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Mobility: Encouraging Physical Activity among High School Students

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Publications

- Life&Health: Integrando Novas Tendências de Tecnologias Digitais na Educação (WIE, 2024)
- Mobility: Promoting Health and Physical Activity in School Environments (Healthinf, 2025)

Technology and sedentary lifestyle

- **Young people have a high level of daily interaction, leading to reduced time for physical exercise.**

- **Factors contributing to low adherence:**
- Lack of adequate spaces
- Prolonged use of technology
- Lack of public policies
- Pandemic (isolation + more screen time)

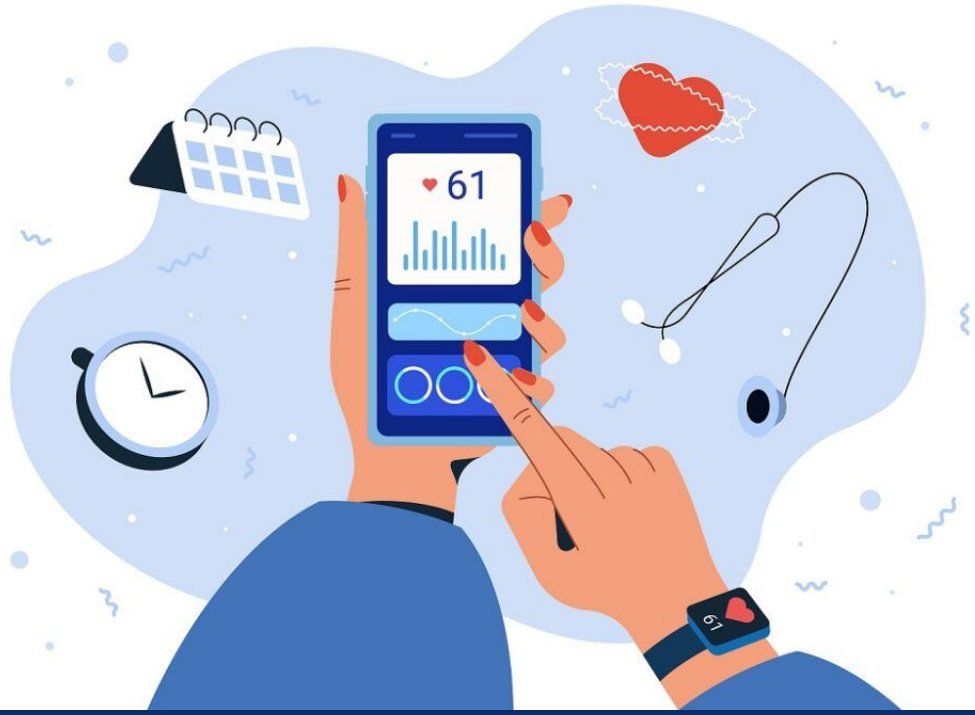
- **4 in 5 young people (11–17 years old) are inactive (WHO)**

mHealth: new possibilities

- **Positive use of technology:** Mobile apps can encourage physical activity and healthy habits

- **Evidence of effectiveness:**
  Systematic reviews show that mHealth increases physical activity time and reduces sedentary behavior in adults and adolescents.

- **Effective features:** reminders, alerts, self-monitoring, visual feedback, social support, goal setting, and motivational messages.



Mobility

- **Developed in Kodular** (Android, block programming)
- **Objective:** Encourage healthy habits in high school students
- **Aligned with SDG 3 – Good Health and Well-Being**
- **App features:**
- Registration/Login
- BMI Calculator
- Gamified physical challenges
- Points Leaderboard + Rewards
- About Profile (app information)

