

# From using transparencies to using Powerpoint slides in the classroom

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## 1. Introduction

Since 1997, the government in Hong Kong has launched numerous initiatives to attach more importance to IT in school education. A "Five-year strategy 1998/99 to 2002/03" (Education and Manpower Bureau 1998) was proposed to promote the use of IT as a teaching and learning tool across the curricula. The main tasks were to equip teachers with the necessary IT skills, to apply computer-assisted teaching and learning across the curriculum, to place students in an environment so that they could use IT as part of their daily activities and continue to use it in their lives. In both secondary schools and universities, teachers are encouraged to use Powerpoint slides in the classrooms as a teaching aid.

While transparencies have often been used as a teaching aid in universities, in response to the urge for the use of new technology, recently, there has been an increasing use of Powerpoint slides to replace the use of transparencies in the classroom.

## 2. Literature review

Much has been written about the advantages and disadvantages of using transparencies and Powerpoint slides (Costa 000, Crooks 2001, Kelly 1999, Martha 1997, Parks 1999, Reding 1995, and the websites on the reference list) as a presentation aid.

### 2.1 The advantages of using overhead transparencies are as follows:

#### 2.1.1 In terms of characteristics related to preparation and use

- They are inexpensive.
- They can be prepared quickly and easily.
- They can be used repeatedly.
  - o A variety of materials can be projected.
  - o They can be prepared in advance.
  - o They can be presented immediately without waiting.
  - o Normal room lighting is used so that the audience can follow handouts or take notes.

3. In terms of characteristics that help to bring about pedagogical effects during presentation

- They are professional looking.

- The presenter can maintain eye contact with the audience and can pick up verbal and nonverbal clues to understanding.
- The presenter can focus the audience's attention on visual materials by turning the projector on and by turning it off to focus attention back to the speaker.
- The presenter can skip materials or change their order easily.
- The presenter can highlight important points, write or draw additional information onto the transparency or make corrections easily during the presentation.
- Overlays can be used to simplify complex information into layers, attain a step-by-step build-up or effect a breakdown of the layout.

4. The disadvantages of using transparencies are:

4.1 In terms of characteristics related to transport and storage

- They are bulky and heavy to carry.
- Framed transparencies are bulky and difficult to store.
- Plastic transparencies stick to each other.

4.2 In terms of characteristics that bring about pedagogical effects

- Often, the image does not sit squarely on the screen as the head of the projector is tilted to increase the size of the image.
- During presentation, transparencies are often misaligned on the projector and screen.
- Keystoning (when the top of the projected image is wider than the bottom) may occur.
- Bright light is distracting to the audience.
- Sometimes the projector head gets in the audience's way.
- Some presenters feel captive to the machine because they must change each transparency by hand.
- The presenter needs to use strips of opaque paper or cardboard to cover sections to progressively disclose information.

It seems that transparencies have advantages as to convenience of preparation and use but disadvantages in transport and storage. As regards pedagogical effects produced by the use of transparencies, misuse of transparencies may cause visual discomfort. Though slightly tedious procedures have to be followed in order to make proper use of the transparencies, positive pedagogical effects can be produced by skilful use of the aid.

5. The advantages of using Powerpoint slides are as follows:

- They can be stored easily on a disk.

- The slides cannot get lost.

- The slides, the speaker's notes, the outline and the handouts can all be stored in one file.
- They support environment protection.
- They can be easily refined and reused in following years.
- They are flexible.
- They are easy to modify.
- The presenter can print notes that help him or her remember points about each slide.
- The presenter can print handouts with two, three or six slides on a page.
- The presenter can print the outline of the presentation to show the main points.
- They can present complex computer graphics and animation.
- They can have hyperlinks to pertinent web sites.
  
- The presenter can access slides from other presentations on the same disk.
  
- Motion media and sound files and interactive elements can be inserted to add functionality to the programme.
  
- Powerpoint has an extensive range of drawing tools  
  
and shapes to choose from to supplement the slides.
  
