THESIS

ALIGNING INTENTIONS WITH EXPERIENCES: ENHANCING STUDENT ENGAGEMENT IN A DUTCH SECONDARY SCHOOL

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Foreword

I'm thrilled to present this thesis, resulting from countless hours of research and academic exploration. Looking back on this journey, I'm incredibly thankful for the guidance and encouragement provided by Dr. Hannie Gijlers. Hannie's mentorship has been essential in shaping this thesis, and I'm truly grateful for her support every step of the way.

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A special shout-out goes to the amazing teachers who volunteered to take part in this study. Their willingness to share their experiences and insights has been invaluable, and I'm incredibly grateful for their contributions to this research.

As I conclude this journey, I want to extend my heartfelt thanks to everyone who has supported me along the way such as my family and friends. I would also like to thank you, my reader: I hope you enjoy your reading.

Diandra Huizing

Abstract

This study investigates the alignment between teachers' intentions and students' experiences, focusing on student engagement and effective instructional strategies at a Dutch secondary school in Twente. The research specifically targets challenges related to student engagement possibly affecting completion rates within the 4 Havo program.

Quantitative data are collected through questionnaires administered through the TIIM app. Questions in the questionnaire are based on the constructs of the Impact! Tool to assess both students' and teachers' perspectives on instructional quality and engagement. Results indicate generally positive perceptions of learning experiences among students, with variations observed across different subjects.

Despite teachers' intentions, there is a lack of significant correlation between teachers' and students' perceptions, suggesting a misalignment. This misalignment underscores the need for improvements in instructional practices and classroom dynamics to better meet students' needs and expectations. Recommendations for future research include investigating specific instructional interventions aimed at bridging this gap and enhancing overall learning outcomes.

1. Introduction

1.1 Problem Statement

Enhanced engagement in instruction is frequently associated with greater academic and social achievements at school, highlighting student engagement as a widely acknowledged indicator of success (Harbour et al., 2014). Finn (1993) describes engagement as a cyclical process that starts with active participation behaviours like attending school and active class involvement. According to Gunuc (2014), active class involvement entails behavioural, affective, and cognitive engagement. The results of the study conducted by Gunuc (2014) showed that students with higher engagement levels generally achieved better academically. By combining the three engagement aspects, students can effectively process information and establish meaningful connections to their previous learning experiences, which creates deep learning experiences (Groccia, 2018).

According to a study by Archambault et al. (2008), low school engagement, specifically behavioural engagement, is a significant predictor of early high school dropout. A different study conducted by Delialioğlu (2012) found that students' lack of engagement with academic activities can be identified as the primary cause of dissatisfaction, negative experiences, and school dropout. A learning factor affecting engagement and classroom learning is the quality of the instructional experience provided by teachers (Walberg, 2010). To ensure sustained engagement and reduce disruptions caused by boredom or other distractions, it is essential to incorporate engaging activities and assignments that offer stimulating variety and appropriate challenges for students (Walberg, 2010).

At a Dutch secondary school in Twente, teachers experience difficulties in motivating students and fostering active participation in the classroom. Teachers aim to engage students through their classroom instruction with a perception of what students experience. The question is however if their idea of what works still matches the expectations of today's students and if the students indeed experience the instruction as intended by the teachers and therefore feel more engaged and show signs of engagement in their behaviour.

Besides the difficulties with student engagement, the Dutch secondary school has an increasingly high dropout rate, especially in the pre-exam year of Havo, which is the level of education that prepares students for further studies in higher professional education (Het Nederlandse onderwijssysteem | Het Onderwijsloket, n.d.). As shown in Appendix A, the number of students passing 4 Havo in the academic year of 2020/2021 was 66% and has decreased to 57% in 2023/2024. This decrease has also been stated in the report by the Dutch Ministry of Education, Culture, and Science (2023), which mentions that the number of students failing 4 Havo nationwide is remarkable. This number was in the previous years around 15% but has increased to 19% in 2022.

The alarming trend of increasing dropout rates, particularly in the pre-exam year of Havo, creates a need to investigate the underlying causes and potential solutions to address the declining student engagement and academic performance at the Dutch secondary school in Twente.

This study aimed to investigate how the instruction of the teacher is experienced by the students, if this experience is different among multiple subject domains and if this experience aligns with the teacher's intention of learning. This has been investigated through evaluations of teacher and student perspectives on the effectiveness of instruction on student engagement, using prompts of the Impact! tool developed by Bijlsma (2022).

