Havo and the theory of multiple intelligences.

Can we better our students' English results and language skills by teaching according to, and taking the multiple intelligences into account?

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Preface

This report is the documentation of a research conducted over a period of 2 months for Fontys University of Applied Sciences. The report will document whether it is possible to increase students' results in a certain subject, when taking Gardner's multiple intelligence theory into account. In my case, English, and the ways and means of teaching it as a secondary school subject, and whether we can better our students' English results and language skills by teaching according to, and taking the multiple intelligences into account. The subject of this report is for a large part the theory of multiple intelligences by Howard Gardner. A leading psychologist who is most famous for coining this theory and term. Gardner himself, and many other researchers, psychologists and education specialists have conducted a wide range of researches regarding the theory.

My interest for this theory was sparked during an assignment on comparing school systems in Europe. It became apparent that many school systems allowed their students to pick each subject according to their own attainable level of difficulty. For instance, if you were bad at mathematics you could take this subject at a lower level of difficulty, but if you were good at English language and literature, you could take this subject at a higher level. This system can be regarded as student-friendly, and good for development of students' talents.

Our national system however, does not allow students to pick their own subjects. It is here in the Netherlands that we create a clear division according to overall intelligence. In the Netherlands each student takes a definitive exam in their last year of primary school. This exam determines their overall level of intelligence, unto which they will be divided into the said level at secondary school. The student then takes each subject at that particular level. It is not permitted to take a single subject at a higher or lower level, thus, if you find yourself struggling it is inevitable that you will end up moving down a complete level. Moving up a level is much more difficult. This system can seem limiting, as not very student-friendly and demotivating as to development of single subject talent.

It was due to this difference in systems that I decided to put Gardner's theory of multiple intelligences to the test, testing whether it would make a difference to English as a secondary subject if taught according to a certain strategy to students with a different range of intelligences.

In the Dutch school system it is important that you choose your subject profile at a young age. You either go scientific, or socio-economical. There are however, a few subjects that are interdisciplinary. These are Dutch language and English language, and for some levels mathematics or sociology. All 3 of these subjects are strongly alpha or beta subjects. Meaning that if you are very beta-wired that English and Dutch could be a problem. How could we, as teachers, change the methods of teaching a language to suit these beta students? Or, if a student is very alpha-wired, in the way that he or she is very sociocultural, how do we adapt our teaching methods to get grammar or other structural sides of the language across?

With some quick thinking and pilot conclusions it should go to show that if you teach a subject according to a student's intelligence spectrum, it should be easier for the student to pick it up and get the grades he or she needs to pass.

The research that I conducted for my subject did not go without help and support. I would like to thank Manuela Schoenmakers, for allowing me to execute this research in her classes and Fontys university of applied sciences, for aiding me through the process of this research. My supervisor Frans Hermans and PieterJansen, for giving me structured and clear feedback throughout the process.

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Summary

Is it possible, that by changing our teaching approaches to suit individual students' intelligences, to increase students' English results?

For years Dutch education has worked according to a system that goes against the individual intelligences of the students. It claims that each student has a basic level of intelligence which he or she must be able to complete and make the grade for each and every subject. Due to personal experience with the downfalls of this system a research on the Howard Gardner's Theory of Multiple Intelligences seemed of interest.

Our problem was that too many students fail too many subjects and are forced to drop a level, thus having to do every subject at a lower level, even if they are exceedingly good at it. All because 2 subjects are too difficult at a particular level.

To research how we could improve students' English results the theory of multiple intelligences was thoroughly researched and read into to find out whether it was possible to help students acquire languages through their other intelligences. As English is a subject you are obliged to pass the necessity of this research is comprehensible.

First a choice was made as to which 2 classes would undergo the research and whether the students wished to participate as the research was not completely anonymous. Classes h3d and b2d were the choses subjects. Fortunately all students from both classes were eager to participate. Upon which they filled in 2 questionnaires. One which had open questions regarding difficult subject and choice of future profile, and another that related to Gardner's theory and would calculate which of the intelligences was your strongest. There was always a possibility that a student would have multiple strong intelligences. However only linguistic and logical-mathematical intelligence was of importance to this research. Particularly these two because they link up to the profiles students can chose in upper classes. two very mathematically based, two other profiles very linguistically and culturally based.

After the students had filled in the questionnaires the results were collected and summarised in graphs and tables. Then the students underwent 7 lessons of logical-mathematical, structured lessons, followed by an exam. After that exam the students underwent another 7 lessons that were linguistically based, contextual and elaborate in explanation, these lessons were also followed by one exam.

The results of the research were partly unbalanced as both classes did not meet up to the hypothesis given above. In h3d two thirds of the class met the hypothesis, a result that was stable enough to base a firm conclusion upon. In b2d the numbers were too variable and were not trustworthy enough to base a stable conclusion on.

The conclusion based on class h3d was that if the students are taught according to their personal intelligence profiles they will benefit from this and increase their results for English. However, as this conclusion was only based upon one class it would be wise and interesting to conduct a follow-up research to understand what the outcome would be on a larger scale with parallel classes.

Content

Introduction

Frames of mind.

For many people the name Gardner does not ring any bells. However, his theory of the multiple intelligences might. Gardner suggested that each person has a set of 7 intelligences. And that these intelligences have been validated through a long course of research, leaving many other candidate intelligences by the wayside.

First The basic knowledge of the subject will be described, which in turn will make this report a lot easier to comprehend.

As previously mentioned, Gardner has finalized his research with a conclusion of 7 existing intelligences. Each of these intelligences has been run through the mill extensively and has been researched according to a number of sources. These intelligences are:
- Linguistic intelligence
- Musical intelligence
- logical-mathematical intelligence
- spatial intelligence
- bodily-kinesthetic intelligence
- intrapersonal intelligence
- interpersonal intelligence

> *"I have reviewed evidence from a large and hitherto unrelated group of sources: studies of prodigies, gifted individuals, brain-damaged patients, idiots savants, normal children, normal adults, experts in different lines of work, and individuals from different cultures." (*Gardner, 1983, p. 9)

Here Gardner describes in his most famous work 'Frames of Mind' which groups of people and which sources he used to come to his conclusions on the intelligences. Besides these sources he has also used a number of other sources in the validation or eradication of candidate intelligences.

These other manners of research are also referred to by Gardner as the criteria of an intelligence. In his book 'Frames of Mind' he states that there are eight 'signs' of an intelligence. He then goes on explaining each of these signs elaborately. Below you will find a brief summary.

The first sign is Potential Isolation by Brain Damage. Here Gardner suggests that patients that suffer from brain damage may have lost a number of their intelligences, may have preserved others. This leads to the conclusion that there are in fact separate areas in the brain, which have been determined by neuropsychology, that house separate intelligences. Depending on which area of the brain is damaged.

The second sign is The Existence of Idiots Savants, Prodigies, and Other Exceptional Individuals. Gardner goes on to explain this criterion by suggesting that these groups show the isolation of 1 intelligence.

> *"We behold the unique sparing of one particular human ability against a background of mediocre or highly retarded human performances in other domains."* Gardner, 1983, p. 67

The third sign of an intelligence is a more complex one. It is the existence of a core operation or a set of core operations. The core that is being referred to here is found deep inside the brain. It reacts when it is given triggers, that lead to a certain core to go through a set of operations. This suggests that there is a separate area in the brain, for a standalone intelligence.

The fourth sign is a developmental history of an intelligence. The intelligence under observation should be modifiable.

> *"Identification of the developmental history of the intelligence, and analysis of its susceptibility to modification and training is of the highest import to educational practitioners."* (Gardner, 1983, p. 69)

This quote in particular I find very interesting. It somehow justifies the core of this report, but is yet to be proven. To be able to modify an intelligence, mould it, to the subject matter or to the students interest or intelligence, is as Gardner says of the highest import to educational practitioners: Teachers.

The fifth sign of the validity of an intelligence has great associations with the evolution theory. Gardner likens an intelligence to its evolutionary antecedents, and then researched whether that intelligence may have stood alone before its more plausible current state. However it has also become clear that this area of criteria is especially prone to speculation.

The final 3 signs of an intelligence are all psychology based and are built up out of experimental examinations and tests, or psychometric findings. Gardner here refers to the standardized testing of the IQ. Unfortunately, these interpretations are not always straightforward and do not always test what is of importance:

> *"The stress of paper-pencil methods often precludes the proper test of certain abilities, especially those involving active manipulation of the environment or interaction with other individuals."* (Gardner, 1983, p. 70.)

After an intelligence has been run through the mill and undergone all the validity tests, it can be assumed as a standalone intelligence. But how far should we take these intelligences as teachers? Should we modify our lessons to suit each individual student? Is it even fair that we request all our students attain all their subject at one level? This brings us to the definition of our problem.

The ongoing problem

In this report I will be researching whether we can better our students' English results and language skills by teaching according to, and taking the multiple intelligences into account.

Each and every one of our students sits a set of exams at the end of their secondary school career. It is their goal to successfully pass these exams and move on to suitable form of tertiary education by studying. In the case of the group I am researching, Havo, this would be College or Universities of applied sciences.

It has always been the case that you were only allowed 2 failed exams, however the results must not be lower than a 4 and a 5 or two 5's. Juxtaposed there must be 2 or more subjects counteracting the fails

As a teacher in training and tutor of English I have seen a good few changes in the Dutch education norms over the years. The most important and radical change being that of 2011-2012. As of that year it is not permitted to score less than an average of a 5,5 for your final exams. Alongside of that it is also no longer permitted to score more than one 5 in the three interdisciplinary subjects: mathematics/sociology, English and Dutch. This is where the difficulties arise.

Our national education system treats students according to their overall intelligence level. They must take all their subject at a certain level. The level this report researches is Havo. For the first 3 years they take a wide range of subjects at Havo Level. After those 3 years they go on to pick their fixed set of exam subjects, also known as "profile".

The students have a 4-way choice. Meaning they can choose from four profiles, however there is only a strong 2-way division: Alpha and Beta subjects. The 4 profiles, and their subjects are:
- Science and technology
- Science and health
- Social studies and economics
- social studies and culture.

	Science and technology	Science and health	Social sciences and economics	Social sciences and culture
Interdisciplinary subjects	Dutch English Social studies (1year)	Dutch English Social studies (1year)	Dutch English Social studies (1year)	Dutch English Social studies (1year)
Compulsory profile related subjects	Physics Science Mathematics B	Biology Science Mathematics B	History Economics Mathematics A/B	History German French
Profile related subject of choice	biology	Geography or physics	Management or Geography or Social sciences or French or German	Geography or Social sciences or Economics. And German, French or Art.
One unrelated subject of choice	any	any	any	any

http://www.frieslandcollege.nl/mbo/vavo/havo/overzicht-vakkenpakket.html

It becomes very clear Science and technology and science and health are very beta-wired profiles. And social studies and economics, and social studies and culture are very alpha-wired.

