Quantified Student

Performance definition

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# Abstract

With the help of collected data, the quantified student project helps students with their development and improves their performance. The collected data will be displayed in a dashboard, where the student will be able to see it. Afterwards, the student can evaluate their workflow and determine where they should improve it. For example, the system can show when it is the best time to work for the student.

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# Version History

| **Version** | **Author** | **Date** | **Description** | **Reviewers** |
| --- | --- | --- | --- | --- |
| 0.1 | K. Janssen | 09.06.2022 | Setup document |  |
| 0.2 | K. Janssen | 13.06.2022 | Added Proposed approach, Next steps and conclusion | Neal Geilen |
| 0.3 | N. Geilen | 14.6.2022 | Changes to the introduction and adding brainstorm section | Koen Janssen |
| 0.3 | K. Janssen | 14.6.2022 | Reviewed changes |  |
| 0.4 | N. Geilen | 15.6.2022 | Changes to Proposed approach to fit nicer with brainstorm section | Jelle Maas |
| 0.5 | J. Maas | 16.6.2022 | Clean up and clarify the document, including making the content more accurate |  |

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# 1 Introduction

At the moment, a student must correlate the given data themselves, for example by linking sleep time to stress. This makes the user experience less desirable. To address this issue, a central baseline metric should be implemented for the Quantified Student dashboard, to reflect how a student is doing based on personally set parameters. With this, the student will be able to get an idea of how they are performing within those parameters.

This metric could be called “performance” and would be calculated using student data. However, it is currently unclear what data will be used for this metric. This prompts the question: “What is the best way to develop a system for this?” and “What defines performance?”.

# 2 Brainstorming

The definition of “performance” is unclear, which makes defining it a delicate task. It will therefore need a lot of thought behind the final decision. To ensure that a satisfactory solution could be found and justified, the Quantified Student project group performed multiple brainstorming sessions with its team members and stakeholders.

## 2.1 Points

During the brainstorming session, the team came to the following points:

1. What “good” is or what is “bad” depends on the student, for example only having 6 hours of sleep does not necessarily mean that the student is not doing good at school or that they are not getting good grades.
2. Can we determine for the user how he/she will be scored?
3. With all the data we gather for the user, what data points are we using to measure performance?

## 2.2 Results

The brainstorming sessions resulted in the following ideas, which aim to solve the complexity of defining performance for individual students:

1. Postpone the use of the “performance” metric and conduct a survey on the students on what they see as “performance” and what is “good” or “bad”. With this information, an AI model could be made that will measure “performance”.
2. Disregarding the “performance” metric. The performance will be essentially an indication of how a student is doing, depending on other information QS has about the student. But the student can see the same data inside the dashboard through correlation with the data that is presented. The student can thus also see how the student is doing without a score saying how good it is.
3. The student can define what personal goals to achieve. As an example, the student can determine that 8 hours of sleep is “good” When the student gets then 8 hours of sleep, the performance score increases.

# 3 Proposed approach

The team decided to continue with the personal goal idea, which resolves the issue of defining performance ourselves with assumptions. The reasoning for this decision is the following:

1. The stakeholder wants a “performance” metric, therefore the idea of disregarding performance is not valid.
2. There isn’t enough data nor time at the moment to build a reliable AI model that can give a reliable “performance” metric.
3. At this moment, it is unknown what the user will see as “performance”, therefore more data is required, which is currently not available.
4. An AI model is significantly more difficult to develop than this idea, which requires far less data and is therefore significantly quicker to implement.
5. An artificial intelligence can still be implemented in the future as a feature if enough data is gathered.

# 4 Next steps

Based on aggregated user data on what kind of data points and goals students use, it will be possible to get a better insight into defining the bigger question of performance. Perhaps the system could suggest popular user-defined data points to new users.s. With benchmarked user data, the team could establish a uniform set of metrics for new users that is defined collectively by the end-user.

# 5 Conclusion

Based on the outcomes of the meeting, it is possible to conclude that, it is currently not necessary to define performance. In contrast, the idea is that the end-user can select relevant data points for themselves, which would force the student to define their own definition of performance.

With the aggregated data of the set of data points that end-users select, it is possible to gain further insight into the performance definition. It would then be possible to revisit the performance definition with this new insight in mind.