Mobility: Gamified physical challenges

Maximum steps in 5 minutes

Run to a fixed point

Treasure hunt

1-minute jump challenge

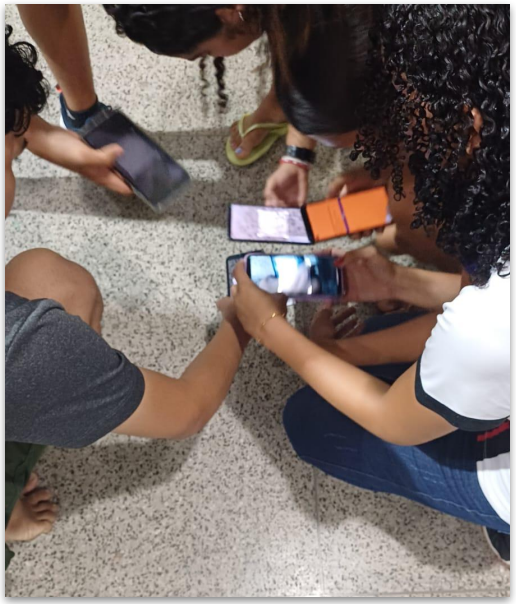
Preliminary assessment

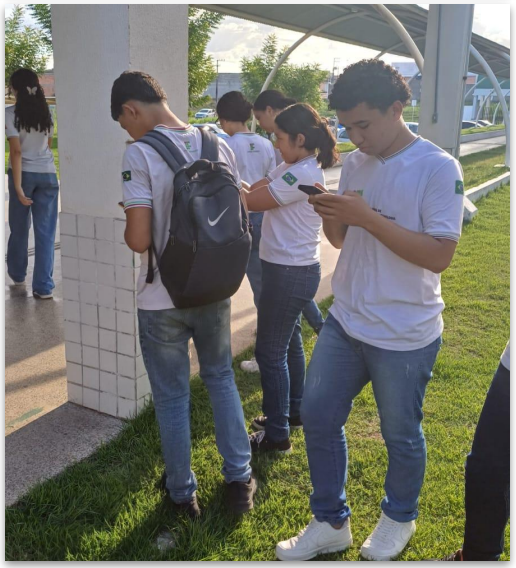
- Participants: 23 freshman high school students
- Setting: School environment (2 testing days in different weeks)

- **The evaluation was based on ISO/IEC 25010**

- **Thus, the following steps were performed:**

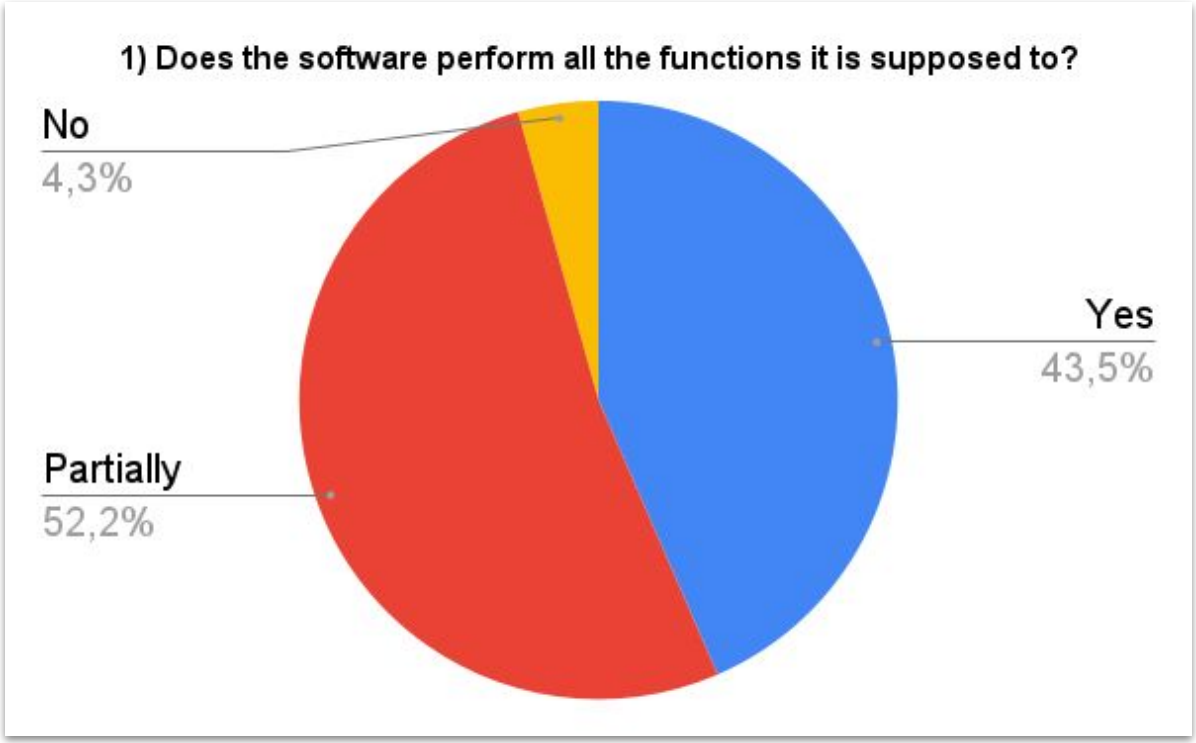
Define evaluation - suitability of the app to the school context
Plan - criteria: usability, efficiency, satisfaction, reliability, functionality
Practical planning - use of Android devices, school environment
Execution - registration, use of the BMI calculator, participation in challenges, 2 days of testing
Conclusion - questionnaire via Google Forms





