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The VIVE system was selected, and the order was placed in September 2016, along with orders for a dedicated desktop computer, headphones, tripods for the base stations, and bumper guards for the dedicated VR space. While waiting for the order to arrive, the implementation team began preparing to teach workshops, which included conducting literature searches, scanning social media, seeking out collaborators, outlining the workshop agenda, creating a LibGuide for the new VR service, and developing an interest survey that would be given to workshop attendees.

The system arrived in October 2016 and was set up and eagerly tested by the VR implementation team. Set-up included installing the VIVE software, setting up the base stations, and outlining the VR "play area." VR testing involved team members working in the simulations to become familiar with how to explain the technology to users and the best ways to move in the simulations, how to adjust the headset for maximum comfort and optimal performance, how to use the handset buttons in different simulations, and how to effectively communicate with patrons to ensure their safety. Initial demonstrations of the new VR system were offered exclusively to library faculty and staff on two different days. This enabled library staff to understand and use the new VR technology, and it provided a friendly audience for the team for practicing their instruction.

The technology involved in the project included an HTC VIVE kit (which includes headset, handheld peripherals, and base stations) and an Alienware Aurora desktop, as well as various simulations that ranged in cost from free to $29.00. Future technology purchases planned for the VR service include a wireless adapter for the headset (to reduce the tripping hazard) and haptic gloves to further immerse users in the VR experience.

The primary limitation for this project was that our efforts ended at the introductory level due to staffing and budget limitations. Users expressed an interest in working with VR coders to create their own simulations, but the library did not have sufficient staff to dedicate someone to work on VR development projects. While this was frustrating to the VR team, through networking and collaboration, the VR team was able to identify other departments that could address these coding needs and make referrals.

Between November 2016 and March 2017, the VR implementation team reached approximately 150 health system members through a combination of large-group demonstrations, one-on-one consultations, and workshops. All attendees of the workshops participated in a survey that focused on the potential uses of VR in health care. Interestingly, the majority of respondents believed strongly that VR was likely to impact medical education, patient education, and surgery simulation.

Overall, the library is pleased with the outcomes of the project. Its goal with VR, as with the introduction of any emerging technology, is to expose as many members of the health system to a technology that is increasingly important to their work, as well as to provide them with real-world examples of both how the technology is currently used and how it could be used in the future. The relatively low entry cost for this technology also made it appealing, as did the opportunity to network with other departments interested in VR. This project has led to the library's participation in a pan-university initiative to further explore the technology. Survey data have yielded valuable insights into the interests of our patrons regarding VR, and the project has provided an opportunity to collaborate with the School of Medicine's Simulation Center through employing a medical student as an intern for the library's VR program. Lastly, the introduction of VR to the health system aided in maintaining the library's reputation as a center for cutting-edge technology and teaching.

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IS THERE LIFE ON MARS? GAMIFICATION OF EVIDENCE-BASED PRACTICE LEARNING

Submitted by Grai Calvey, BAHons, GradDipInfo; Heather Cooper, BEd, GradDipInfoLibStds; Mary Simons, MAppSci; Macquarie University Library, Macquarie University, Australia

The online *Evidence-Based Mars Mission* game was created as an innovative way to teach the basic concepts of evidence-based practice (EBP) to undergraduate students. The aim was to develop an enjoyable activity that uses a science fiction scenario

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to engage students in identifying different levels of evidence using EBP concepts. It was hoped that the online game format would appeal to most first-year university students, often referred to as the "gaming generation." The game was developed to be a part of the year one EBP program that sits in the professional practice unit of a clinical science program.

Gamification has its foundations in experiential learning theory where play, motivation, challenges, rewards, and learning through doing enhance the learning experience [1]. Game theory is now widely believed to be a new pedagogy: "The centrality of enjoyment and engagement in gaming pedagogy makes it uniquely effective in situations where other forms of pedagogy may struggle" [2]. The authors wanted to ascertain if a game could increase learning of EBP study designs using an interactive approach, rather than traditional ways of didactic learning.

The project team, led by librarians, included clinical, educational, gaming, and information technology experts in the university. A nonhuman disease was included in the scenario so that students would have no prior knowledge of the illness. A pathogen that is transferred from bees to humans on the planet Mars formed an intriguing context.

The game required students to navigate each level of an evidence pyramid by successfully completing tasks that tested their knowledge of study designs before proceeding to the next level and eventually eradicating the disease. Tasks consisted of multiple choice questions, cloze tests, and matching activities (Figure 1). The game began with a challenge for students to join a mission to solve the problem of diminishing food supplies for the Mars population. The first few layers of a standard evidence-based medicine (EBM) pyramid became the game content, and the levels of the game were aligned with the levels of the pyramid (Figure 2). Learning was carefully scaffolded so that knowledge increased with each successive level. Every challenge was self-correcting, and multiple attempts were allowed. The length of the game was kept to a maximum of thirty minutes.

The reward for success is progression to the next level. At the successful conclusion of the game, an invitation is extended by the chief scientist (played by the associate dean of clinical medicine) to use EBP knowledge for the benefit of mankind. The final version was piloted with library staff and university students before being added to the online learning platform. Each student undertook the game after completing all the module's related EBP learning activities. Upon completing the game, each student posted to an online forum a reflection on the value of the game to their EBP knowledge and to their future careers. Reflective feedback mostly indicated an appreciation of the game's role in reinforcing EBP principles in a stimulating format.

