The radio frequency Personal Response System (PRS) is an electronic teaching resource which provides an experience similar to ‘Ask the Audience’ on the television programme ‘Who Wants to Be a Millionaire?’ The system is flexible and may be used to ask multiple choice, true/false and answer series types of questions, amongst other question formats. During the current academic year, I have integrated the PRS into my introductory level management accounting course for second year students. I have been very pleased with the level of engagement of the students with the course as a result of using the PRS and they have responded positively to the use of this system in my classes. Also students receive real-time feedback on their understanding of the key topic areas on the course. Furthermore, the system has been fairly quick to set up and fun to use. In addition, following my demonstration of the system earlier this academic year, colleagues in Economics and Management Science at Lancaster University Management School have now adopted the PRS in their classes. Since adopting the PRS, they have found their classes have improved attendance and higher student engagement levels than had been the case in previous years.

Keywords: Feedback, Personal Response System, Student Participation

Introduction

In order to increase the level of student participation and engagement during lectures, I introduced the Personal Response System (PRS) into my classes. The radio frequency PRS is an electronic teaching resource which provides an experience similar to ‘Ask the Audience’ on the television programme ‘Who Wants to Be a Millionaire?’ During the session, students are provided a handset to vote on the questions and the system collates all the votes. Following voting, a graphic is shown on screen, detailing the student responses to a particular question. Lancaster University has used an infrared PRS since academic year 2000/2001, although the system is not very flexible and unsuitable for use with larger classes. The increases in class size at the
undergraduate level and desire to provide feedback on an individual basis
more frequently led to grants being placed to purchase a radio frequency
PRS. The new radio frequency PRS overcomes the limitations of the infrared
PRS; it is quick to set up, offers a number of different question formats and is
only constrained by the number of handsets.

This case study outlines the use of the radio frequency Personal Response
System (PRS) in my second year introductory level management accounting
course. The use of the PRS for regular testing was intended to provide a
more engaging and active learning approach for students in lectures, as well
as providing timely feedback to students on a regular basis on their
understanding. In addition, this was intended to provide incentives for
students to keep up to date with course materials throughout the term. The
students have responded positively to the use of the PRS in my classes in the
current academic year 2007/2008 and many have commented that this was a
fun and helpful resource.

The next section outlines the PRS and the course context, and the rationale
for using the PRS in my classes. Section 3 discusses what is involved when
using the PRS and the results from a student feedback questionnaire. Then
in section 4 there is discussion of how to get the technology to work
successfully and the challenges faced in implementing the PRS. The last
section concludes.

Context and Rationale for Using the Personal Response System

What is the Personal Response System?

The radio frequency PRS is an electronic teaching resource which enables
the lecturer to ask the class a variety of questions including true/false, multiple
choice, numerical reasoning or answer series. The system may be used by
students anonymously if the lecturer wishes to gauge the students’
understanding. Alternatively, if the lecturer wishes to use the system for class
testing or collecting homework, this is also possible. To use the system for
testing, the students log in to the system using an identification number, and
responses from individual students can then be identified. The system will
grade students’ responses after the session according to certain criteria which
the lecturer can amend according to course benchmarks (Beekes, 2008a).
The PRS may also be used for attendance monitoring as class lists may be
uploaded in advance of the class and students who are absent are identified
by the reports produced by the PRS software.

During the session, students can vote for their chosen answer with a handset
which has both numerical and alphabetical buttons. As can be seen from
Figure 1, the handset is almost like a pocket calculator with buttons for
true/false, 1 to 9 and text entry. The handset can also tell the user how much
battery life is left, a useful feature if this is to be used for testing in classes.
The responses are collected wirelessly by a small box which is connected to
the computer by a USB cable. The PRS software is easy to use for writing
questions; it is very similar to a word processor and the questions may also be
entered into the lecturer’s PowerPoint presentation for the class. There is no limit to the number of questions which can be stored on the system and it is simple to copy the questions from one folder to another folder in the questions directory. This makes setting up a bank of questions and selecting particular questions for a class test an easy task.

