problem. From these categories, codes were created following an inductive qualitative procedure. The codes that were created were based on the type of problem. Some problems seemed to arise when reading the question out loud. The codes that were used for this were ‘stuttering on a word’, ‘re-reading the question’ and ‘skipping part of the question’. Some participants already mentioned during the first phase of the interview that they had problems with either one or more of the items on the questionnaires. Codes that were used for this problem were ‘explicitly saying that they did not understand the question’, ‘explicitly saying that a word was difficult’, and ‘explicitly saying that they found it a difficult question’. In the last phase of the interview, questions were asked about whether or not they found some questions similar and if they wanted to leave out any questions. Some also wanted to give their own suggestions. The codes that were created for these kinds of problems were ‘similar question’, ‘a suggestion is given’, and ‘leave out the question’.

The results are presented in this study ordered by the type of problem indicated. First, graphs show the types and amount of problems on each item. Next, the problems are written down and more specific descriptions are given, including which participant mentioned this problem and on which item. Relevant quotations made by the participants are included which function as an example of what the participants said. In the last phase of the interview even more questions were asked which can be found in Appendix e.

After all the data were collected, the mean interview completion time, standard deviation and range of each participant was calculated. Also, for the Dweck Mindset Instrument and the Self-Efficacy Formative Questionnaire the mean time each participant needed filling in the questionnaires, the standard deviations and the ranges were calculated. After this, the average number of problems that each participant indicated was calculated. After these calculations, the answers that the participants gave to the items, were processed in excel and then imported to SPSS to explore the internal consistency by calculating Cronbach’s alpha for both questionnaires.

Results

General results

The mean time each participant was interviewed was 9 minutes and 28 seconds with a standard deviation of 1 minute and 32 seconds (Range= 7 minutes 33 seconds:11 minutes 46 seconds). The mean time the participants spend on the Dweck Mindset Instrument in total was 1 minute and 27 seconds (SD = 30.2; Range= 45 seconds:2 minutes 28 seconds). For the Self-Efficacy Formative Questionnaire this was 40 seconds (SD = 14.5; Range = 23 seconds:1 minute 18 seconds). One participant mentioned that he had dyslexia and another participant mentioned that he did not like school at all, which was also the reason that he first attended higher general secondary education but then decided to switch to pre-vocational secondary education. Another general observation that the interviewer noticed was that the boys seemed to be more willing to fully concentrate on the questionnaire and help the interviewer than the girls.

An average of 7.9 (SD = 4.6; Range = 1:20) problems were indicated per participant across both questionnaires. Participant 12 indicated the most problems and participant 14 the least. In the graph below the number of problems indicated per participant can be found.

On the Dweck Mindset Instrument an average of 3.2 problems were indicated per participant (SD = 3.6; Range = 0:15). For the Self-Efficacy Formative Questionnaire a total mean of 2.7 problems were indicated (SD = 2.7; Range = 0:8). Lastly, during the last step of the interview, participants mentioned an average of 2.1 problems (SD = 1.3; Range = 0:5).

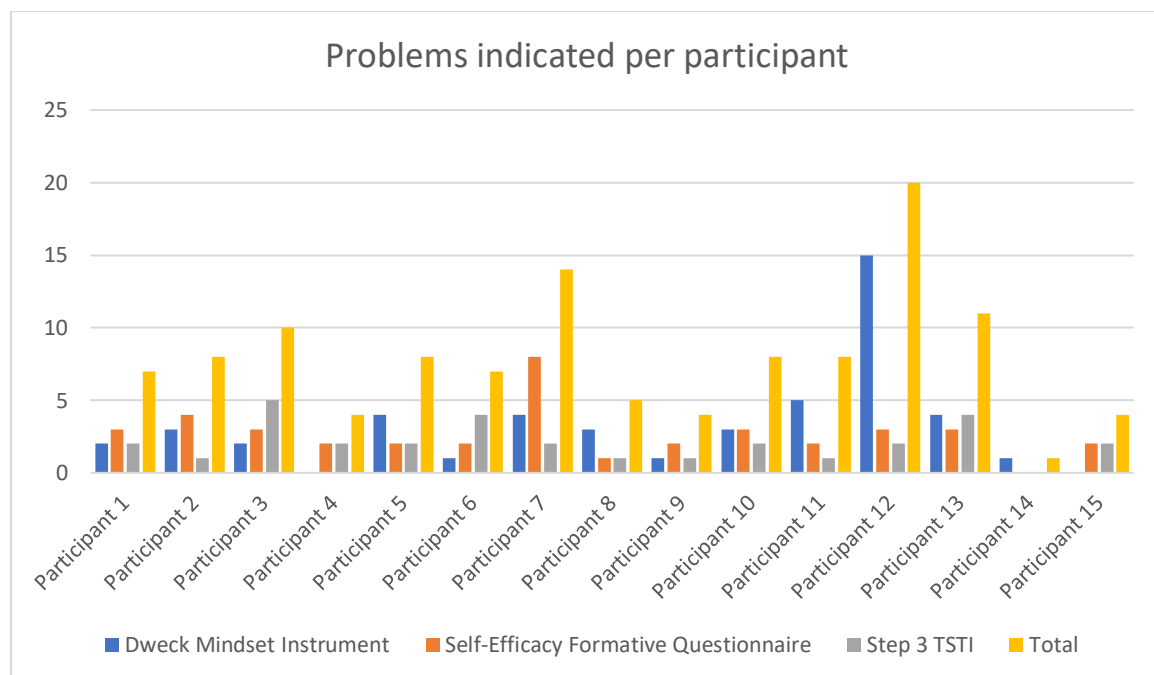


Figure 1. Number of problems indicated per participant

Problems observed in step 1 and 2 Three-Step Test Interview

Several problems with both scales were observed already in the first and second step of the interview. Many of these problems seemed to arise in the first step (the read-aloud phase and the think-aloud phase) of the interview. These problems were noted and asked about in the second step of the interview. The codes for the problems that were observed during the first and second step of the interview can be categorized in observed and explicitly mentioned problems. The observed problems were: stuttering on a word, skipping part of the question, re-reading the question and not being sure about how to fill in a question. The explicitly mentioned problems were not understanding the question, experiencing an item as difficult or explicitly mentioning that a word in the item was difficult. The codes that were created based on the occurred problems:

Stuttering on word

This problem frequently arose in the first step of the interview. Some participants seemed to stutter on certain words in the questionnaire. In these cases, in the second step of the interview a question was asked to let the participant clarify why he or she stuttered on this word.

Skipping part of the question

Some participants started reading the question and then stopped and immediately filled in the answer to that question. Again, in the second step a question was asked why the participant did this.

Re-reading the question

In the first step of the interview some participants had to read a question again. Clarification about this was asked in the second step of the interview.

Unsure about filling in the question

This problem was used when the participant needed reassurance about how to fill in a question or when they were not sure if their answer fitted the answering categories. This code was also found in step two in the interview. Some participants explicitly mentioned in step two that they just were not sure how to fill in the question.

Not understanding the question

Some participants already mentioned in the first step of the interview that they did not understand the question and needed an explanation. In the upcoming part of the interview a question was asked why this participant seemed to experience trouble with this particular question. Some participants again mentioned that they had trouble understanding the question.

Difficult question

In the first and second step of the interview some participants explicitly mentioned that they thought a certain question was rather difficult.

Difficult word

Some words that were used in the questionnaire seemed to cause trouble. Some participants mentioned already in the first step that they did not understand stand a certain word which resulted in either not understanding the question or finding it a difficult question. Also, this problem was explicitly mentioned in the second step of the interview.

Observed and explained problems that occurred in the first and second step of the Three-Step Test Interview

Dweck Mindset Instrument

Overall, the average number of problems per item of the Dweck Mindset Instrument was 3.06 (SD = 3.34; Range= 0:13). Item 1 seemed to cause the most trouble (11 problems) and item 8, 11 and 15 did not cause any trouble. Stuttering on a word occurred the most (11 times) and skipping part of the question, difficult questions and difficult words were problems that were observed the least (3 times each). In total, 47 problems were indicated by the participants for this questionnaire.

The first thing that was observed at the start of the interview was that participants did not read the instructions. When the participant was not sure about how to fill in the question on the first item, this was not interpreted as a problem with the item but as a consequence of not reading the instructions. Participants 2, 6, 8 and 12 experienced trouble with the first question, because of not reading the instructions.

