

Development of computer-based virtual patients for training and assessment of self-medication consultation skills in pharmacy students

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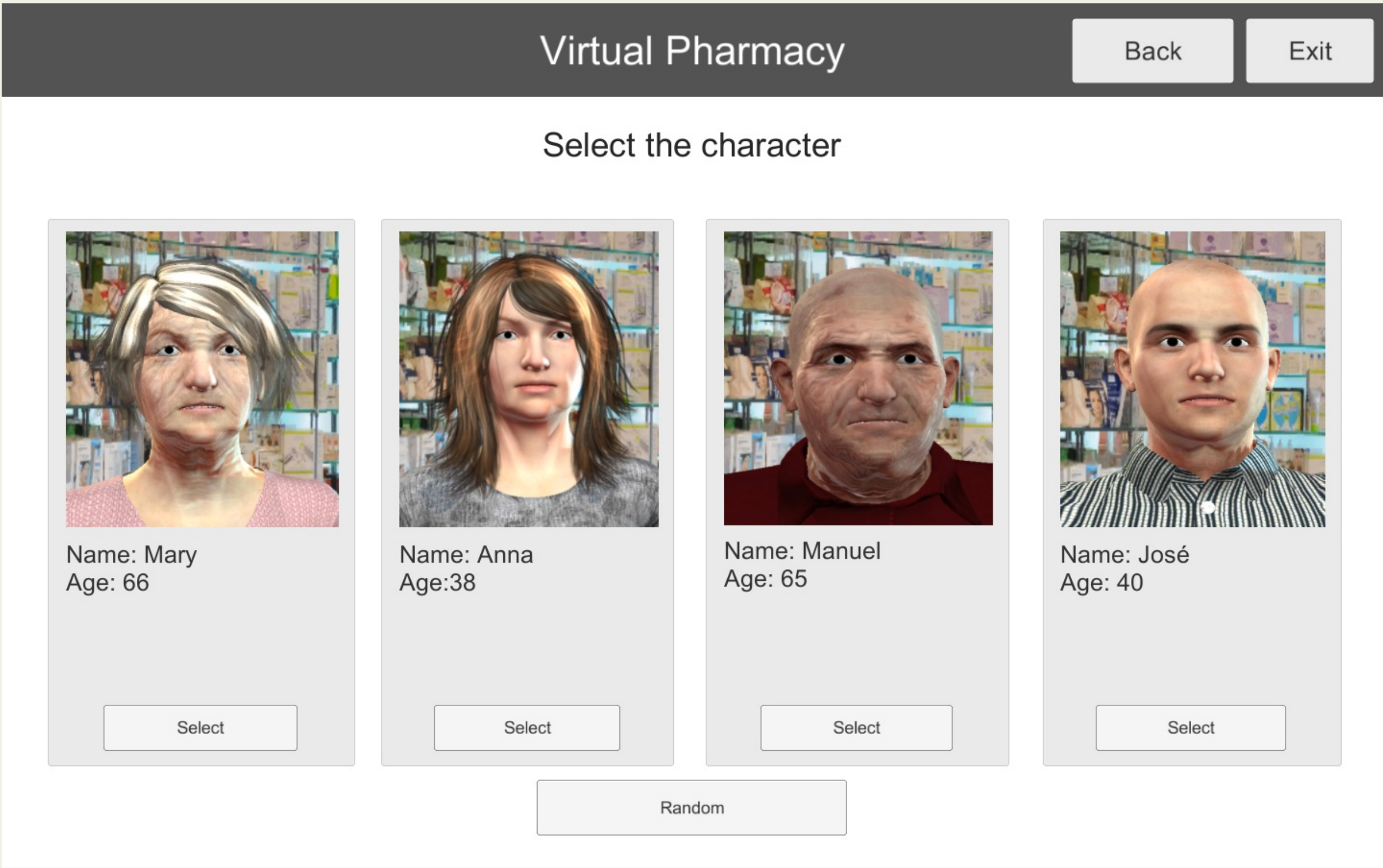


