Data Collection Strategies for the Testing Phase of the Kolb Cycle

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Data Collection Strategies For
The Testing Phase of the Kolb Cycle

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Reflective practices are essential for high quality teaching. This paper seeks to investigate how data collection strategies associated with student feedback questionnaires impact upon educational strategies employed at the both the University and lecturer levels. This paper sets out a range of plausible objections to relying upon student feedback when deciding upon future developments in teaching practices. This article suggests that a mixed methods approach which is widely accepted in the social sciences should be applied to the development of higher education modules. By relying upon a variety of data collection techniques it will hopefully be possible to improve teaching practices in an effective and systematic fashion.

This paper will be organised into five sections. Section one will outline the Kolb model (Cowan 1998, Kolb et al. 1995, Race 2002), highlighting the importance of reflection upon the educational experience for student and particularly for the lecturer (see appendices F and L). Section two will discuss the importance of student feedback for developing educational frameworks that enable learning. Section three will highlight some possible objections to relying solely upon student feedback based upon methodological concerns associated with non-response and the criteria that the student’s themselves evaluate lectures. Section four will suggest some possible remedies to this problem, by applying multiple methods ranging from questionnaires to semi-structured interviews. Finally section five will provide some concluding thoughts.

The aim of this paper is to discuss how theories of learning can be applied to the development of courses in structure and in presentation. This research will suggest that whilst the reflective process is essential for high quality learning, the empirical underpinnings of the reflective process could be significantly flawed resulting in incorrect diagnoses of problems and unsound changes to educational practice.
Theoretical Model

The Kolb model (1984) can be considered as being a cycle as shown below.

Test

Experience

Generalise

Reflect

The testing dimension of the Kolb cycle concerns this paper most. In terms of lecturer learning we can see that the lecturer comes to the classroom environment with certain experiences based upon their own personal practices. Anecdotally when I started to teach I had very little experience of large class teaching, my experiences were generally based upon being a student and attending lectures that were either well or badly delivered. The second part of the cycle is reflective, based upon my experiences as a student with different lectures that had been attended, what was done well in these lectures and what
was done badly. From this reflective process I was able to develop generalisations about what made good lectures and what should be avoided. The final stage of this initial cycle was to test the generalisations that I had developed by applying my beliefs about teaching in the lecture theatre and then collecting data on the performance of those lectures. The results of these tests are then fed back into my experiences, critically reflected upon, resulting in further generalisations which are again tested in the classroom and so the cycle continues. It is the testing stage which I believe could be potentially problematic resulting in “incorrect” analytics and flawed decision-making.

Whilst in general these cognitive models of teaching are applied to the student learning experience it seems perfectly acceptable to apply these models to our development as lecturers. The Kolb model whilst one of many provides a good starting point for developing methodological tools for our understanding of teaching developments.

**Data Collection Strategies for Testing Phase of Kolb Cycle**

There seem to be three possible ways to provide data during the testing phase of the Kolb cycle. The data collection strategies can be internal to the lecturer and external in the form of student feedback and peer reviewed comments. In this section of the paper I shall highlight the mechanics of these data collection strategies and the potential difficulties associated with them.

**Strategy 1: Self evaluation**

Whilst there maybe a considerable number of ontological and epistemological problems associated with self evaluation, particularly regarding issues of objectivity, your own analysis of the problems associated with teaching can provide significant insights. Being self critical is particularly important to the development of teaching strategies; placing yourself in the students’ position
can inform you of the problems with your delivery and presentational style. However, due to the difficulties of negotiating the classroom terrain it is impossible for the lecturer to be confident of voice projection. It also has to be remembered by definition the lecturer has far more knowledge of the subject so his/her perceptions of the clarity of presentation is difficult. Also personality type may also impact upon your own evaluation of the course, whilst some maybe very negative others maybe overly confident. As such all lecturers will need some form of validation that is external to themselves.

**Strategy 2: Peer Review**

Peer review is critical to the course evaluation process (see Appendix B). By being examined by perhaps more experienced colleagues who can give you a clear and honest analysis of your teaching performance you will be able to test whether your teaching innovations have improved the learning experience of students. However, it should be recognised that there are significant methodological costs associated with peer review. Firstly, the very act of observation will affect your results, when being reviewed by a peer your lecturing style may alter, perhaps you become more nervous or you make such an effort to impress your colleague that the results of the review cannot be generalised from. In my own experience I found that I became far more nervous when I was lecturing in front of my mentor, in terms of self reflection I need to be careful of any generalisations that drawn from this learning experience. These problems can be overcome somewhat by being aware of hierarchies in departments and avoiding peer review by very senior colleagues or by developing strategies to improve trust between junior and senior academics. The peer reviewer therefore has a responsibility to develop skills that are designed to put the reviewed at ease.
Strategy 3: Student Evaluation Forms

Student evaluation is clearly very important for the development of educational modules. The courses are designed for students and it is important that we receive their feedback. The advantages of student feedback are numerous. Students should be at every lecture and as such will be able to develop a fuller picture of the course. As the courses are intended to develop their educational attainment they are in a good position to evaluate the learning experience. Peer review whilst very important can only provide a snapshot of the learning experience, whereas students will have a time series of data points that they can feed into their evaluation.