1.2 Exploration and Definitions

1.2.1. Student Engagement

Student engagement could be defined as "the mental state students are in while learning, representing the intersection of feeling and thinking." (Barkley & Major, 2020, p. 6). According to Groccia (2018), engagement in learning can be broken down into three key aspects: behavioural engagement, affective engagement and cognitive engagement. Behavioural engagement is reached when the learner actively participates and puts in consistent effort in the learning activities. Affective engagement involves fostering a genuine interest in the learning experience, enhancing motivation and enjoyment and fostering a strong commitment to learning. Lastly, cognitive engagement entails actively processing and reflecting upon the material, allowing for integrating new knowledge with prior experiences (Groccia, 2018).

Gunuc's (2014) research demonstrated that cognitive, behavioural, and affective engagement, collectively known as class engagement, were predictive of academic success. Additionally, the study revealed that students with high levels of engagement demonstrated higher academic achievement, whereas those with lower levels of engagement exhibited lower academic performance. Bowden et al. (2019) suggest that affective engagement stands out as the primary factor affecting student success, whereas behavioural engagement plays a key role in shaping self-efficacy and self-esteem. Additionally, cognitive engagement is deemed important but insufficient in driving student success alone. This emphasizes the need to foster all aspects of engagement to enhance academic achievement and overall well-being.

During the instruction, teachers can only observe the behavioural dimension of engagement. They get feedback through the body language and behaviour of the students and can immediately act on the signs of students losing attention by changing the type of instruction or activity. According to Fredricks et al. (2011), the amount of behavioural engagement can be observed through several distinct sets of behaviours, such as misbehaviour (withdrawal and disruptiveness), participation, and

compliance with rules and expectations that can indicate low behavioural engagement or disengagement. To get unbiased results from observed student behaviour in the classroom, observational instruments can help assess variability in classroom behaviour, evaluate teacher performance, describe classroom interaction, and determine relationships between observed behaviour and outcome measures (Rosenshine, 1970).

1.2.2. Instruction on Engagement

Student engagement in the classroom can be impacted by various factors, such as students' prior experiences, attitudes, and perceptions. Jones (2008) emphasizes the need for teachers to evaluate factors promoting student engagement to address low performance effectively. Effective teaching methods play a crucial role in promoting student engagement. Hattie (2008) identifies various approaches to enhance different aspects of engagement, e.g. reciprocal teaching, direct instruction, adjunct aids, inductive teaching, inquiry-based teaching, problem-solving teaching, and cooperative versus competitive versus individualistic teaching. According to Collaço (2017), the teaching methods enhance student engagement, leading to improved learning results.

To complement these findings, Gregory et al. (2014) advocate for teaching methods like inquiry-based learning and cooperative learning to increase behavioural engagement, while Astleitner (2018) suggests problem-based teaching and peer teaching to enhance cognitive engagement. These methods encourage active participation, resulting in higher academic achievement, lower levels of antisocial behaviour, and increased student satisfaction (González et al., 2021). Integrating students' autonomy, as suggested by Park et al. (2014), and is also a main principle of the school used in this study, can enhance emotional engagement, supporting motivation, well-being, creativity, engagement, and persistence (McLachlan & Hagger, 2010).

Walberg (2010) highlights the importance of starting lessons and activities with advanced organisers or previews to enhance students' learning. This approach provides a structured framework for skill modelling and connects new material to prior knowledge. Additionally, well-planned lesson orientations foster student motivation and allow them to set learning goals. Rosenshine (2012) further outlines evidence-based principles of instruction, emphasizing strategies such as regular review, presenting new material in small steps, and monitoring student understanding. These methods align with problem-based learning principles, which emphasize the activation of prior knowledge, elaboration, and encoding specificity to facilitate knowledge development suitable for problem-solving (Schmidt, 1983).

Furthermore, Cents-Boonstra et al. (2020) emphasize the importance of teachers prioritizing student activation in highly engaging lessons, by providing opportunities for experimentation and

support during assignments, aligning with the idea that demotivating teaching behaviours at the beginning of class can lead to lower engagement levels. Low engagement negatively impacts student learning outcomes and is associated with more frequent school stress, higher rates of cheating, and increased stress symptoms (Li & Xue, 2023; Conner & Pope, 2013).

While teachers aim to foster student engagement through effective instruction, alignment between teachers' expectations and students' perceptions is needed to achieve this goal. A study by Hailikari et al. (2021) found that courses which encourage active participation, present challenges, involve students consistently, offer peer support, and use high-quality teaching materials tend to inspire students to adopt a deep learning approach. In these courses, students engage deeply with the material and strive for thorough understanding. On the other hand, courses with traditional teaching methods, such as lectures and exams, and fewer engaging activities, tend to result in more students adopting a surface-level approach to learning, where they focus on memorization and completing tasks rather than truly understanding the material (Hailikari et al., 2021). This is also emphasized by the study of Myers et al. (2002), where they found that students experiencing a sense of understanding and engagement during classroom interactions tend to express elevated levels of affect toward the instructor, motivation, and satisfaction. By understanding students' interpretations and responses to evidence-based teaching strategies, teachers can create engaging learning environments conducive to student success.

