



Transforming the Healthcare Simulation Spectrum: Now, Next and Beyond

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Basic Cardiac Life Support + Automated External Defibrillation (BCLS + AED) Certification Training in SGH Campus in the New Norm – Serious Gaming



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Introduction & Aims

Serious games into BCLS + AED training was introduced to improve the BCLS + AED certification training in SGH campus by cutting down training hours and going on-line within 6 months in view of COVID-19 outbreak. Serious games not only makes learning fun and help meet learning objective for BCLS + AED participants (Doctors / Nurses / Allied Health Professionals) in SGH campus but is an innovative and interesting way of learning in the new norm.

In this way, healthcare manpower can then spend more time in clinical areas for patient care delivery. There will be reduced fatigue and burnout of BCLS + AED trainers in the long run as BCLS + AED certification training needs to ensure every 2 years, healthcare professionals are BCLS + AED certified to maintain their resuscitation skills competency.

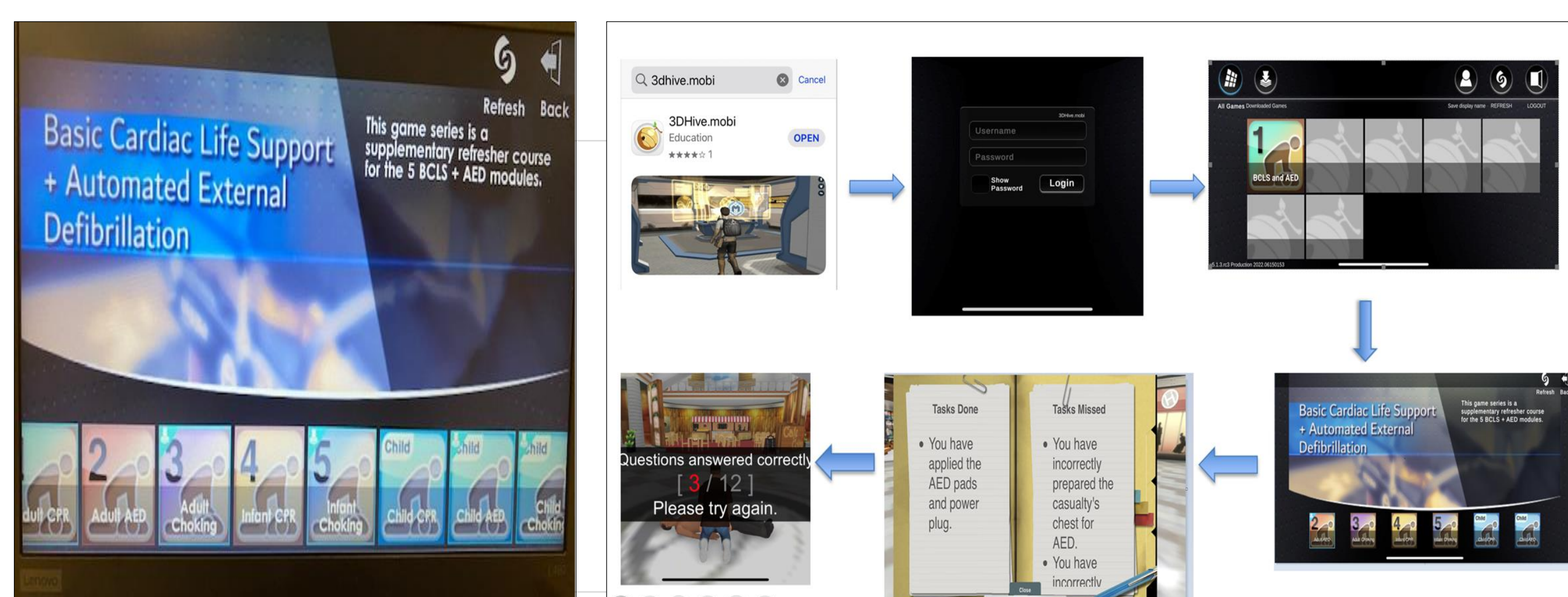
Discussion

The COVID-19 outbreak provided opportunities for the review of BCLS + AED training and recertification. There is a need to recertify & certify the new nurses and Doctors and train the BCLS & AED for Healthcare staff in a short time due to need of more healthcare manpower in SGH campus to fight COVID-19. The original duration of BCLS + AED certification of 8 hours was reduced to 4 hours and BCLS + AED recertification of 5 hours to 4 hours to meet manpower demands in the wards for patient care which has worsened with the COVID-19 pandemic as most resources were channeled to fight COVID-19. Certification and recertification training were merged to one type of training called certification training with a review of curriculum changes and reduction of training hour duration and use of videos during BCLS + AED training in the circuit breaker period and subsequently using serious games as BCLS + AED is essential training in SGH campus.

The reviewed 4-hour run consisted of use of short briefing slides and 20-minute videos with paper test converted to e-test on e-learning platform (WizLearn) with immediate feedback to BCLS + AED participants before they proceed to their skills practice and test. Before coming for training, participants have to read the e-BCLS + AED book.

This e-BCLS + AED book was later converted into serious games via a story board with collaboration of content experts, the BCLS + AED course leader and trainer, BCLS + AED gaming SGH project team members with the gaming vendor as well as KKH BCLS + AED team (scale-up gaming project phase) from January 2020 to July 2021.

The serious games consisted of 5 mini-games (adult modules) and 3 other games (child modules). Besides its interaction with learners, serious games incorporates concepts of scoring or competition. Its core design goal is to teach and train a spectrum of learners with some focusing on assessment and tracking of learners' progress. Its serious aspects are teaching, learning, communication, or information, with playful springs from a game i.e. desire to win, strategy and collaboration.



Conclusion

Challenges faced in using serious games for BCLS + AED training are demographics – age range of course participants, accessibility of the games, user experiences and fun element. It offers another way of engaging learners with its flexibility in use and scalability, making it an attractive learning tool.