Here it becomes necessary that we make a clear division between Gardner's intelligences in order to mould the subject, English, to their intelligences.

Hypothetically the two beta profiles are most likely to possess logical-mathematical and spatial intelligences. Whereas the social studies profiles are more likely to possess linguistic and personal intelligences. As for the remaining intelligences, I believe that these are not related to the profiles.

Setting all of this aside, English still remains a compulsory subject regardless of which profile you choose. Beta students could encounter problems with their linguistic intelligence as it might not be as deeply developed as it is for alpha students.

It would be idealistic to believe that if we, English teachers, were to change our teaching approach to suit their intelligences, they would also be able to excel in a non-logical-mathematical subject.

The same method would go for alpha students. Though they might have developed a more linguistic capacity, this does not necessarily mean that they are generally better at English. If we could wrap our subject in a more personal or social matter, we might be able to help these students to excel too. After all, English is a compulsory subject that must be passed, with a sufficient or near sufficient mark. For example, a typical English lesson could be encased in a more historical topic, sparking their interests and social fields of intelligence. Because the students are engaging in a topic that triggers their intelligences it could be easier for them to link their linguistic intelligence to an already well-developed intelligence.

Relevance of this research

The relevance of this research has been explained prior to this section. The fact that English is a compulsory subject for all students, it is relatively a more difficult subject. I myself have experienced how students struggle with the grammar, the pronunciation and even the use of the language.

Another factor which makes this report interesting, and more relevant, is the fact that it has not yet been researched so precisely before. Gardner's theories have been researched many times before, however, not for subject-specific causes.

During my own time at secondary school I never paid much attention to my other classmates and what their hurdles were, but when it came nearer to the end of my final year I overheard the worries about failing English all the more. For me the subject was not a worry at all, as I have had an English upbringing, but for many of my fellow students English seemed to unsettle them.

The research conducted wants to find out whether there are actual differences between alpha and beta students regarding English, or rather, the Linguistic Intelligence. Is it true that beta students find English more challenging?

Throughout the course of this research I hope to better my students' results, and in turn proving that it is possible to teach English to suit the students of different intelligence natures.

This sums up the relevance of the research. It is necessary to make a compulsory subject attainable to all students in a way that suits their interests. Getting the best out of their skills and using it to their advantage. Like Gardner says, it is important that educational practitioners use the intelligences to their students' advantages:

> *"In my view, it should be possible to identify and individual's intelligence profile (or proclivities) at an early age and then draw upon this knowledge to enhance that person's educational opportunities and options."(* Gardner, 1983, p. 10.)

Gardner clearly states that an intelligence profile can be identified and their knowledge and talents should be motivated to blossom. As teachers we should enhance that persons educational opportunities and options. What Gardner means by this is that if a student is good at science and shows outstanding performance skills in that field, we as teachers should enhance that, motivate the student, provide the student with the right materials and options to excel to great heights. This is something we see in different education systems all over the world, which allow students to pick their own subjects and excel at these. The Dutch system however, works with interdisciplinary subjects and set profiles. Near to no deviation possible.

Another aspect on his view is that teachers should aim to use their students' intelligence profiles to get other subjects across. Referring to the developmental history of an intelligence and Gardner's claim that an intelligence is susceptible to modification and further development.

Process of the research

The research was conducted according to a set of 5 phases. Each phase in itself as important as the phase preceding and following it.

The first phase consisted of planning the research. The research would take place in 2 different classes, each at a similar level. the choice of two different classes without parallel groups was due to not having two parallel groups. This did not have an effect on the actual research as each class first underwent 7 structural lessons and an exam, and then 7 elaborate contextual lessons followed by an exam. This way the lessons would not tamper with one another and the results would be unaffected. If the results showed that more than two thirds of the class fitted the hypothesis it meant that the results were stable and that a solid conclusion could be based on these.

The two thirds norm was decided on the compulsory 6,3 average in a class. This meant that if the class had an average of a 6,3 it had done well according to national standards. The 6,3 norm is often calculated by the 70/30 rule. This means that the student must pass 70 per cent of his test in order to get a pass. Through experience it is often found that one third of the class scored below the 6,3 norm. This was also why the two thirds norm was chosen for the research.

The second phase included 2 questionnaires. One that asked question relevant to the students subjects and future profile choice. This questionnaire was open, meaning that the student did not have to tick boxes but simply write down whichever answer he or she felt appropriate. The second questionnaire consisted of 35 questions referring to and in regards to Gardner's Multiple Intelligence Theory. In this questionnaire the student had to rate the statement from 1 – 5, scaling it's truth and importance. As the report and the questionnaires were not completely anonymous, though the names were of no direct significance, the students had to give their permission for the research to take place.

The second phase also involved of compiling the results of these two questionnaires per student. The results are given in a table on pages 20 and 21.

The third phase is when the actual research commenced. Both classes first received 7 lessons according to the logical-mathematical more structure way of teaching. Grammar was given according to a direct approach and skills were practised straightforwardly without further discussion. After the students had had 7 lessons according to this approach an exam took place to establish whether this method had had a positive result on the students who were logical-mathematically intelligent and a negative effect, or no effect on those who were more linguistically intelligent. The scores were calculated and a conclusion was drawn.

During the fourth phase the students underwent 7 lessons according to a more elaborate and contextual approach. These lessons were suited to those students who were more linguistically intelligent. The grammar was given in context and skills were discussed and tested in class. Also grammar practice remained in context. Rules were rarely given directly, only if strictly necessary after the students had already discovered the rule by themselves. After the 7 lessons had taken place, an exam took place to establish the results and gather information and date about the effect these contextual lessons had had. Again followed by calculations and a conclusion.

In the final phase of the research all the data was gathered and all the conclusions were laid alongside of one another. The results that were found in the first 2 questionnaires were taken into account, the conclusions drawn after the first 7 lessons, and the conclusions drawn after the second set of 7 lessons were all taken into account and compared.

From the data a conclusion was drawn in regards to the affect a modified teaching approach can have, if modified according to the individual intelligence of a student.

Structure and preview of the report

During the course of this research we will be looking at whether it is possible to better students' English results when keeping their intelligence profile in mind.

We previously discussed the theory of multiple intelligences by Gardner. We Outlined the 7 intelligences briefly and explained their credibility and the criteria that they have passed in order to come to their official status of a standalone intelligence.

Some stages later we looked at the ongoing problem teachers are facing; students that repeatedly fail a subject, this subject being English.

We have delved into the profiles that students are forced to choose from after their third year in secondary school, and explained why it is necessary for interdisciplinary subjects to take a good look at the students that are sitting before them, and how they can create a suitable teaching approach for those students.

Furthermore the relevance of the research was explained. Stressing that an intelligence can yet develop and has the susceptibility to modification. Partially verifying the theory that we should be able to mould our lessons into themes and methods of teaching fitted to the type of student we have before us.

From this point onwards we will look at the theoretical framework of the report; the build- and back-up for the collection of data.

In the framework of this report we will be taking a more in depth look at questions and information needed to set up a solid conclusion. the theory of the multiple intelligences, and how it defies the current educational system. We will then move on to the 7 standalone intelligences, each of these thoroughly explained.

Finally we will discuss the choice of intelligences I will be basing my lessons on. I chose to do this as the final part of the framework as this piece of the report links directly to the research in practice. Previously I have already elicited exactly which of the 7 intelligences will have the focus during the research. However, I feel there is room for more evidence based justification.

Theoretical framework

The theory of the multiple intelligences claims that there is not just 1 intelligence quota, but that there are in fact 7, and possibly even more. Each of these intelligences will be elucidated in the next chapter.

Out national education system seems to divide students' interests and abilities in two. As a student you are either very sociocultural/economical or very mathematical-scientific. This is an image that is widely perceived as correct. However, the education system still requires some compulsory interdisciplinary subjects: English, Dutch, mathematics and social studies. However we might be able to help our students perform well at these subjects by moulding the lessons according to their knowledge (intelligences) and interests.

The subject that this research studies is the English language. From the moment a pupil enrolls at secondary school the pupil is obliged to take English classes. This, as mentioned, is a compulsory interdisciplinary subject.

The fact that English is a compulsory subject is not the problem,. The bigger problem that we are facing is that within these 3 compulsory subject a student is only allowed one fail. And this fail is not to be any lower than a 5. It is part of our job as English teachers to make sure that these students pass or do not dramatically fail their English.

Previously in the report the Dutch education system was mentioned and how it is not perceived as very student-friendly and how it is demotivating for development of single subject talent. And gradually I have explained how I feel the Multiple Intelligence Theory can serve a role in changing this. And by change we am not aiming to uproot the entire system, but merely the teaching approaches. Centralise the student and get the best out of their abilities and acquired intelligences.

First of all it is important to know what kind of students you are working with, what their intelligences are and their general interests. This can be found out by questionnaires and interviews, and possibly even tests and exam results.

Secondly you need to determine whether the students are leaning toward the sociocultural/economical profile or the mathematical-scientific profile. It is of great significance that, as a teacher, you mould your lessons to their interests and knowledge. The lessons could be varied per term to suit the needs of the students. One term the lessons could be very structured and clean cut for the beta students, whereas the following term there could be more literature and culture based lessons.

Finally it is of importance to the research conclusion that there is a standardised documentation of the results per class and per student. To prove my theory it is key that I document each individual student's result and compare it to their intelligences and the lessons that were taught that term. Based upon those scores and a set of interviews prior to the teaching according to their intelligences and after, I will hopefully be able to draw a positive conclusion, and produce a good set of instructional lessons based on the 2 types of profiles, and intelligences.

Gardner's 7 intelligences

Linguistic intelligence

Garden described the linguistic intelligence as something that is inevitable in all human beings, but that it does not manifest and develop equally in all of us.

> *"A sensitivity to the meaning of words, whereby an individual appreciates the subtle shades of difference between spilling ink 'intentionally,' 'deliberately' or 'on purpose.' A sensitivity to the order among words—the capacity to follow rules of grammar, and, on carefully selected occasions, to violate them. At a somewhat more sensory level—a sensitivity to the sounds rhythms, inflection, and meters of words—that ability which can make even poetry in a foreign tongue beautiful to hear. And a sensitivity to the different functions of language—its potential to excite, convince, stimulate, convey information, or simply to please."* (Gardner, 1983, p. 82.)