1.2.3. Characteristics Identifying Student Perceptions

The study conducted by Bijlsma (2022) investigates various characteristics related to the Impact! Tool questionnaire, aiming to understand its validity and impact on student perceptions of teaching quality. The general characteristics used for the questions to explore the students' perception of teaching quality are based on seven effective teaching practices that positively impact students. The classifications of these characteristics are; creating a supportive and positive classroom environment, maintaining well-organized classroom management, delivering clear instruction, adapting instruction to meet students' needs, fostering teacher-student interaction, promoting cognitive engagement for deep learning, and incorporating formative assessment during lessons (Bijlsma, 2022).

Focusing closely on the seven characteristics used in the Impact questionnaire, a supportive and positive classroom environment is characterized by a setting where students feel safe, respected, and valued. In such an environment, there is a sense of belonging, trust, and collaboration among students and between students and teachers which can enhance the quality of education (Shaheen et al., 2020). Positive student perceptions of the school climate are associated with

academic success, emotional well-being, and reduced behaviour problems (Johnson & Stevens, 2006).

Another characteristic used in the Impact questionnaire is efficient classroom management. This involves smoothly running activities, brief transitions, and minimal disruptions, which maximize academic learning time and positively impact student outcomes such as learning strategies, motivation, and achievement (Fricke et al., 2012; Crooks, 1988). The characteristic of clear instruction plays a crucial role in reducing students' cognitive load, allowing them to better process information in the classroom (Bolkan, 2016). Moreover, students' perceptions of instructional quality are significantly linked to educational outcomes such as achievement, self-concept, and motivation (Scherer et al., 2016).

The characteristic of adaptive instruction involves tailoring teaching methods to students' interests and questions. This approach actively engages learners and supports their learning process (Vaughn, 2015). The characteristic of personalized instruction, when perceived by students, also has a positive impact on student outcomes and attitudes (Abiola, 2020). The characteristic deep learning practices, including asking high-level questions, providing assignment models, and collaborative problem-solving, have been associated with higher grades and increased satisfaction with school (Bijlsma, 2022; Laird et al., 2008).

The characteristic formative assessment is viewed as a collaborative process between teachers and students to identify and address learning needs, which enhances the learning experience (Bell & Cowie, 2001). Students' perceptions of formative assessment positively correlate with improved learning outcomes and motivation, as they develop self-regulated learning strategies (Clark, 2012).

The seven characteristics outlined in the study by Bijlsma (2020) have a collective impact on shaping student perceptions and educational outcomes. Each characteristic, from creating a supportive classroom environment to incorporating formative assessment, plays a crucial role in fostering a conducive learning environment and promoting student success. It is essential to recognize that these characteristics are interrelated and contribute synergistically to enhancing teaching quality and student learning experiences. Therefore, addressing and prioritizing each characteristic can lead to more effective and impactful educational practices.

1.3 Research Questions

This study aimed to investigate the alignment between teachers' intentions and student experiences by analyzing student engagement and effective instructional strategies employed at a

Dutch secondary school in Twente. The goal was to gain insight into how the school could enhance its instructional practices to foster greater student engagement. This focus and the presented theoretical framework were the basis for the following research questions:

What is the impact of instructional strategies on the perceived student engagement of 4 Havo at the Dutch secondary school in Twente?

- What is the perceived experience of lessons in general assessed by students at the Dutch secondary school in Twente?
- What is the perceived experience of the lessons compared to different subjects assessed by students at the Dutch secondary school in Twente?
- To what extent does the intention of learning of the teachers align with students' experiences based on the constructs used in the Impact! Tool?

2. Research design and methods

2.1 Research Design

To examine the perceived experience of students and the alignment of teachers' expectations and student experience of instructional strategies on student engagement a quantitative research approach has been used through means of the Impact questionnaire using an app developed by the BMS lab of the University of Twente, which is called TIIM. Students gave feedback on the teacher's classroom instruction in the last five minutes of the lesson. A scheme has been made where it was clear which class would fill in the Impact questionnaire in the specific course of a teacher so that students had a limit on how many times they needed to fill in the tool to obtain serious answers. The teachers also filled in the Impact questionnaire based on the engagement of students and the teacher's perception of the quality of the instruction.

2.2 Respondents

55 students of 4 Havo and five teachers in different subjects participated in this study. Based on convenience sampling, three classes of 4 Havo have been selected. There could be a difference in teaching strategies among subjects, therefore teachers of different subjects were selected to gain a broad perspective of the teaching strategies that are being used. Convenience sampling has been used to select these teachers. Based on the selected study profile and the curriculum of the students, some subjects were mandatory for all students and others could be chosen by the students. The mandatory subjects are modern foreign languages, mathematics and philosophy. Subjects chosen by the students are art and chemistry. Due to this categorisation and the school's timetable, classes

were composited, leading students to follow at least one subject. Still, some students have followed multiple subjects and therefore filled in the Impact questionnaire more than once.

