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# VIRTUAL REALITY COMPETENCY TRAINING AND ASSESSMENT TOOL FOR PROCESSING OF PRESCRIPTIONS AND MEDICATION ORDERS – PHARMACY STAFF AND TRAINEES’ PERCEPTIONS

Wing Yee Tsang<sup>1</sup>, Irvin Lee<sup>1</sup>, Zee Jian Tan<sup>1</sup>, Yufei Chen<sup>1</sup>, Mitchell Ee<sup>1</sup>, Shakunthala D/O Hans Raj<sup>1</sup>, Ivan Boo<sup>2</sup>, Petrina Fan<sup>1</sup>

<sup>1</sup>Department of Pharmacy, Singapore General Hospital (SGH)

<sup>2</sup>Serious Games Association

Corresponding author: Ms. Petrina Fan (petrina.fan.y.w@sgh.com.sg)

## INTRODUCTION

Virtual reality (VR) technology is increasingly used in healthcare education as this solution offers an immersive and interactive environment that mimics real world experiences to reinforce didactic and practical concepts. VR may become an integral part of our pharmacy workforce training.

Processing prescriptions and medication orders is one of the core pharmacy activities and part of the National Pharmacy Competency Standards for Pharmacists and Pharmacy Technicians. In line with the competency standards, in February 2020, Department of Pharmacy, SGH, was awarded the Learning Technology Adoption Grant (SkillsFuture Singapore) to develop “**Project VR<sub>x</sub>**”, a high-fidelity VR Pharmacy Dispensing simulation training program to equip pharmacy staff and trainees with knowledge and skills to **process the prescriptions and medication orders** safely and accurately.

## METHODS

Between February and December 2020, pharmacy collaborated with Serious Games Asia to develop and implement Project VR<sub>x</sub> (see project milestones in *Figure 1*). Pharmacy staff and trainees underwent a standardized 5-stage VR simulation training and assessment to complete the prescription processing activity (*see details in Figure 2*). The simulation training took 1.5 – 2 hours to complete. The 5 stages are: Stage 1 – Validate prescription → Stage 2 – Check medication orders → Stages 3 & 4 – Perform calculations and check labels before packing → Stage 5 – Pack and label medications. Feedback on the player’s performance would be provided real-time throughout the simulation. The player’s responses were assessed via a training dashboard. Trainers and trainees will be able to review the results and provide summative feedback.

The objective of the study is to evaluate users’ perception of our VR simulation training tool. Upon completion of the training, participants completed a questionnaire consisting of 8 MCQs and open-ended feedback to evaluate their perception towards the use of VR for training and assessment of this pharmacy activity.