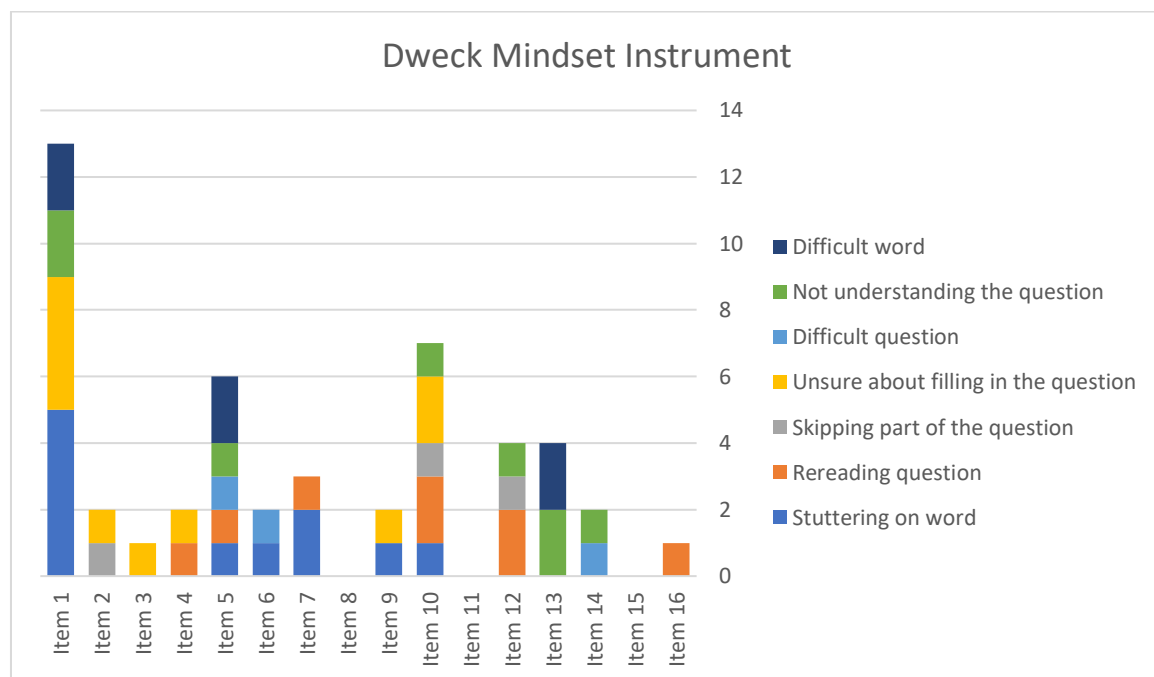


Figure 2. Number and kind of problems indicated for the Dweck Mindset Instrument

Stuttering on word

A total of 11 times this problem was observed while the participants read the questions out loud. Item 1 caused the most problems. Participants 2, 7, 10, 11 and 12 had problems with reading the first question out loud. Participants 2, 7, 10 and 11 experienced trouble with the

word ‘intelligence’. Participant 12 had trouble with the word ‘amount’. Participant 10 mentioned that he did not understand this word, because of his dyslexia.

Step 2, participant 10, item 1

- | |
|--|
| <p>I <i>‘Bij de eerste keer het woord intelligentie stotterde je, is dat een lastig woord voor jou?’</i></p> <p><i>‘With the first time the word intelligence you stuttered, is this a difficult word for you?’</i></p> <p>P <i>‘Ja, ik heb dyslexie dus sommige dingen die begrijp ik niet en dit vond ik wel lastig.’</i></p> <p><i>‘Yes, I suffer from dyslexia that makes me not understand certain things and this was difficult for me.’</i></p> |
|--|

Several participants stuttered on words on several items. With item 5 (participant 5), item 6 (participant 5), item 7 (participant 5 and participant 9), item 9 (participant 11) and item 10 (participant 10) this problem occurred. The participants that experienced trouble with items 5, 6 and 7 all stuttered on the word ‘intelligence’. Participant 11 that stuttered on item 9 had problems with the word ‘amount’ and participant 10 that stuttered on item 10 on the word ‘talent’.

Skipping part of the question

On item 2 (participant 12), item 10 (participant 7) and item 12 (participant 13) some participants skipped a part of the question and immediately started filling in the answer to the question. The participants were asked afterward why they skipped part of the question. For instance, participant 7 was asked about why the participant did not read the whole question. She answered that she already knew what was coming, which is why she did not feel the need to read the whole question.

Step 2, participant 7, item 10

- | |
|--|
| <p>I <i>‘Bij vraag tien begon je met het lezen van de vraag en toen op de helft stopte je al en toen ging je het antwoord al invullen, hoe kwam dat?’</i></p> <p><i>‘At the tenth question you started reading the question and you stopped halfway and started to fill in the question, how come?’</i></p> <p>P <i>‘Ik snapte de vraag denk ik al.’</i></p> |
|--|

'I think I got the question already.'

I *'Je wist al wat er ging komen?'*

'You already knew what was coming?'

P *'Ja, het was een beetje dezelfde vraag als de andere.'*

'Yes, it was a similar question as the previous ones.'

Re-reading the question

Re-reading the question happened 8 times while completing the questionnaire during this interview. Participants had to re-read item 4 (participant 12), item 5 (participant 12), item 7 (participant 12), item 10 (participants 12 and 13), item 12 (participants 2 and 12) and item 16 (participant 12). Participant 12 felt the need to re-read the items the most and was asked about this in the second step of the interview. He mentioned that he found the items with the word 'strongly' in them very weird. No further questions were asked about the other items that the participants had to read again.

I *'Bij het woord 'sterk' veranderen in 'sterk veranderen' dat vond je lastig of niet?'*

'With the word 'strong' in 'strongly changing' that was difficult for you or not?'

P *'Ja, dat vind ik raar.'*

'Yes, I find that weird'

Unsure about filling in the question

This problem occurred in item 2 (participant 3), 3 (participant 8), 4 (participant 5), 9 (participant 3) and 10 (participant 8 and 14). For item 10 this problem was indicated two times, the remaining items only had this problem once. Only on item 3 the participant mentioned that at first, he was not sure about what to fill in but after considering the answers one more time he did know what to fill in. With the other items, the participants mentioned that they wanted an extra answering option. For instance, participant 8 seemed to experience trouble with the response options on item 3 when asked about at the second step of the interview. They all responded that they would have liked to see a blank space underneath the response options in which they could write down an explanation with why they choose a certain answer.

Step 2, participant 8, item 3

- I** *'Bij de derde vraag van de eerste vragenlijst zei je van 'ik ben het er eigenlijk een beetje mee eens', mis je die optie?'*
'At the third question from the first questionnaire you said, 'I actually agree a bit', do you miss that option?'
- P** *'Ja ik vind altijd dat als je er moeite voor doet dat je altijd wel wat slimmer kunt worden. Dus...'*
'Yeah I think that you can always become a bit smarter if you try it. So...'
- I** *'Vind je dat de antwoorden kloppen dan bij wat je eigenlijk vindt?'*
'Do you think the answers match what you actually think?'
- P** *'Ja mijn antwoord paste er eigenlijk wel bij.'*
'Yeah my answer did match with what I thought.'

Not understanding the question

Some participants explicitly mentioned that they did not understand the question. The items that caused this problem were item 1 (participant 7 and 10), item 5 (participant 12), item 10 (participant 12), item 12 (participant 7), item 13 (participant 12 and 13) and item 14 (participant 12). Participant 10 mentioned that he had dyslexia which made it hard for him to understand some words and/or sentences. Participant 12 and 13 seemed to struggle with the word 'strongly' in items 5 and 13. Participant 7 indicated that not understanding the questions was mostly the fault of herself because she was reading the questions too quickly without her full attention.

Step 1, participant 12, item 5

- P** *'Je kunt altijd sterk veranderen... Je kunt altijd sterk veranderen hoe intelligent je bent.'*
'You can always strongly change... You can always strongly change how intelligent you are.'
- P** *'Wat bedoelen ze daarmee? Met sterk?'*
'What do they mean with that? With strongly?'
- I** *'Dat je het heel erg kunt veranderen.'*
'That you can change it a lot'
- P** *'Dus dat je je intelligentie heel goed kunt veranderen?'*

'So, that you can really change your intelligence?'

I *'Ja.'*

'Yes.'

In the second phase of the interview a question was asked about whether he found the word 'strongly' hard to understand because this participant seemed to struggle with this word also in item 13.

Step 2, participant 12, item 5 and 13

I *'Bij het woord sterk in sterk veranderen dat vond je lastig of niet?'*

'With the word strongly in strongly changing that was something you found difficult am I right?'

P *'Ja dat vind ik raar.'*

'Yes I find that weird.'

Difficult question

In step two of the interview three people explicitly mentioned that they found certain items on the questionnaire rather difficult. Item 5 (participant 1), item 6 (participant 11) and item 14 (participant 11) caused trouble. All of these participants did understand the questions but found it a difficult question to read and understand. Participant 1 mentioned that she would rather change the word 'strongly' into something as 'very good'. Participant 11 seemed to find items 6 and 14 difficult because these were longer questions.

Step 2, participant 11, items 6 and 14

I *'Ik kreeg het idee dat je bij de wat langere vragen zoals vraag zes en veertien dat je daar wat moeite mee had, klopt dat?'*

'I got the idea that whilst answering the longer question with for instance question six and fourteen you seem to experience trouble, am I right about that?'