2.3 Instrumentation

Due to the school's lack of access to the Impact! tool by Bijlsma (2022), the Impact questionnaire was delivered through TIIM (Twente Intervention and Interaction Machine), developed by the BMS Lab at the University of Twente. The TIIM platform offers a dashboard web app for creating interventions, longitudinal studies, ESM studies, and questionnaires. TIIM offers a mobile app that allows users to gather data and share information with participants. The mobile TIIM app can be used to schedule questionnaires, adapt them to individual participants, and receive interactive feedback.

The Impact questionnaire consisted of 16 items, categorized by the seven characteristics of effective teaching practices; creating a supportive and positive classroom environment, maintaining well-organized classroom management, delivering clear instruction, adapting instruction to meet students' needs, fostering teacher-student interaction, promoting cognitive engagement for deep learning, and incorporating formative assessment during lessons (Appendix A).

Students responded to 14 items using a 4-point Likert scale, where 4 represented "totally agree," 3 represented "agree," 2 represented "disagree," and 1 represented "totally disagree." They could also select 0 "not applicable" if needed. The last two items were open-ended questions. Items were designed in a teacher-centred manner to assess lesson quality from the students' perspective, using "I" instead of "our class." Teachers also provided their feedback, which allows for comparison with the student experiences, to improve the teaching quality (Impact!, n.d.).

2.4 Procedure

This study was approved by the University of Twente's ethics committee (request number 231332). After the approval by the University of Twente, the ethics committee of the Dutch secondary school in Twente was asked for permission, after which they also approved. Before data collection, consent was sought from participating students and their parents after they were informed about the purpose of this study. The evaluations through TIIM, using the prompts of the Impact! tool were conducted during school hours at the Dutch secondary school in Twente. According to the scheme, students evaluated the participating teachers in the chosen subject in the last five minutes of the assigned lesson. After publication, results will be shared with the managing board of the Dutch secondary school in Twente.

2.5 Data Analysis

This study provided data using the prompts of the Impact! tool in the app TIIM for questionnaires of the students´ and teachers' experience. The results of the Impact! tool about the student perception and the experience of the teacher of the lesson have been anonymised, analysed and compared with the use of SPSS, to answer the research questions by investigating if the intention of the teachers aligns with student experiences, and if there could be a relation between this alignment and behavioural engagement.

3. Results

Data was provided by TIIM, which includes answers from students and teachers of a Dutch secondary school in Twente. A total of 55 students and five teachers participated in the questionnaire. Students were distributed across different subject areas, mandatory and chosen, leading to variations in questionnaire completion frequency. Specifically, 25 students completed the questionnaire once, 23 students completed it twice, five students completed it three times, and two students completed it four times. The subjects covered include Religious Education (28 students), Mathematics (20 students), English Language (14 students), Arts (10 students), and Chemistry (20 students). The five teachers who participated were teachers in these subjects and completed the questionnaire once.

3.1 General experience of students

Based on the Impact! Tool (Bijlsma, 2020) the data has been divided into different constructs: Clear Instruction, Classroom Management, Assessment for Learning, Cognitive Activation and Deep Learning, Classroom Climate, Student-Teacher Interaction, and Adaptive Instruction. Bijlsma (2020) performed a reliability analysis, which demonstrates a high level of consistency in measuring teaching quality. The reliability coefficient of .895 suggests that the items of the tool consistently measure teaching quality. Table 1 gives the mean for every construct (N=55) over all courses.

Table 1

Descriptives of Constructs (N=55)

Construct	Mean	Std. Deviation
Clear Instruction	2.86	.57
Classroom Management	2.83	.66
Assessment For Learning	2.63	.72

Cognitive Activation and Deep Learning	3.01	.66
Classroom Climate	2.97	.86
Student-Teacher Interaction	2.85	.82
Adaptive Instruction	2.82	.68

As shown in Table 1, all constructs score around three points, which is not very high but is on the positive side of the rating.

Within the chosen study profiles of students, the most common subject combinations are Religious Education & Mathematics, Religious Education & Chemistry, and Religious Education & English. Table 2 gives the mean for every construct of the three combinations of Religious Education & Mathematics (N=9), Religious Education & Chemistry (N=7), and Religious Education and English (N=5). The standard deviation is given between brackets.

