




**NAME:** Predicting Strategy of Student 

**DATE:** September 5, 2024 11:33 AM


**DESCRIPTION OF TECHNOLOGY**  
 Our technology predicts the strategy students will use for the Five Dot Test. We have defined these strategies ourselves after looking for patterns in the data. These strategies are based on the results of the Five Dot Test of each student, the strategy is based on the standard line of each individual student of unique patterns per minute. For example, if they are a slow or fast starter.

**HUMAN VALUES** 


The identity of the teachers is changed in that they will now have a deeper understanding of the educational method they should use for a certain student while in the past this would be done by the teacher themselves and not by a machine learning model based on a survey. The identity of the student won't change much only that they now don't have to figure out their preferred educational method themselves.

**TRANSPARENCY** 


The technology uses the results of the personality test. The stakeholders provide these test results, so they understand how they work. The calculations of the strategies are explained, so the users can understand the results. However, we are ICT students and not psychologists, and we cannot determine what these strategies mean and if they are actually meaningful. The strategies are based on personalities of students and the results might differ a lot.

**IMPACT ON SOCIETY** 


This challenge will help teachers predict the strategies students will use during the Five Dot Test. If they are a slow or fast starter. These strategies can help teachers understand their students and can help them with developing more effective teaching strategies for individual students.

**STAKEHOLDERS** 


- Maastricht University
- Secondary school teachers
- Parents
- Student coaches
- Student advisors
- Secondary school students
- Future teachers/students
- School psychologists

**SUSTAINABILITY** 


Students use their computers to do the Five Dot Test and fill in the personality survey, this uses energy. The prediction model also uses energy.

**HATEFUL AND CRIMINAL ACTORS** 


There could be some privacy issues. The students have to answer some personal questions in a survey, teachers might be able to take advantage of students. Some students might get more attention than others, this could lead to an uneven distribution. This might also negatively impact students with a higher score, because they might get less attention than they need.

**DATA** 


To predict the strategies that the students will use during the Five Dots Test, we will use some important questions of the personality test (big5), the CITO-score and individual scores of the CITO-test. A downfall of using these features, is that the overall correlation is low, which will result in less precise predictions. But since we are predicting human behaviour (from personality and CITO), this is to be expected.

**FUTURE** 

This technology could help the education system in the future by predicting what educational methods fits a certain student best. By using this technology, there will be less stress on the teachers and there will be a more efficient way of learning. This makes it so that the needs of the students become more clear and defined, which gives them an even better educational environment to learn and thrive in.

**PRIVACY** 




This technology does register personal data, for example the personality tests, CITO-tests and the names/classes of each student. This data will be seen by the teachers of the student. The teachers who will use the model can link the students to the results of the tests and also to the predictions made. The risk of a data leakage is low, since the model can only be used under school confidentiality.


**INCLUSIVITY** 

There doesn't appear to be any bias in the data, however after making the models it may be possible the data is actually biased. Teachers or others can be biased after using this technology.

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**HUMAN VALUES** 

**How is the identity of the (intended) users affected by the technology?**

To help you answer this question think about sub questions like:

- If two friends use your product, how could it enhance or detract from their relationship?
- Does your product create new ways for people to interact?...

**TRANSPARENCY** 

**Is it explained to the users/stakeholders how the technology works and how the business model works?**

- Is it easy for users to find out how the technology works?
- Can a user understand or find out why your technology behaves in a certain way?
- Are the goals explained?
- Is the idea of the technology explained?
- Is the technology company transparent about the way their...

**IMPACT ON SOCIETY** 

**What is exactly the problem? Is it really a problem? Are you sure?**

Can you exactly define what the challenge is? What problem (what 'pain') does this technology want to solve? Can you make a clear definition of the problem? What 'pain' does this technology want to ease? Whose pain? Is it really a problem? For who? Will solving the problem make the world better? Are you sure? The problem definition will help you to determine...

**STAKEHOLDERS** 

**Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by...**

When thinking about the stakeholders, the most obvious one are of course the intended users, so start there. Next, list the stakeholders that are directly affected. Listing the users and directly affected stakeholders also gives an impression of the intended context of the technology.

...

**SUSTAINABILITY** 

**In what way is the direct and indirect energy use of this technology taken into account?**

One of the most prominent impacts on sustainability is energy efficiency. Consider what service you want this technology to provide and how this could be achieved with a minimal use of energy. Are improvements possible?

**HATEFUL AND CRIMINAL ACTORS** 

**In which way can the technology be used to break the law or avoid the consequences of breaking the law?**

Can you imagine ways that the technology can or will be used to break the law? Think about invading someone's privacy. Spying. Hurting people. Harassment. Steal things. Fraud/identity theft and so on. Or will people use the technology to avoid facing the consequences of breaking the law (using trackers to evade speed radars or using bitcoins to launder...)

**DATA** 

**Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into...**

There are fundamental issues with data. For example:

- Data is always subjective;
- Data collections are never complete;
- Correlation and causation are tricky concepts;
- Data collections are often biased;...

**FUTURE** 

**What could possibly happen with this technology in the future?**

Discuss this quickly and note your first thoughts here. Think about what happens when 100 million people use your product. How could communities, habits and norms change?

**PRIVACY** 

**Does the technology register personal data? If yes, what personal data?**

If this technology registers personal data you have to be aware of privacy legislation and the concept of privacy. Think hard about this question. Remember: personal data can be interpreted in a broad way. Maybe this technology does not collect personal data, but can be used to assemble personal data. If the technology collects special personal data (like...

**INCLUSIVITY** 

**Does this technology have a built-in bias?**

Do a brainstorm. Can you find a built-in bias in this technology? Maybe because of the way the data was collected, either by personal bias, historical bias, political bias or a lack of diversity in the people responsible for the design of the technology? How do you know this is not the case? Be critical. Be aware of your own biases....

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