Linguistic intelligence is extremely important to human beings. Language has the ability to convince others, at all levels. Language also forms as a tool to learn and remember other things. Without language, we cannot think, thus we cannot remember.

If we look at a teacher's profession we will also see that language is of great significance. After all, explaining and questioning are both forms of language.

As far as the development of a language goes, language is ever-changing, so you will always be learning. Whether it is vocabulary or more complex sentence structures. Using these to your advantage is the key element in learning and acquiring a language.

Musical intelligence

Musical intelligence is something that we all possess to a certain degree because it is narrowly intertwined with linguistic intelligence. Think of how you formulate a question. According to syntax we first use a verb, then the subject followed by a compliment to the subject or maybe an object.

Now try to say this question out loud:
'Will we see him tomorrow?'

the sentence stress is placed on the last word of the sentence, tomorrow. This stress is made clear by changing the pitch of your voice. The pitch you are most likely using is a slightly higher tone compared to that of the previous words.

Pitch is one of the 3 cores of musical intelligence that a person must acquire to be sought musically intelligent.

> *"most central are pitch and rhythm: sounds emitted at certain auditory frequencies and grouped according to a prescribed system. Next in importance only to pitch and rhythm is timbre—the characteristic qualities of a tone."* (Gardner, 1983, p. 111.)

Logical-mathematical intelligence

An interesting thing about logical-mathematical intelligence, is that people who possess this intelligence and have excelled in it, view music as just another pattern. Gardner mentions how music

to a musician is a collection of harmonic notes, yet to a logical-mathematical person it is merely a pattern of formal consideration.

But when can we define someone as mathematically talented, or excelled in logical-mathematical intelligence? Gardner believes that:

> "*Mathematical talent requires the ability to discover a promising idea and then to draw out its implications, to recognize significant problems and then to solve them. Mathematicians have devised various heuristics that help individuals to solve problems, and informal training in mathematics often involves assimilating and passing on these techniques to the next generation.*" (Gardner, 1983, p. 151.)

The most interesting piece of information from this particular chapter in Frames of Mind states that language has its own set of rules and that no matter how much a logical-mathematical wired person tries to apply structured rules it will not change the way that the rules of a language work.

Taking this piece of information into account, given that there is no evidence in the book to back this up, I believe that when it comes to teaching it is not about which rules you wish to apply, it is about moulding the rules of a language into a logical scheme.

Logical-mathematical intelligence does however, work very well with spatial intelligence.

Spatial intelligence

Spatial intelligence is built up out of a number of logical components. Due to this it is narrowly linked to logical-mathematical intelligence. It is because of this that we can use spatial intelligence to capture information, by coming up with visual memories that go with the subject matter.

To the bottom of the page you see an image that you have probably seen before, be it in a mathematics textbook or an IQ test. To solve this problem it is important that you possess some sort of spatial awareness and logic. Gardner briefly summarises all the logical components of spatial intelligence that you will need in order to solve a problem that requests spatial awareness.

> "*The ability to recognize instances of the same element, the ability to transform or to recognize a transformation of one element into another the capacity to conjure up mental imagery and then to transform that imagery, the capacity to produce a graphic likeness of spatial information, and the like.*" Gardner, 1983, p. 185.
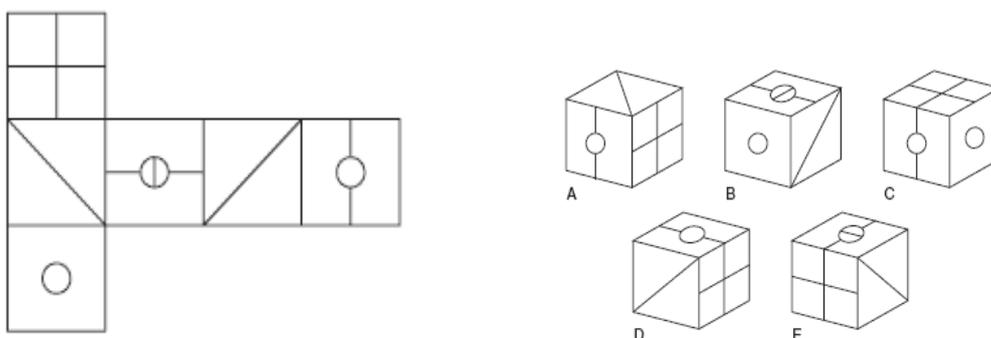
http://minitest.net/IQ_TEST/The-ultimate-IQ-test-book-3/7.html

Bodily-kinesthetic intelligence

Bodily kinesthetic intelligence goes further than merely being good at physical education. It entails being able to use your body to mimic others, but also work with finely sculpted objects and manipulate these.

A good example given in Frames of Mind is that of a mime. A mime has developed his bodily-kinesthetic intelligence so expertly that he is able to mimic human movement almost flawlessly.

Gardner describes the talents of a mime as:
> *"Characteristics of such an intelligence is the ability to use one's body in highly differentiated and skilled ways, for expressive as well as goal-directed purposes: these we see as Marceau the mime starts to run, climb, or prop up a heavy suitcase."* (Gardner, 1983, p. 218.)

Intrapersonal intelligence

Gardner refers to these next two intelligences as the personal intelligences. These are intrapersonal intelligence and interpersonal intelligence.

Intrapersonal intelligence is the intelligence that regards yourself as a person and the feelings you feel. Defining, understanding and coping with these.

> *"The core capacity at work here is access to one's own feeling life—one's range of emotions: the capacity instantly to effect discriminations among these feeling and, eventually, to label then, to enmesh them in symbolic codes, to draw upon then as a means of understanding and guiding one's behaviour."* (Gardner, 1983, p. 253.)

Interpersonal intelligence

Interpersonal is the other side of the spectrum. This regards the feelings of other people around you, and how you deal with and affect these.

> *"The core capacity here is the ability to notice and make distinctions among other individuals and, in particular among their moods, temperaments, motivation and intentions."* (Gardner, 1983, p. 253.)

This intelligence, or rather, quality characteristic is of great importance to teachers and other educational practitioners all over the world and should be regarded as the number one principle of successful teaching.

Division of profiles and intelligences

Finally we will discuss the choice of intelligences I will be basing my lessons on. I chose to do this as the final part of the framework as this piece of the report links directly to the research in practice. Previously I have already elicited exactly which of the 7 intelligences will have the focus during the research.

Linguistic

The linguistic intelligence is of great importance in this research as it is directly connected to the subject of education, English. Another reason why it is so important is because it shows which students already possess a fair amount of linguistic, thus languages, intelligence. Their ability to learn a language should be somewhat higher than other students. Testing this would ideally be done in an inductive, or even direct method setting.

This means that students have to be able to elicit the rules and structure of a language from a given context. Proving in a way that these students have the capability to learn a language easier that other students with other intelligences.

The final reason why this intelligence is so important is due to the connection it has with the profiles students can choose. Out of the 4 available profiles, 2 of these are dependent on languages, as picking another language is compulsory.

Logic-mathematical.

The logic-mathematical intelligence is of importance to this research because it is widely regarded as 'the other type of student, something known as a beta student.

It is particularly of importance due to the other two profiles being so mathematically orientated. Even though these other two profiles are so mathematically orientated, they still require students to pass English, or fail it with a 5/10 score.

An ideal logic-mathematical approach would deal with grammar and the language skills with no end. Each lesson would supply the students with a structured set of rules which would allow them to simply follow these to pass the exam, or successfully apply the grammar.

Exclusion of other intelligences.

Other intelligences will be excluded from this research due to the fact that the majority of them is not represented and does not carry an important role within the profiles. Therefor these intelligences are of no value for this research as the lessons will not be modified according to these remaining intelligences.

Measuring instruments

Open questionnaire *(appendice 1)*

The open questionnaire as shown below is to determine the students' favourite subject, least favourite subject, easiest subject and most difficult subject. It also allows the student to decide which profile they would like to choose. If they do not know which profile they want to choose they can tick 'undefined'.

It is compulsory for the student to fill in his name if he wishes to participate in this research. However, participating is not compulsory, but completely voluntary. Each and every student was aware this before they are shown either of the measuring instruments. Fortunately all students in my research group were glad to participate.

Questionnaire *(appendice 2)*

This questionnaire was developed online by a research website, under the copyright of businessballs.

The questionnaire serves purpose to gather information about the students' intelligence and calculate the actual score of this intelligence. There are no incorrect or correct answers and it is necessary that the questionnaire is named. Each student must thus write his name upon the questionnaire in order for the results to be connected to the previous questionnaire.

"The test has not been scientifically validated but this instrument is a simple directly reflective assessment tool which works in a single dimension. That is, the results are produced directly from the inputs (the scored answers to the statement questions). There are no complex computations or correlations or scaling. As such it less prone to distortion or confusion than a more complicated testing methodology might be, especially one involving convoluted formulae or scales on several dimensions. The instrument in its various versions has been downloaded and used tens of thousands of times by teachers, trainers, managers, academics, and researchers all around the world since 2005, and (to my knowledge) has not generated any complaint or criticism about its reliability and suitability for purpose. Additionally, this webpage featuring the instrument download links has been highly ranked (top five or so in Google's listings for keywords such as 'multiple intelligence tests') for several years and remains so, with zero advertising and promotion, which is perhaps a virtual validation of sorts." © Multiple Intelligences concept: Howard Gardner 1983; review and other materials: Alan Chapman 2003-2012.

School exams

The school exams I will be using are based upon the general norm of the year, which is a 6.3. This is an average grade all students in the year must add up to. Meaning that the norm of the exams will be calculated according to this number.

After the results have been collected they will be compared with the students' intelligences proving whether the students have improved their results or not and if it matches the relevant intelligence that they scored highest in. For example, if a student scored very high in a mathematical intelligence, they should have improved their result in the first set of lessons according to a very structured approach.

I have been given access to these exams, but I am unable to publish these in my research paper.

Collected Data

Below you can see a grid that summarises all the necessary results from the 2 questionnaires the classes filled in. The grid covers the first questionnaire by including the 5 questions that were posed on it. These were:

- What is your favourite subject?
- what is your least favourite subject?
- which subject do you find easiest?
- which subject do you find the most difficult?
- which profile do you want to choose?

Besides that the grid also includes the scores for linguistic and logical-mathematical intelligence as these two are the most important in the division of the profiles. Finally the grid also includes the highest scoring intelligence per pupil. This to stress the importance of individual strengths.