- The presenter has access to visually stimulating tools such as animations and simulations. They are useful in demonstrating difficult concepts that words and static diagrams cannot easily convey.
- The presenter can make attractive fonts or different typetypes with a host of different colours to attract the students' attention to more difficult words or important things.
- Both texts and images can be displayed on the same slide.
- Some simple drawing tools are provided so that the presenter can use the mouse to circle or draw arrows between texts and images on the slide.
- Items can be highlighted with the "pen" function.
- They are professional looking.
- The shows can be run manually or they can be timed in advance.
- The presenter can reveal points one by one on a single slide without having to cover up points with a piece of paper.
- They allow the presenter to face the audience.
- They make presentations more fun to give and more interesting to listen to.

#### 5.1 The disadvantages of using Powerpoint slides are as follows:

- They foster more passive learning.
- They have more rigid format and are less open to incorporating ideas not on the presenter's outline.
- Some operating skills and experience are required if the presenter wants to digress from the planned slide sequence.
- They are not well-suited to drawing impromptu sketches.

- Creating new slides on the spot is possible but clumsy.
- The presenter may encounter technical difficulties, typically in getting the presentation started.
- There are difficulties finding the right visuals if the presenter wishes to go back and forth with the slides.
- Complex slides can take a long time to download.
- There is a high risk of bugs, malfunctions and confusion.
- There are often temptations to overuse background, transitions and other frills which distract the audience. Students may become focused on the technology used to make the presentation instead of the point of presentation.

It seems that Powerpoint slides have advantages in storage, the variety of sophisticated features that can be chosen in preparation and the attractive effect they can produce when being used as a presentation tool. However, if they are used as an inductive teaching tool, there may be disadvantages inherent in the software that hinder flexible and easy use of the tool during teaching to bring about desired pedagogical effects.

The above advantages and disadvantages as cited in the literature are perceived from the perspective of a presenter. These are the viewpoints of presenters who are experienced in using both of these visual aids. It would be advantageous to investigate whether teachers who are not experienced users of Powerpoint slides feel the same about the tool. It would also be worthwhile to find out how the students view the effects of the use of the two visual aids from the learners' perspective.

## 6. Objectives of this paper

This paper attempts to explore how a teacher-researcher, an inexperienced Powerpoint slide user, reacted to the gradual change from the use of transparencies to Powerpoint slides and the effectiveness of the use of transparencies and Powerpoint slides from the point of view of the students. Pedagogical implications will then be discussed.

## 7. The purpose of using transparencies and Powerpoint slides in the course

In this study, transparencies and Powerpoint slides were used as visual aids to help the teaching of a course on English Communication skills in Computer Studies. In this course, students were taught how to conduct a technical interview and write a technical proposal. Mini-lectures were given on the communication skills needed in conducting a technical interview and writing a proposal in the course. Key points in the mini-lectures were put on transparencies or Powerpoint slides to help the students understand the content of the mini-lectures.

## 8. The educational theory behind the teacher-researcher's use of visual aids

The teacher-researcher viewed mini-lecturing as an interactive process with the students rather than a teacher-directed monologue. She also viewed learning as an inductive process. She chose to elicit ideas from the students

by asking questions rather than presenting information to the students deductively. Because the students responded spontaneously in unrehearsed language, it was impossible to predict what answers they would give. Thus, when using transparencies as visual aids, the teacher-researcher usually covered each transparency with a piece of paper. The piece of paper was cut into strips covering each point on the transparency. When a student gave an answer that matched the point on the transparency, the teacher-researcher flipped open the slip of paper covering that point so that the student had a sense of achievement because the uncovered answer confirmed that the student had given a correct answer. This aroused in the students a feeling of excitement over attempting to answer questions.

After talking on a topic, the teacher-researcher usually covered up all the points again with the slips of paper and reviewed the main points with the students. The students had to give the main points upon elicitation. When a main point was raised by a student, the teacher-researcher turned back the slip of paper covering that point. When all the main points were given by the students, a framework of main points was shown on the screen, leaving the explanations and examples covered. The students could thus have a firm grasp of all the main points after listening to the topic.

In teaching the students theories or principles, she tended to allow the students to discover copious rules and paradigms inductively through examples or samples. Thus, the teacher first showed the students the examples or samples and asked the students to identify special features on them. After the students had attempted to give some answers, she put a lay-over on a transparency with coloured lines highlighting important or interesting features in the examples or samples either to confirm what the students had mentioned or to give clues to the students to figure out the correct answers.