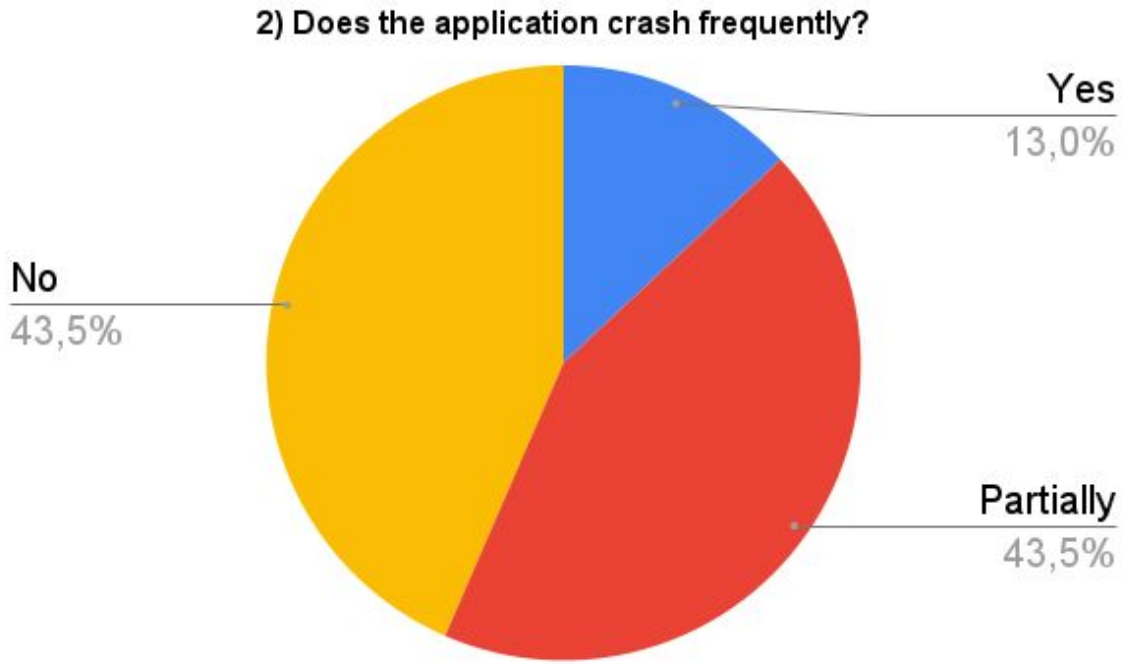
Results

- 52.2% said the app only partially met the expected functions.
- GPS issues during the race hampered the experience for some students.