P *'Ja.'*

'Yes.'

I *'Vind je die langere vragen vervelend?'*

'Do you find longer question annoying?'

P *'Soms wel.'*

'Sometimes yes.'

Difficult word

Five participants struggled with some words used in the questionnaire. Two participants (10 and 11) seemed to struggle with the word intelligence in the first item. Participant 10 mentioned that he has dyslexia which makes it hard for him to understand certain words. Participant 11 just mentioned that he found the word 'intelligence' a difficult word in general. Participant 1 indicated in the second step of the interview that she struggled with the word 'strongly' in item 5. Participant 12 also struggled with the word 'strongly' in both items 5 and 13. Participant 13 also indicated that he struggled with the word 'strongly' in especially item 13. Participants 10 and 11 wanted to change the word 'intelligence' into 'smartness/cleverness' and participants 1, 12 and 13 wanted to change 'strongly changing something' to something like 'that you are really able to change it'.

Step 1, participant 13, item 13

P *'Je kunt altijd sterk veranderen hoeveel talent je hebt.'*

'You can always strongly change how much talent you have.'

P *'Die snap ik niet?'*

'I don't get this one?'

I *'Wat snap je precies niet? Sterk veranderen is dat je het goed kunt veranderen.'*

'What exactly don't you get? Strongly change is that you can really change it.'

P *'Oh zo, nu snap ik hem.'*

'Oh okay, I get it now.'

Self-Efficacy Formative Questionnaire

The average number of problems per item was 3.08 (SD = 2.96; Range = 0:10). The average number of problems is very similar to the Dweck Mindset Instrument (3.06). Again, as with the Dweck Mindset Instrument item 1 again seemed to cause the most trouble (10 problems). On this questionnaire item 2 and item 7 did not cause any trouble. The problem indicated as ‘re-reading the question’ occurred the most (14 times) and the problem indicated as ‘skipping part of the question’ only occurred once. In total, 40 problems were observed for the Self-Efficacy Formative Questionnaire.

Again, it was noticed that the instructions were not read by the participants. This led to the same problems as with the Dweck Mindset Instrument. Several participants needed to ask the interviewer how to fill in the questionnaire. Participant 4 and 5 had to ask after reading the first question, how to fill in the questionnaire.

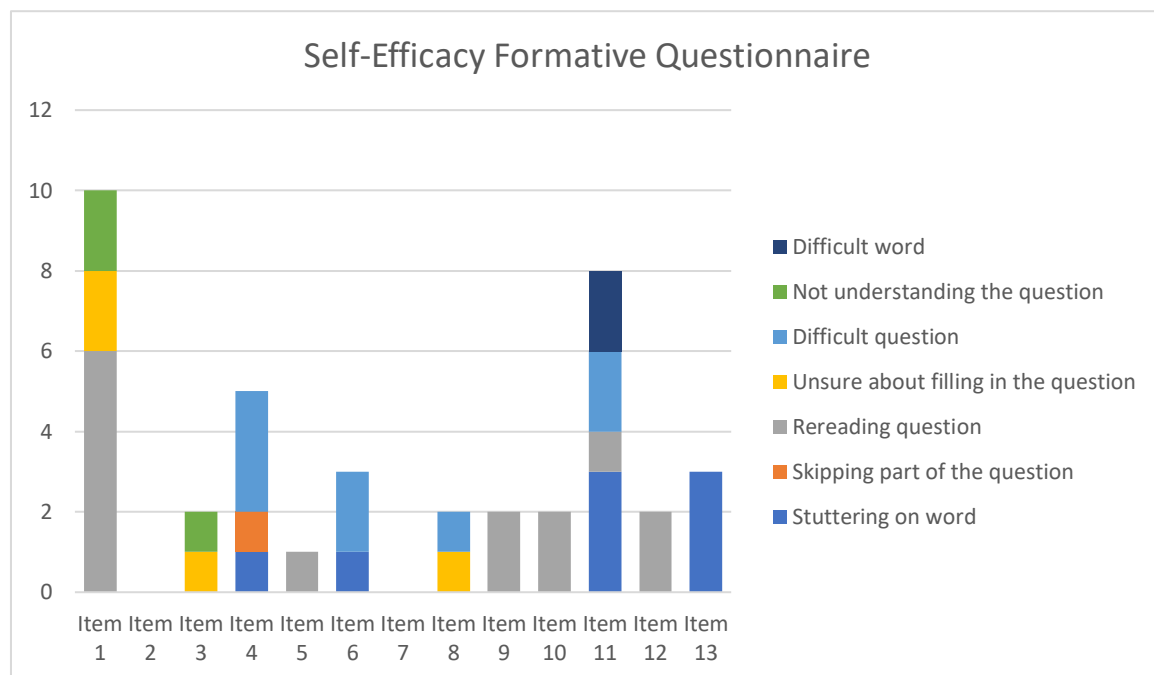


Figure 3. Number and kind of problems indicated for the Self-Efficacy Formative Questionnaire

Stuttering on word

Six participants (participant 2, 7, 8, 10, 11 and 15) had problems when reading the questions out loud. Items 11 and 13 seem to cause this problem the most. Item 11 all caused the same reading problem with the word ‘developing’ for participants 7, 10 and 11. Item 13 caused participants 2 and 7 to stutter on the words ‘basis level’ and participant 15 on the word

'skills'. Participant 8 stuttered on the word 'difficult' on item 4 and participant 7 stuttered on item 6 on the word 'accomplishing'.

Step 1, participant 7, item 11

P *'Ik geloof dat mijn hersenen ontwikke... ontwikkeld kunnen worden, net zoals een spier dat kan.'*
'I believe that my brain can be develop... developed just like a muscle.'

Skipping part of the question

This problem occurred several times on the Dweck Mindset Instrument. On the contrary, only one participant skipped a part of the question while reading out loud on this questionnaire. Participant 13 skipped the last bit of item 4 and started filling in his answer without reading the question completely. No further questions were asked why this happened.

Step 1, participant 13, item 4

P *'Zodra ik besloten heb iets te bereiken wat belangrijk is, blijf ik het proberen...'*
'Once I have decided to accomplish something that is important to me, I keep on trying...'

Re-reading the question

14 times during filling in the questionnaire an item had to be re-read by the participant. This is almost twice as much when compared to the number of times this problem was observed on the Dweck Mindset Instrument (8 times). Especially item 1 had many people had to re-read the item (6 times by participants 2, 4, 7, 10, 12 and 13). Participants 7 and 12 reported that they did not understand the question after re-reading it.

Step 1, participant 12, item 1

P *'Ik kan leren wat er dit jaar in de klas wordt... Ik kan leren wat er dit jaar in de klas wordt lesgegeven.'*
'I can learn what is being taught in class... I can learn what is being taught in class this year.'

P *'Je kunt dus leren wat er in de les wordt gegeven?'*
'You can learn what is being taught in class?'

I 'Ja.'

'Yes.'

P 'Ja dat is waar. Of ik dat kan?'

'Yes, that is true. If I can do that?'

I 'Ja, precies of jij dat kunt leren?'

'Yes, exactly if you can learn that?'

P 'Ja, dat kan ik wel, maar dat wil ik niet. Dat vind ik saai.'

'Yes, I can do that, but I don't want to. I think that it is boring.'

Item 5 was re-read once by participant 7, item 9 had to be re-read two times by participant 7 and 9, item 10 had to be re-read by participants 10 and 13, and item 11 had to be re-read by participant 1. Participant 1 was asked about this in the second step of the interview. The participant explained that she did not understand the question at first.

Step 2, participant 1, item 11

I 'Vraag 11 van de tweede vragenlijst, die ging je 2 keer lezen, waardoor kwam dat?'

'Question 11 at the second questionnaire, you started reading it for a second time, why was that?'

P 'Oh, nee ik snapte de vraag eerst niet.'

'Oh, no I did not understand the question at first.'

I 'Vind je het lastig vanwege het woord hersenen en spier? Of...?'

'Do you think it is difficult because of the word brain and muscle? Or...?'

P 'Euhm... ja dat is het denk ik ja.'

'Euhm... yes I think that is it yeah.'

On item 12 participants 7 and 11 had to re-read the question. No further questions were asked about this.

Unsure about filling in the question

A total of two times a participant was not sure how to fill in his or her answer on the questionnaire. Participant 12 experienced this problem on item 3 and participant 3 experienced this problem on item 8. Both the participants mentioned in the second step of the interview that they thought that his or her answer did not match the answer categories.