## 9. Research method

### 9.1 What visual aids to use in the study

In this study, the teacher-researcher taught the same course on Communication skills in Computer Studies for 14 weeks to 2 classes of Computer students. The teacher-researcher was used to using transparencies as visual aids. This was the first time she had attempted to use Powerpoint slides to help her mini-lectures. In one class, the teacher used transparencies as visual aids only. In the other class, the teacher-researcher planned to use Powerpoint slides throughout all lessons. However, in reality, during the lessons, when the teacher-researcher felt that the Powerpoint slides failed to help her achieve the pedagogical effect desired, she switched back to transparencies instead. Thus, both transparencies and Powerpoint slides were used in the second classroom.

### 9.2 Research instruments

The teacher-researcher kept diaries of what happened and how she felt in each lesson throughout the 14 weeks. The students in the two classes were given a questionnaire to complete at the end of the course to seek their opinions on the effectiveness of the use of the transparencies and Powerpoint slides. The questionnaire asked them whether they preferred the use of

transparencies or Powerpoint slides and they were asked to give answers to open-ended questions asking them about the reasons for their choice.

### 9.3 Data analysis

The diary entries were analysed using the methodological framework laid out by Bailey (1990) and Nunan (1992). Patterns were identified while examining the data (Bailey 1992:219) and the data was analysed using the key concept technique, which is a "key word analysis .... generating categories from the statements made" (Nunan 1992:146). The questionnaire results were analysed by calculating the frequency of the responses. The opened ended answers were analysed using content analysis method and the results were categorized.

## 10. Findings:

### 10.1 How the teacher-researcher reacted to the gradual change from the use of

transparencies to Powerpoint slides

#### 10.1.1 Problems at the beginning

The teacher-researcher was used to using transparencies. Because it was the first time she had tried using Powerpoint slides, she was nervous about the technology and as a result experienced chaos at the beginning. For example, this was what she wrote in her diary (28/9):

I copied the Powerpoint slides from floppy A to drive C and tried them out in the classroom yesterday. Everything went well. I took the notebook into the classroom today thinking that there should be no problem showing the Powerpoint slides. However, it took me some time to set things up. When I wished to turn to a slide in the last part of the file, I found that there were no slide numbers on the screen in the notebook. I tried to use the arrow and the "page down" key to move to that slide, but the slides kept rolling downward. When I had just passed the slide I wanted, it could not go backward but scrolled to the end of the slides. The students thus got a chance to look at what should be shown to them some lessons later. It was very embarrassing. I apologized and tried to turn to use the transparencies instead. However, the projector broke down at that moment. So, I had to give out the handouts and went over the points on the handouts with the students.

### 10.2 The effectiveness of the two visual aids as perceived by the teacher-researcher

As the teacher-researcher used more and more Powerpoint slides, she began to see the advantages and disadvantages of this new visual aid. For example, on 4/10, she wrote in her diary:

The colour on the slides was good. There was no need to turn over the slips of paper on the transparency. The appearance of the things projected was better than those on the transparency. However, when I elicited answers from the students and when a student gave an answer that was far down on the list, I could not go to that point immediately. I had to elicit all answers from the students first before showing them all the points in the order they appeared on the list. I was not happy about the pedagogical effect this had on the students. I could have easily achieved all these effects with the use of transparencies.

### 10.3 The effectiveness of using transparencies and Powerpoint slides from the point of view of the students

#### 10.3.1 Responses from the class in which only transparencies were used

When the students were asked what visual aid they preferred in the questionnaire, 64.29% reported that they preferred transparencies and 42.86% said that they preferred Powerpoint slides. In other words, transparencies were more valued than Powerpoint slides.

The reasons why they preferred transparencies were as follows:

- There is no need to waste time setting up the computer.
- It is easy for the teacher to write some extra notes on the transparencies.
- The teacher can use slips of paper to cover up points on the transparency and focus on the uncovered parts.
- It is more flexible when showing the points. There is no need to show the points sequentially. When there are many answers to one question, we do not need to answer according to the order of the points on the transparency.
- It is easy to go back to look at the previous transparencies and swap the transparencies.
- The overlays with coloured lines help the teacher explain difficult concepts effectively.
- The teacher can effectively use the slips of paper to help us review main points.