The grid uses a fair amount of abbreviations for the subjects that have been filled in. Below you will find a list of the abbreviations and they complete definition:

- en – English
- du – dutch
- ger – German
- fr – French
- mat – mathematics
- nask – physics/science
- ec – economics
- o&o – Onderzoek & ontwerp (research and design)
- bio – biology
- geo – geography
- hi – history
- mu – music
- art – art
- ph – physical education

Name **B2D**	Favourite subject	Least favourite subject	Easiest subject	Most difficult subject	Choice of profile	linguistic	Log/math	highest
Merel S.	fr, mu, en	geo	mu, ger	ger, hi	U	18	17	muscial
Mounia	mat, en	mu, ger	fr	mat	E&M	15	16	body
Merith	mat	nask	mat, ger	du	U	15	13	spatial
Nikki	mu	ger	mu, mat	geo, hi	N&G	11	12	musical
Julia	ph, mat	ger	mat,nask	languages	U	11	17	body
Nikee	fr	geo	fr, en	geo	U	18	13	Ling/inter
Serai	ger	geo	ger	geo, hi	U	17	13	inter
Amber	nask, hi	geo	ph, re, du	en, mat	C&M/E&M	12	11	Body/inter
Michelle	hi, en	geo, ph	hi, en	mat, geo	C&M/E&M	17	14	Music/inter
Merel H.	ph	mat,hi,geo	ph	geo	U	15	7	body
Demi	/	mat,hi,geo	/	geo,hi	U	13	11	inter
Joep	ph,mat, o&o, mu	du	ph, mu, hi	du	U	13	13	body
Robin	ph,nask, o&o,geo	mu, du	ph,geo,hi	du	N&T	10	15	Body/spatial
Jur	ph, nask	mat	ph, nask	geo	N&T	9	9	body
Gina	ph,mat, o&o, en	geo	mat, en	hi	U	15	17	body
Annelot	mat, o&o, du	mu	hi,geo,mat	en	E&M	16	17	body
Sven	mu	fr	mu	en	U	14	13	musical
Robbert-Jan	ph, mu	nask, fr	ph mat,nask	en,fr	U	12	13	body
Mila	hi	en, du	mat, hi	en	E&M	11	10	inter
Nina	mat	hi	nask	du	N&T	14	15	Spatial
Lola	art	nask	en, art	du	E&M	17	10	Ling/spatial
Jasper	ph	du	hi, ph	du, en	N&T	10	16	Inter/body
Jules	mat, fr	mu	fr, hi	mu	U	13	16	body
Jasper G.	nask, o&o	ger	o&o,hi	mu	N&T	15	16	inter
Bas	o&o	fr	hi	du	N&T	13	9	inter
Vince	ph, o&o	geo	mat	geo	N&T	13	17	body
Ramon	du, mat	ger, nask	en	ger	E&M	11	14	spatial
Rob	mu, ph	hi	ph	du	N&T	13	14	Musical
Janna	Du, fr	Geo, mat	Hi, mu	Mat	C&M	19	11	Ling/musical

Name H3D	Favourite subject	Least favourite subject	Easiest subject	Most difficult subject	Choice of profile	linguistic	Log/mat	Highest
Willemijn	ph	Fr, ger, bio	ph	En, mat, bio	U	11	13	Inter
Julia	ph	o&o, nask, bio	Mat, ec, fr, ger	En, du, nask	E&M	9	14	body
Maarten	nask	Hi, geo, ec	Nask, mat, bio	Ec, geo	N&G	10	16	body
Dion	Nask, ph	Hi, ec	Nask, ph	Ec, hi,	N&G	10	13	body
Lara	Mat	Du, ger	Hi	Nask	U	12	16	Logical-mathe
Aniek	languages	Mat, nask	Languages	Mat, nask	E&M	16	13	Ling/inter
Lotte	Languages	Nask, mat	Hi	Nask, ec, mat	C&M	17	10	musical
Carly	Mat, nask	Fr, geo,hi	Mat, ec	Languages, nask	N&G	14	13	musical
Timo	Nask	Hi, geo, fr, ger	Nask	Ec, geo	N&T	8	12	musical
Robbie	Ph	Du, geo	En	Du	U	12	13	body
Tom	Hi, en	Mat, geo	En	Mat, du	N&G	14	9	Musical
Quincy	Nask	Ger	Fr	Du	N&T	11	15	Body
Bo	Ec	Geo, du	Ger	En, mat	E&M	11	9	Musical
Malou	Languages	Ec	Languages	Ec, mat	C&M	15	7	musical
Nicky	Ec, nask, ph	Languages, hi	ec	fr	N&T	13	16	musical
Jaap	ph	Languages	mat	ger	N&T	13	14	Body
Roel	Bio, nask	Languages	Mat	en	N&T	11	12	body
Luuk	Nask	Languages	Mat, nask	En, du	N&T	11	12	body
Loïs	Hi, geo	Ger, ec, nask	Hi	ec	C&M	11	8	body
Sarai	En,	Mat, nask	En	Mat, nask, hi	C&M	13	9	music
Dennis	Ph, ger	Bio, nask	Ph, ger	En, bio	E&M	11	11	body
Stef	Nask, ph	Art	Ph	Du	N&G	10	19	body
Jesse	En, ph	Mat, nask	En	Mat	E&M	15	7	Body
Britt	Ec	Nask, mat	Ph	Mat, nask	E&M	13	7	inter
Maud	Ph	du	mat	en	U	10	9	body
Fleur	ec	Nask, geo	ec	Nask, geo	E&M	11	8	inter
Randy	Bio , nask	geo, hi	En	Mat	N&T	15	12	inter/body
Guus	ph	Du, nask, ger	En	Mat, du	E&M	15	11	inter
Fer	Bio	Languages, hi, geo	Ph, ec	Languages, hi, geo	N&T	10	12	Body
Stan	ph	fr	Mat, ph	ec	N&T	11	17	body
Laura	Ph, fr	mat	bio	En, ec	N&G	12	8	musical
Maxime	ec	Fr, ger	ec	en	E&M	14	14	body

7 structured and logical lessons H3D

Lesson 1

Date: Tuesday 28 January 2014
Topic: Predictions with will/won't, may/might and 'to be going to'
Classroom setting: Domain/instruction room

The lesson started as any regular lesson would start. The students came to class and seated themselves, after which I waited for them to calm down so I could start the lesson. The lesson consisted of 3 phases. A structure that I will be using throughout the first 4 weeks with this class.
This 3 phased structure consists of:
- the homework phase
- the explanation phase
- and the independent phase.

As I will be using this phase throughout the upcoming 4 weeks the students will gradually get used to it and know what to expect from the lessons.

The homework phase
The lesson starts with checking homework. This was done by appointing turns to students, moving from one table to the next. All this is done in the group room. The group room is a big learning area where one or more classes can be situated. These rooms are referred to as domains. For the next 4 weeks I will continue to give turns like this.

The homework was checked sentence by sentence moving through each exercise the same way as the previous one. The homework consisted of grammar about predictions. They had not yet had the explanation to these forms of grammar, but the class did seem to have understood the principles of the exercises quite well.

The explanation phase
During the explanation phase the grammar belonging to predictions was explained. This was done by using a whiteboard and whiteboard marker with a very teacher-input-only approach. The explanation phase will take place in an instruction room when possible as this allows the students to each sit facing the white- or smartboard in a traditional manner.
The grammar was spread out on the whiteboard as follows:

> # Predictions
>
> Will – won't + infinitive
> - used when:
>   o you have an opinion, but not based on evidence.
>   o it is certain it will happen, according to you.
>   o a plan of action made at a specific moment.
>   ▪ a lady carrying heavy bags. 'I will help you.'

To be going to + infinitive:
- used when:
  - you have evidence that something will happen.
  - there is visible proof.
  - it happens according to a planned schedule.
    - I am going to go to the gym with Rowen tomorrow at 5.

May – might + infinitive:
- used when:
  - it is unsure something will happen.
  - there is no visible evidence.
    - I might come to the party.

Explain the difference between:
- Liverpool <u>will</u> win.
- Liverpool <u>is going to</u> win.
- Liverpool <u>might</u> win.

The grammar was all written on one board, without having to erase sections to create space. This was the clear structure of the grammar was given for the students and it was easy to take notes. The final piece was a set of 3 sentences for which the students had to explain the difference according to rules and coming up with a possible context to the situation.

Before we moved on to the independent phase the students were allows to ask some questions about the grammar. There were no questions and the class was then moved back into the domain.

The independent phase
During the independent phase the students worked in the domain. This was done as silently as possible. For this I gave them the assignments on the whiteboard which they then made a note of in their diaries. If there were questions the students could raise their hand and I would see to them individually.

5 minutes before class finished the students were again reminded of the homework and were allowed to gradually pack their bags and wait until the bell sounded.

Lesson 2

Date: Thursday 30 January 2014
Topic: Reading structures
Classroom setting: Instruction room

The homework phase

During the homework phase the homework was checked in the same way as the previous lesson. Each exercise was checked per sentence and the students were appointed a turn moving from student to the next. In this classroom they were seated according to regular student seating. The teacher was sat at the front of the class and all the students were sat in duos facing the front, the whiteboard and the teacher.
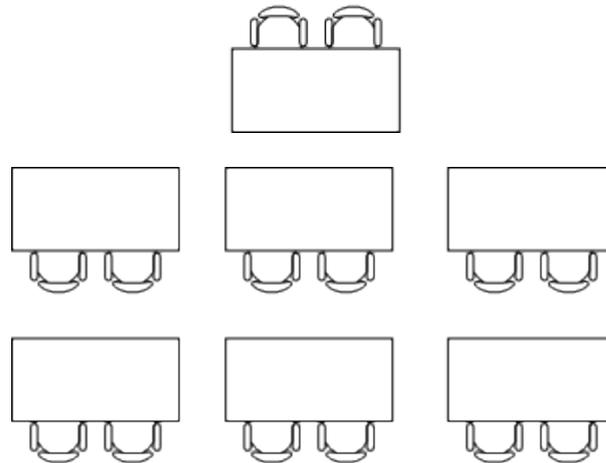
The explanation phase

During the explanation phase the reading strategies were explained. This was demonstrated in the same manner as the predictions were explained in the previous lesson.

Reading strategies

Global:
- scanning the pictures and headers
- use before you read the questions

Detailed:
- read the text word for word
- before you read the questions

Specific:
- read the question first
- read the corresponding paragraph that is referred to in the question.

The independent phase

During the independent phase the students could review their reading techniques and discuss these with a partner. After that we looked at some exams from previous years. The students were then assigned the homework and left when the bell sounded. As they had a reading exam for the next lesson the homework was to practise a reading test or two for the upcoming exam.