**Figure 1**
The Radio Frequency Interwrite PRS Handset

Source: Interwrite Learning (2008)

When running a PRS session, everyone is provided with a handset to vote. After everyone has logged in, the lecturer starts the session, and the question and possible answers are shown on screen. The lecturer determines the amount of time for each question and after the clock has been started, the amount of time left to answer a question is displayed on screen. In addition, the display also shows the number of students who have voted. The time for a given question may be altered by the lecturer during the session as necessary. For example, if students appear to find a particular question tricky, the lecturer can extend the amount of time during the session whilst voting is taking place. Alternatively, if everyone in the class has answered the question, the lecturer can stop the clock. The lecturer may also vary the number of times students can answer a particular question, allowing them to re-think and change their answer. Naturally for class testing, this feature may be turned off.

After the voting time is up for a question, the system collates all votes and displays a graphic on screen showing how the students have voted. Instantly the students get feedback on their understanding of the key concepts reviewed. It also enables the lecturer to explain the rationale for the correct answer and in addition to providing quick feedback to the student group, it also helps the lecturer see what the class does (and in some cases does not!) understand well which can help curriculum development for the future. As Draper et al. (2002) suggest this can also provide the lecturer with useful feedback on the students’ understanding of key topic areas. In addition, this could be useful to the lecturer in deciding on additional problems or reading materials to help students on the course.
The Course Context

The PRS has been integrated into my second year undergraduate Management Accounting class for the first time during the current academic year, 2007/2008. This 10 week course runs twice a year in both the first and second terms and typically has approximately 350 students per year, split across the two terms. The course is compulsory for a number of students in the Management School (including Accounting and Finance, and some Business Studies students). Even though this is a second year course, it is at an introductory level, but students will have studied financial accounting and book-keeping previously. Even before they start the course, some students have pre-conceived ideas about what accounting is all about from previous courses; often students believe that accounting is primarily about ‘number crunching’, and employing rules and regulations to financial information. Management accounting in contrast is about meeting the needs of managers; although there are some techniques involving calculations, the course is primarily about decision making, planning and control which can involve a significant amount of discussion elements. Therefore a key aim of introducing the PRS is to encourage students to overcome these misconceptions and broaden their awareness of the key topic areas. Prior research has found that students are more likely to retain the key concepts learned if a more fun way to learn is adopted (Marston, 2003), and I hope through using the PRS students enjoy the classes and engage with the subject more fully during class time than may otherwise be the case. Figure 2 shows the students using the system in my course.

Figure 2
Students of My Introductory Management Accounting Course Using the PRS

A key aim of using the PRS was to improve the timeliness of feedback to students on their understanding of course topics. Last year, the course was assessed by a take-home report (25%), with an end of the term deadline and an end of year examination (75%). This meant that students did not get feedback on their assessed coursework until after the course had been completed. Therefore, the only regular feedback mechanisms in place for this
course were the weekly tutorial sessions, which although vital to the course and student understanding, did not appear to be meeting students’ needs for regular feedback. Departmental feedback student questionnaires from this course last year commented on the students’ desire for additional feedback during term-time as the course progresses. In addition, results in the 2007 National Student Survey showed that generally in Business and Management subject areas, courses were quite poor in their ability to provide timely and regular feedback on student progress (HEFCE, 2007).

Following the course feedback last year, several funding bids to purchase a new PRS system suitable for use in larger classes were submitted. Bids to the Lancaster University Management School IT Committee and Lancaster University Friends Programme were successful and the radio frequency PRS was purchased in 2007. To incorporate the PRS into my lectures I re-structured my course to include regular testing using the PRS each week during lectures. This attempted to address student desire for additional feedback, and although I do not include this in the summative assessment for the course, students do receive informal feedback on their progress on a weekly basis.

**Aims of Using the Personal Response System**

The use of the PRS in class time encourages active learning to take place and prevents the passive approach, often typical of lectures (Snyder, 2003). The PRS sessions try to achieve active engagement of all class attendees, irrespective of their background and knowledge level. Admittedly, the use of multiple choice questions in lectures to encourage students to take an active approach to learning is not new (see Harden *et al.*, 1968; Dunn, 1969). However, asking students to raise their hand in response to the answer they think is correct is problematic and in my experience does not work successfully. When I have done this in my classes, I have typically found that Asian students in particular, and also some British students, are less likely to participate in answering questions during lectures for fear of ‘loss of face’ in front of their colleagues if they vote for an incorrect answer (as discussed by Beekes, 2006). The advantage of using PRS is that it collects responses anonymously, or by student identification number, so that the individual’s identity is protected when answering the question posed. This means that the lecturer can get one-hundred per cent participation in classes when asking questions, something which I have previously been unable to achieve when asking students to raise their hands to vote for the correct answer. By using the PRS the lecturer therefore gets a more accurate representation of the students’ understanding than has previously been the case when asking multiple choice questions in class.

