MasteringMicrobiology

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LEARNING OUTCOME

By implementing regular homework in MasteringMicrobiology this university was able to **encourage more regular practice** and respond to the changing learning environment. An **average grade of 70% in the online homework** was pleasing, especially as this was a shift from learning in Arabic to using an English system for learning.

Course
Bio 231

Textbook in use
Microbiology: An Introduction, 10th edition, 2009
Tortora, Fuke and Case

Type of data collected
Lecturer observation, student feedback, student enrolment figures and grades

Data collection period
2011–12

Course design

Due to the weak English language level of the majority of students, who received their education in Arabic, and the different levels of scientific background among the students, I wanted to find an educational process that would help across the course. Previously, the material that was used was translated into Arabic language, which was comfortable for most students and allowed them to memorise the material more easily to get a high score. Since this subject determines specialisation, it is crucial for the students to do well, but at the end of the term I was not finding the scientific or linguistic education satisfactory at all.

I decided to integrate a new professional e-learning experience into the course, both to develop the department by adapting to changing methods of education, and to encourage the students to put extra effort into acquiring new knowledge and understanding scientific language. It is now the second year that this newly developed curriculum has been applied to all the instructors who teach Bio 231, with an intake of 400 freshman students per year. Sales of the textbook have increased, and I am in the process of developing and producing a custom book with the help of Pearson's resources, which will be value-packed next semester.

By adopting MasteringMicrobiology, I was hoping to change the method of teaching and approach the actual goals of the course by presenting modern science and up-to-date information in a respectable and attractive way for students. I wanted to provide the students with the lost basic skills such as reading, researching and analysing, as well as more in depth skills such as the sound of spoken scientific language, writing scientific language, deep understanding of the material, and the ability to imagine the whole picture and link concepts. With these skills, I wanted the students to stop memorising without understanding, and to be prepared for learning in more advanced stages. At the same time, I wanted students to be more self-reliant and willing to accept information in new ways. That is, to raise their awareness of not sticking to the old and traditional ways – especially in education – as it is rapidly moving around us. With the new curriculum and the help of MasteringMicrobiology, they can get good grades by practising at their own pace while enjoying studying.

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Assessment

10% of the grade was allocated to homework done using MasteringMicrobiology. The other 90% included: quizzes worth 15%, a mid-term worth 20%, a final exam worth 30%, lab work worth 20%, and research worth 5%. Next year, I aim to do more of our assessment online.

Implementation

I arranged several practical workshops for instructors and lecturers, which were led by a Pearson consultant. I also persuaded decision makers to provide a reasonable price for the book on campus so that more students would be able to purchase it. For students who were unable to afford the textbook, I organised for copies to be kept in the library. Another potential problem was that some students did not have available internet in their homes, but I addressed this by making the computer lab available for their use. Sending out announcements through Mastering by emails was very helpful for me to reach all students.

For the students, I arranged for a Pearson consultant to assist on the first day of class when they were introduced to MasteringMicrobiology and its potential benefits. She explained about the study area, eText, videos, animations, and other features, as well as how to register and how to do the assigned homework. Students instantly got really interested and started enrolling in my MasteringMicrobiology course. To help the process, I also assigned student groups and group leaders who were confident in English and were able to assist their colleagues during registration and first time use.

I used the textbook as the main reference for my lectures so I encouraged the students to use the eText for taking notes. I assigned all the weekly homework online through MasteringMicrobiology, allowing 2 attempts for each question as I wanted the students to learn and get the benefit from practising. This was a great system as I was able to keep a record of the students' grades and submission dates, and could reopen the assignments for some students who weren't able to submit by the due date in special cases. There was a competition between students to solve the assignments in a specific time period, which was a great motivator. I used a variety of questions in the quizzes; multiple choice, essay and terminology footnoting questions.

Course results

ANECDOTAL EVIDENCE

The old curriculum has changed to the new developed curriculum in the department across all 4 groups in the female section. The male section are now trying to duplicate the same experience as the textbook is constantly out of stock by girls and boys on both campuses.

I really hope that this way of teaching can be circulated across all courses that I teach and across the department. Many instructors are already very interested and wanting to use MasteringMicrobiology in their own teaching.

Students are also keen and have been switching to my section from different sections at the beginning of the year in order to use MasteringMicrobiology.

STATISTICAL EVIDENCE

I was amazed by the response from my students in both sections, as by the end of my course I had 100% enrollment on MasteringMicrobiology. There were two reasons for this successful enrollment on my course. First, the presentation by a Pearson representative on the first day of class. She demonstrated the Study Area and the eText functionality, which the students really liked. Second, the students who didn't originally buy the book heard from other students how beneficial it was, so they bought the book and enrolled to enjoy and learn with their peers (at which point I had to reopen some assignments for those late-coming students to encourage their use).

- At least 60% of the online homework was done by all students.
- The average student spent 1 hour per week on online homework.
- Four students were able to master all assignments and got 100% in all activities on MasteringMicrobiology.
- 22% of students scored 90% and above on the exercises.
- The average grade was 70% on all the assignments, which is a great achievement considering the shift from Arabic to English and using an online technology that is delivered completely in English.
- Students were really happy with their achievements at the end of the semester.

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Conclusions

I have learned a lot from Pearson online technology. Integrating MasteringMicrobiology into my curriculum was definitely a new experience, but I challenged myself and insisted on learning how to use the technology as best I could. I am really grateful for this as I am currently able to enjoy teaching.

I think others can realise that learning and teaching is an art; it requires training, effort, research, constant development and innovation, and it has to be supported by the professor, the students and the decision makers.