Lesson 3

Date: Tuesday 4 February, 2014
Topic: Reading exam
Classroom setting: domain

Lesson number 3 did not go according to the previous lessons' structures. This was due to the set-up of this lesson. The students had to take a reading exam for a grade and this had to be done during this particular block.

However, the lesson was structured within itself. Within this domain there were 2 classes, each of which had to do their reading exam. We decided to combine the two classes and use the entire domain as an exam room. Creating a over-all feeling of ease and structure as there were no other classes interfering.

Each and every student knew what was expected from him or her and they all took place quickly. Before the exam was handed out both classes were explained the rules and regulations for the exam.

During the exam the students were allowed to use an English dictionary. If a student was finished, there was material ready for them to use which had been written on the white board prior to the exam.

Lesson 4

Date: Thursday 6 February, 2014
Topic: movie mistakes – reading skills
Classroom setting: instruction room

The homework phase

During the homework phase the homework was checked in the same way as the first and second lessons for this class. We discussed each and every exercise elaborately and moved through the answers one by one. Checking the homework in this particular manner is important as it gives solace to students who experience difficulties in languages. The students were sat in regular classroom setting

The explanation phase

During the explanation phase I briefly explained what movie mistakes were. This was the new topic, and the students had not yet prepared this section in their books. The movie mistakes section was discussed by making an introductory exercise given by the book. It presented 5 sentences in which certain elements did not make sense. After the explanation phase was completed and the confusing elements had been discussed we moved on to the independent phase.

The independent phase

The transmission to the independent phase was 5 minutes of a 15 minute video shown on the smartboard screen, after which the students could make their own choice whether they continued

with their homework, or they watched the remainder of the video which I played in the background with the volume turned down slightly.

An important observation was made during this phase; the students who wanted to choose N&T and N&G were also the students who decided to work on the homework and ask questions about this, rather than watch the video.

Lesson 5

Date: Tuesday 11 February, 2014
Topic: movies reading and listening skills
Classroom setting: instruction room/domain

The homework phase

The homework phase was particularly important this lesson and would proceed to be during the rest of the period. During these last two weeks we looked at the grammar more specifically, practising it thoroughly for the upcoming exam. Each exercise was discussed elaborately and precisely. Each student had a turn and when exercises became difficult we moved through them slower once again, referring to the rules of the grammar we had discussed.

The explanation phase

During the explanation phase we discussed different parts of listening and reading. We read a text about the success of James Bond movies and discussed this, making references to the grammar each time we saw a specific tense, for example the present perfect or past simple. After we'd read the text together we moved into an instruction room to check and listen to some of the excerpts read out loud, alongside of this students made exercise in their workbook which we then discussed.

The independent phase

The independent phase moved slowly as we had to move back into our domain to be able to work independently on the given assignments. The assignments were all based on the text we had discussed and read, therefor the students knew most of the text prior to the exercises. Some exercises were based on the grammar.

Lesson 6

Date: Thursday 13 February, 2014
Topic: grammar recap
Classroom setting: instruction room

The homework phase

The homework phase was set to elicit the students' prior knowledge of the grammar, as the homework included a lot of exercises about the grammar. It quickly became clear that many students had great difficulties with the grammar. It was my intention to set these assignments as homework, so that the students could see where they had the most difficulties. Next lessen we checked these assignments elaborately.

The explanation phase

The explanation phase fitted perfectly into the homework phase because we moved from a complex exercise to the structured explanation of the necessary rules of grammar to complete it. Each element was explained explicitly, going over each section one by one. First discussing affirmative present perfect, followed by questions in present perfect, and negatives in present perfect. During this explanation the students took notes and could ask as many questions as they needed.

The independent phase

The independent phase consisted of a great deal of grammar practice assignments. All students were to work independently on the assignments without discussing them with their neighbouring student. This way, if a student had a question he or she would ask the teacher and get a more thorough and correct explanation.

Lesson 7

Date: Tuesday 18 February, 2014
Topic: test preparation
Classroom setting: instruction room/domain

The homework phase

The homework phase was proceeded like most homework checking was. Each student had a turn, and each aspect of grammar was included in the assignments, to try out whether each student knew how to apply the rules.

The explanation phase

The explanation phase was set up for the exam. We had a brief look at both chapters in the book, and elicited certain exercises of importance. Each of these exercises was then covered again by shortly recapping the rules or meanings of the grammar or vocabulary.

The independent phase

The independent phase was the larger part of the lesson, as the students were allowed to see their previous exam for a second time, to see where they went wrong last time. This way students would know which sort of exercised to be extra careful on during their upcoming exam.

Collected data from structured lessons H3D

In order to draw a clear conclusion it was essential to collect the necessary date beforehand. Results from both the second period and the third period needed to be collected. Period two is the period before I commenced my research, the unaffected results before I applied the 3-phases approach. After a period of applying this approach we come to the exam results of period three. In the grid below the results and whether they've bettered or worsened have been collected.

Name H3D	linguistic	Log/math	Results period 2	Results period 3
Willemijn	11	13	4.3	5.5
Julia	9	14	6.7	8.3
Maarten	10	16	5.3	7.1
Dion	10	13	4.7	5.3
Lara	12	16	6.8	6.1
Aniek	16	13	6.7	6.7
Lotte	17	10	7.0	5.5
Carly	14	13	5.1	4.9
Timo	8	12	5.9	7.6
Robbie	12	13	6.6	7.7
Tom	14	9	6.5	6.8
Quincy	11	15	5.8	7.4
Bo	11	9	5.6	5.6
Malou	15	7	8.1	7.8
Nicky	13	16	4.9	5.7
Jaap	13	14	6.8	5.8
Roel	11	12	3.9	5.5
Luuk	11	12	4.9	3.1
Loïs	11	8	6.2	6.7
Sarai	13	9	6.6	7.2
Dennis	11	11	5.4	8.5
Stef	10	19	5.8	8.0
Jesse	15	7	5.9	5.6
Britt	13	7	4.0	x
Maud	10	9	5.8	7.0
Fleur	11	8	7.0	6.2
Randy	15	12	6.2	5.8
Guus	15	11	8.3	7.1
Fer	10	12	4.3	4.5
Stan	11	17	5.5	7.2
Laura	12	8	6.8	7.5
Maxim	14	14	5.0	7.1

Conclusion on structured lessons H3D

Factual data:
21 students apply the hypothesis
8 students do not apply to the hypothesis
2 students remain unaffected
1 student did not sit the exam.

During the third period 7 important lessons were conducted according to a structured and more logical approach. This was a decision based on the hypothesis that if we adjust our teaching methods to fit students' intelligences, their marks should increase.

Looking at the results the students have scored in the third period, compared to a neutral second period. Out of the 32 students in H3D 21 students applied to the rule. Some students scored higher in logical mathematical intelligence and most of these students also scored higher this period. Some students scored lower. These cases prove that if you have students in your class that generally score well in logical mathematical approaches it is also better to create a teaching approach that suits this intelligence, based on the date collected from H3D.

17 students scored higher logically or mathematically in their intelligence test. Of these students 3 did not score higher in their third period result. 15 students scored higher linguistically. Of these students 5 did not apply to the rule. These students also bettered their results where, according to the hypothesis, they should have scored worse.

Unfortunately 8 students did not apply to the rule. 2 students remained unaffected and 1 student did not sit the exam. This is the remaining 34 per cent of the class.

Based on the hypothesis that students who scored higher logically and mathematically intelligent will also score higher when taught according to a structured and more direct teaching approach, it is safe to say that the majority of the students will benefit from this.

7 structured and logical lessons B2D

Lesson 1

Date: Tuesday 28 January, 2014
Topic: some/any, no, a lot of
Classroom setting: Instruction room

The lessons started the same as most other lessons. The students seated themselves and took their books before them, after which I waited for them to calm down so I could start the lesson. The lesson consisted of 3 phases, like the lessons for H3D. This 3 phased structure consisted of:
the homework phase
the explanation phase
and the independent phase.

As I will be using this phase throughout the upcoming 4 weeks the students will gradually get used to it and know what to expect from the lessons.

The homework phase
The homework phase worked exactly the same as those of H3D. Students were appointed turns, moving from one table to the next. Occasionally having to calm all the students down as this is a very chaotic class. This class is also seated according to a regular seating plan. The teacher is seated at the front of the class and all the students are sat in rows of two or three, facing the whiteboard and the teacher.

The explanation phase
After the homework had been checked we moves on to the explanation phase of the new grammar for this chapter. The grammar was explained according to an old-fashioned manner. Using the whiteboard and a simple explanation that was easy to takes notes of for the students.

<div style="border:1px solid black; padding:1em;">

Some/Any

Some:
- For affirmative sentences
- Questions to which the expected answer is 'yes'

Any:
- For questions
- For negative sentences.

A lot of:
- To express a high quantity of something

No:
- To express that you have nothing.

</div>

The independent phase

During the independent phase the students worked on their homework that I assigned to them on the whiteboard. It consisted of 2 pages in the textbook and two pages in the workbook. All of these pages worked with the grammar or reading skills. The students were allowed to discuss questions with their neighbours or work silently by themselves. If there were any disputes or questions they could raise their hand and ask me.

5 minutes before the bell sounded I reminded them again to make a note of the homework for the next lesson.

Lesson 2

Date: Thursday 30 January, 2014
Topic: Homework/winter break vocabulary.
Classroom setting: Domain

The homework phase

During the homework phase we discussed the homework of the previous lesson. The class had some difficulty adjusting to this controlled and concentrated way of work as they are quite a difficult and disorderly class.

Fortunately after a few warnings the class settles and cooperated. We then checked all the exercises, sentence for sentence, moving from one student to the next. If there were questions they were answered immediately.

The explanation phase

After all the homework was checked we moved on to the explanation phase. This did not include any grammar, but had a strong focus on some of the vocabulary in unit 6. The vocabulary related to winter and winter breaks.

First I allowed the students to discuss some words they associated with winter in their groups for 5 minutes. Then I called upon their attention and we discussed the vocabulary they had come up with on the whiteboard in a word-web.

This was done the same way as we had checked the homework. I moved from table to table, appointing one spokesperson per group to read out some of the vocabulary they had come up with.

The independent phase

During the independent phase the students worked on their homework that I assigned to them. The class was very disorderly and had a lot of trouble working quietly. The homework consisted of 4 pages. 2 from their workbook and 2 from their textbook.

Lesson 3

Date: Tuesday 4 February, 2014
Topic: writing a postcard/punctuation
Classroom setting: instruction room

The homework phase

During the homework phase we checked the homework that had been made for the previous lesson, in regular fashion. This meant that we elaborately discussed each exercise and answer, making sure each and every student understood the answer that was given.