Table 2

Descriptives of Constructs within Common Subject Combinations

Construct	RE & Math (N=9)	RE & Chemistry (N=7)	RE & English (N=5)
Clear Instruction	2.69	2.79	3.03
	(.59)	(.37)	(.53)
Classroom Management	2.58	2.94	3.13
	(.77)	(.42)	(.50)
Assessment For Learning	2.44	2.43	2.56
	(.50)	(.35)	(.78)
Cognitive Activation and Deep Learning	3.00	2.94	3.36
	(.71)	(.42)	(.48)
Classroom Climate	3.22	2.94	3.00
	(.57)	(.78)	(.89)
Student-Teacher Interaction	3.06	2.86	3.29
	(.56)	(.48)	(.86)

Adaptive Instruction	2.72	2.78	2.88
	(.64)	(.59)	(.68)

As shown in Table 2, most constructs score around three points with the highest score in Classroom Climate and the lowest score in Assessment for Learning within the combination of Religious Education & Mathematics. Classroom Management and Cognitive Activation & Deep Learning have high standard deviations. Within the combination of Religious Education & Chemistry, most constructs score around three points with the lowest score in Assessment for Learning and a high standard deviation in Classroom Climate. Within the combination of Religious Education and English, most constructs score at least three points with the highest in Cognitive Activation and Deep Learning and the lowest in Assessment for Learning. Assessment for Learning, Classroom Climate and Student-Teacher Interaction have a high standard deviation.

3.2 Experience of students compared to different courses

To investigate if the constructs score the same within each course, the constructs will be analysed per course as shown in Table 3. The standard deviation is given between brackets.

Table 3

Construct Means per Course

Construct	Religious Education N=28	Mathematics N=20	English N=14	Arts (drawing) N=10	Chemistry N=20
Clear Instruction	2.58	3.02	3.01	2.90	3.07
	(.75)	(.53)	(.45)	(.78)	(.51)
Classroom Management	2.68	2.93	2.89	2.45	3.20
	(.88)	(.74)	(.49)	(.80)	(.59)
Adaptive Instruction	2.66	3.03	2.75	2.90	2.93
	(.84)	(.47)	(.87)	(.66)	(.77)
Assessment for Learning	2.37	2.68	2.43	3.00	2.85
	(.88)	(.57)	(1.02)	(.94)	(.75)
CA&DL[1]	2.93	3.14	2.77	3.40	3.20

	(.98)	*(.64)*	*(.60)*	*(.70)*	*(.62)*
Classroom Climate	3.21	3.23	2.91	3.44	3.00
	(.79)	*(.69)*	*(.54)*	*(.53)*	*(.75)*
S-T Interaction[2]	3.00	3.09	2.82	3.00	3.10
	(.73)	*(.61)*	*(.98)*	*(.47)*	*(.79)*

[1] *Cognitive Activation and Deep Learning*

[2] *Student-Teacher Interaction*

A one-way ANOVA was performed to compare the effect of the different subjects on each construct. The one-way ANOVA revealed that there was no statistically significant difference in Clear Instruction between at least two subjects, $F(4, 93) = 2,229$, $p = .072$. The one-way ANOVA also revealed that there was no statistically significant difference in Assessment for Learning between at least two subjects, $F(4, 94) = 2,008$, $p = .0100$. The one-way ANOVA revealed that there was no statistically significant difference in Cognitive Activation and Deep Learning between at least two subjects, $F(4, 94) = 2,053$, $p = .093$. The one-way ANOVA revealed that there was no statistically significant difference in Adaptive Instruction between at least two subjects, $F(4, 92) = .903$, $p = .465$. The one-way ANOVA revealed that there was no statistically significant difference in Classroom Management between at least two subjects, $F(4, 94) = 2,106$, $p = .086$. The one-way ANOVA revealed that there was no statistically significant difference in Student-Teacher Interaction between at least two subjects, $F(4, 94) = 2,227$, $p = .072$.

However, the one-way ANOVA revealed that there was a statistically significant difference in Classroom Climate between at least two subjects, $F(4, 94) = 2,579$, $p = .042$. Tukey's HSD Test for multiple comparisons found that the mean value of Classroom Climate was significantly different between Religious Education and English, $p = .046$, 95% C.I. [0085, 1,6696]. Tukey's HSD Test for multiple comparisons also found that the mean value of Classroom Climate was significantly different between Math and English, $p = .043$, 95% C.I. [0174, 1,7508].

Taken together, these results show no significant difference in the self-report scores across the following constructs: Clear Instruction, Assessment for Learning, Cognitive Activation and Deep Learning, Adaptive Instruction, Classroom Management and Student-Teacher Interaction for each subject. There is however a significant difference in the self-report scores within the construct Classroom Climate between English, Math and Religious Education.

3.3 Student-teacher alignment

To investigate if the experience of students aligns with the experience of the teacher, the association of the overall experiences (mean) of students and teachers (for each course) is explored using a Pearson correlation. The means of both students and teachers are shown in Table 4.