Step 2, participant 12, item 3

- I** *'Je gaf een paar keer aan dat je het er wel ongeveer mee eens was, maar niet helemaal. Mis je dan een optie waarin je kunt uitleggen waarom je een bepaald antwoord geeft?'*
'You mentioned a few times that you roughly agreed, but not totally. Do you miss an option in which you can explain why you give a certain answer?'
- P** *'Nee, nee, ik zou een uitleg optie toch niet invullen. Ik vond bij deze vraag dat het 'bij je past' niet klopte, ik zou dat veranderen naar 'of je dat doet of niet'.*
'No, no, I would not fill in an explanation option. I just thought that 'fits me' was not right, I would change it to 'if you do it or not'.

Not understanding the question

Only three participants mentioned that they did not understand a certain question. Compared to the Dweck Mindset Instrument this problem occurred way less on the Self-Efficacy Formative Questionnaire. On question number 1 this happened two times (participant 7 and participant 15). Participant 7 mentioned in the second step of the interview that it was not the question that was difficult but she was reading the question too quickly. Participant 15 did mention that he had trouble with understanding the question and would prefer if it was left out of the questionnaire.

Step 2, participant 15, item 1

- I** *'En bij de eerste vraag van de tweede vragenlijst zei je dat je de vraag niet snapte, hoe zou jij die vraag veranderen zodat je hem wel zou snappen?'*
'And on the first question from the second questionnaire you mentioned that you did not get the question, how would you change it so that you would understand it?'
- P** *'Ja ik snapte de hele vraag niet. Ja ik weet niet zo goed wat de bedoeling van die vraag is. Ik zou die vraag gewoon weglaten. Die vraag is gewoon heel onduidelijk.'*
'Yeah I did not get the question. Yeah, I don't really know what the purpose is of that question. I would leave it out. The question is just really unclear.'

Participant 12 mentioned that he did not understand question 3 of the questionnaire. To him, it was not clear if it was about what he thought or what he could do. After an explanation it was clear to him and he had no problem with answering the item.

Difficult question

Several participants mentioned that they experienced certain items as rather difficult. On item 4 three participants mentioned that they experienced this question as difficult (participants 3, 5 and 9). Participants 3 and 9 experienced trouble with this question, because it was a long question and that made the question difficult. Participant 5 could not explain why she experienced the question as difficult. She did say that reading it a few more times helped her.

Step 2, participant 2, item 6

<p>I <i>'De tweede vragenlijst bijvoorbeeld, bij vraag 6 ging het lezen een beetje lastig, waarom kwam dat denk je?'</i></p> <p><i>'On the second questionnaire for example, question 6 you had difficulty reading it, why do you think that happened?'</i></p> <p>P <i>'Ik denk, omdat het een wat langere zin was. En er stonden wat moeilijkere woorden in.'</i></p> <p><i>'I think, because it was a longer sentence. And there were more difficult words in it.'</i></p>

Participants 2 and 6 experienced item 6 as a difficult question. Both participants indicated that this sentence was a long one and that was why they experienced this question as difficult.

Only once item 8 was seen as a difficult question (participant 3). This was because he had difficulty with the answer not necessarily the question itself. He was not sure what he thought of the statement and thus, did not exactly know what to fill in on the answering sheet.

Item 11 caused problems for two participants, participants 1 and 6. They both indicated that the words brain and muscle had them thinking. They did say that after thinking about it for a little while they understood it, but it just was not as easy as the other ones.

Difficult word

Only on item 11 difficult words were experienced by participants 1 and 2. Again, this problem occurred more times on the Dweck Mindset Instrument. Participant 1 mentioned that the words brain and muscle made the question difficult. Participant 2 mentioned that there was something wrong with the word 'developed', but after re-reading it he mentioned that no mistake was made and that the words used in the sentence were not that difficult to understand.

Step 2, participant 2, item 11

I *'Bij vraag 11 van de tweede vragenlijst ging je de vraag herhalen, hoe kwam dat?'*

'At item 11 from the second questionnaire you started repeating it, how come?'

P *'Ja het woord ontwikkeld, ik dacht zelf dat het ontwikkelen was. Dus ja, ik las het gewoon verkeerd.'*

'Yes, the word developed, I thought it was developing. So yeah, I just read it wrong.'

Overall assessment and given suggestions in the third step of the Three-Step Test Interview

Dweck Mindset Instrument & Self-Efficacy Formative Questionnaire

Codes step 3

For the analysis of the third step of the interview, three new codes were created. The code 'similar question' was used when a participant mentioned that questions were too similar. Some participants mentioned suggestions to create a better questionnaire. Those statements were coded with 'suggestion is given'. Also, participants frequently suggested to leave out certain questions, because they looked similar to another question. Those statements were coded with 'leave out question.'

Similar question

The comment about questions being similar to each other only concerned the first questionnaire (the Dweck Mindset Instrument). On the Self-Efficacy Formative Questionnaire no similar questions were spontaneously mentioned.

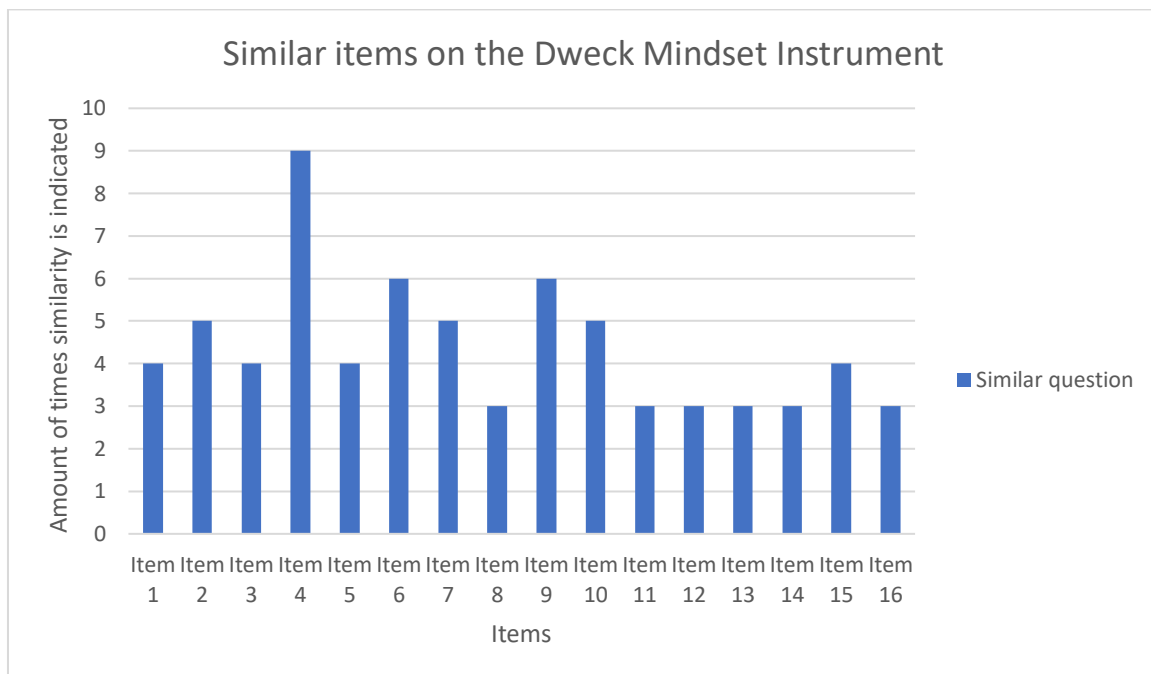


Figure 4. Amount of times similarity was indicated for each item

Only participants 9, 12 and 14 did not think that there were any similar questions in the Dweck Mindset Instrument. Participants 2, 8 and 11 thought that every question on the

Dweck Mindset Instrument was the same. These three participants were the only ones that thought items 8, 11, 12, 13, 14 and 16 looked similar to the other questions in this questionnaire.

Except for the three participants that thought every question looked the same only one participant (participant 3) thought that question 1 looked similar to another question in the Dweck Mindset Instrument. This was also the case on item 3 (participant 15), item 5 (participant 13) and item 15 (participant 5).

Five participants (2, 3, 6, 8 and 11) thought of item 2 as being similar to one or several other questions in the Dweck Mindset Instrument. Also, item 7 (participants 2, 5, 8, 10 and 11) and item 10 (participants 1, 2, 6, 8 and 11) caused 5 participants to think of the item as similar to other questions in the Dweck Mindset Instrument.

Similarity was also mentioned for Item 6 (participants 2, 4, 7, 8, 10 and 11) and item 9 (participants 1, 2, 6, 8, 11 and 13). Both these items caused participants to mention its similarity six times.

Item 4 caused participants to mention its similarity most of the time (9 times). Participants that mentioned the similarity on this item were participants 2, 3, 4, 6, 7, 8, 11, 13 and 15.