In addition to increasing the level of participation in classes during class time and providing timely feedback, the use of regular testing with the PRS gives students an incentive to keep up-to-date with course materials. The weekly questions were staged so that some were relevant to the previous week’s lectures and some to the current week’s work. This provides the incentive for students to keep up to date with the reading and problems set for classes. It
also provides feedback to students as the course progresses and highlights areas of weakness to students (Liebler, 2003) or where preparatory reading has not been completed in sufficient depth.

**How is the Personal Response System Used and is it Effective?**

**What is involved in using the Personal Response System?**

The main features of this approach involve asking a series of questions (the format is very flexible and I tend to use a number of formats including multiple choice, answer series and true/false type of questions) during the sessions. The system may also be used for text entry and survey questions, although I have yet to use these features in my classes, but intend to do so next year. During the session, each student ‘logs in’ to the system using their student identification number which enables the responses to be tracked to a particular individual. There is a set time for questions to be answered, which I adjust as necessary, to ensure everyone has a chance to vote.

After the voting time is over, a graphical summary of the overall class voting is displayed on screen. This bar chart of voting creates a ‘wow’ factor, particularly if a large number of students vote for an incorrect answer (which happens from time to time). This active approach may encourage students to retain knowledge of the key concepts of the course (Cue, 1998). I have found that many of the students score well on these PRS sessions and I hope that this will also be reflected in their coursework and examination performance on this course. For those that do not score well, I hope it provides them with useful feedback on where they need to focus their studies.

At the end of each session, the PRS software can be used to generate summary reports. These reports are available from the PRS software as file downloads either in .csv or .pdf formats. A selection of the PRS reports is shown in the Appendix. The reports compiled by the PRS software include a detailed student by student report which shows the average for the class (to enable students to benchmark relative to their peers), the student’s vote, and the correct answer. In addition, there are summaries of the student votes by individual student and the class as a whole, so students can benchmark themselves against their colleagues. I place all of the detailed and summary reports on the VLE immediately after the class. I also create a document summary showing a running total of the scores from the PRS sessions and upload this on the VLE. This all typically takes about 10 to 15 minutes to complete after the class as each report is compiled separately by the software. This real-time feedback enables students’ to track their progress week by week, focus their self-study, and seek further clarification of aspects that are not understood well.

**Student Feedback on Using the Personal Response System**

I have found that the PRS is very effective at encouraging class participation. It engages the class during the lecture time and is fun to use for both the lecturer and student group. Comments from the departmental feedback
questionnaires and the course VLE are positive; they say that students have found the PRS sessions “helpful” and “very good fun!” One student commented: “The weekly revision parts of the lecture using the [PRS] were useful.” Another student commented that the PRS was the best part of lectures: “I think the introduction of the PRS is a new way of teaching and also learning and therefore engages more people due to providing some variety. I have enjoyed using and learning from this system.” These comments demonstrate students’ enthusiasm for using the system and they have been echoed in feedback from staff-student forums.

A student feedback questionnaire was conducted shortly before the end of the course and 117 student responses were collected. Students were asked to respond on a scale of 1 to 5 where 1 is strongly disagree and 5 is strongly agree to a series of statements used in prior research into the PRS (Elliott, 2003). The results are shown in Table 1.

