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## Using powerpoint in lectures

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## Using powerpoint in lectures

### **Abstract**

Fixed computers and computer projectors have been introduced into all large and medium sized lecture theatres at the University of Wollongong. This, and the wide availability of portable Proxima projectors, has stimulated the use of Microsoft Powerpoint or other computer packages for lecture presentation by a number of academics in our Department and across this University.

## Using Powerpoint in Lectures

**Mark Walker**

**F**ixed computers and computer projectors have been introduced into all large and medium sized lecture theatres at the University of Wollongong. This, and the wide availability of portable Proxima projectors, has stimulated the use of Microsoft Powerpoint or other computer packages for lecture presentation by a number of academics in our Department and across this University.

BIOL215 is a second year "Introductory Genetics" Biology subject offered by our Department. Over the period 1994-1996 I was the coordinator for this course. Between 1994-1995 I delivered approximately 50% of this course and introduced Powerpoint for my lecture presentations. In 1996 I delivered 25% of the course and refined the lecture material. Approximately 75% of the lecture course is now delivered using this technology. Copies of selected lecture material (mainly lecture outlines, conclusions and complex figures) have also been distributed to students as part of the subject manual.

In my opinion the strength of Powerpoint and other computer presentation packages resides in their ability to integrate scanned images, diagrams, movies, tables etc. into a single presentation package which can then be computer annotated (Figure 1). In addition the complete materials may be printed within the laboratory manual.

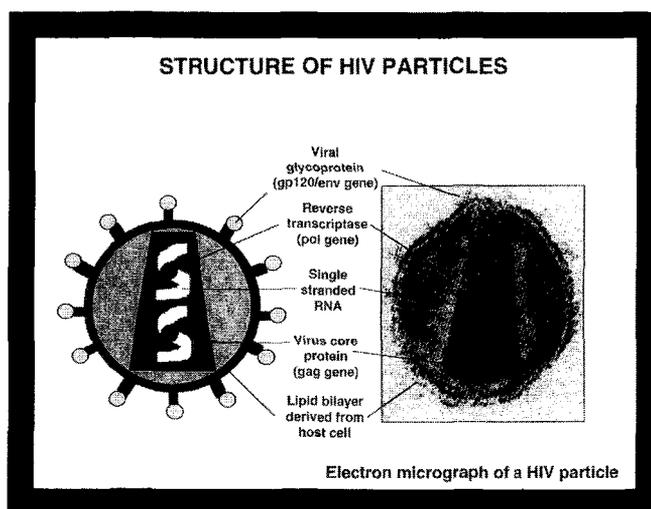


Figure 1. Black and white print-out of a typical coloured powerpoint image used in BIOL215 lecture material.

There are a number of measurable outcomes that I believe are, at least in part, attributable to the use of Powerpoint to deliver lecture material. Firstly, the pass rates for BIOL215 have improved; there were more of the higher grades and fewer fail grades in the 1995-1996 cohort compared with 1993-1994 (Table 1). There have been no major changes in the amount of material presented, or the assessment format or types of examination questions over the period 1993-1996.

**Table 1. Comparison of pass rates**

| YEAR         | 1993 | 1994 | 1995 | 1996 |
|--------------|------|------|------|------|
| Student Nos. | 52   | 90   | 71   | 69   |
| HD           | 2%   | 2%   | 3%   | 9%   |
| D            | 2%   | 14%  | 15%  | 23%  |
| C            | 19%  | 18%  | 28%  | 26%  |
| P            | 40%  | 44%  | 38%  | 28%  |
| PT           | 27%  | 10%  | 4%   | 7%   |
| F            | 10%  | 12%  | 11%  | 7%   |

The University of Wollongong has in the past conducted student assessment of subjects to provide student feedback to lecturers. These assessments are an average mark where "5" indicates the highest possible level of achievement and "0" indicates the lowest possible level. Ratings for my 1994 and 1995 teaching assessments are presented (Table 2). (Teaching assessments were not conducted by the University in 1996.) Of particular interest are the results of the assessments for questions 15, 17 and 18 where the results may reflect the new lecturing format (i.e. student enthusiasm had increased, lecture presentations were perceived as becoming clearer and the sequence of material within the lecture was perceived as being more logical). On the other hand, exactly the same material was covered and the results are almost identical for questions 16 and 19 over 1994 and '95 (i.e. the student interest in the subject material and the quantity of subject material did not change).

**Table 2 Comparison of BIOL215 teaching evaluations**

Q15 I have felt enthusiastic about attending lectures in this subject...

|      |     |
|------|-----|
| 1994 | 3.0 |
| 1995 | 3.8 |

Q16 The subject material has usually been very interesting.....

|      |     |
|------|-----|
| 1994 | 3.7 |
| 1995 | 3.7 |

Q17 The lecturer has presented material very clearly.....

|      |     |
|------|-----|
| 1994 | 3.6 |
| 1995 | 4.4 |

Q18 This lecturer sequences material within each lecture very logically.....

|      |     |
|------|-----|
| 1994 | 3.7 |
| 1995 | 4.3 |

Q19 The quantity of material presented by this lecturer has been far too much.....

|      |     |
|------|-----|
| 1994 | 3.9 |
| 1995 | 4.1 |

Finally, a number of positive anecdotes from written student feedback were received in 1995 when Powerpoint was not a commonly used teaching tool in our Department. Students were asked to comment on the use of Powerpoint for lectures and the provision of selected lecture material in the subject manual. Some of these comments are given below:

*"My understanding of this subject has been enhanced and reinforced by the clear lecture material and presentation"*

*"The lecturer is very clear in his presentation and very organised"*

*"The lecture notes in practical manuals have been very helpful because we do not have to spend time copying off overheads and can actually listen to what the lecturer is saying"*

*"I think that having the lecture notes written out in the lab manual is a great help. You don't have to worry about writing out the notes, you can try and learn the material. It has helped me understand"*

*"From doing the subject last year I like the way the lectures are in the library and the prac manual. It makes it so much more understandable"*

*"Powerpoint lectures are terrific....."*

## Advantages

I believe that the main advantage of using Powerpoint and other computer presentation lecture formats is that it improves the clarity of lecture material in comparison to a more traditional "chalk/overhead projector" format. Lecture notes are also easily modified and updated. Powerpoint also contains the ability to integrate scanned images, diagrams, movies and tables

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into a single presentation package which can then be computer annotated. Selected images can be printed out 1-6 per page and incorporated into subject manuals.

## **Disadvantages**

The major disadvantage of using Powerpoint to present lecture material is the time required to produce a powerpoint lecture. In my experience it can take up to 8-10 hours to produce a lecture compared to 3-4 hours for a traditional "chalk/overhead projector". However once the lecture is produced it is easy to adapt the material as required. Another problem may arise from the incompatibility of future software upgrades. For instance, lectures written using Powerpoint version 3.0 are not easily converted to Powerpoint version 4.0.

## **Conclusion**

There are numerous factors which impact on the ability to teach a subject including: student numbers, enthusiasm and ability of the lecturer, teaching loads, the ability of students, and course content just to name a few. Certainly, I believe that Powerpoint and other computer packages are only a teaching aid. However, as an academic who has tried both traditional "chalk/overhead projector" and Powerpoint presentations, I would certainly never go back to conducting a lecture series using traditional techniques and I would encourage other academics to take advantage of the currently available technology for lecture presentation.

## **Acknowledgments**

I would like to thank Mark Wilson for helpful suggestions. BIOL215 teaching evaluations and comments referred to in this article were sighted by the Editor.