Specific suggestions for improvement

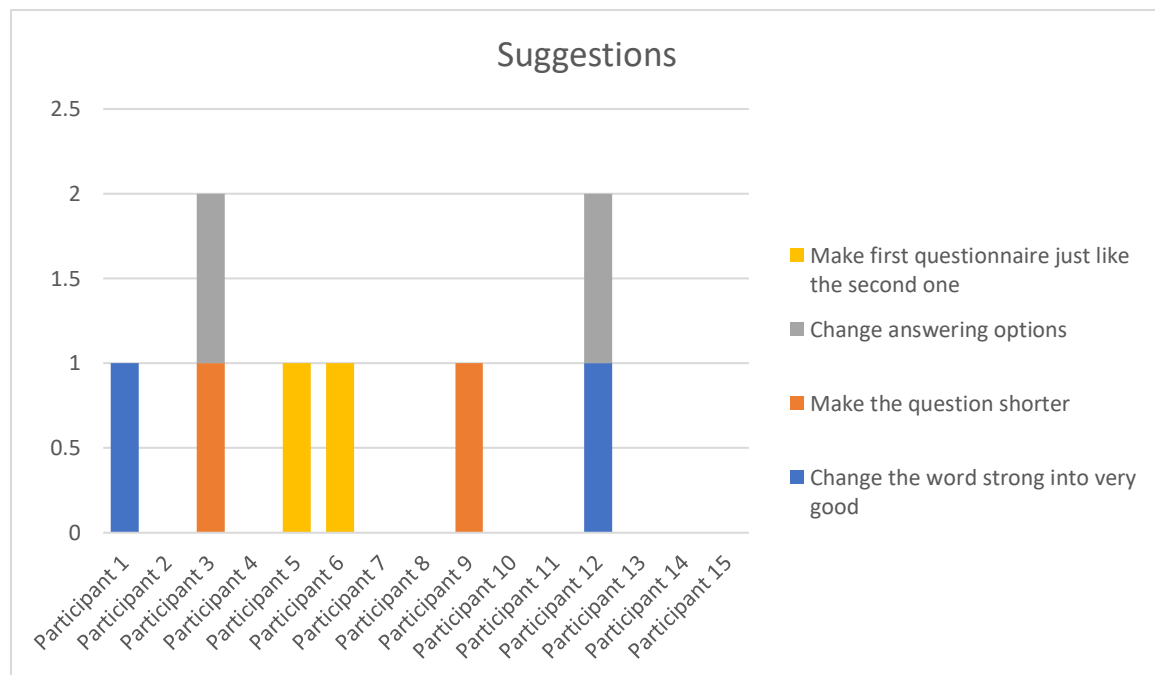


Figure 5. Amount of times a suggestion was given per participant

Participant 1 had trouble with item 5, because of the word ‘strongly’ in it. She suggested to change the words ‘strongly changing’ something along the lines of ‘that you are very able to change it’. According to her, this would make the item easier to understand. Participant 12 also mentioned that he would change the word ‘strongly’ in the questionnaire because he found this word odd to use in a question. He did not mention a particular item in which he wanted to change the word ‘strongly’ he said that he would not prefer using this word in general.

On item 4, two comments were made, both by participant 3. Participant 3 suggested to make this item shorter and change the answering options or add an extra option in which the participant could explain why he/she choose a certain answer.

In general participants 5 and 6 mentioned that they liked the Self-Efficacy Formative Questionnaire much better and, thus, that they wanted to make the Dweck Mindset Instrument just like the Self-Efficacy Formative Questionnaire. Participant 9 mentioned that it is easier to have shorter items in the questionnaire rather than long ones. And participant 12 wanted to change the answering options on the items on the Self-Efficacy Formative Questionnaire. He said he wanted to change it into whether or not you do those things and not if the statement fits you or not.

Leave out question

Because some participants mentioned that a lot of questions in the first questionnaire (Dweck Mindset Instrument) looked similar a question was asked if they wanted to leave some items out.

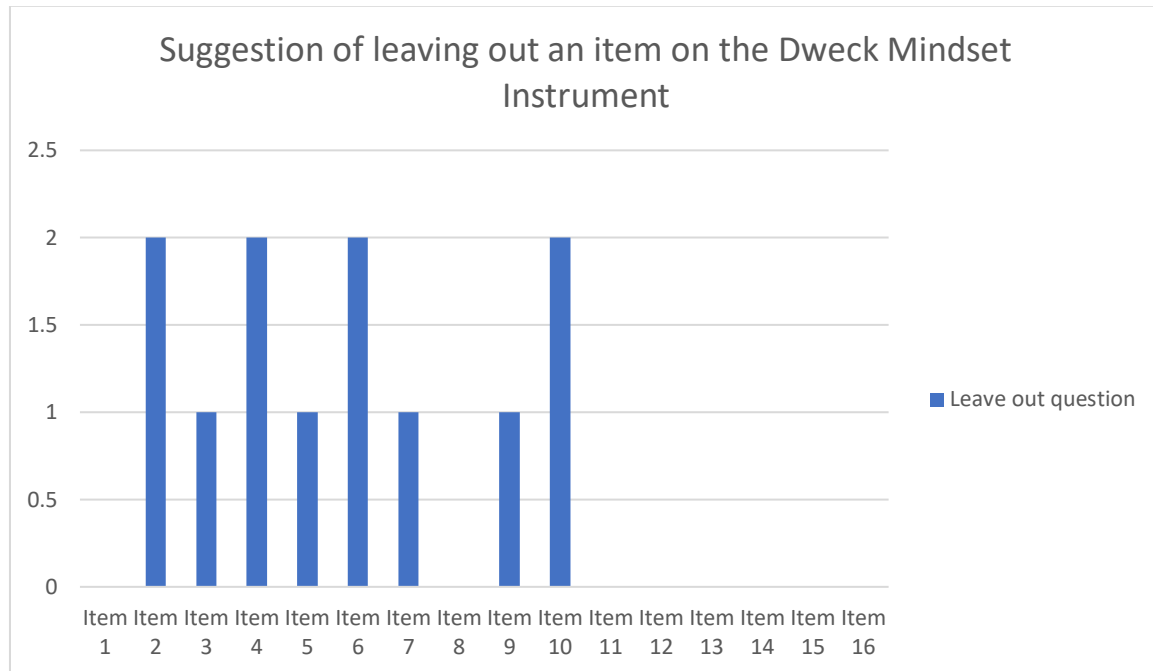


Figure 6. Amount of times leaving out a specific item was suggested

Participant 1 mentioned that item 9 and 10 looked similar. When asked which question she would want to leave out she mentioned that she rather kept question 9 and remove question 10.

According to participants 3 and 6, they would delete item 2 out of the first questionnaire. Participant 3 thought that items 1, 2 and 4 looked similar and participant 6 thought that items 2 and 4 looked similar. Participant 6 also thought that items 9 and 10 looked similar and out of those 2, participant 6 mentioned that it is better to keep item 9 in and leave out item 10.

Participant 15 felt like questions 3 and 4 were the same and this participant wanted to keep item 4 and leave question 3 out. Participants 3 and 13 wanted to delete item 4. Participant 13 also wanted to leave out items 5 and 9. According to this participant, all of these questions resembled each other and there was no need to keep them in the questionnaire because the remaining question covered these items.

Step 3, participant 13

I *'Zou je misschien een paar vragen eruit kunnen halen die weg mogen, omdat ze te veel op elkaar lijken?'*
'Could you maybe find some questions that I can leave out, because they resembled each other too much?'

P *'Euhm... ja 4 en 5 zijn bijna dezelfde vragen. Euhm... 9 lijkt ook op de rest.'*
'Euhm... yes 4 and 5 are almost the same. Euhm... 9 also looks like the rest.'

I *'Dus die mogen volgens jou gewoon allemaal weg?'*
'So they can be deleted according to you?'

P *'Ja.'*
'Yes.'

According to participants 4 and 7, item 6 could be deleted. They thought that items 4 and 6 resembled each other, but they both wanted to keep item 4 in the questionnaire and leave item 6 out of it.

Only one participant, participant 10 wanted to leave out item 7. According to this participant, this item looked similar to item 6 and he wanted to leave this item in the questionnaire.

Preferences and suggestions

The first question that was asked is what the participants thought of the Dweck Mindset Instrument in general. Answers were rated on either being good/easy to fill or bad/difficult to fill in. 6 participants rated the questionnaire with either being good or easy to fill in. The remaining 9 participants told the interviewer that they experienced the questionnaire as being bad or difficult to fill in.

The next question was the general opinion about the Self-Efficacy Formative Questionnaire. Again, the answers were rated on either being good/easy to fill in or bad/difficult to fill in. All 15 participants mentioned that they found the questionnaire either good or easy to fill in.

The third question asked the participants if they wanted to change anything about the questionnaires to make them better. Only two participants told the interviewer that they did not want to make changes. The 13 remaining participants did want to make changes, these suggestions were related to either leaving question out, making questions shorter, making the first questionnaire just like the second one, change the answering option or change certain

words (e.g. strongly changing into being able to change it very well). These results can be found in the charts above (see figure 5).