Figure 1 Cloze activity in the game

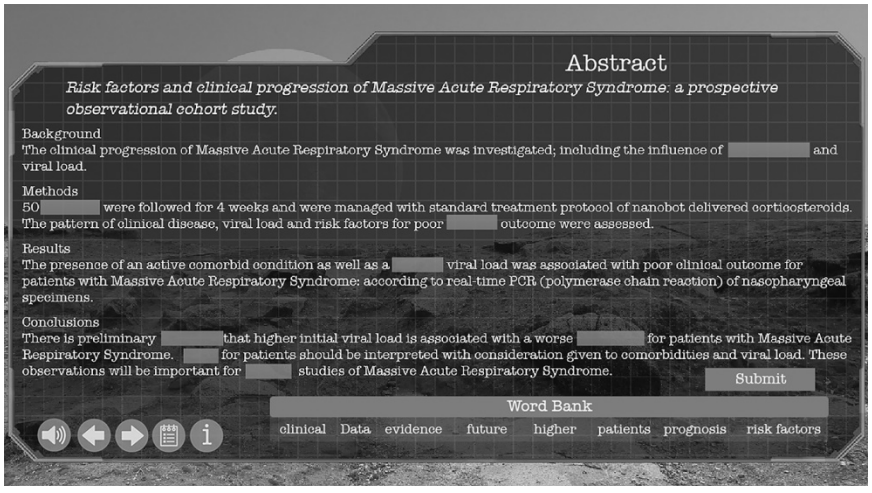

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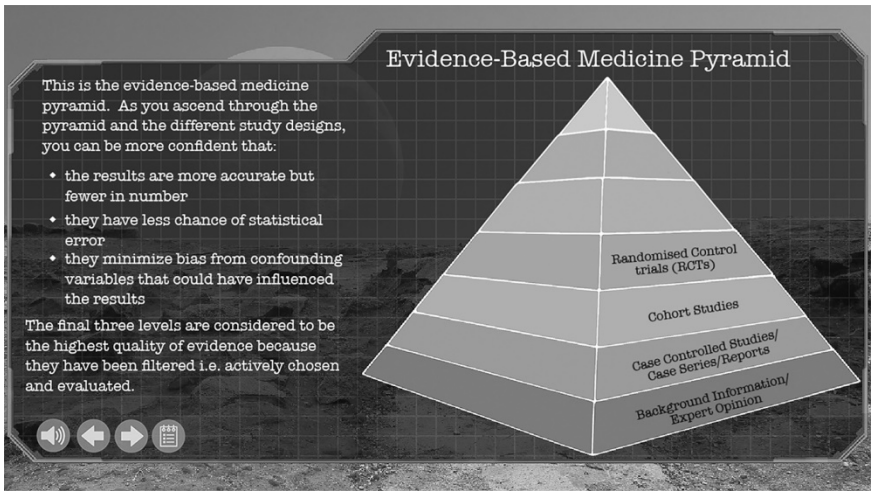
Figure 2 Aligning game activities with the levels of the evidence-based medicine (EBM) pyramid



The library budget available for the project determined the software and expertise utilized. Library staff created video clips for the game scenarios using Adobe Captivate 8 software, which was compatible with the university Moodle platform. Internet Explorer 9 or later, Safari 5.1 or later, or Google Chrome 17 or later were required. The complex tasks of linking instructions, activities, and feedback were completed by an educational developer in the university.

Scenario development required creativity, knowledge of gamification principles, and appreciation of science fiction. The experience of game development helped the project team to increase their understanding of EBP and online gamification techniques. Student feedback indicated an awareness that EBP principles could be applied to a clinical scenario to solve a problem. While most student feedback was positive, some suggested ways to improve the game, such as increasing the level of difficulty and varying the kinds of tasks. Technical issues impeding the seamlessness of the game will be reviewed for the next version. Completion of the highest levels of evidence is also planned. This game has potential application to a range of health-related disciplines and levels of complexity, as well as supporting blended learning and flipped classroom activities.

The *Evidence-based Mars Mission* game, Level 1, is available online. *Evidence-based Mars Mission* by Macquarie University Library is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. Permissions beyond the scope of this license are available online.

REFERENCES

1. Banfield J, Wilkerson B. Increasing student intrinsic motivation and self-efficacy through gamification pedagogy. Contemp Issues Educ Res (CIER). 2014 Sep;7(4):291–8. DOI: http://dx.doi.org/10.19030/cier.v7i4.8843.
2. Tulloch R. Reconceptualising gamification: play and pedagogy. Digit Cult Educ. 2014 Dec 15;6(4):317–33. [cited 18 Mar 2017]. <http://www.digitalcultureandeducation.com/volume-6/reconceptualising-gamification-play-and-pedagogy/>.

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USING DATA DASHBOARDS TO TEACH UNDERGRADUATES TO VISUALIZE HEALTH INEQUITIES

Submitted by Porcia Vaughn, MSIS, Life Science Library, University of Texas at Austin; Michelle Catalano, MA, MD Anderson Library, University of Houston; Josh Been, MLS, Houston Independent School District

To promote data literacy skills among students in health sciences programs at the University of Houston, librarians and faculty in health education