Table 1 Results of the PRS Questionnaire

<table>
<thead>
<tr>
<th>Statement</th>
<th>Average</th>
<th>Std. dev</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: The PRS is easy to use</td>
<td>3.8</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td>2: Using the PRS has increased my enjoyment of lectures</td>
<td>3.6</td>
<td>1.2</td>
<td>4.0</td>
</tr>
<tr>
<td>3: Using the PRS has encouraged me to attend lectures</td>
<td>3.3</td>
<td>1.3</td>
<td>3.0</td>
</tr>
<tr>
<td>4: Using the PRS has helped my concentration levels in lectures</td>
<td>3.1</td>
<td>1.1</td>
<td>3.0</td>
</tr>
<tr>
<td>5: Using the PRS has increased my confidence on this course</td>
<td>2.8</td>
<td>1.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>


The student responses to statement 1 suggest most of the students found the system easy to use. Once the students have logged into the system, answering the questions through pressing the appropriate buttons (true/false, 1 to 9 or A to E) is a straightforward task. The students voted with mean 3.8 and median 4.0 to the statement that the PRS increased their enjoyment of lectures. This is echoed in comments received from students about the system. One student commented: “I liked the electronic quiz things we did as it gives you an idea of how you are doing and it makes the lectures interesting.” In terms of the level of lecture attendance, students voted with mean 3.3 and median 3.0 to the statement that the PRS encouraged them to attend lectures. On average students tended to agree with the statement, and anecdotal evidence from the University of Aberdeen (2005) and other colleagues in the Management School suggests that the PRS has a positive impact in terms of encouraging attendance at lectures.
Students provided less favourable responses to the statement relating to concentration levels in lectures: they voted with mean 3.1 and median 3.0. This was perhaps because students felt that they would be concentrating in lectures anyway irrespective of whether the PRS was used. In addition, students voted with mean 2.8 and median 3.0 to the statement that the PRS had increased their confidence on the course. Again, there could be a number of reasons for this which relate to the fact that students felt quite confident on this particular course as it covers introductory material. A few students commented on the feedback questionnaires that they would have preferred to have spent additional time on lecture material and more examples, rather than completing the PRS sessions. Other students suggested that the sessions did provide useful feedback on the course as it progresses and it was helpful to clarify their understanding. However, as with any teaching method, you cannot please all students all of the time, but these PRS sessions have been a fun and engaging way for students to track their progress and keep up-to-date with the course materials.

At this stage it is too soon to track the students’ progress on the PRS and the final mark awarded for the course as the examinations for both cohorts have not taken place. However it will be interesting to relate the marks on weekly PRS sessions and the final marks to see whether it does provide an indicative result of a student’s final mark for the course.

Problems Faced and Lessons Learnt in Implementing the Personal Response System

How Did I Get the Personal Response System Technology to Work Successfully?

Introducing new technology into classes always has a certain risk element for the lecturer as you are never quite sure of two things: firstly, whether the technology will be easy to set up and whether it will work during the class, and secondly, how the students will respond to it. At Lancaster University we had experience of using an older version of the PRS technology which used infrared handsets (as discussed by Beekes, 2006; Elliott, 2001, 2003). However this PRS was frequently unreliable due to the large number of wires connecting the receivers to the system.

The infrared PRS was not always straightforward to set up, unlike the radio frequency PRS which is easy to use and takes only a couple of minutes to set up for a large class. In addition, the infrared PRS was not suitable for use with larger groups of students due to the number of receivers required to record the handset responses, whereas the only constraint with the new system we have is the availability of handsets. The other problem with the infrared PRS is that it is only suitable for use with multiple choice questions. The radio frequency PRS is more flexible and I intend to use a greater variety of question formats next year. In addition, the infrared PRS software did not show the questions on screen whilst the clock was running. Since the questions were not directly entered into the system, I displayed the questions on transparencies, and the PRS software was projected on to another screen.
at the same time. This obviously limited my ability to use the PRS in certain classes where projection facilities permitted, as not all rooms had two screens. These problems have all been overcome with the new radio frequency PRS which can be run anywhere on campus, subject to computer hardware availability.

From my previous experience of using the infrared PRS in ad hoc sessions with postgraduate and undergraduate students, I was fairly confident that the students would respond well to receiving additional feedback and using the PRS in classes. However, using the PRS on a weekly basis throughout the term had not been done before at Lancaster University Management School and I was not sure how the students would respond to this. In addition, the infrared PRS had never been used in named mode for testing during the class, and so I was breaking new ground with the new system. To familiarise myself with the new system and using it for informal testing, I spent time practising with the technology and learning what types of questions would work well by testing them out on colleagues. This was very fruitful as I received useful feedback which helped me to design the sessions for students.