Table 4

Construct means of students and teacher

Construct	Student	Teacher
	N=91	*N=5*
Clear Instruction	2.90	3.03
Assessment for Learning	2.61	3.00
CA&DL[1]	3.03	3.00
Adaptive Instruction	2.84	3.10
Classroom Management	2.88	3.10
Classroom Climate	2.98	3.00
S-T Interaction[2]	2.86	3.20

[1] *Cognitive Activation and Deep Learning*

[2]*Student-Teacher Interaction*

A Pearson correlation coefficient was performed to assess the linear relationship between the scores of students and teachers in Religious Education. The results indicated that the relationship between the variables was not significant, $r(12) = .165$, $p = .572$. A Pearson correlation coefficient was also performed to assess the linear relationship between the scores of students and teachers in Math. The results indicated that the relationship between the variables was not *significant*, $r(12) = .447$, $p = .109$. A Pearson correlation coefficient was performed to assess the linear relationship between the scores of students and teachers in English. The results indicated that the relationship between the variables was not significant, $r(12) = .383$, $p = .177$. A Pearson correlation coefficient was performed to assess the linear relationship between the scores of students and teachers in Arts. The results indicated that the relationship between the variables was not significant, $r(12) = .050$, $p = .864$. A Pearson correlation coefficient was performed to assess the linear relationship between the scores of students and teachers in Chemistry. The results indicated that the relationship between the

variables was not significant, $r(12) = .452$, $p = .105$. Taken together, these results show that there is no significant correlation between the scores of the students and the teachers on the questionnaire.

4. Conclusion & Discussion

4.1 General experience of students

The results of the study indicate that while students generally perceive their learning experiences positively, there is significant variability in their experiences within each instructional construct, suggesting that not all student needs are consistently met. Within Religious Education & Mathematics, Classroom Climate stands out positively, while Assessment for Learning needs attention. Similar variations exist in other subject combinations, suggesting that teaching effectiveness varies across different courses. This underscores the importance of understanding and addressing individual differences in educational settings.

These results align with existing literature emphasizing the impact of the instructional environment on student engagement and satisfaction. Studies by Johnson & Stevens (2006) and Shaheen et al. (2020) emphasize the importance of a positive classroom environment in enhancing education quality and student well-being. Similarly, Crooks (1988) and Fricke et al. (2012) highlight the positive effects of effective classroom management on student motivation and achievement.

The observed variance scores are consistent with research indicating diverse student experiences within the same instructional context (Bijlsma, 2022; Laird et al., 2008), emphasizing the need for inclusive teaching practices. Vaughn (2015) and Abiola (2020) stress the importance of addressing individual differences to create more inclusive learning environments. Furthermore, deep learning and formative assessment findings reinforce the importance of these instructional strategies in promoting student engagement and self-regulated learning (Bell & Cowie, 2001; Clark, 2012).

Overall, while students generally perceive their learning experiences positively, the substantial variance scores suggest that students' experiences vary within each construct, indicating that not all students' needs are fully met. This variability could contribute to the dropout rate the school is struggling with, as emphasized by Magen-Nagar & Shachar (2016). They suggest that the quality of teaching, which affects students' satisfaction and sense of belonging, plays a crucial role in decreasing the risk of dropout. Therefore, addressing these variations in teaching quality is essential for enhancing student satisfaction, engagement, and ultimately, academic success.

4.2 Experience of students between different subjects

The analysis results show that students' perceptions of instructional quality were generally consistent across subjects, aligning with the studies of Johnson & Stevens (2006) and Shaheen et al. (2020), emphasising the importance of a positive and supportive learning environment across all disciplines.

However, the significant difference in the construct of classroom climate among subjects, particularly in English, Math, and Religious Education, indicates that there are variations in the classroom environment experienced by students across different subjects. This finding resonates with the studies of Bijlsma (2022) and Laird et al. (2008), highlighting the influence of subject-specific factors on classroom dynamics and student experiences.

In Mathematics, precision and clarity are important, leading students to focus on clear instruction and cognitive activation. Consequently, variations in scores may indicate discrepancies in how effectively these aspects are addressed within classrooms. In Chemistry, where hands-on experimentation and conceptual understanding are crucial, students may emphasize classroom management and adaptive instruction, potentially resulting in variations in scores based on the integration of these elements. Similarly, in English Language and Religious Education, where communication skills and critical thinking are emphasized, students may value classroom climate and student-teacher interaction, leading to differences in scores depending on the quality of these aspects across classrooms.

Besides the subject-specific factors, some variables are not controlled for, such as gender, experience and strictness of the teacher, class size, and moment of the day in which the lesson occurred. These variables could influence the classroom climate.

4.3 Alignment between experiences of students and teachers

The alignment between teachers' intentions and students' experiences was explored. The evaluation from both sides allowed for a comparison of the results from the experience of the teacher and students. Although teachers may have specific goals for their instruction aimed at engaging students, the results show no significant correlation between teachers' and students' lesson experiences. This misalignment suggests that there may be a gap between what teachers aim to achieve and how students perceive their learning experiences.