The explanation phase

During the explanation phase we discussed a page in the students book. This page was dedicated to punctuation in the English language and how it might differ to Dutch punctuation. First of all the students worked on the exercise individually, after which we discussed the exercises briefly. From there I handed out blank postcards on which the students had to make their homework assignment: make a postcard.

The independent phase

During the independent phase the students wrote their postcards. Each students had to write a postcard that was not assigned to anybody, but they did have to sign their name. If they were finished with their postcard they could proceed with the homework and work until end the of the lesson.

Lesson 4

Date: Thursday 6 February, 2014
Topic: listening exercises, times and prices
Classroom setting: Domain, instruction room

The homework phase

During the homework phase we were in the domain area. First of all the homework was checked per table to make sure everybody had done the exercises. After that we discussed the exercises. Each table was appointed one person to discuss a sentence from the exercise. This system rotated until we had discussed each and every exercise .

The explanation phase

During the explanation phase we read a dialogue about half term. This dialogue included some exercises that explained and used times and price expressions. After we had talked about these we moved into the instruction room where the smartboard was set up. The students took their time to sit down and waited until the CD was running. From the CD we made a few listening exercised that also used time and price expressions. The students had to fill in the gaps in their workbooks.

The independent phase

During the independent phase the students continued in the book and I gave them their homework to work on until the lesson had finished. The students seem to be getting used to this method of working as they all know what the expected structure is.

Lesson 5

Date: Tuesday 11 February, 2014
Topic: exam
Classroom setting: instruction room

Unfortunately lesson 5 was taken up by an exam. For this exam the students had 75 minutes to complete a reading exam.

Lesson 6

Date: Thursday 13 February, 2014
Topic: grammar recap
Classroom setting: instruction room/domain

The homework phase

The homework phase was clear. We checked the homework according to the familiar structure, and recapped the grammar from previous lessons. As there was not much homework to be checked the homework phase only took up a small part of the lesson.

The explanation phase

During the explanation phase we discussed the indefinite pronouns on a smartboard. This way the explanation would be very clear for each student to see. Given were plenteous examples and each student was included in the question rounds. To round off the explanation there were a few exercises in the book that we covered to check their knowledge.

The independent phase

The independent phase was moved to the domain room, where the students could work individually or in small groups of 2 to 4 students. While the students were working highly concentrated on their assignment I walked past each group and questioned them about the homework assignments to make sure each of the students had understood the explanation given.

Lesson 7

Date: Tuesday 18 February, 2014
Topic: test preparation
Classroom setting: instruction room

The homework phase

The homework phase took up a great deal during this lesson as it involved all the general aspects of the grammar set for the upcoming exam. Each of the students was given a turn. This way everybody felt included and had the opportunity to ask questions or query answers given. As the assignments were corrected we also paid attention to grammar.

The explanation phase

The explanation phase for B2D was also set up for the exam. We covered both chapters in their book, and looked at certain exercises of importance. Then each of these exercises was made again, but then including a short recap of the rules and meanings of the grammar and vocabulary.

The independent phase

The independent phase was the shorter part of the lesson. The students had time to practise a few summary exercises in their books about the grammar and vocabulary. During this the students could ask their final questions in regard to the exam. Contrary to H3D, in B2D it was permitted to ask a

neighbouring student a question, as many students in this class thoroughly understood the grammar and vocabulary.

Collected data from structured lessons B2D

In order to draw a clear conclusion it was essential to collect the necessary date beforehand. Results from both the second period and the third period needed to be collected. Period two is the period before the research commenced, the unaffected results before I applied the 3-phases approach. After a period of applying this approach we come to the exam results of period three. In the grid below the results have been collected.

Name B2D	linguistic	Log/math	Results period 2	Results period 3
Merel S.	18	17	7.8	8.2
Mounia	15	16	3.8	4.5
Merith	15	13	7.7	6.8
Nikki	11	12	4.8	3.2
Julia	11	17	7.0	6.8
Nikee	18	13	9.2	9.2
Serai	17	13	6.6	6.4
Amber	12	11	3.5	6.0
Michelle	17	14	8.4	8.2
Merel H.	15	7	5.5	8.5
Demi	13	11	5.2	7.5
Joep	13	13	4.0	3.2
Robin	10	15	8.9	8.2
Jur	9	9	7.9	6.2
Gina	15	17	7.3	6.8
Annelot	16	17	5.3	X
Sven	14	13	2.9	5.4
Robbert-Jan	12	13	1.3	2.4
Mila	11	10	5.7	4.8
Nina	14	15	7.2	6.9
Lola	17	10	3.7	4.2
Jasper B.	10	16	5.9	6.5
Jules	13	16	8.1	8.4
Jasper G.	15	16	5.4	7.3
Bas	13	9	4.0	2.2
Vince	13	17	6.8	5.0
Ramon	11	14	8.1	8.4
Rob	13	14	5.5	6.6
Janna	19	11	9.2	8.5

Conclusion on structured lessons B2D

Factual data:
15 students apply the hypothesis
12 students do not apply to the hypothesis
1 student remain unaffected
1 student did not sit the exam.

Unfortunately the hypothesis did not follow for this class as well as it did for H3D. In this class only a mere 15 students applied to the hypothesis which is only just over half the class. Which is not enough to say that the hypothesis that that students who scored higher logically and mathematically intelligent will also score higher when taught according to a structured and more direct teaching approach.

Also, within the students that did not apply to the hypotheses, there is no obvious structure. 6 students' scores decreased and the other 6 students' scores increased.

The results in this class are too unstable to base a conclusion on.

7 contextual and elaborate lessons H3D

Lesson 1

Date: Tuesday 21 March, 2014
Topic: grammar introduction
Classroom setting: Domain

As homework is unavoidable in secondary school it is necessary for each lesson to include a homework phase, like the structured lesson sets previously conducted for this research. As this set of lessons is testing the students' linguistic ability and teaching them the language through this ability and through context the lessons will consist of a large section of language-in-context input.

After the language has been given, and hopefully learnt and mastered through presenting it in useful context it is then processed by the students in the same independent phase as the structured set of lessons. The only difference being that this phase will take up less time in the contextual lessons.

Homework phase

During this lesson the students spent the first 20 minutes of the lesson going over their exam. Most of the students passed the exam so there were not many questions, and we went over the exam swiftly. This was done in a traditional manner, meaning that the exercises were discussed using teacher-input only.

Language-in-context

The grammar that was to be discussed was the future conditional. An intricate piece of grammar which is experienced as difficult by most students. As it is very difficult to explain clearly out of context it was an ideal piece of grammar to explain within context. To explain this grammar I started the explanation with the Taken movie trailer. In this trailer it becomes clear that someone's daughter has been kidnapped, and the main character will do anything within his power to find her. However, this does not include the future conditional. I introduced the students to the future conditional by bringing up the kidnappers and asking the students how they could abuse this situation to make money? The students seemed to know what was coming next, but they could not explain it. At this point in the lesson a ransom letter was shown. This ransom letter included several future conditionals which the students had to point out. This was achieved by asking questions like: "what must the father do to get his daughter back, and what are the consequences if he does not do this?"

After we had discussed the ransom letter, we moved on to the rules of the grammar briefly. These were given according to examples in the ransom letter. Once this had been finished and the students had no more questions they could work independently.

Independent phase

The students worked independently on the exercises that their books and workbooks offered about the future conditional. While they were working on their exercises, which was homework if they did not finish it, I walked between the tables, asking whether everything was clear or not. Now and then questions were asked. If the question was relevant to the entire class it would be asked out loud, so all students could pay attention to the answer.

Lesson 2

Date: Thursday 23 March, 2014
Topic: reading instruction
Classroom setting: Domain

Homework phase

During this lesson the homework was checked rapidly. We moved through the exercises in regular fashion. Going from sentence to sentence and moving from exercise to exercise. Each student had a turn and some students even volunteered to state and entire exercise.

Language-in-context

We started this phase by discussing a text about teenage troubles and parenting. This was one of the topics that the book dealt with in this unit. As it was a text that most students could relate to we discussed it in class first before reading it . This aims to trigger the students' pre-knowledge and they use relevant vocabulary without realizing. After we had discussed the text elaborately we read it. During the reading the vocabulary they used was also used in the text. I asked students the meanings of these words and also asked them how they related to these. After reading the text we moved onto the questions. To help the students notice certain reading strategies, as this was the goal of the lesson, we discussed each question according to a different strategy. This way the students all knew the different types of reading strategies and strategies to approach different types of questions posed in a reading comprehension exam.

Independent phase

The students worked independently on the rest of the questions and exercises the book gave. While the students were making their exercises I walked up and down the rows asking the students how they gained their answers to certain questions.

Lesson 3

Date: Tuesday 1 April, 2014
Topic: reading test
Classroom setting: domain

Unfortunately lesson 3 was taken up by an exam. For this exam the students had 75 minutes to complete a reading exam.

Lesson 4

Date: Thursday 3 April, 2014
Topic: grammar introduction
Classroom setting: instruction room

Homework phase

During this lesson we checked the homework that was given the previous week as that was still on the checking list. Most students understood the grammar exercises that were included in the reading text we discussed. All students understood the different ways of reading a text. The homework was again checked rapidly but under full concentration.

Language-in-context

This week's grammar were relative pronouns. I wrote a few examples on the board and underlined the relative pronouns. Upon which the class had to discuss in pairs what they thought the underlined

words referred to, and what they might mean in Dutch. As this was a very easy piece or grammar the students quickly got the hang of it and we moved on to a homework exercise in the book that we discussed together in class.

Independent phase

The students worked independently for the rest of the lesson on the exercises. During this phase I walked between the students' desks and checked whether they had understood the explanation and got the essential meaning of a relative pronoun.

Lesson 5

Date: Tuesday 8 April, 2014
Topic: grammar practice
Classroom setting: Domain

Homework phase

As almost every lesson had started, we started this one too by checking the homework. Each exercise was checked swiftly and students could ask questions after every exercise. The students thoroughly understood the relative pronouns as they had only made some minor mistakes.

Language-in-context

By this week the greater part of the grammar had been completed and it was necessary to refresh the future conditional in a creative and fun way. We discussed briefly the rules of the future conditional and then the assignment was explained. Each group of 4 students had to come up with a criminal gang name. Nothing too serious, and nothing too gruesome. Then they had to come up with who they were holding hostage and what they would do if they did not receive a ransom within a short period of time. Each of the groups first worked communicatively on the exercise, then the worksheet was handed out. The worksheet was a blank ransom note which used language pointers like 'if', 'when' and 'unless' to guide them through the future conditional.

After each group had completed their letter one member of the group had to read it in front of the class. All the students enjoyed this and had written very creative and funny letters.