To enable regular PRS sessions to take place, my introductory Management Accounting course was re-designed during the summer break in 2007. I usually allow about 20 – 25 minutes per week in my lectures to do the PRS sessions, depending on the week’s lecture coverage. This did involve some reduction in topic coverage from the syllabus. However, I believe the benefits in terms of greater course participation and involvement make this worthwhile. Students can see their overall progress throughout the term as I place an up-dated total on the VLE for the course after the lecture on a weekly basis. Students also particularly like to learn who was the ‘Fastest Finger First’ (i.e. the student who got to the correct answer in the fastest time and I place the library card number of the relevant student on the VLE and the time taken to answer the question.) It is a simple matter to retrieve this information from the system output and creates a fun element to the answer series type of questions.

In addition to time re-designing my course, there was also time required to write the questions, and compile the reports after each session where the PRS was used. Writing the questions was not too time consuming, although at the start, I found I vastly over-estimated the number of questions that could be completed during a session. I also hadn’t always given sufficient time on the clock to enable students to answer the questions, but this was a simple matter to amend during the session. I found that the most effective question order is to start with a few true/false questions to get the session started and then move on to multiple choice and answer series questions which take longer to answer. I learnt a lot in the first couple of classes about the appropriate amount of time for each of the question types and which questions work well, largely through trial and error.
What Challenges did I face in Introducing the Personal Response System?

One of the major barriers faced was to familiarise myself with the technology and getting it all to work successfully during the class. The PRS manuals that came with the system were not as helpful as they might have been, and I ended up playing with the system at the weekend to find out how it worked. After a bit of trial and error, I got the system working successfully. Once I had familiarised myself with the system, setting it up took just a few minutes at the start of the class. From my experiences, I created a guide of how to use the PRS to help other colleagues. Subsequently I have also given presentations to colleagues at Lancaster University to share my knowledge and experience.

One thing that had not been considered in purchasing the new PRS was the practicality of keeping the handsets and transporting them to the lecture theatre. It is a major challenge to get the system to the lecture theatre as the PRS bags contain only 32 handsets each! This has practical implications for the lecturer, but I have been able to purchase a couple of trolleys and use postgraduate student assistance to help me to the lecture theatre each week, so this was fairly easily overcome in my case. Clearly with larger classes, transporting the system around campus could be problematic if the campus is not access friendly and assistance is not available. However once in the lecture theatre, it is a simple task to set up the system; there are just two wires to connect to a receiver box and the computer. All that remains to be done when the software is started is to ensure all students log in correctly during the session using their library card identification number. On reflection, compared to the infrared PRS, the radio frequency PRS has been a significant step forward for the lecturer in terms of ease of use, and encouraging learning and greater participation during lecture time for classes of all sizes.

Conclusions

Using new technology is often perceived as a risky strategy by colleagues and many will shy away from using such resources in their teaching. However I have shown that if you adapt your teaching and embrace technology, it can be used effectively to improve the level of feedback we give our students, and make learning fun and more interactive. I am happy to admit that using the PRS has not been without challenges: getting the money to fund the system in the first place, learning about the system and the practical issue of getting it into the teaching room. The system is not cheap to purchase – our system for 350 students cost in the region of £15,000 and the cost seems to vary significantly from supplier to supplier. The main hub and software to run the questions costs in the region of £200, but handsets will cost approximately £40 each, depending on order size. However, despite the large upfront investment, I think it has all been worthwhile; the students have found it a fun and engaging method of teaching. I think it has also encouraged students to take a more positive attitude towards my course. The PRS technology is suitable for most, if not all courses, as the format of the questions can be
chosen to suit the particular topic area. I have found that my course is very
easy to adapt to a number of different question formats and I am planning to
use the text entry next year, in addition to numerical reasoning.

As is the case with most types of learning technology, now that I have
successfully used the system, others have become keen to use this on their
courses. I have given seminars at Lancaster University Management School,
showing colleagues how to use the system and suggested how they can
avoid some of the set-up costs I have incurred. As a result the system is now
being regularly used in the Economics and Management Science
departments, as well as in Accounting and Finance. Colleagues have
commented that as a result of using the PRS attendance at their lectures has
improved, as well the level of engagement with the course as a whole.

Biography

Dr Wendy Beekes is the Director of first year undergraduate studies in
accounting and finance at Lancaster University Management School. Since
April 2000 she has lectured and tutored on various undergraduate and
postgraduate programmes offered by the School, and has also been involved
in MBA project and Ph.D. supervision.