The misalignment between teachers' intentions and students' experiences underscores the need for teachers to reassess their instructional approaches as outlined by Bijlsma (2022) and Laird et al. (2008). Roehrig et al. (2009) emphasize the effect of misalignment on engagement, where

engagement decreases as a result of misaligned practices and beliefs between students and teachers. Furthermore, addressing this gap requires a deeper understanding of students' perspectives, as emphasized by Hailikari et al. (2021), and a willingness to adapt teaching methods accordingly, in line with the principles of student-centred learning (Clark, 2012).

4.4 Scientific and practical relevance

This research has been scientifically and practically relevant in multiple ways. In multiple previous reports of the Dutch Ministry of Education, Culture, and Science, the aspect of students failing 4 Havo is mentioned. An important practical justification was that the management of the Dutch secondary school in Twente is searching for ways to improve the number of students passing 4 Havo. This Dutch secondary school was unable to make clear what causes this low transition to 5 Havo and is therefore open-minded to any solution.

An important scientific justification was that there is little research on what causes the increase in the number of students failing 4 Havo. The Dutch Ministry of Education, Culture, and Science (2021) stated that there are concerns about learning delays but even more about motivation, well-being, and social-emotional development. Further research needs to be conducted on increasing the number of students who successfully transition from 4 Havo to 5 Havo.

4.4 Limitations and Recommendations

One limitation of this study lies in the fact that student self-report scores were collected following just one instructional session, due to time limits, busy schedules and ill teachers. When collecting the data for the first time, the app had a bug that answers could not be saved, which led to missing data in the course English and therefore a low number of respondents. Consequently, the dataset may not offer a comprehensive depiction of student engagement throughout an entire academic year. Within the subject of English, the self-reporting occurred after a lesson centred on text comprehension, overlooking the broader inclusion of grammar and writing components within the curriculum. This limitation extends across all subjects examined, thereby complicating the assessment of whether students' overall experiences remain consistent when considering the entirety of the curriculum. The difference found in the construct of Classroom Climate within the courses English, Math, and Religious Education could be explained by this limitation.

Future studies could benefit from collecting data over an extended period, such as an entire academic year, to provide a more comprehensive understanding of how instructional strategies influence student engagement over time. This would help capture any variations that may arise throughout the academic year and provide a more nuanced perspective on the effectiveness of different teaching approaches.

Another limitation of this study is the composition of the subjects, which are part of a study profile comprising both mandatory and chosen subjects. Specifically, Math, English, and Religious Education are compulsory for all students, while Chemistry and Arts are elective subjects. This variation in subject selection could potentially influence student motivation and engagement levels across different lessons. Additionally, the study's focus on specific profiles with a limited set of subjects may restrict the generalizability of the findings. As not all study profiles available to Havo 4 students are represented, the findings may not fully capture the diversity of engagement levels across various subject combinations.

To enhance the generalizability of findings, future studies should consider including a more diverse sample of subjects and classrooms. This could involve investigating different study profiles and subject areas to capture a broader range of experiences and instructional practices. Conducting comparative analyses between different instructional strategies and classroom contexts could provide valuable insights into which approaches are most effective in promoting student engagement. This could involve examining the impact of specific interventions or instructional methods on student outcomes across different subject areas or student populations.

Another limitation of this study is its reliance on only one teacher to provide self-reports within each subject. This means that the study only gave insights from one teacher's viewpoint for each subject analysed. This does not cover the full perception of every student in Havo 4, because students follow the same subject with different teachers. Different teachers might employ diverse instructional methods and manage their classrooms differently, even within the same subject. This limitation could potentially affect the accuracy of the findings by presenting a narrow perspective rather than a comprehensive understanding of how different teaching styles influence student engagement. Essentially, the study might not fully capture the range of instructional practices and their impact on student engagement, as it overlooks potential variations between different teachers teaching the same subject. It does, however, show the misalignment between students and teachers, but to get a complete understanding of the alignment, more teachers had to be involved.

To overcome the limitation of relying solely on the responsibility of the teacher to fill in the self-reports, future research could employ a combination of qualitative and quantitative methods. This could include classroom observations, interviews with both teachers and students and the use of standardised measures to assess student engagement from multiple perspectives. Due to time limits, this has not been done in the current study.

Future research should prioritize investigating the impact of targeted instructional interventions designed to bridge the divide between teachers' intentions and students' experiences.