The fourth question was about which questionnaire the participants experienced as easier. Only participant 12 and 15 mentioned that they experienced the Dweck Mindset Instrument as easier. The remaining 13 participants said that they experienced the Self-Efficacy Formative Questionnaire as easier.

The follow-up question that was asked was what type of response scale on the questionnaire was easier. The first questionnaire (Dweck Mindset Instrument) made use of a six-point Likert scale in which the participants had to mark the box that matched his or her answer the best. The Self-Efficacy Formative Questionnaire made use of a bipolar scale. They had to circle the number that matched their way of behaving the best. Participants 4, 12 and 15 mentioned preferred the answering sheet on the first questionnaire. The remaining 12 participants all preferred the second way of filling in a questionnaire.

Another question that was asked was if they preferred using the word intelligence or if they would rather see the word cleverness/smartness in a questionnaire. Participants 3,4, 12, 13, 14 and 15 preferred the word intelligence in a questionnaire. The other participants rather used the word cleverness/smartness. Of these participants, only one explicitly mentioned that he did not understand the word intelligence. The other participants rather used the word cleverness/smartness because it would be easier to understand for all age categories.

The last question that was asked in the third step of the interview was if they thought there was a difference between talent and intelligence. This question was asked since the Dweck Mindset Instrument asks about intelligence in the first part and similar questions are asked in the second part of the questionnaire about talent. Participants 3, 5, 9, 11, 12, 14 and 15 all thought that these two constructs are quite similar and that there was no need to include similar questions about intelligence and talent. When asked what part (e.g. about intelligence or about talent) he or she would delete in the questionnaire all participants responded with that they would rather leave out the part of intelligence. The other 8 participants thought that there was a difference between intelligence and talent and, thus, both parts needed to be kept in the questionnaire.

Reliability

To test out whether the internal reliability was sufficient a reliability test was performed on the data from both questionnaires. Both questionnaires showed a reliability of $\alpha=0.87$ which indicates good internal reliability.

Conclusion & Discussion

Overall, the study showed that respondents experienced many problems with both questionnaires. In general, respondents mentioned that they experienced the Self-Efficacy Formative Questionnaire as a better and easier questionnaire when compared with the Dweck Mindset Instrument. Although, the average of the number of problems mentioned in the interview was similar. Still, both questionnaires are not quite ready to be used, but the results obtained by this research can help develop a questionnaire that can be used on this target group. However, such rewritten versions again need to be pre-tested first.

All 15 participants mentioned problems on the Dweck Mindset Instrument. And just one participant did not mention a problem on the Self-Efficacy Formative Questionnaire. When looking at other studies that also made use of the Three-Step Test-Interview the number of problems that were either observed or mentioned in this study is rather high (Köhle, 2010; Bode & Jansen, 2013; Paap, Lange, van der Palen, & Bode, 2016). Why this occurred is not clear, one of the reasons might be that the participants knew that the interviewer was looking for problems in the questionnaire. This, however is the goal of the Three-Step Test-Interview because by only looking at the problems and suggestions a better instrument can be developed. Another reason for the large amount of problems indicated on both questionnaires might be the level of education and the age of the participants.

The reason why the interviewer only looked for problems with the questionnaires is because this is the purpose of the Three-Step Test-Interview (Hak, van der Veer, & Jansen, 2004). This was explained beforehand to the participants which might have caused the participants to be focused on findings problems.

On average, the same number of problems were indicated on the Dweck Mindset Instrument as with the Self-Efficacy Formative Questionnaire. However, when asked about the difficulty and pleasantness of both the questionnaires 9 participants said that the Dweck Mindset Instrument was difficult and not pleasant to fill in. On the Self-Efficacy Formative Questionnaire all 15 participants indicated that this questionnaire was easy and pleasant to fill in. Concluded from this can be that the Self-Efficacy Formative Questionnaire was easier to fill in when compared to the Dweck Mindset Instrument. This is in accordance with what was already indicated by the Flesch Reading Ease-test score (a score of 56,1 for the Dweck Mindset Instrument and a score of 69,8 for the Self-Efficacy Formative Questionnaire).

When looking at the specific problems observed or mentioned in the questionnaires some problems were observed or mentioned more times than others. A general observation

that was noted by the interviewer was that the instructions on both questionnaires were seldom read. The reason for this might be that many adolescents might have problems with understanding what they read in the first place and, thus, will skip the instructions considering they may not be able to understand it anyways (Underwood & Pearson, 2004). Especially the participants in this study were lower educated students and might have difficulties with reading the instructions (Sanders, Land, & Mulder, 2007). This led to problems in which the participants were not sure how to fill in their answers on the response sheet. The problem of not reading the instructions has been indicated as a problem in many more studies in all age groups and education levels (Wright, 1981). Previous studies have already shown that to get participants to read the instructions an example can be provided (LeFevre, & Dixon, 1986). This can be because many times instructions are not read, but when there is an example provided this is quicker and easier to read and, thus, saves the participants time. To improve the questionnaires, it is suggested to give an example with the written instructions to get the participants to read the instruction or in general have an idea on how to fill in the questionnaire. This will likely also reduce the problem experienced on the first items in which the participants did not know how to fill in their answer on the response sheet.

The first item on both questionnaires caused a lot of problems which may be the consequence of not reading the instructions. Prior instructions before given a questionnaire will increase the concentration on that subject (Laguë-Beauvais, et al., 2015). Considering that many participants did not read the instructions it might be that their concentration was rather low. Also, at the beginning of focusing on a task it is more likely that the participant will interrupt him or herself or get distracted (Dabbish, Mark, & González, 2011). This might be because the participants will get in the flow of the tasks later since the brain has to focus on the task first before being fully concentrated on it. To solve this problem, it was found that 'attractive' things work better and are easier to focus on (Norman, 2003). So, what can be suggested from this is to ask the more interesting/attractive questions at the beginning of the questionnaire. In this study, it cannot be stated for sure what kind of item was the most attractive item. It might be that the most unproblematic items could be seen as the most attractive ones. Again, it has to be mentioned that the participants in this study are adolescents and attending pre-vocational secondary education, thus, it cannot be ruled out that the participants had trouble reading the first item. However, when comparing this study to other studies that made use of the Three-Step Test-Interview technique these did not observe the first item as one of the most problematic items in the entire questionnaire (Köhle, 2010; Paap,

Lange, van der Palen, & Bode, 2016). Thus, it might also be a coincidence that this was the case for this study.

The Dweck Mindset Instruments' response sheet was a six-point Likert scale in which the participants had to mark the box which matched their level of agreement the best. On the Self-Efficacy Formative Questionnaire a bipolar scale was used in which the participants had to circle the number that indicated their level of how much the statement fit their personality and way of thinking. When asked which type of response sheet the participants preferred, the majority answered that they liked the bipolar scale better than the Likert scale. A previous study by Preston and Colman (2000) researched how satisfied participants were when they had to give their answers on a Likert scale. Results of this study showed that overall participants were satisfied with filling in their answers on a six-point Likert scale. No such study has yet been conducted for a bipolar scale and thus, no judgments can be made if participants are satisfied with filling in their answers on this particular response sheet. Comparing the study of Preston and Colman (2000) with this current study results can contradict each other considering that the majority of the participants in this study preferred filling in their answers on a bipolar scale. However, based on this study it is recommended to use a bipolar type scale on the response sheet of the questionnaires. Altering the response sheet might have consequences for the validity of the questionnaire. This has to be considered when pre-testing the rewritten versions.

The participants were asked if they thought that intelligence and talent were the same things. Several participants indicated that these two concepts are not similar to each other and that both parts have to stay in the Dweck Mindset Instrument. However, some participants did mention that they were the same thing and that one part could have been left out. When asked which part they wanted to leave out always the part of intelligence was preferred to be left out because the word intelligence was harder to understand. This problem with the word intelligence being difficult was noted by the participants many times before in the questionnaires. This raises the question if the word 'intelligence' can be left in the questionnaire considering that many participants experienced trouble with the understanding of this word. When this problem was noted by the participants the interviewer asked what she could do to make the item easier to understand. The participants mentioned that they would rather change the word intelligence into cleverness/smartness. To improve this questionnaire, it might be easier to use the words cleverness/smartness instead of intelligence. This can also be helpful for other questionnaires that are using the word intelligence and are intended to be used among pre-vocational secondary education students.