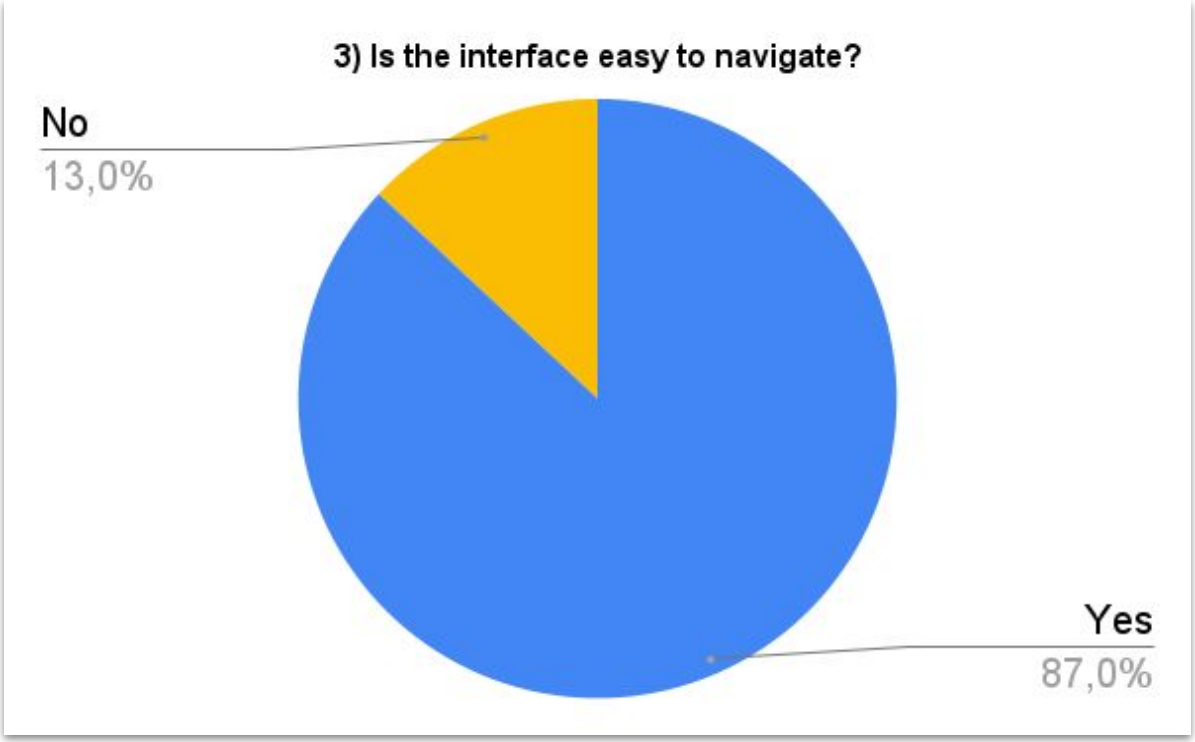


Results

- 43.5% stated that there were no failures, while another 43.5% reported partial failures (also linked to GPS).

