

EDUCATIONAL STRATEGIES

Enhancing undergraduate pharmacology course content through antimicrobial stewardship digital badge integration

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ABSTRACT

Universities are continuously reviewing offerings to ensure relevance for producing the distinctive graduate. The antimicrobial stewardship digital badge was introduced as an optional activity to support basic medical sciences students in a pharmacology course. It was aimed to help students understand the development of antibacterial drug resistance and encourage them to share their awareness of this global public health concern. Students were prepared through 12 weeks of semester in-class, course coordinator directed activities to make an oral presentation on the responsible use of antibacterial drugs. On completion, students were awarded the digital badge, but also earn extra points toward summative grades. Only 10 of 31 registered students completed the digital badge requirements. While this was an innovative activity to promote experiential learning, the low level of student participation was unexpected.


KEY WORDS: Digital Badge; Antimicrobial Stewardship; Resistance

Digital badges have become a popular method of enriching academic experience at many universities.^[1-3] They represent an accomplishment that appears as icons or logos available online and provides links that explain the requirements for the award.^[4] Introducing digital badges into university courses offer an innovative way to deliver the learning objectives, as well as to motivate learning beyond the classroom.^[5]

Antibacterial drug pharmacology forms part of a four-credit course for students in the 2nd year of the Bachelor in Basic Medical Sciences Program at The University of the West Indies. One of the learning objectives of this course required that students should be able to discuss the development of resistance to antibacterial drugs. This specific objective was

delivered through tutorial presentations, written assignments, and group presentations that involved students researching the development of resistance to at least one specific drug covered in the course.

Resistance to antibacterial drugs is a major growing public health concern worldwide, requiring initiatives aimed at fostering antimicrobial stewardship, such as educating the general public on the responsible use of antibacterial drugs.^[6] As a pilot project for the academic year 2018/2019, an optional Antimicrobial Digital Badge activity to enrich the understanding of factors related to antibacterial resistance development was integrated into the course. It focused on educating the general public on the responsible use of antibacterial drugs. Students were required to make a presentation to at least ten persons outside of the faculty, using an approved presentation, which was relevant to course content and the specific objective. To prepare students to complete the activity, continuous discourse on aspects of drug resistance took place throughout the semester, including summative grade components of a written essay and in-class group oral presentation [Table 1]. Students who volunteered

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Table 1: Activity focused on the antimicrobial stewardship digital badge

Semester week	Activity
Week 1	Review of the course outline and evaluation. Students advised that the antimicrobial stewardship digital badge activity is to support the learning objective “students should be able to discuss the development of resistance to antibacterial drugs.” Students would also earn extra points towards their summative assessment grade
Week 2	Students were invited to select a bacterial infection of personal interest and to research the organism associated with the infection, the first-line drug used for the infection, how resistance to the drug is manifested and practices that promote resistance development
Week 4	Students submitted assignment given in week 2, which was graded and returned. All students were then encouraged to use the content to build a presentation for the antimicrobial stewardship digital badge activity
Weeks 5–12	Students volunteering had their presentation reviewed and content approved by course coordinator. Once approved, student were given up to week 12 of the semester to: <ul style="list-style-type: none"> • Complete the presentation; • Submit pictures/videos which show them presenting to the group; • Submit verification form completed by the group leader.

to participate in the activity were required to submit their presentation before the 12th week of the semester. All presentations were reviewed for accuracy and relevance by the course coordinator. Students were required to submit pictures and/or videos, as proof of the presentation being done as stipulated, as well as a verification form, completed by the group leader. The badge, which was placed in the course container of the university Moodle platform, was awarded on completion of the requirements.

Of the 31 students registered in the course, only ten completed the requirements with nine presenting to residents of an on-campus student living facility; one student completed the activity among staff at a popular local restaurant.

Studies on the usefulness of digital badge integration into university courses posit that students have different motivators and may not find opportunities for experiential learning meaningful.^[7,8] With this in mind, not only did this activity offer students the advantage of a greater appreciation of the learning objectives and the opportunity to articulate their knowledge of a significant global health concern, but also the reward of grades. The low level of student participation, in spite of the benefits, was unexpected and requires further evaluation of course alignment with creating the distinctive university graduate.

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