However, I am concerned about the pathologies associated with the use of student evaluations at universities and the potential consequences of these pathologies.

Pathology One:
The Problem of Non-Response and Self-Selection

Students that attend lectures are generally a self-selecting group. By collecting data on student attitudes towards the module at the end of the year we may suffer from biases associated with non-response (De Vaus 2001). Students which found the module difficult to understand or the lecturers style is unintelligible may simply no longer attend the course, rather relying upon self study. As such you may only have satisfied students answering the module evaluation forms. The data collection strategy may in fact lead to over optimistic results, which when reflected upon suggest that the course is going well and needs little change. By handing out evaluation forms in the lecture we systematically bias the results. One criteria which we should evaluate is response rates when assessing module performance, what is the criteria by

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1 Although there are some subjects which are compulsory such as the undergraduate research methods modules.
which we judge whether student attendance is good or bad and what inferences can be drawn from this.

Pathology Two:
Student Perceptions of Educational Attainment:
Whilst course handbooks clearly outline the aims and objectives of the module there should be some concern about the aims that rational students will have. It has to be remembered that the university experience for students will not be solely governed by achieving high educational standards. In fact in some ways students are less well equipped to evaluate modules as they are the least informed members of the teaching environment. Lecturers will be far more aware of how the lectures fit in with contemporary debates and postgraduate courses. In fact in my own experience there seems to be considerable emphasis by the students upon entertainment rather than learning. In terms of positive comments, statements that the lecturer is funny or tells good jokes may not in fact be directly relevant to the learning experience. Some modules may in fact be more open to “entertainment” than others such as “Terrorism Studies” compared to “Quantitative Research Methods” as such when we reflect upon student feedback sheets we should be aware of the differing nature of the modules and adjust our expectations accordingly. In terms of reflection we as educators should be very careful about responding to student concerns about entertainment as opposed to legitimate concerns about the delivery and content of the module (Neuman 2000). Further research clearly needs to be engaged in to assess student preferences in the delivery of these modules.

Pathology Three:
Questionnaire Design:
By asking specific questions based on interest or intellectual stimulation we are directed the students down pre-ordained pathways(De Vaus 2001; Bryman 2001). However, student concerns might reflect specific concerns. We have very little conception of how the students actually interpret these questions.
The fill in section at the back of the evaluation forms can provide invaluable information that can be used in the reflective analysis of the module. However, again without face to face discussion we may in fact misinterpret comments that were written on the forms.

For example if we look at the Research Training and development Programme-Module Questionnaire (Appendix M) we can see that very little information can be garnered from the document. There are only 8 questions which the students at this stage of their post-graduate education maybe unable to answer. Students will be unable to answer the question on usefulness of the module until they have began their research project, asking this question prior to their development of either their PhD or Master’s the project may not seem worthwhile. The questions on level of interest or degree of stimulation may in fact be asking questions about entertainment rather than education. Without further questioning, perhaps in a more reflexive fashion it will be difficult to understand how the students interpreted these questions.

Likert scales whilst useful for developing general patterns that can be analysed using a variety of quantitative techniques are not in fact particularly useful when trying to build a course. Getting a low score on any of these questions does not tell the lecture what the actual problem is. For example if a lecturer received a one for presentation this does not actually tell us what is wrong with the presentational style. Is the presentation bad because it is too quiet, imparts too much information, too fast and so forth? Without this data the experience dimension of the cycle will not be fully informed and as such the reflective process and the generalisation areas will be based upon incomplete premises.

If we also look at the section for questions for improvement we should note that there is in fact very little space, again forcing answers to be brief and perhaps lack the detail that is necessary for further restructuring of the module or improve lecture presentation.
Summary
Overall the application of internal and external techniques is essential for lecturer development throughout the Kolb cycle. However, these techniques will have certain difficulties associated with them. This paper focuses upon problems with student evaluation of lectures, suggesting that through questionnaire design, student inexperience and student expectations we should be very careful about the testing phase of the Kolb cycle, treating the results with some suspicion before engaging in wholesale changes in our module provision. The next section suggests a mixed methods approach to testing teaching innovations that can be then fed back into our own learning cycles.

Mixed Method Evaluation of Modules
In the design an implementation of surveys there is usually the development of specific hypotheses that are derived from some form of theoretical expectations. It seems to me that the data generating process involved in student evaluations is generally atheoretical; little thought has gone into what we as lecturers are interested in finding out and what techniques should be applied to gather this information. Therefore prior to the development of teaching practices lecturers should engage with the theoretical literature on learning. From there a series of testable hypotheses can then be developed and the appropriate instruments sort. In this paper I am looking at how these instruments can shape the answers that we are getting.