Independent phase

This lesson's independent phase was morphed into one with the language-in-context phase. Independently the students wrote their ransom letters.

Lesson 6

Date: Thursday 10 April, 2014
Topic: grammar instruction
Classroom setting: instruction room

Homework phase

This lesson there was no homework to check as the students had not been given homework the previous lesson. Instead we discussed the previous lesson and briefly refreshed the grammar.

Language-in-context

The remaining pieces of grammar for this period were nouns and adjectives. We briefly discussed the meanings of these words and what they would be in Dutch. Once that had been decoded due to some examples the entire class knew what the book was explaining. Before the students worked on the exercises they completed an exercise according to a few given examples. 5 sentences were

written on the board from which the students had to extract the adjectives and notice which order they had been written in. Some sentences were the same in order to test their knowledge of the order of adjectives. For example:

"She was wearing a summer, cotton, lovely dress."
"She was wearing a lovely, cotton, summer dress"

Most of the students immediately sensed that it was the second example that was correct. We then discussed what types of adjectives there are and which ones the examples referred to.

Independent phase
During the independent phase the students worked individually on the given exercises. They practised the adjectives, nouns and previous grammar as most of the exercises in the book had already been completed for the upcoming exam.

Lesson 7

Date: Tuesday 15 April, 2014
Topic: grammar instruction
Classroom setting: instruction room

Homework phase
The homework given the previous lesson was checked elaborately and extensively this lesson as it was the last lesson prior to the exam. Some students felt they did not need to have this elaborate explanation and did not want to check the homework. These students were allowed to work outside the classroom and study for their exam.

Language-in-context
This lesson there was not much left to do but practise the grammar. The students had finished all of the exercises in the book and all the grammar had been completed. To round off this period we decided to repeat all the grammar one more time and allow students that wanted to revise for their exam to study.

Collected data from contextual lessons H3D

In order to draw a clear conclusion it was essential to collect the necessary date beforehand. Results from the third period needed to be collected and have been documented from the final result. Period three is the period before the research on contextual lessons commenced, the unaffected results before I applied the 3-phases approach. After a period of applying this approach we come to the exam results of period four. In the grid below the results have been collected.

Name H3D	linguistic	Log/math	Results period 3	Results period 4
Willemijn	11	13	5.5	4.8
Julia	9	14	8.3	3.3
Maarten	10	16	7.1	6.7
Dion	10	13	5.3	5.9
Lara	12	16	6.1	5.6
Aniek	16	13	6.7	6.7
Lotte	17	10	5.5	7.4
Carly	14	13	4.9	4.4
Timo	8	12	7.6	7.0
Robbie	12	13	7.7	7.0
Tom	14	9	6.8	8.5
Quincy	11	15	7.4	7.8
Bo	11	9	5.6	4.1
Malou	15	7	7.8	7.0
Nicky	13	16	5.7	7.0
Jaap	13	14	5.8	7.0
Roel	11	12	5.5	4.8
Luuk	11	12	3.1	4.8
Loïs	11	8	6.7	8.1
Sarai	13	9	7.2	5.6
Dennis	11	11	8.5	4.8
Stef	10	19	8.0	5.6
Jesse	15	7	5.6	7.8
Britt	13	7	x	7.0
Maud	10	9	7.0	5.4
Fleur	11	8	6.2	7.4
Randy	15	12	5.8	7.0
Guus	15	11	7.1	8.9
Fer	10	12	4.5	4.1
Stan	11	17	7.2	5.6
Laura	12	8	7.5	8.1
Maxim	14	14	7.1	7.8

Collected data from contextual lessons H3D

Conclusion on contextual lessons H3D

Factual data:
20 students apply the hypothesis
11 students do not apply to the hypothesis
1 students remain unaffected
0 students did not sit the exam.

During the fourth period 7 important lessons were conducted according to a contextual and linguistic approach. This was a decision based on the hypothesis that if we adjust our teaching methods to fit students' intelligences, their marks should increase.

We can conclude by looking at the results that 11 students did not follow through according to the hypothesis that if a student scored higher linguistically, he or she would also score higher when taught contextually and according to linguistic practices.

Most students however, did follow the hypothesis and increased their grade significantly even. This proves that a linguistic approach with more context and more indirect grammar teaching does benefit students, as only 9 students actually failed the exam.

In conclusion as only one third of the class did not fit the hypothesis it is safe to say for this h3 class that if a student scored well linguistically, he would also score well if taught the language within contextual and elaborate lessons.

7 contextual and elaborate lessons B2D

Lesson 1

Date: Tuesday 21 March, 2014
Topic: grammar introduction
Classroom setting: Domain

The contextual and elaborate lessons for B2D where conducted the same way as they were for H3D. This means they each include a homework phase as this is an inevitable phase in secondary school, they also include the language-in-context phase and the independent phase.

Homework phase
During this lesson the students spent the first half hour discussing their exam. The exam was not made successfully, so there were a few necessary questions and important exercises to be discussed.

Language-in-context
The grammar for this period is "have to, and can". This includes the negative sentence structure too. I presented a set of rules to the class in which a few school rules were presented. A few examples:
"You can wear a head dress, but you cannot wear a cap."
"Students have to wear the school uniform, but they do not have to wear the school tie."
"Mobile phones have to be turned off, and can only be used during the breaks."

From the list of rules the students had to decide on the meaning of the forms of 'have to' and 'can'. After the students had discussed this amongst themselves we discussed it in class. After that the students could proceed with the independent phase

Independent phase
The students worked independently on the exercises that their coursebooks offered them. This phase lasted for 15 minutes and the students applied their knowledge to the exercises with ease. During the time they had left only a few questions were asked if students came across something they did not understand.

Lesson 2

Date: Thursday 23 March, 2014
Topic: reading structures
Classroom setting: Domain

Homework phase
We checked the homework quickly during this class as the grammar they had worked on was relatively easy. Each student had a chance to discuss and exercise or ask questions if it was not clear or if we moved too quickly.

Language-in-context
This lesson equaled the lesson plan of H3D. We discussed a text according to reading strategies and motivated students to use the vocabulary unknowingly. Once the text had been discussed we with looking at the questions and answer these together. We answered 5 questions each according to a different strategy. The students had their input too, as they were allowed to suggest suitable strategies per question.

The students worked independently on the rest of the questions and exercises the book gave. While the students were making their exercises I walked up and down beside their desks asking the students how they had gained their answers from the text.

Lesson 3

Date: Tuesday 1 April, 2014
Topic: grammar introduction
Classroom setting: instruction room

Homework phase

We checked the homework quickly during this class as the grammar they had worked on was relatively easy. Each student had a chance to discuss and exercise or ask questions if it was not clear or if we moved too quickly.

Language-in-context

This lesson's topic was will + infinitive to talk about predictions. The future form. I decided to talk about how the world might develop in the future, regarding technology and the student's instantly wanted to join in. Each time they used the structure it was repeated, and the will + infinitive structure was made more apparent. Eventually when we had finished discussing the new topic the grammar was explained briefly on the whiteboard, referring to examples that the students had used during discussing the topic.

Independent phase

The students started the exercises and discussed some of these in pairs. As they were working on the discussion exercises or other exercises I moved between the rows of desks and checked they had understood the rule and were applying it properly.

Lesson 4

Date: Thursday 3 April, 2014
Topic: reading test
Classroom setting: domain

Unfortunately lesson 4 was taken up by an exam. For this exam the students had 75 minutes to complete a reading exam.

Lesson 5

Date: Tuesday 8 April, 2014
Topic: grammar introduction
Classroom setting: instruction room

Homework phase

The homework phase for this lesson took longer than it normally would due to having missed a lesson to a test. Recovering the students' memory of the will + infinitive needed a short explanation during checking. Fortunately the students quickly redeemed themselves and we checked the homework elaborately.

Language-in-context

The grammar that the students had to add to the will + infinitive form of future was the future conditional. Like in havo 3, except this was less advanced. It consisted of one form of grammar, in which the present simple and will + infinitive forms were used. None of these proved a problem when given examples.

The students had to fill in the terms and conditions list that was written on the board, the tenses for the future conditional had been left out.

"If you_____(post) a photo on Facebook, it _____(become) property of Facebook."
"If we _____ (warn) you twice, your comments _____ (be) deleted."

The students understood immediately without explanation how to fill in the blank spaces. This gave the students an immediate feeling of success and understanding and made them feel more secure for their exam.

None of the students had heard of the term 'future conditional' before and I chose to leave it out. I referred to it as conditions, and also referred to Dutch to give examples from their native language.

Independent phase

During the independent phase the students worked on the homework that had been assigned for the next lesson. They were allowed to work in pairs as this was a new grammar topic and working in pairs stimulates good questions and discussions.

Lesson 6

Date: Thursday 10 April, 2014
Topic: grammar practice
Classroom setting: Domain

Homework phase

During this lesson the homework phase moved quickly as the grammar was understood and deemed easy by most students. Only 1 exercise was explained on the whiteboard, due to a couple of students using if and will in one sentence.

Language-in-context

There was no language to be given in these last two classes, so the previous grammar was practiced. Like havo 3, B2 also wrote a ransom note. This note was less complex as the grammar B2 had to study was not as advanced as that of havo 3.

The lesson had the same set-up as that of havo 3. Each group of students prepared their criminal gang name, who they were holding hostage, and what the ransom would have to be. Then the group wrote the random letter and read it out loud.

Independent phase

In the independent phase the students were given the task to finish all the remaining exercises in their textbook and workbook. This way they would get a mixture of different types of exercises and be practising for the upcoming exam.

Lesson 7

Date: Tuesday 15 April, 2014

Topic: grammar introduction
Classroom setting: instruction room

Homework phase

For the homework phase of this final lesson we checked all the remaining homework exercises that had been given in the previous lesson. Each grammar exercise was given extra thought and questions were asked to test one another on their knowledge of the subject.

Independent phase

The remaining part of the lesson the students were assigned to study the chapters dealing with exam materials. Tis way the students could ask one another questions but they could also ask me questions if they came across something they did not know.

Collected date from contextual lessons B2D

In order to draw a clear conclusion it was essential to collect the necessary date beforehand. Results from the third period needed to be collected and have been documented from the final result. Period three is the period before the research on contextual lessons commenced, the unaffected results before I applied the 3-phases approach. After a period of applying this approach we come to the exam results of period four. In the grid below the results have been collected.

