Predicting Strategy of Student

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.

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Context of use: Education

Impact on society

What impact is expected from your technology?

This category is only partial filled.

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

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.

Are you sure that this technology is solving the RIGHT problem?

This question has not been answered yet.

How is this technology going to solve the problem?

This question has not been answered yet.

What negative effects do you expect from this technology?

This question has not been answered yet.

In what way is this technology contributing to a world you want to live in?

This question has not been answered yet.

Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

This question has not been answered yet.

Hateful and criminal actors
What can bad actors do with your technology?

This category is only partial filled.

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

Can fakers, thieves or scammers abuse the technology?
This question has not been answered yet.

Can the technology be used against certain (ethnic) groups or (social) classes?
This question has not been answered yet.

In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.
This question has not been answered yet.

How could bad actors use this technology to subvert or attack the truth?
This question has not been answered yet.

Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.
This question has not been answered yet.

Technology Impact Cycle Tool

Predicting Strategy of Student

Privacy

Are you considering the privacy & personal data of the users of your technology?

This category is only partial filled.

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

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.

Do you think the technology invades the privacy of the stakeholders? If yes, in what way?

This question has not been answered yet.

Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?

This question has not been answered yet.

Does the technology mitigate privacy and data protection risks/ concerns (privacy by design)? Please indicate how.

This question has not been answered yet.

In which way can you imagine a future impact of the collection of personal data?

This question has not been answered yet.

Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.

This question has not been answered yet.

Human values
How does the technology affect your human values?

This category is only partial filled.

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

How does the technology influence the users' autonomy?
This question has not been answered yet.

What is the effect of the technology on the health and/or well-being of users?
This question has not been answered yet.

Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.
This question has not been answered yet.

Stakeholders
Have you considered all stakeholders?

This category is only partial filled.

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

Name of the stakeholder
Maastricht University

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Secondary school teachers

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Parents

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Student coaches

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Student advisors

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Secondary school students

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Future teachers/students

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
School psychologists

How is this stakeholder affected?
-

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?
-

Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.
This question has not been answered yet.

Technology Impact Cycle Tool

Predicting Strategy of Student

Data

Is data in your technology properly used?

This category is only partial filled.

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?
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.

How does the technology organize continuous improvement when it comes to the use of data?
This question has not been answered yet.

How will the technology keep the insights that it identifies with data sustainable over time?
This question has not been answered yet.

In what way do you consider the fact that data is collected from the users?
This question has not been answered yet.

Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.
This question has not been answered yet.

Inclusivity
Is your technology fair for everyone?

This category is only partial filled.

Will everyone have access to the technology?
This question has not been answered yet.

Does this technology have a built-in bias?
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.

Does this technology make automatic decisions and how do you account for them?
This question has not been answered yet.

Is everyone benefitting from the technology or only a a small group? Do you see this as a problem? Why/why not?
This question has not been answered yet.

Does the team that creates the technology represent the diversity of our society?
This question has not been answered yet.

Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.
This question has not been answered yet.

Transparency

Are you transparent about how your technology works?

This category is only partial filled.

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

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.

If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?

This question has not been answered yet.

Is it possible to file a complaint or ask questions/get answers about this technology?

This question has not been answered yet.

Is the technology (company) clear about possible negative consequences or shortcomings of the technology?

This question has not been answered yet.

Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.

This question has not been answered yet.

Sustainability
Is your technology environmentally sustainable?

This category is only partial filled.

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

Do you think alternative materials could have been considered in the technology?
This question has not been answered yet.

Do you think the lifespan of the technology is realistic?
This question has not been answered yet.

What is the hidden impact of the technology in the whole chain?
This question has not been answered yet.

Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.
This question has not been answered yet.

Future
Did you consider future impact?

This category is only partial filled.

What could possibly happen with this technology in the 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.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.
This question has not been answered yet.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.
This question has not been answered yet.

Would you like to live in one of this scenario's? Why? Why not?
This question has not been answered yet.

What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?
This question has not been answered yet.

Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.
This question has not been answered yet.