By implementing and evaluating these interventions, researchers can gauge their effectiveness in enhancing alignment and ultimately improving learning outcomes. This focus on alignment is crucial, as it has the potential to foster increased student engagement, boost academic performance, and cultivate a more rewarding educational environment for all stakeholders. However, it is worth noting that the small number of lessons and teachers available for comparison in this study limited our ability to systematically compare instructional strategies. To allow for a more comprehensive analysis of instructional practices and their impact on student engagement and learning outcomes, a larger sample size of lessons and teachers needs to be included. Through this expanded scope, we will be able to better understand the effectiveness of different instructional strategies and identify areas for improvement in teaching practices. To get a deep understanding of the divide between students' and teachers' experiences, it is important to collect data throughout the entire academic year and use a variety of methods and not just self-reports. Through a more longitudinal approach, we will be able to capture fluctuations in students' experiences and engagement over the year, while employing a combination of qualitative and quantitative approaches will allow us to develop a more holistic view of the experiences of students and teachers related to instructional strategies.

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Appendices

Appendix A

Aspects of teaching (items) related to the characteristics of effective teaching and teaching practices

	Aspects of teaching (items)	Characteristic of effective teaching	Related teaching practices
1	The teacher clearly indicated what I was going to learn.	Clear instructional approach	Share learning objectives with students at the beginning of the lesson; have a clear beginning for the lesson.
2	The teacher explained the subject matter in such a way that I understood it well.	Clear instructional approach	Introduce new material in small steps; give examples and model procedures; use clear language; make sure students have guided practice.
3	The teacher connected what I already knew with the lesson well.	Clear instructional approach	Review and connect with students' prior knowledge.
4	The teacher checked whether I understood the subject matter well.	Assessment for learning: formative evaluation	Check for student understanding; monitor whether the subject matter is understood (by all students) during the lesson.
5	The teacher asked questions about the subject matter, which made me think.	Cognitive activation and deep learning	Ask students high-level questions frequently in order to promote deep learning; model assignments; solve subject-matter-related problems together with students.
6	If I did not understand the subject matter, the teacher made sure I understood it.	Adaptive instruction	Differentiate instruction, processing and/or assessment, and adapt activities to the varying needs of students.
7	The teacher made sure we worked hard during the lesson.	Well-organized and structured classroom management	Ensure efficient classroom management and organization; correct disruptive behaviour effectively; have clear classroom rules and routines.
8	The teacher made sure I was not afraid to say if I did not understand something.	Supportive and positive classroom climate	Create a safe learning environment during the lesson.
9	The teacher created a good classroom climate.	Good student-teacher interaction	Teachers are supporting and leading.
10	The pace of the lesson was good for me.	Adaptive instruction	Adapt the pace of the lesson to the different learning needs of students.

11	If I gave an incorrect answer, the teacher explained why it was wrong.	Clear instructional approach	Correct students' incorrect answers; repeat instruction (in a different way, when necessary).
12	The teacher ensured my active participation in the lesson.	Clear instructional approach	Make use of activating learning activities during the lesson.
13	The teacher gave enough time to work on the assignments in the lesson.	Well-organized and structured classroom management	Provide extended practice and transfer through assignments and make sure students have independent practice.
14	At the end of the lesson, the teacher summarized what we had learned.	Clear instructional approach	Have a clear ending for the lesson; review the goal of the lesson with students and check whether the goal is achieved by most students.
15	I now can complete assignments about the subject matter on my own.	This item is meant to measure the effectiveness of the lesson (did the lesson positively affect student learning?).	
16	The teachers' lessons will become even better if he/she ...	This is an open-ended question. Students can type their answer in the app to give a tip to the teacher about improving the lesson.	

Appendix B

Niveau	**Leerjaar**				

4

HAVO — 59% 66% 61% 61% 57%
(19/20, 20/21, 21/22, 22/23, 23/24)

Totaal
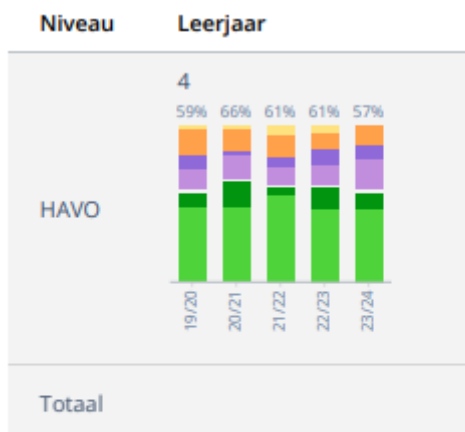
Schooljaar 2023/2024
Periode Afgelopen 5 schooljaren
Vestiging Bruggertstraat
Niveau HAVO
Leerjaar 4

- Zonder vertraging
- Op niveau
- Opgestroomd
- Boven advies
- Opgestroomd & gedoubleerd
- Boven advies & gedoubleerd
- Gedoubleerd
- Afgestroomd
- Onder advies
- Afgestroomd & gedoubleerd
- Onder advies & gedoubleerd
- Afgewezen