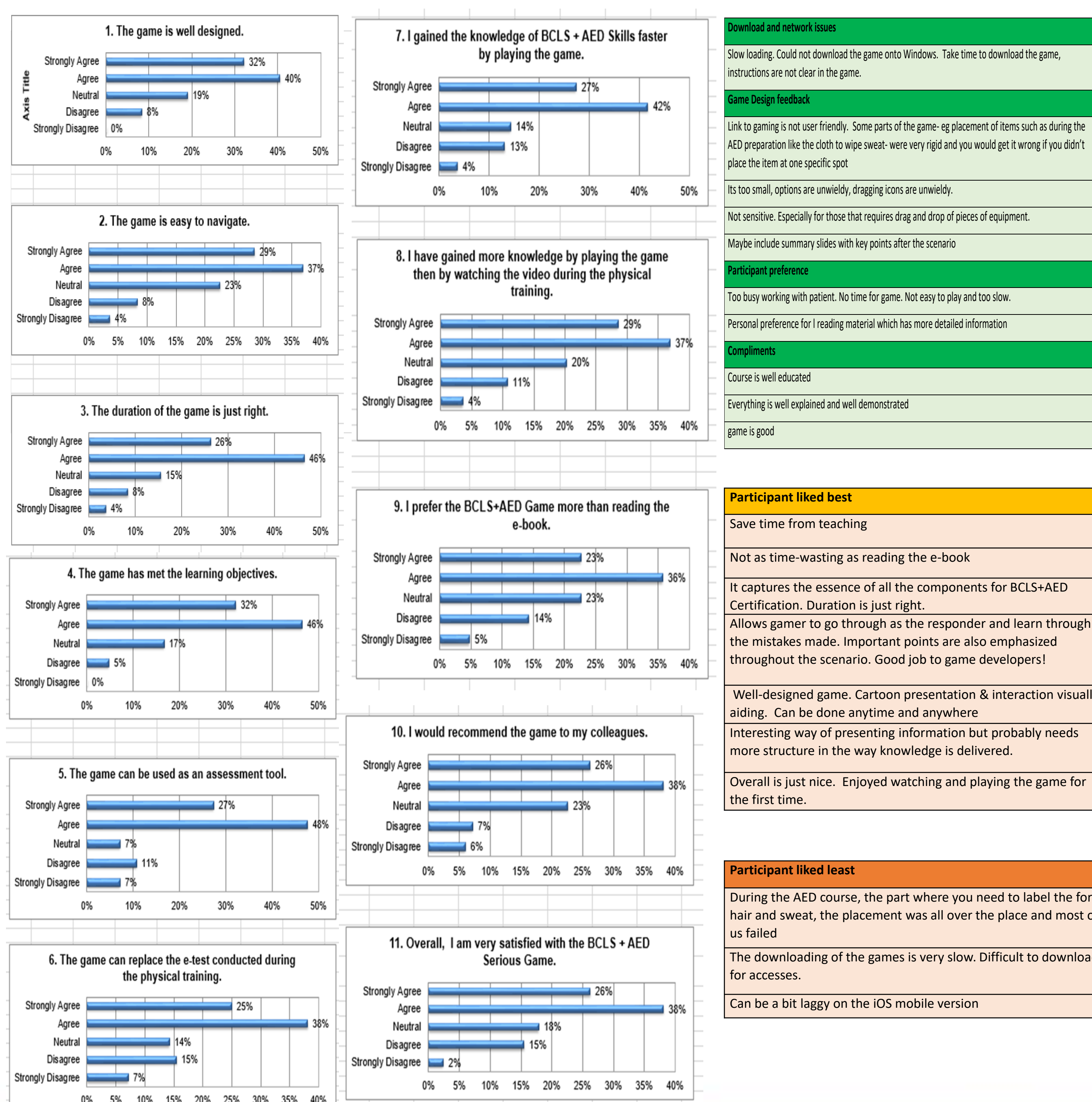
Results

| Year | Training hours Needed for certification per year (Hr) | No. of trained pax per year | First time passing rate (%) |
|---------------------|---|-----------------------------|-----------------------------|
| 2019 | 991 | 4483 | 97 |
| 2020 | 672 | 2641 | 100 |
| 2021 | 1204 | 3675 | 98 |
| 2022 (till Mid-Aug) | 780 | 2057 | 99 |
| 2022 (15-23 Aug) | 21 | 110 | 100 |

Using the serious games model in the pilot run from 15-23 August 2022 (1 week), 110 BCLS + AED course participants were trained in 7 runs which is increased by 60% (1243 more trained) and training hours decreased by 25% (from 4-hour to 3-hour), given projected 26 runs per month at 3300 trained for next 7.5 months compared to first 7.5 months in 2022.

In 2019, 2020, 2021, 2022 first time pass rate was 97%, 100%, 98% and 97% respectively, average first time passing rate was 98.8%. These results illustrated minimal changes in the passing rates for BCLS + AED course participants.

Feedback from 110 BCLS + AED course participants who played the games: (Survey results from pilot run from 15-23 August 2022)



Download and network issues
Slow loading. Could not download the game onto Windows. Take time to download the game, instructions are not clear in the game.

Game Design feedback
Link to gaming is not user friendly. Some parts of the game- eg placement of items such as during the AED preparation like the cloth to wipe sweat- were very rigid and you would get it wrong if you didn't place the item at one specific spot.
Its too small, options are unwieldy, dragging icons are unwieldy.
Not sensitive. Especially for those that requires drag and drop of pieces of equipment.
Maybe include summary slides with key points after the scenario.

Participant preference
Too busy working with patient. No time for game. Not easy to play and too slow.
Personal preference for reading material which has more detailed information.

Compliments
Course is well educated
Everything is well explained and well demonstrated
game is good

Participant liked best
Save time from teaching
Not as time-wasting as reading the e-book
It captures the essence of all the components for BCLS+AED Certification. Duration is just right.
Allows gamer to go through as the responder and learn through the mistakes made. Important points are also emphasized throughout the scenario. Good job to game developers!

Well-designed game. Cartoon presentation & interaction visually aiding. Can be done anytime and anywhere
Interesting way of presenting information but probably needs more structure in the way knowledge is delivered.
Overall is just nice. Enjoyed watching and playing the game for the first time.

Participant liked least
During the AED course, the part where you need to label the for hair and sweat, the placement was all over the place and most of us failed
The downloading of the games is very slow. Difficult to download for accesses.
Can be a bit laggy on the iOS mobile version