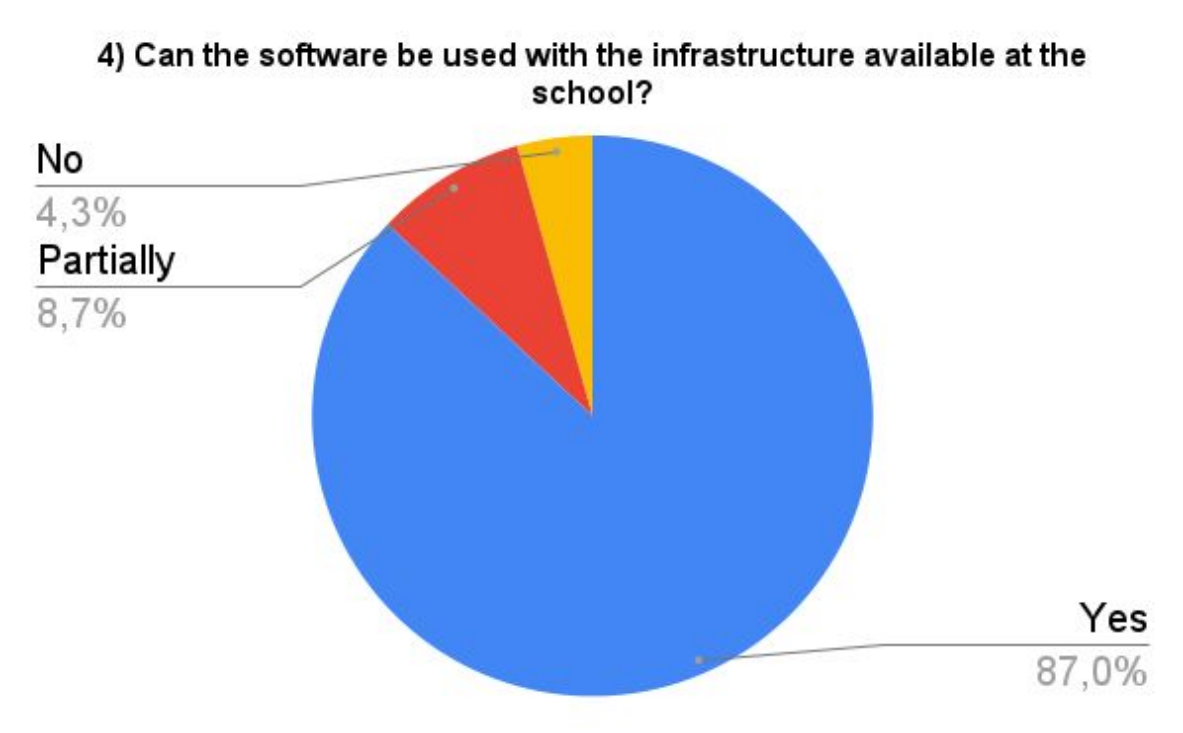


Results



- 87% found the navigation simple and intuitive.
- This is important because it shows that students with different levels of technology familiarity were able to use the app without difficulty.

