

How does it work?

HeatQuiz is an application intended to teach, train and practice the fundamentals of heat and mass transfer. By using a game-based learning approach it tries to target bachelor and master students. But besides the fundamentals of heat and mass transfer, it can be used to teach much more than only this.

The application utilizes the concept of learning paths, as shown in Figure 1. These paths contain learning elements such as video lectures, small quizzes, lecture notes, homework assignments, homework solutions, and other materials. As example the conduction learning path can be accessed via the mobile optimized version or the desktop optimized version pages.

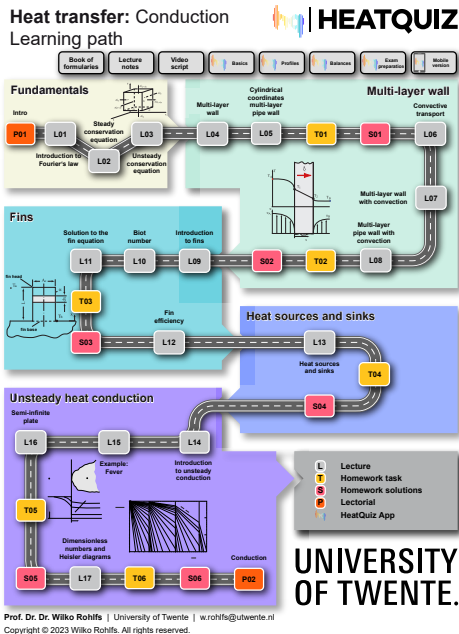


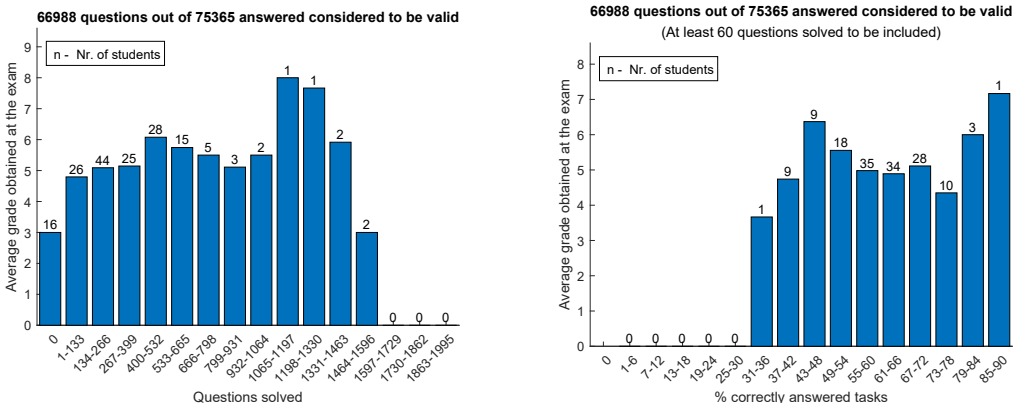
Figure 1: Conduction learning path for the Heat Transfer course at the University of Twente during the academic year 2022-2023

A unique aspect of HeatQuiz is that all course material is contained in a single learning path. Besides, it uses the aspects of single game-modes, which are:

- Multiple choice questions
- Keyboard questions
- Clickable questions
- Energy balance questions
- FBD diagram questions
- More to follow in the future...

These different question types can be experienced by playing the small quiz attached to the first element of the learning path "HeatQuiz: How to use it?".

The effectiveness of HeatQuiz is a topic that is currently being researched. Initial statistics obtained from the academic year 2021-2022 showed promising results.



(a) Correlation between number of games played and obtained grade at the exam (b) Correlation between the correctness of games played and obtained grade at the exam

Figure 2: Correlation between the HeatQuiz and exam performance