Lastly, when asked which questionnaire the participants preferred the majority answered that they preferred the Self-Efficacy Formative Questionnaire. According to the participants, this was mainly because many items on the Dweck Mindset Instrument appeared to be quite similar. This made the questionnaire ‘annoying’ and ‘difficult’ to fill in. When asked which items appeared to be similar and which items they preferred to remove from the questionnaire it was observed that the participants wanted to remove mainly the longer items. This is not a surprising observation considering the reading-ease calculation that was made using the Flesh Reading Ease-test. This calculation already indicated that the Dweck Mindset Instrument would be more difficult for the participants to read and understand. The Flesh Reading Ease-test makes calculations also based on the average sentence length (Kincaid, Fishburne, Rogers, & Chissom, 1975). The longer the sentences in the questionnaire the lower the Flesh Reading Ease-test score and thus, the harder to read and understand the questionnaire. A study by Harmon (2001) also already indicated that long, wordy sentences are more difficult for participants to understand. Taking the preferences of the participants and the Flesh Reading Ease-test score it is suggested to remove some of the items on the Dweck Mindset Instrument. When removing the items, it is preferable to delete the longer items to make the questionnaire easier to read and understand. However, by doing this it is again important to test the validity of the rewritten questionnaire.

Overall, the Three-Step Test-Interview (TSTI) appeared to be a useful instrument for pretesting questionnaires like these. General limitations of the TSTI is that this way of interviewing is not only time-consuming in the interviewing process, but also while processing the results (Carbone, Campbell, & Honess-Morreale, 2002). During this study, the interviewer did not experience the time-consuming process during the interviewing process. Processing the result did take a considerable amount of time. However, after this was done and the problems were indicated it was a rather quick process to set up a list with the number of problems per participant, per item and questionnaire.

Some general problems that may have influenced the data were that all of the 15 participants were interviewed after each other. This might lead to interviewer fatigue (Fink, 2005). This means that at the very end of the study the interviewer might be less concentrated and thus, is not able to be fully focused on observing the participants. However, a considerable number of breaks were taken by the interviewer to not let this phenomenon influence the data to an extent in which the last interviews are not usable for this study. Also, the questions asked at the third step of the interview did give more insights about the

preferences and general remarks from the participants about the questionnaire. This, to give more insights into the problems that may have went unnoticed by the interviewer.

Another limitation of this study might be that only participants from the same school and the same level of education were interviewed. All of the participants were either 13 or 14 years old and all were in the second class of this high school. In this grade no distinction is yet made between either a theoretical learning path (vmbo TL), mixed learning path (vmbo GL), framework-oriented learning path (vmbo KB) or basic vocational learning path (vmbo BB). Whilst observing the participants the interviewer did notice differences in education levels of the participants. It is suggested that when using pre-vocational secondary education students to tailor the measurements to subgroups or to use different age categories in which a distinction is already made between vmbo TL, vmbo GL, vmbo KB or vmbo BB.

Before the actual interview started the purpose of the study was explained to the participants. This might have led to participants focusing on the questionnaires trying to find a difficult word or question. The interviewer observed that the participants were focusing on finding a problem which might not have been a problem if they did not know that this was the actual purpose study of the study. For instance, many participants mentioned told the interviewer that there was no difference between intelligence and talent but when asked about how these two concepts are the same they could not explain it. This may lead to an overestimation of experienced problems. According to a previously executed study by Faden and Beauchamp (1980) the information on the informed consent might influence the responses on a questionnaire or study by the participants. Because the participants in this study knew beforehand that the interviewer was looking for problematic items on the questionnaires it might be the case that the participants were looking for problematic items and reported them even though they might not have any trouble with it if this information was withheld before the study. To not experience this problem the next time, it is suggested to withhold the information of 'looking for problematic items' before the actual interview but tell the participants about the goal of this study after the interview. This, to make sure that truly the usefulness of the instruments is tested.

No distinction was made between the participants that first attended higher education and then decided to go back to pre-vocational secondary education. This is not necessarily a limitation of this study, because it might contribute to a more representative participant sample considering every class might have these similar students. However, according the most recent study executed by the Dutch Central Statistical Office a higher percentage (24.6%) of non-Dutch background attend pre-vocational secondary education when compared

to the percentage of students attending higher general secondary education (18.3%) and students attending pre-university education (16.9%) (Centraal Bureau voor de Statistiek, 2019). In this regard, the sample might not be representative considering that only one of the participants had a non-Dutch background (6.7%). Also, one participant mentioned that he had dyslexia and thus, had trouble with reading and understanding words. This might have caused problems while answering the questionnaires. Again, every class could have students that suffer from this and thus, it can again contribute to a more representative sample.

Despite the limitations of this study, the main goal of this research was to find implications in the questionnaires and to research what would make a questionnaire easier or better to fill. Some implications were found and things to avoid when writing a questionnaire are also indicated. In conclusion, the rewritten questionnaires do not appear to be ready yet to use among pre-vocational secondary education students. However, based on the results of the Three-Step Test-Interview some suggestions are made to rewrite these questionnaires or other questionnaires that try to measure these constructs. It is recommended to pre-test these newly rewritten versions again. Further, this study shows that questionnaires cannot be used on specific target groups without pre-testing. Considering pre-testing is not something that happens often, this study shows the need for it. So, before using questionnaires on specific target groups we have to pre-test them in order to make sure that they are usable for that study.

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Appendix

a. Informed consent

INFORMED CONSENT FORMULIER

Naam van het onderzoeksproject

Testen van aangepaste versies van het Dweck Mindset Instrument en de Self-Efficacy Formative Questionnaire.

Doel van het onderzoek

Dit onderzoek wordt geleid door Jill Wesselink van de Universiteit Twente. Je bent van harte uitgenodigd om deel te nemen aan dit onderzoek. Het doel van dit onderzoek is om een aangepaste versie van twee vragenlijsten te testen. De eerste vragenlijst is bedoeld om de ‘manier van denken’ van leerlingen te meten. De tweede vragenlijst is ontwikkeld om te meten of leerlingen denken zij dat zij in staat zijn om een bepaalde taak op een succesvolle manier te voltooien. Beide vragenlijsten zijn voornamelijk getest bij universitaire scholieren. In dit onderzoek willen we bekijken of aangepaste versies ook gebruikt kunnen worden bij VMBO leerlingen.

Gang van zaken tijdens het onderzoek

Het onderzoek bestaat uit een interview waarin we je vragen beide vragenlijsten in te vullen. Daarna zullen we je aanvullende vragen stellen over wat je van het invullen van de vragenlijsten vond.

Je dient tenminste 12 jaar te zijn om deel te nemen aan dit onderzoek. We vragen je dit formulier aandachtig door te lezen en te ondertekenen als er geen vragen/opmerkingen zijn. Als je jonger bent dan 16 jaar, geef dit formulier dan daarna door aan een van je ouder(s) of verzorger(s) en laat hen dit formulier ook aandachtig doorlezen en ondertekenen.

Voorafgaand aan het interview vullen alle deelnemers een korte vragenlijst in. Hierin staan onder andere vragen over achtergrondgegevens (e.g. leeftijd, educatie, etc.). Het interview zal ongeveer 30 minuten duren en er zal een audio-opname worden gemaakt, zodat het gesprek later kan worden uitgewerkt. Dit wordt daarna gebruikt in het verdere onderzoek.

Vertrouwelijkheid van gegevens

Je privacy is en blijft maximaal beschermd. Er wordt op geen enkele manier vertrouwelijke informatie of persoonsgegevens van of over je naar buiten gebracht, waardoor je herkent zal kunnen worden.

Voordat onze onderzoeksgegevens naar buiten gebracht worden, worden je gegevens **anoniem** gemaakt. Een eenvoudig voorbeeld hiervan is:

- je naam wordt vervangen door een betekenisloze combinatie van getallen.

In een publicatie of presentatie zullen alleen anonieme gegevens worden gebruikt. De audio-opnamen, formulieren en andere documenten die bij dit onderzoek worden gemaakt of verzameld, worden opgeslagen op een beveiligde locatie bij de Universiteit Twente en op de beveiligde (versleutelde) computers van de onderzoeker.

Vrijwilligheid

Deelname aan dit onderzoek is geheel vrijwillig. Je kunt als deelnemer jouw medewerking aan het onderzoek op ieder moment stoppen, of weigeren dat jouw gegevens voor het onderzoek mogen worden gebruikt, zonder te hoeven zeggen waarom. Dit betekent dat als je voorafgaand aan het onderzoek besluit mee te doen, dat dit op geen enkele wijze gevolgen voor jou zal hebben. In deze gevallen zullen jouw gegevens uit onze bestanden worden verwijderd en vernietigd. Ook heb je het recht om vragen niet te beantwoorden als je dat niet wilt.

Als je vragen of klachten hebt over het onderzoek, neem dan contact op met de onderzoeksleider:
Jill Wesselink

Deze vragen kunnen ook persoonlijk gesteld worden aan de onderzoeker voor, tijdens of na het onderzoek.

Toestemmings-verklaring

Door dit document te ondertekenen geef je aan dat je minstens 12 jaar oud bent en toestemming hebt van je ouder(s) of verzorger(s); dat je goed bent geïnformeerd over het onderzoek, de manier waarop de onderzoeksgegevens worden verzameld, gebruikt en behandeld. Ik ga akkoord met deelname aan een onderzoeksproject geleid door Jill Wesselink. Het doel van dit formulier is om de voorwaarden van mijn deelname aan het project vast te leggen.