Figure 1

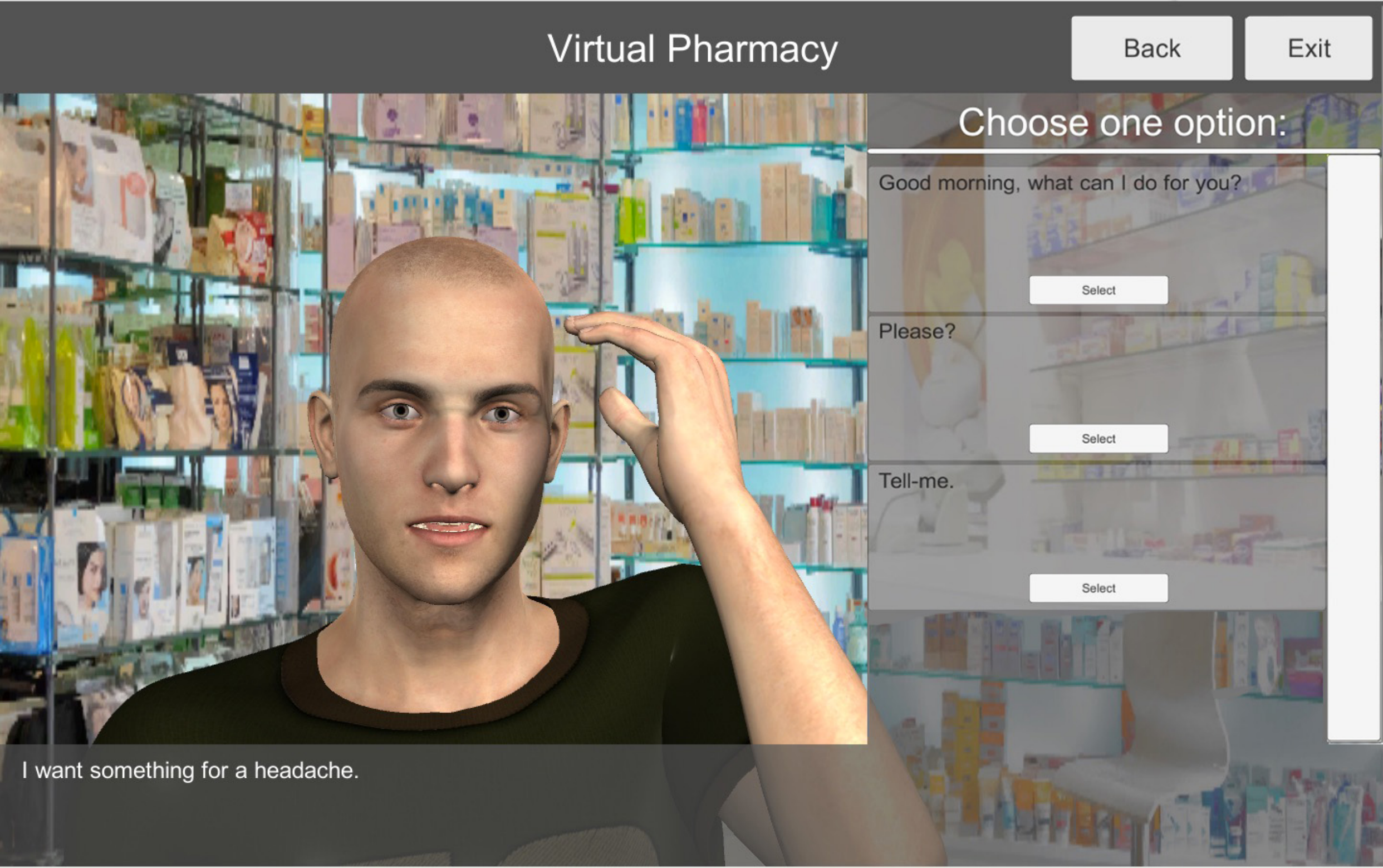


Figure 2



Figure 3

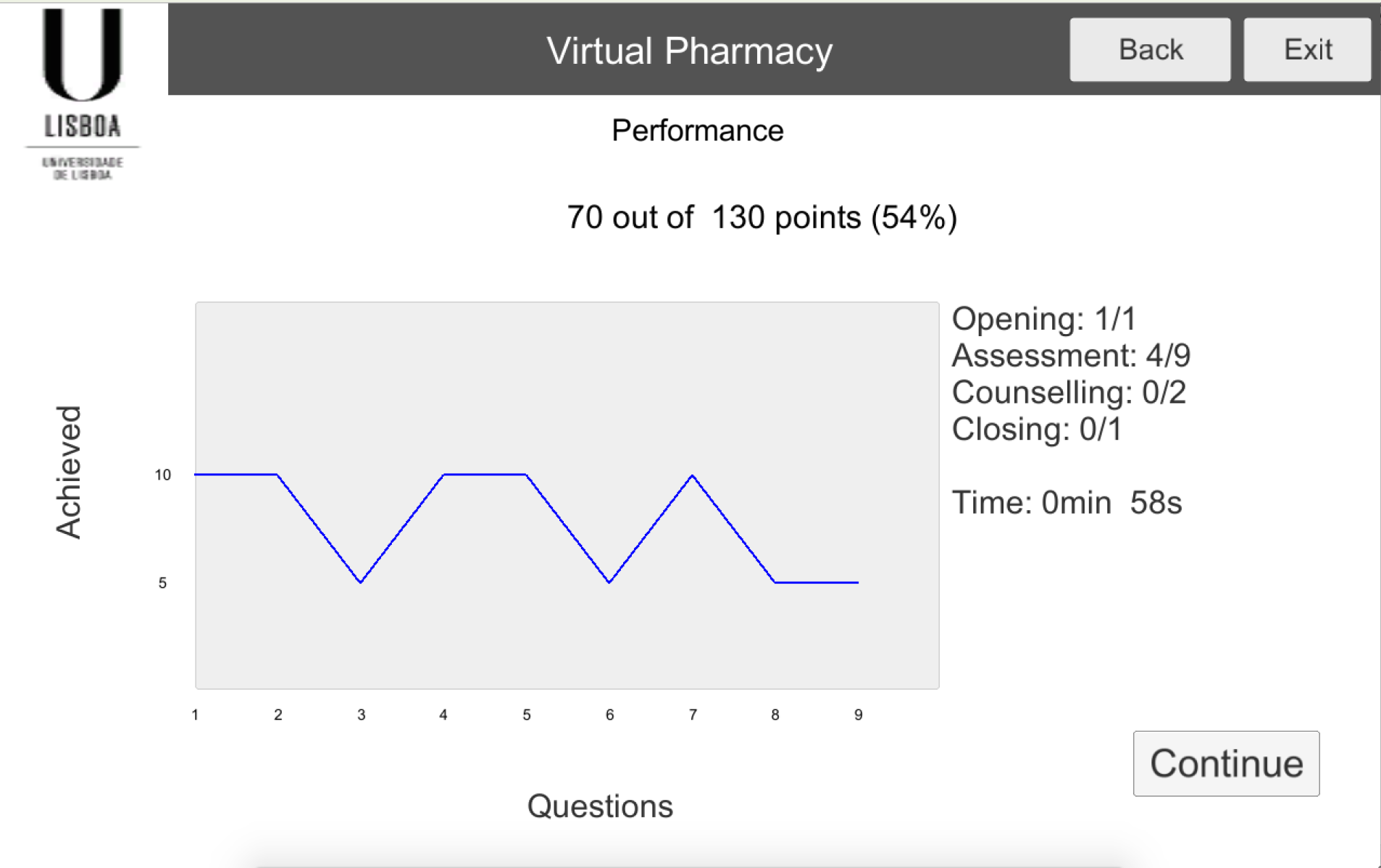


Figure 4

BACKGROUND

- Computer-based virtual patients have been used since the 1990's in pharmacy education for teaching and assessment of clinical and communication skills.
- Although far from widespread, they allow students' engagement in true-to-life situations in a safe environment.

OBJECTIVE

- To develop computer-based virtual humans for training and assessment of self-medication consultation skills in pharmacy students.

PROGRAMME DESCRIPTION

- A prototype of an interactive application with virtual humans (VHs) was developed with the aid of Unity3D, a software tool for videogames.
- Firstly, users must select a self-medication scenario from a storyboard; then, one VH must be chosen from four characters (both genders and two different age groups), as depicted in Figure 1.
- The VH is depicted in a community pharmacy environment and has natural body movements, obtained by motion capture (Figure 2). Users, playing the role of a pharmacist, communicate with the VH by choosing textual options in the application interface (Fig. 2). Each set of three options involves questions on patient assessment, or alternatively, recommendations in the form of information provision, patient referral or others. Options are scored according to their level of correctness; the goal is to obtain the highest score.
- The VH communicates verbally, by a synthetic voice synchronised with lips movement, and non-verbally, by emulating facial expressions - discontent, satisfaction or neutral feelings - as a response to the options chosen by the user (Figure 3) .
- When the consultation is completed, users receive feedback on their overall score and on their test score in different consultation stages (e.g. patient assessment and counselling), as shown in Figure 4. The application stores tests scores for each user, enabling data analysis and progress monitoring over time.

CONCLUSION

- We were able to simulate realistic self-medication scenarios for training and assessment purposes using VHs.
- Prototype evaluation with experts has been concluded; the application has been refined in light of the feedback received.
- We are currently testing the prototype with pharmacy students.

FUTURE WORK

- Improving the application (e.g. improve VHs and lip sync, adding new self-medication scenarios)
- Determining the effect of this application on students' knowledge, attitude and skills.
- Widening the use of this application to other users, such as pharmacists.



<http://www.di.fc.ul.pt/~apc/VirtualPharmacy/>

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