Game-based Assessment and the Effect on Test Anxiety: a Case Study

Jarka Smits
Nathalie Charlier

Teacher Training in Health Science Education
Katholieke Universiteit Leuven
Belgium

Research question: Test anxiety

- Two components
  - Worry-component (concerns about the evaluation and the consequences of failure)
  - Emotional-component (individual physiological reaction on an evaluation such as heart rate, dizziness, nausea,…)
- Test-anxious students have a higher risk of being retained and having lower test scores.
- Test anxiety inhibits students to perform on their full potential.

Research question: Test anxiety

- Up to 30% high school and college students
- Increases with age
- Gender-related

Research question: Game-based assessment

- Games and positive effects
  - Learner-centered
  - More enjoyable
  - More interesting
  - Promote a positive attitude toward learning
- An added value in assessment.
**Research question**

Can test anxiety be reduced by using a game instead of a traditional exam as assessment instrument?

**Methods**

- **Participants:**
  - 233 high school students (171 women and 31 men)
  - Grade 11 and 12
  - 5 schools
  - 14 different classes

- **Course:**
  - A first-aid related course
  - Part of their school curriculum

**Methods: Research instruments**

- **Test anxiety Inventory**
  - 20-item self-reporting scale
  - Measuring individual differences in test anxiety
  - Specifically for secondary and college students

- **Two subscales**
  - Worry
  - Emotional
Methods: Game-based assessment

- Developed to teach first aid knowledge and skills
- Modified to the specific content of each class
- Collected question card / number of rounds
- Peer-assessment

Methods: Traditional test

- Paper-and-pencil test
- 6 true-false
- 9 short answers
- 2 multiple choice
- 3 essay questions

Results
Discussion

• Unknown aspect of games in the summative assessment.
• The effect of game-based assessment is not gender-related.

Conclusion

Games in summative assessments induce a positive effect on test anxiety.

Questions?

Nathalie.Charlier@pharm.kuleuven.be
Janka.Smits@gbiomed.kuleuven.be