She has teaching responsibility for introductory accounting at the
undergraduate level to first and second year students, with particular focus on
management accounting and financial statement analysis. She is a Fellow of
the Higher Education Academy and aims to share her findings with colleagues
across the higher education sector through presentations and publications.
Her work with undergraduate students at Lancaster University Management
School has been highly commended and she has recently won a University
teaching prize for her contribution to the learning experiences of
undergraduate students.

Dr Beekes is also an active researcher and makes regular presentations at
international conferences such as the American, British and European
Accounting Association annual conferences. In addition to her own research,
she is also currently supervising doctoral students in the research areas of
corporate governance and the link to earnings timeliness, and analyst forecast
accuracy.

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Lectures, http://www.lancs.ac.uk/staff/beekes/Personal_response_system.htm
[accessed 12 March 2008]


ENDNOTES

1 The radio frequency PRS is much easier to set up than infrared PRS technology which Lancaster University has used since academic year 2000/2001. The new PRS uses radio waves and so does not require receivers to be distributed around a teaching room, connected with wires which are then connected to a computer. This means that the system is more reliable and does not require additional support from Audio Visual Services at the University to set up the system.

2 Further information about using the PRS is available to download from my webpage http://www.lancs.ac.uk/staff/beekes/Personal_response_system.htm

3 Our PRS was purchased from Universal AV Services Ltd, (www.uniav.com), although there are many suppliers of this type of system.
APPENDIX

Examples of Output from Interwrite Radio Frequency Personal Response System

This appendix provides a selection of the output provided by the radio frequency PRS.

Csv Format Reports

For the .csv format reports, amended tables showing the results which are available to download are shown below.

Table A1: This PRS output details
- How long it took student to answer the question [Time]
- The number of attempts to answer question [Attempts]
- The student identification number [Student ID]
- The response input to the handset (i.e. the final answer the student gave to the question) – here either ‘T’ – True or ‘F’ False [Response]

Table A1:

<table>
<thead>
<tr>
<th>Question</th>
<th>Time</th>
<th>Attempts</th>
<th>Student ID</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>00:10.9</td>
<td>1</td>
<td>123</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>00:12.6</td>
<td>1</td>
<td>456</td>
<td>T</td>
</tr>
<tr>
<td>1</td>
<td>00:14.7</td>
<td>2</td>
<td>789</td>
<td>F</td>
</tr>
</tbody>
</table>

Source: Adapted from Interwrite PRS software output

Table A2: This PRS output details
- Student identification number [StudentID]
- The total number of questions [PRS Total]
- The total numbers of questions answered correctly by the student [WENDY FARA_10 15 2007:Possible (15)] Note that the title of the column on the right contains the name of the session WENDY FARA and the date of the session, as well as the number of questions asked.
Table A2:

<table>
<thead>
<tr>
<th>StudentID</th>
<th>PRS Total</th>
<th>WENDY FARA_10 15 2007:Possible (15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>456</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>789</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Adapted from Interwrite PRS software output

Pdf Format Reports

For the .pdf report output is described below in detail for the session and individual students. The system also provides overall summary reports of the percentage of students voting for particular answers and a summary of percentages by students. However I think the most useful reports are those containing the detailed voting responses shown below. Please note student identification names and numbers have been removed to protect student identity.

a) PRS Report: session details by question

This .pdf output from the PRS provides:

- The details of the question
- The correct answer by question
- A graphical summary of voting for each question
- Individual voting details by student ID number which shows the response for each question and the correct answer
SESSION DETAILS BY QUESTION

Session: WENDY FARA_10 15 2007  Class: WENDY FARA
Lesson: AcF 213 Lecture 3  Class Avg: 68.1%

Question: 6  Correct Answer: B

C Which of the following is NOT classed as a planning or decision-making role of management accounting?

A Searching for alternative courses of action.
B Responding to divergencies from plan.
C Identifying objectives.
D Gathering data about options that are available.

![Bar Chart]

- A: 51
- B: 33
- C: 13
- Invalid: 13
b) **Report: session details by student**
This .pdf output from the PRS provides:
- Student identification number and voting details for each question
- Correct answer by question
- Overall class average

Source: Adapted from Interwrite PRS software output