The mixed methods approach is designed to help compensate for the problems with some types of research design through the application of other techniques (Hakim 1986, Holloway 1997). I shall offer some proposed solutions to the pathologies discussed above. It is my suggestion that a sequential triangular approach should be used, with phases for pilot testing using focus groups and semi-structured interviews, peer review and student feedback and then
sampling a small group of students for debriefing on the module. All of the research should be conducted within a framework of self reflection where the lecturer seeks to develop meaning associated with the information that s/he will be getting.

1.) Pilot Testing:
We should as researchers pilot test our testing stage in the Kolb cycle (Rosenberg and Daly 1993, Tashakkori and Teddlie 1998, Teijlingen et al. 2001). A small sample of students should be given the questionnaires prior to the lectures beginning. Either in focus groups or semi-structured interviews their opinions should sort on what exactly they expect from the learning experience? How exactly do they interpret the questions being asked? What are their criteria for grading? Through feedback mechanisms and Q&A it should be possible to fully develop our questionnaires and also be aware of the criteria that students assess our lectures by. Then not only will the questionnaires be improved also our understanding of what these answers mean will also increase.

2.) Peer Review:
In triangular or mixed methods approaches the peer review is essential, this hopefully shall provide independent evidence from an experienced colleague. However, it has to be remembered that not only does the peer review affect the lecture, colleagues expectations may also be radically different to the criteria that both you and your students have in regards to the teaching experience.

3.) Student Evaluation:
Hopefully with better designed questionnaires the feedback we receive from the students will be much improved. Armed with our knowledge of expectations we can then develop our teaching based upon a more rigorously collected dataset.
As highlighted above the data-collection strategy may also present us with some serious biases, due to the potential systematic under representation of students dissatisfied with the module. Data collection strategies that are based upon self-selection are by their very nature unrepresentative. In fact these students that have opted out maybe the ones that you need to make most contact with. I would suggest some remedies to this problem.

It should be possible to send out email questionnaires to all of the students involved in the lecture. However, response rates may vary with the disenfranchised being unwilling or afraid to answer (de Vaus 1993). As such perhaps the student guild in partnership with different module convenors could ask for responses with a guarantee of anonymity. With questions that explicitly address whether students attend the lectures we may be able to develop a profile of the non-attending student. The idea of this exercise is not to punish non-attendees but to gain an understanding of why they avoid lectures and how this can be remedied in the future.

It is essential that we develop strategies for data collection that do not under represent the underachieving student. If we do this then our testing stage will be flawed indicting that our performance may in fact be a lot better than it actually is.

4.) Focus group debriefing:

Again by randomly selecting a group of students we can triangulate with our findings from the student feedback and peer review (Baker 2001, Neuman 2000). The focus group will allow for further development of issues that were bought up by the students. Any difficulties in understanding the answers can hopefully be explained by the student body. This richer data can then be fed into the testing phase of my Kolb cycle.
It is also important to ask students to volunteer for another focus group, which whilst will not be as balanced as a randomly selected group will allow us to develop an understanding of student perspectives who are very dissatisfied with the module. By using two focus groups we do not exclude the “average” student from the teaching cycle, nor do we disadvantage students that are having severe problems.

Summary
This section of the paper has discussed how some of the potential problems with student evaluation can be dealt with. Whilst no solution will provide “perfect” data I suggest that some of the data collection strategies employed can systematically bias our understanding of the student learning experience. By employing a mixed methods strategy it will be possible to develop a fuller understanding of student perceptions and hopefully improve our teaching in the long run.

Conclusion
The Kolb cycle is of enormous importance to both the student and lecturer. In this paper I have suggested applying the Kolb cycle model to our development as lecturers. However, I have also suggested that the present testing facilities that are generally used in universities are inadequate and should be treated with some educated scepticism when developing our modules. Whilst recognising that self-reflection is a critical dimension of the teaching process, it is also important to note that the information that we critically evaluate can be systematically biased. In particular peer review and student evaluations may lead us to draw incorrect conclusions.

I suggest that it is necessary to get beyond the rather superficial data that is collected from the questionnaires and develop more nuanced understandings of
student expectations. Whilst quantitative data is essential for this research programme, the data collected could be flawed in terms of our interpretation of answers, the questionnaire design and the collection strategies employed. By relying upon self-selection in the data collection phase we may in fact be missing evaluations by students that have felt totally disenfranchised from the learning experience. The superficial questionnaire design does not really allow us to fully develop an understanding of the problems that students have with our teaching. What does a score of 1 mean to us? Likewise due to student expectations we may find that high marks are not actually reflecting the learning experience, rather they reflect the entertainment value that the lecturer provides. Without a deeper analysis it will be difficult for us to generate an understanding of these scores.

Therefore I suggest that we move into triangulation, where the depth of knowledge is much greater. By conducting focus groups both prior and post the course we can generate a deeper understanding of student thought processes. It is suggested that by combining methods we can produce wide and deep data that allow us during our reflection phase to improve our teaching. Without improvements to the data collection phase during testing, our conclusions can remain tentative at best and our teaching improvements suspect.

**Bibliography**

