

# Hardware Basics: An Alternative Assessment Approach

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## ABSTRACT

Hardware Basics is a first year compulsory course in the Bachelor of Computing Systems undergraduate degree program. The majority of students attending the evening class are employed and working during the day. They are very hardworking, sincere and motivated. Keeping these views in mind, the author thought that it would be a good idea to involve them more actively in the course as this may enhance their motivation and establish a better learning environment. A weekly presentation by a group of two students was introduced. The following paper will relate how this method provided a slight shift from a teacher centred, monotonous approach to one that was more student centred and provided more interest and added variety to the course. The paper also describes the experience of the lecturer and the many rewards along the way.

**Keywords** Teaching, presentation, assessment



## 1. INTRODUCTION

This paper describes my experiences in my evening Hardware Basics class. The Hardware Basics course is a first year compulsory course in the Bachelor of Computing Systems at UNITEC Institute of Technology. The majority of students attending the evening class are employed and working during the day, they are very hardworking and sincere. The students also seemed to be quite motivated too. Keeping these views in mind, I thought that it would be a good idea to involve them more actively in the course as this may enhance their motivation and establish a better learning environment. I introduced a weekly presentation by a group of two students. In the following paper I will relate how this method provided a slight shift from a teacher centred, monotonous approach to an approach that is more interesting and added variety to the teaching. As I proceed with the description of my experience, you will notice that there were many more rewards on the way. The students gained more confidence and got a taste of research too.

## 2. THE COURSE

### 2.1 The Course Description

The Hardware Basics course is 12 credits (approx 120 student learning hours). There are 15 teaching weeks of 3 hours per week. The day time classes have this in two 1.5 hour sessions, one of theory and one of practical. The evening classes are for three hours, with a 15 minutes break between three hours.

## 2.2 Why I Choose an Alternative Assessment Method?

It can be quite monotonous and boring to listen to one person for three long hours and student may lose interest towards the later part. The student presentation was a slight shift from a teacher centred, traditional approach to an approach that is more interesting and added variety to the teaching. The purpose of the presentations was that the students research and analyse a particular topic and present it in an informal atmosphere under the supervision and direction of the teacher.

Usually, students think that whatever a teacher teaches in the class is good enough and they'll pass the examinations. However, unless they are encouraged to analyse and do private study, they have not really understood the subject.

However, some students get frustrated too. They find it difficult to cope with the vast material available. They need to learn to organise the information in manageable units. Once it is understood how concepts are related, it becomes easier to remember and apply the new information. In the process they learn knowledge acquisition, representation, and retrieval.

As pointed out by Allen Tough, in "The Adult Learning Project", the learners of the future will be highly competent in deciding what to learn, plan and will be able to assess his/her own learning". My simple step, student presentation, is a living proof in this direction.

Learning style can be defined as "the individual's characteristic ways of processing information, feeling and behaving in a learning situation" (Kasworm 1980). I found that an adult undergraduate student shows stronger capability than teenagers do for conducting analytic enquiry and are good at integrating and synthesizing theoretical materials. They are quite comfortable with independent activities.

In Melcom's words, for self-learning a student must have a divergent thinking and an inquiring mind. Students should be able to formulate questions and it is important that they also are able to locate the most relevant and reliable sources and acquire data too. Last but not least they should be able to apply and communicate the information in an effective manner.

## 2.3 How the Groups Were Selected

The Hardware Basic evening class was divided into groups. Each group consisted of two students. The students were given the option of choosing their own

group. Although the majority of the students were comfortable in forming their own groups, there were some students who needed help. The teacher helped them in forming their groups.

Each class began with the teacher introducing the day's topic in brief. Subsequently the selected group of students was invited to give a presentation on the topic. The presentations were 10 - 15 minutes in length. The student was required to stand in front of the class and present their own learning. On completion of the presentations, there was a question and answer session. Afterwards, the teacher would tie the loose ends, fill in the gaps and go deeper into the topic (if required).

## 2.4 The Presentations

During their presentation they were citing examples from the real world and from their own personal experiences. This made the topic come alive. Other students could easily identify with the material being presented and this made the subject all the more simple to understand. The students were able to enrich the course with the wealth of their experiences.

For quite a few of the students, this was their first time to present in front of a live audience, and they were naturally quite nervous. Their fellow students were very supportive and encouraging, one of the reasons could be that they knew that one-day they will be standing there.

The students were assigned to learn a particular topic on their own, with little or no support they could achieve excellent results. Every one tried their best, they had good subject matter, it was properly organized and they presented the information so that it was understood by their classmates.