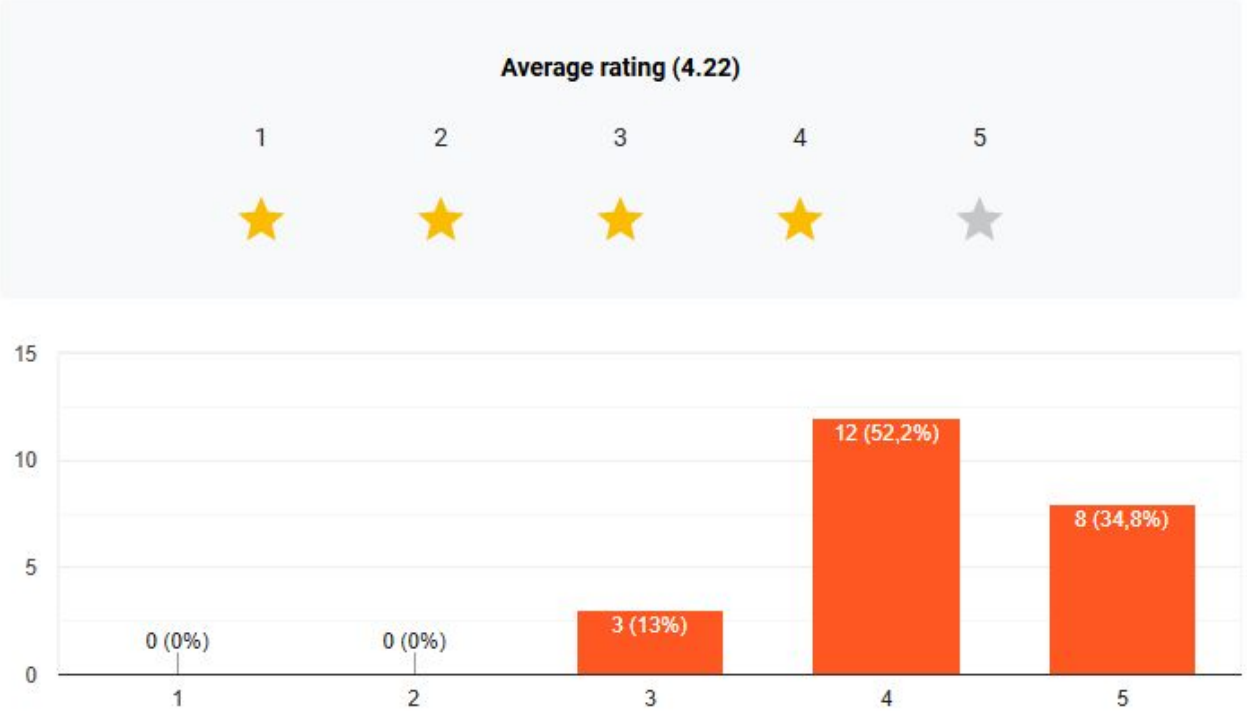
Results



- 87% said the app could be used normally at school.
- The difficulties reported were specific: unstable internet and the need for an Android device (iOS not supported).

Results

- Overall, Mobility received a 4.22 rating, indicating good acceptance.
- Students cited the following as strengths: an intuitive interface, fun challenges, and a great way to break out of a sedentary routine.
- Areas for improvement included: including new physical challenges, fixing GPS issues, and creating an iOS-compatible version to expand access.

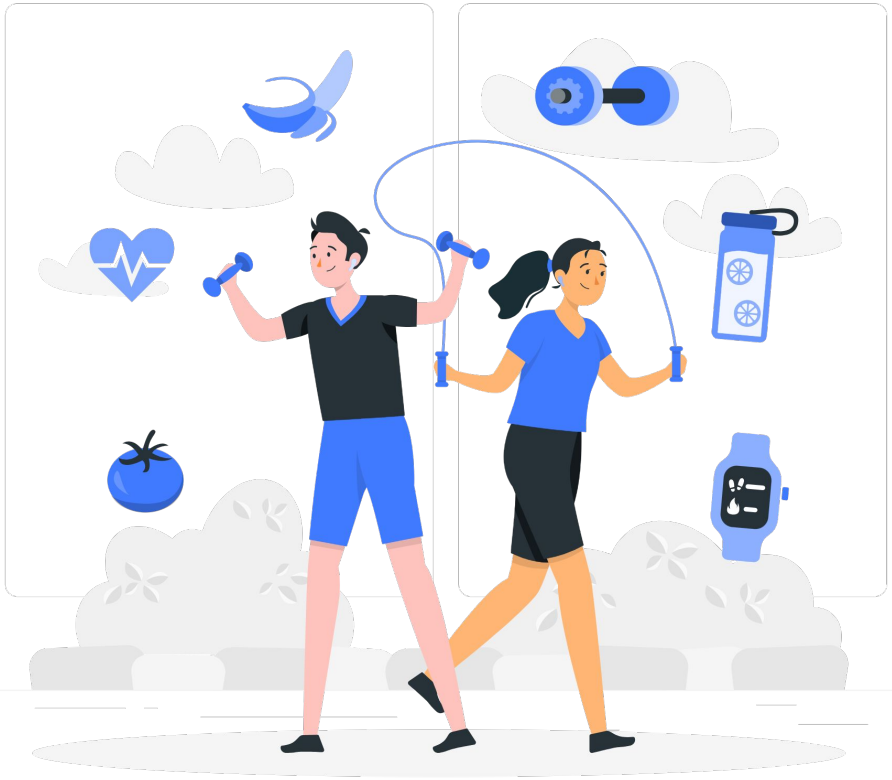


Challenges and Limitations

- It only works on Android.
- Limitations apply indoors with GPS.
- The evaluation was conducted with only 23 students, which does not represent all user profiles.
- Some students may resist using it due to a more passive lifestyle, making it necessary to find alternatives to increase engagement.
- Not all schools offer adequate internet access or devices.

Conclusion and Future Work

- For future research, we intend to apply Mobility in schools over a given period, in addition to overcoming the technical issues mentioned above.



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Health is a state of complete physical, mental and social well-being and not merely the absence of disease.

World Health Organization

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