The reasons that the students gave as regards why they preferred Powerpoint slides were as follows:

- Powerpoint slides are more attractive, eye-catching and visually more comfortable.
- They are clearer than transparencies.
- Various kinds of things can be shown.

- They are easy to control.

### 10.3.2 Using transparencies or Powerpoint slides in a lesson

As for the groups of students to whom both transparencies and Powerpoint slides were shown, 33.33% of them preferred transparencies and 66.67% of them preferred Powerpoint slides. In other words, they preferred Powerpoint slides more.

The reasons given for preferring transparencies were as follows:

- It is more flexible and easy to handle.
- When the teacher tried to elicit answers from us, the slips of paper put over lists of items on the transparencies helped the teacher effectively show the answers given randomly by us.
- It is easy to add points to the list on a transparency.
- The teacher can easily explain the items by writing on it.
- The teacher can effectively use the slips of paper to help us revise the main points under a topic, skipping the examples.
- The colourful overlays help to unfold information gradually and effectively.

The reasons given for preferring Powerpoint slides were as follows:

- They are colourful
- They are attractive.
- They are interesting.
- They are clearer.
- They look more professional.
- They are more efficient.
- The slides are always in the right position.
- The things on the slide can move.

Though the preferences of the two classes were slightly different, the reasons that they gave for preferring transparencies and Powerpoint slides were similar. The reasons given for preferring transparencies were those related to pedagogical effects on their learning whereas the reasons for preferring Powerpoint slides were related to visual comforts. Both groups felt deeply that the teacher's use of transparencies helped them to learn better but could not say more about the strengths of using Powerpoint slides except by noting that they were more entertaining visually.

However, for the group to which only transparencies were shown, they valued the pedagogically positive effects brought about by the transparencies more than the visual attractions which they imagined but to which they had not been exposed. As regards the group to which both transparencies and Powerpoint slides were shown, the students were fascinated by the attractiveness of Powerpoint slides and valued the visual attraction more than the pedagogical benefits that they obtained from the use of transparencies.

## 11. Discussion

From the response of the students, it can be seen that a Powerpoint slide is no doubt a visually more attractive aid than a transparency. It would seem likely that Powerpoint will soon replace transparencies as a visual aid for presentation and teaching. Powerpoint slides are certainly an effective presentation tool. However, they are not yet an effective tool especially for inductive teaching. To make them become effective teaching tools, the following points need to be taken into consideration. While it is necessary to keep the features that bring about the attractiveness of Powerpoint slides, it is more important to reduce the limitations in the present Powerpoint software in order to make the slide a pedagogically beneficial tool rather than just a visually attractive aid. The programmers need to work out some ways to build in a function so that the points on a list can be shown in random order as desired by the teacher. A function should also be built in so that points can be hidden easily leaving behind the headings to help the students review main points. Though there are functions to help the presenter add and draw things on the spot, the process should be simplified so as to increase the convenience of the aid. The process of jumping from one slide to another while omitting those in between also needs to be simplified so as to allow greater flexibility of use of the software to achieve the pedagogical effects desired.

Since teachers who begin to move from using transparencies to Powerpoint slides in the classroom, like the teacher-researcher, often experience frustrations and feel a desperate need for technical support, if the Powerpoint software can provide the teachers with the appropriate kind of technical support needed, the teachers can experience a smoother, more speedy and more successful transition from using transparencies to Powerpoint slides in the classroom.

However, it will take some time before the software can be upgraded and equipped with pedagogically more desirable functions. In this transitional period, teachers may consider using both transparencies and Powerpoint in a lesson. Each visual aid can be used at different points of the lesson or in some situations, both of them can be used simultaneously to bring about the most ideal pedagogical effect.

## 12. Suggestions for further research

This study only examines the teacher-researcher and students' views on the use of transparencies and Powerpoint slides in two classrooms. The sample is small and the results are not generalizable. However, this study is a starting point for further investigation into the topic. It may be worthwhile carrying out a research study which explores the effectiveness of using both visual aids at the same time in a lesson. It is hoped that more practical ideas as regards how the two visual aids can be used most effectively to bring about the greatest pedagogical benefits to the students can be obtained through future studies so that the student learning can be greatly enhanced.

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