The Hardware Basic course had other assessments also, a practical test, presentation and a final examination. The performance curve and bar chart are given in the result section. As well as the presentations, I conducted brainstorming sessions too. We had some case studies about the types of computers and associated hardware in differing real life situations, and future computer hardware. The purpose was to encourage them to think innovatively and put forward views in the class orally.

## 3. RESULTS

Presentations made the class very relaxed and enjoyable. The group presentation encouraged cooperative learning, helping each other, and solving problems together. It also helped them to cross the cultural and social barriers.

The presentations helped them in developing their analytic and research skills. As Peter Ustnov said, “After all what is education but a process by which a person begins to learn how to learn”. The students in Hardware Basics class ‘learned, how to learn’.

The students were able to enrich the course with wealth of their experiences. Overall, including presentations in the Hardware Basics class gave the student a wider and in-depth knowledge of the topic.

It was very encouraging to see students taking up responsibilities. They were well rewarded; they felt empowered. When a student experiences success, and is cheered by fellow students and the teacher, his/her self-esteem goes up. This encourages them put in more effort.

There were some students in my Hardware Basics class who did not feel comfortable giving a presentation and although they were encouraged and offered help they opted out of doing the presentation. However, the majority of the students enjoyed the presentations.

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I found that an adult undergraduate student shows stronger capability than teenagers do for conducting analytic enquiry and are good at integrating and synthesizing theoretical materials. The are quite comfortable with independent activities.

The performance curve and bar chart are given in Figure 1 for the Presentation and final examination. It is quite obvious that their result in their presentation was far better than their final examination.

The students response to the brain storming sessions was overwhelming. I had prepared my contribution for the topics and with student’s participation it really multiplied.

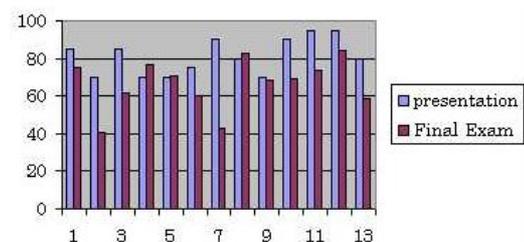
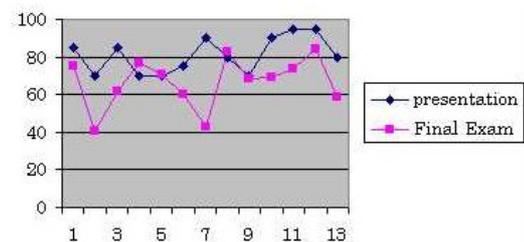
**Figure 1: The performance chart and curve for the Presentation and the Final Examination**

#### 4. SPECIAL REWARDS

Standing up in front of the class and presenting their research and understanding of the topic gave the student a feel of public speaking. How to address the audience? Although here we had a friendly audience, still one has to ensure that she/he speaks in clear, simple way so that every one can follow the subject matter. Some students were quite good and did not require any help. There were few, who knew the subject, but did not have enough confidence and courage to face the audience. With some help and guidance from the teacher, good use of over heads and writing on the board, they did a very well.

A live audience responds to every aspect of the speaker such as their appearance, and their body language. Ninety-nine percent of the students were conscious of their appearance on their presentation day and were elegantly dressed for the occasion. Some were able to use the body language quite effectively and gained the appreciation of their fellow students. Thus a simple presentation by the student gave them not only the mastery over their topic but gave them a more varied and fulfilling experience.

As this was a group presentation the students were very supportive of each other. They complimented, supplemented, and augmented each other’s presentation. It was a true cooperative learning experience. If one was speaking then the other may be drawing a diagram on the board or changing the overhead transparency or demonstrating the object. It was a thrilling experience to see the novice speakers at their best.



## 5. CONCLUSION

Students gained confidence and got a taste of research too.

We are aware and we accept that in the future the main mode of learning in higher education is going to be self directed learning. It is important that our tertiary students “learn how to learn”. If we encourage the students to do some private study while we impart the knowledge of the subject to them, it will enhance their learning and make them more responsible. It is essential to have some accountability for their private study of the subject. If there is no incentive or accountability for their private study, the majority of the students may not attempt to do it at all.

A presentation is one way that the students can be motivated to learn on their own and share their knowledge with others. The presentations in my evening classes proved useful in motivating the students towards self directed learning. The students, by this process, learnt how to acquire, organize, apply, and communicate information. The group presentation encouraged cooperative learning, helping each other, and solving problems together. It also helped them to cross the cultural and social barriers.

The brainstorming sessions on case studies were also very useful and made the students think innovatively about the future possibilities of computers and there associated hardware. Including presentations in the Hardware Basics class gave the student a wider and in-depth knowledge of the topic. Overall I am a satisfied teacher and I enjoyed teaching this class very much.

## 6. ACKNOWLEDGEMENTS

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