1. Mijn deelname houdt in dat ik word geïnterviewd door onderzoeker Jill Wesselink. Ik geef de onderzoeker toestemming om tijdens het interview opnames (geluid/beeld) te maken en schriftelijke notities te nemen. Het is mij duidelijk dat, als ik toch bezwaar heb met een of meer punten zoals hierboven benoemd, ik op elk moment mijn deelname, zonder het opgeven van een reden, kan stoppen.

2. Ik heb de garantie gekregen dat dit onderzoeksproject is beoordeeld en goedgekeurd door de ethische commissie van de BMS Ethics Committee. Voor klachten met betrekking tot de opzet en of uitvoering van het onderzoek kan ik contact opnemen met de Secretaris van de Ethische Commissie van de faculteit Behavioural, Management and Social Sciences op de Universiteit Twente via ethicscommittee-bms@utwente.nl.

3. Ik heb dit formulier gelezen en begrepen. Al mijn vragen zijn naar mijn tevredenheid beantwoord en ik ga vrijwillig akkoord met deelname aan dit onderzoek.

Naam deelnemer

Handtekening

Datum

Naam Ouder

Handtekening

Datum

Naam Onderzoeker

Handtekening

Datum

b. Original Dweck Mindset Instrument

DWECK MINDSET INSTRUMENT

Directions: Read each sentence below and then mark the corresponding box that shows how much you agree with each sentence. There are no right or wrong answers.

	1 Strongly Agree	2 Agree	3 Mostly Agree	4 Mostly Disagree	5 Disagree	6 Strongly Agree
1) You have a certain amount of intelligence, and you really can't do much to change it.						
2) Your intelligence is something about you that you can't change very much.						
3) No matter who you are, you can significantly change your intelligence level.						
4) To be honest, you can't really change how intelligent you are.						
5) You can always substantially change how intelligent you are.						
6) You can learn new things, but you can't really change your basic intelligence.						
7) No matter how much intelligence you have, you can always change it quite a bit.						
8) You can change even your basic intelligence level.						
9) You have a certain amount of talent, and you can't really do much to change it.						
10) Your talent in an area is something about you that you can't change very much.						

11) No matter who you are, you can significantly change your level of talent.						
12) To be honest, you can't really change how much talent you have.						
13) You can always substantially change how much talent you have.						
14) You can learn new things, but you can't really change your basic level of talent.						
15) No matter how much talent you have, you can always change it quite a bit.						
16) You can change even your basic level of talent considerably.						

c. Original Self-Efficacy Formative Questionnaire

Self-Efficacy Formative Questionnaire

Please **CHECK ONE** response that best describes you. Be honest, since the information will be used to help you in school and also help you become more prepared for college and careers. There are no right or wrong answers!

	Not very like Very like me				
	1	2	3	4	5
1. I can learn what is being taught in class this year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I can figure out anything if I try hard enough.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. If I practiced every day, I could develop just about any skill.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Once I've decided to accomplish something that's important to me, I keep trying to accomplish it, even if it is harder than I thought.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I am confident that I will achieve the goals that I set for myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. When I am struggling to accomplish something difficult, I focus on my progress instead of feeling discouraged.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I will succeed in whatever career path I choose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I will succeed in whatever college major I choose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I believe hard work pays off.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. My ability grows with effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I believe that the brain can be developed like a muscle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I think that no matter who you are, you can significantly change your level of talent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I can change my basic level of ability considerably.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

d. Rewritten questionnaire

Vragenlijst

Wat is je leeftijd?

- 12
- 13
- 14
- 15
- 16
- Anders namelijk,

Wat is je geslacht?

- Man
- Vrouw

Welke opleiding volg je nu?

- Praktijkonderwijs
- Vmbo (klas 1/klas 2)
- Vmbo theoretische leerweg (VMBO TL)
- Vmbo gemengde leerweg (VMBO GL)
- Vmbo kader beroepsgerichte leerweg (VMBO KB)
- Vmbo basisberoepsgerichte leerweg (VMBO BB)
- Havo
- Vwo
- Anders namelijk,

d1. Dweck Mindset Instrument

Instructies: Lees elke zin hieronder en kruis het vakje aan dat het best weergeeft met hoeveel jij het eens bent met de zin. Er zijn geen goede of foute antwoorden.

	Helemaal mee eens	Mee eens	Meestal mee eens	Meestal mee oneens	Oneens	Helemaal mee oneens
1. Je hebt een bepaalde hoeveelheid intelligentie en daar kun je niet echt veel aan veranderen.						
2. Je intelligentie is iets van jezelf waar je niet veel aan kunt veranderen.						
3. Wie je ook bent, je kunt altijd slimmer worden.						
4. Om eerlijk te zijn, kun je niet echt veranderen hoe intelligent je bent.						
5. Je kunt altijd sterk veranderen hoe intelligent je bent.						
6. Je kunt nieuwe dingen leren, maar je kunt de hoeveelheid intelligentie waarmee je geboren bent niet echt veranderen.						
7. Hoe intelligent je ook bent, je kunt het altijd best veel veranderen.						
8. Je kunt zelfs de hoeveelheid intelligentie waarmee je geboren bent behoorlijk veranderen.						
9. Je hebt een bepaalde hoeveelheid talent en je kunt er niet veel aan doen om dat te veranderen.						
10. Je talent voor iets is iets van jezelf waar je niet echt veel aan kunt veranderen.						
11. Wie je ook bent, je kunt je hoeveelheid talent veranderen.						

	Helemaal mee eens	Mee eens	Meestal mee eens	Meestal mee oneens	Oneens	Helemaal mee oneens
12. Om eerlijk te zijn, kun je niet echt veranderen hoeveel talent je ergens voor hebt.						
13. Je kunt altijd sterk veranderen hoeveel talent je hebt.						
14. Je kunt nieuwe dingen leren, maar je kunt de hoeveelheid talent waarmee je geboren bent niet echt veranderen.						
15. Hoeveel talent je ook hebt, je kunt het altijd best veel veranderen.						
16. Je kunt zelfs de hoeveelheid talent waarmee je geboren bent behoorlijk veranderen.						

d2. Self-Efficacy Formative Questionnaire

Instructies: Lees elke zin hieronder en omcirkel het getal dat het best aangeeft hoe goed deze zin bij jou past. Er zijn geen goede of foute antwoorden.

Past niet echt bij mij —————→ **Past erg bij mij**

1. Ik kan leren wat er dit jaar in de klas wordt lesgegeven.

1 2 3 4 5

2. Ik kan alles begrijpen als ik het hard genoeg probeer.

1 2 3 4 5

3. Als ik elke dag oefen, zou ik zowat elke vaardigheid kunnen ontwikkelen.

1 2 3 4 5

4. Zodra ik besloten heb iets te bereiken wat belangrijk voor mij is, blijf ik het proberen zelfs als het moeilijker is dan ik dacht.

1 2 3 4 5

5. Ik weet zeker dat ik de doelen die ik mezelf stel kan behalen.

1 2 3 4 5

6. Wanneer ik moeite heb met het bereiken van iets moeilijks, denk ik aan wat ik al bereikt heb in plaats van te denken dat ik het niet kan.

1 2 3 4 5

7. Welk beroep ik ook kies ik zal er goed in worden.

1 2 3 4 5

8. Welke studie ik ook kies ik zal mijn diploma halen.

1 2 3 4 5

Past niet echt bij mij —————> **Past erg bij mij**

9. Ik geloof dat hard werken wordt beloond.

1 2 3 4 5

10. Ik kan beter worden in iets als ik er moeite voor doe.

1 2 3 4 5

11. Ik geloof dat mijn hersenen ontwikkeld kunnen worden, net zoals een spier dat kan.

1 2 3 4 5

12. Ik denk dat wie je ook bent, je zelf je talent sterk kan veranderen.

1 2 3 4 5

13. Ik kan mijn basisniveau van vaardigheden sterk veranderen.

1 2 3 4 5

e. Three Step Test Interview Step 3: Questions asked afterwards

1. Wat vond je over het algemeen van de eerste vragenlijst?
2. Wat vond je over het algemeen van de tweede vragenlijst?
3. Wat zou jij anders doen om de vragenlijsten te verbeteren?
4. Wat vond jij goed aan de vragenlijsten?
5. Welke vragenlijst vond je over het algemeen makkelijker en waarom?
6. Welke manier van invullen vond jij beter de eerste vragenlijst of de tweede?
7. Waren er vragen die je teveel op elkaar vond lijken? Als je er van deze vragen 1 zou moeten overhouden, welke zou je dan kiezen?
8. Wat vind je prettiger/makkelijker om te beantwoorden, vragen met het woord 'intelligentie' of vragen met het woord 'slimheid'?
9. Wat is voor jou het verschil tussen talent en intelligentie?