Name B2D	linguistic	Log/math	Results period 3	Results period 4
Merel S.	18	17	8.2	7.0
Mounia	15	16	4.5	7.9
Merith	15	13	6.8	8.5
Nikki	11	12	3.2	7.9
Julia	11	17	6.8	8.5
Nikee	18	13	9.2	8.0
Serai	17	13	6.4	6.5
Amber	12	11	6.0	6.7
Michelle	17	14	8.2	8.3
Merel H.	15	7	8.5	9.6
Demi	13	11	7.5	7.9
Joep	13	13	3.2	8.8
Robin	10	15	8.2	8.0
Jur	9	9	6.2	8.0
Gina	15	17	6.8	6.0
Annelot	16	17	X	5.4
Sven	14	13	5.4	9.5
Robbert-Jan	12	13	2.4	7.5
Mila	11	10	4.8	5.0
Nina	14	15	6.9	8.0
Lola	17	10	4.2	8.0
Jasper B.	10	16	6.5	7.0
Jules	13	16	8.4	6.5
Jasper G.	15	16	7.3	6.5
Bas	13	9	2.2	9.5
Vince	13	17	5.0	7.0
Ramon	11	14	8.4	9.0
Rob	13	14	6.6	9.5
Janna	19	11	8.5	9.6

Collected date from contextual lessons B2D

Conclusion on contextual lessons B2D

Factual data:

18 students apply the hypothesis

11 students do not apply to the hypothesis

0 students remain unaffected

0 students did not sit the exam.

During the fourth period 7 lessons were conducted according to an elaborate and contextual approach. This was a decision based on the hypothesis that if we adjust our teaching methods to fit students' intelligences, their marks should increase.

By looking at the results we can conclude that 11 out of 29 students did not apply to the hypothesis. That is a little over one third, making the hypothesis somewhat uncertain. However, this class has performed seemingly better under the circumstances of contextual and elaborate lessons.

This might be due to the type of lessons suiting these students somewhat better. During the lessons I noticed more student participation and they were enjoying themselves a lot more. It is safe to say that for this class contextual and elaborate lessons work better than structural lessons.

Positively, each student did sit the exam, making the results more stable than those of the previous set of lessons.

Final Conclusion

The hypothesis of the research conducted was that if students possessed the multiple intelligences that Gardner suggested, teachers could increase their students' results by teaching according to these intelligences. In turn creating suitable lessons for each type of intelligence, suiting each student as an individual.

First the students in two classes filled in an open questionnaire which determined their favourite subjects and which profile they would be most likely to choose. This was to determine whether the students chose according to their intelligences, or not. In class h3d 18 out of 32 students chose a profile that lined up with their intelligences. In class b2d the numbers were slightly different as most students did not know which profile they would chose. In this class 13 out of 29 students' intelligences lined up with their profile choice.

To determine their intelligences the students underwent another questionnaire. This was an unofficial questionnaire that would determine their level of intelligences on the Garden intelligence scale. The two intelligences that were of significance to this research were the logical mathematical intelligence and the linguistic intelligence.

Then there was a set of 7 lessons according to the logical mathematical approach of teaching, which is a very structured and grammatical approach. In class h3d 21 students applied to the hypothesis.

This meant that if they had come out on a high logical-mathematical intelligence their result should increase. If they were more linguistically intelligent their result should decrease. B2d underwent the same style of lessons, however their results were not as positive as those for h3d. A mere 15 out of 29 students fitted the hypothesis. Making the result untrustworthy and thus negative.

After their first exam moment, which was the exam in their test week, the classes each underwent 7 lessons according to a more elaborate and contextual approach. This included more discussions on topics that the book offered, and grammar taught in context. In class h3d 20 students applied to the hypothesis, again a 2 out of 3 rate. This made the results for h3d very stable. B2d however, again did not fit the hypothesis as securely as h3d did. In b2d 18 out of 29 students applied to the hypothesis. Which is a little under 2 third of the total. Fortunately the class did perform better as a whole.

Due to the instability of the results in b2d and the fact that there was no parallel class to support the hypothesis in h3d the results are all somewhat unstable. However, b2d was a class with 2 different level students, have and vwo. This might have affected the results. H3d was a class with one level of students: havo.

In conclusion it is safe to say that for a havo 3 class, teaching according to Gardner's intelligences proved beneficial to the students.

Recommendations

Previously mentioned was the fact that teaching according to Gardner's intelligences proved beneficial to a havo 3 class. However, there was no parallel class to prove these theories. In regards to this research it would be interesting and wise to conduct a follow-up research.

It would be wise to also have a parallel class that would be continued to be taught in a traditional fashion. The students would not undergo intelligence tests and they would continue to receive the lessons the way they had always done.

On the other hand the research group would have to undergo the same tests that have been used during the previously conducted research. They would have to take the open questionnaire, the unofficial Gardner research questionnaire and then possibly undergo more extensive periods of types of lessons to suit the outcome of their intelligence tests.

If the research was to be kept minimal it could span over an entire year, giving the students 2 full periods of linguistic-contextual lessons and 2 remaining periods of structured logical-mathematical lessons.

If there would be a possibility to conduct an extensive research you could follow 1 havo class through to their final year, each year documenting their results and testing whether their intelligences had changed per year. This, of course, would acquire determination and concentration on the teachers' part and that of the school.

Due to the stability of using two classes the results of the research should have a clearer outcome. There should be a clear definition between the research group and the parallel class, or no difference at all which would suggest that the research was of no influence.

Afterword

Whilst conducting this research there have been numerous new things that have been learnt. This research has brought about new ways and means of teaching approaches, because there was a need to use different types of lessons with different classes and different students. It has brought motivation to search for an individual's intelligences and to stimulate his or her knowledge acquisition through those intelligences.

Unfortunately there were obstacles that interfered with the different teaching approaches and the research oriented lessons taught to the students. Each period the classes have a separate test that tests one of the skills of a language. In this case both classes and both periods had a comprehension exam. This meant that one of the lessons for the research would be taken up by a skills-orientated-exam. As this is a normality for the students and something you cannot change within the curriculum it was decided that the research would not be adapted, nor would the exam be cancelled. Exams like these are part of the school's curriculum and will always remain that part.

Another problem faced was the fact that there were no parallel classes to support the research groups. Fortunately that problem was resolved by the theory in itself. As each class was being taught according to one intelligence at a time, naturally the other students with different intelligences would not increase their result or even suffer from this teaching approach. This theory was then reversed for the next period. Thus making the research stable and trustworthy.

Working with the students and the supervisors was of great help. The support and feedback delivered by both students and 2 supervisors was appropriate, valid and reasonable. I was given one main supervisor through Fontys University of Applied Sciences, and one indirect supervisor via the school the research was being conducted at. While on supervisor had comments on my use of language, another had comments on the structure and the holes in the report. Combined these two supervisors proved incredibly beneficial to the report and the research as a whole.

As a whole the research was conducted with all good intentions and to prove that the IQ-system does not apply to each and every student. Unfortunately this is also the system that the Dutch education system is built upon. One student must be able to pass all of his subjects on one level. This research, though the results were not stable and could not all be used as valid evidence, proved that there is a case of division in intelligences and that some students actually benefit from this.

Furthermore the research has helped me find structure and has helped me work with a more balanced approach. Previous reports lacked a clear structure and were not as elaborate as they should have been. This report and the research have forced me to work according to a set plan and organised structure of dates and deadlines. For this I am grateful as I believe it has improved and advanced my writing skills, organizational skills and teaching skills.

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Appendices

Appendice 1: Open questionnaire

Name:……………………………………………………….

1. **What is your favourite subject?**

2. **Which subject(s) do you not like?**

3. **Which subject do you find the easiest?**

4. **Which subject do you find most difficult?**

1. **Which profile do you want to choose?**
   - ☐ Cultuur en maatschappij
   - ☐ Economie en maatschappij
   - ☐ Natuur en gezondheid
   - ☐ Natuur en techniek
   - ☐ Undefined

Appendice 2: Multiple Intelligence questionnaire

Multiple Intelligences Test - based on Howard Gardner's MI Model **(young people's version - see businessballs.com for adults and self-calculating versions)**	more info at businessballs.com

Score the statements: 1 = Mostly Disagree, 2 = Slightly Disagree, 3 = Slightly Agree, 4 = Mostly Agree.

Alternatively for speed or ease - tick the box if the statement is more true for you than not. This is page 1 of 2.

Longer manual and self-calculating versions for people over 16 years of age are available free from businessballs.com.

Score or tick the statements in the white-out boxes only	Score
I can play a musical instrument	
I often have a song or piece of music in my head	
I find it easy to make up stories	
I have always been physically well co-ordinated (run, jump, balance, etc)	
Music is very important to me	
I am a good liar (if I want to be)	
I play a sport or dance	
I am a very social person and like being with other people	
I find graphs, charts and diagrams easy to understand	
I find it easy to remember quotes or phrases or poems or song lyrics	
I can always recognise places that I have been before, even when I was very young	
When I am concentrating I tend to doodle	
I find mental arithmetic easy (sums in my head)	
At school one of my favourite subjects is / was English	
I like to think through a problem carefully, considering all the consequences	
I love adrenaline sports and scary rides	
I enjoy individual sports best	
I find it easy to remember telephone numbers	
I set myself goals and plans for the future	
I can tell easily whether someone likes me or dislikes me	
To learn something new, I need to just get on and try it	
I often see clear images when I close my eyes	
I don't use my fingers when I count	
At school I love / loved music lessons	
I find ball games easy and enjoyable	
My favourite subject at school is / was maths	
I always know how I am feeling	
I keep a diary	
My favourite subject at school is / was art	
I really enjoy reading	
It upsets me to see someone cry and not be able to help	
I prefer team sports	
Singing makes me feel happy	
I am happy spending time alone	
My friends always come to me for emotional support and advice	

Add the scores or ticks in each column and write the total for each column in the boxes on the right.

The highest scores indicate your natural strengths and potential - your natural intelligences.

There are no right or wrong answers.

My strongest intelligences are (write them here):

Intelligence type	your totals					
Linguistic						
Logical-Mathematical						
Musical						
Bodily-Kinesthetic						
Spatial-Visual						
Interpersonal						
Intrapersonal						

We are **happiest** and **most successful** when we **learn, develop, and work** in ways that make **best use** of our **natural intelligences** (our strengths and style and brain-type in other words).

This indicator can help you to focus on the sorts of learning and work that will be most fulfilling and rewarding for you.

See the intelligence types definitions on sheet 2 of this file - or if you have only hard-copy, go to www.businessballs.com for details about multiple intelligences and/or a free file version of this tool.

If you are using this test tool for teaching and development purposes you might find it helpful also to refer to the 'Fantasticat' ideas on the businessballs website, which are designed to help young people identify and express their own unique personal potential.