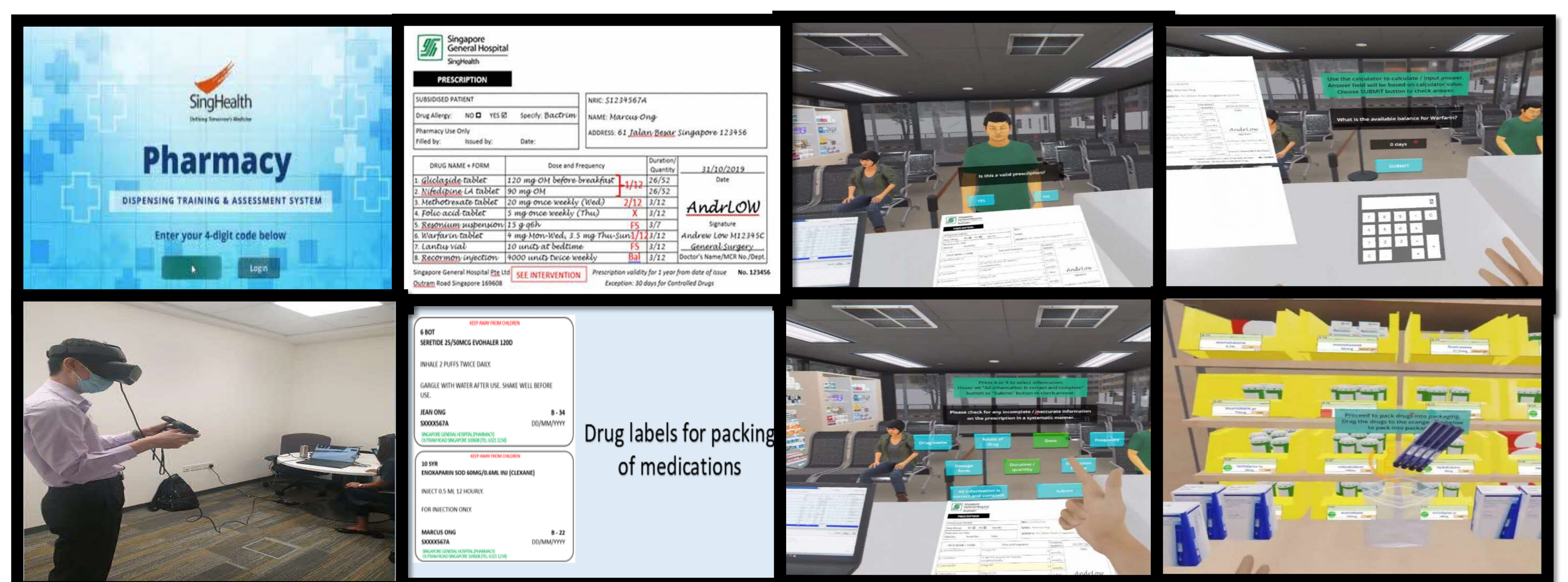
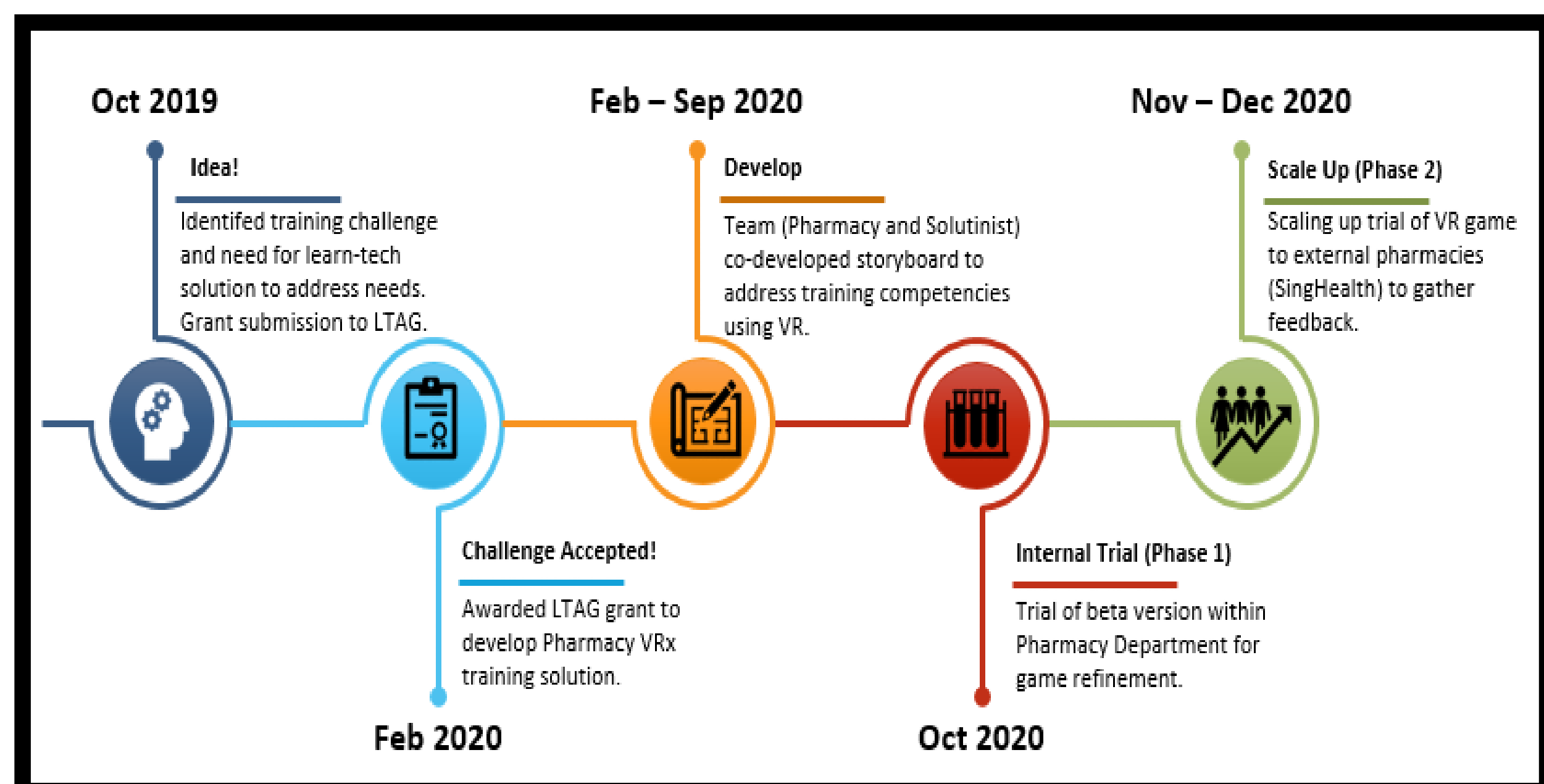
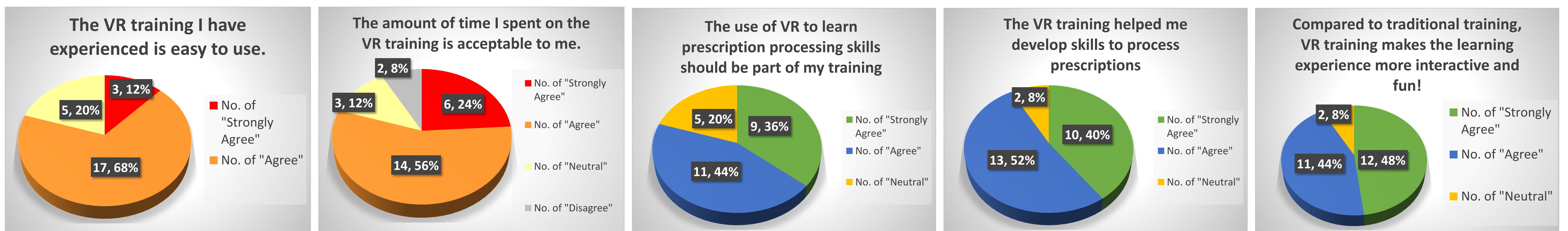


Figure 1. Project VR<sub>x</sub> milestones

Figure 2. Images from 5-stage Pharmacy Dispensing simulation training program

## RESULTS

Twenty-five participants (12 pharmacists, 9 pharmacy technicians and 4 trainees) completed the training and questionnaire. Twenty-two (88%) participants are “slightly familiar” or “aware of VR and have used VR” prior to the simulation. They had to rate “Strong Disagree”, “Disagree”, “Neutral”, “Agree” and “Strongly Agree” on their experience with VR simulation training (*see Figures 3a & 3b*) and its usefulness in training his/her knowledge and skills in processing prescriptions and medication orders using VR technology (*see Figures 4a – 4c*).



Figures 3a & 3b. User’s experience with VR simulation training

Figures 4a - c. User’s perception of usefulness of VR simulation for training of processing prescriptions

Participants provided qualitative input on the strengths of using VR technology for pharmacy training. The top 3 strengths of using VR for training were (i) safe and realistic simulation of real-life scenarios environment allowed learners to practice without risk of patient harm; (ii) accurate and real-time feedback given during the training and (iii) potentially reduce trainers’ man-hours.

## CONCLUSION

The study suggests that VR has a role in training and assessing skills including processing of prescriptions and medication orders. Overall, participants found VR simulation environment safe, realistic, engaging and interactive to acquire proficiency in the process of dispensing medication.