The National **HE STEM** programme
Curriculum Innovation Projects

A Guide to Practice:
Evaluating your Teaching Innovation

Ivan Moore

Author

Ivan Moore
Higher Education Curriculum Advisor

Royal Academy of Engineering
Engineering Subject Centre

Tel:+44 (0)1509 227170
Email: **ivan@engsc.ac.uk**

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University of Birmingham,
Edgbaston,
Birmingham,
B15 2TT

info@hestem.ac.uk
www.hestem.ac.uk

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Aim

The National **HE STEM** Programme is an initiative funded by the Higher Education Funding Councils for England and Wales through an activity grant to the University of Birmingham in June 2009. The programme is co-ordinated through six regions, each represented at universities including the Universities of Bath, Birmingham, Bradford, Manchester Metropolitan, Southampton and Swansea), and works in partnership with four Professional Body Partners (The Institute of Mathematics and its Applications, The Institute of Physics, The Royal Academy of Engineering, and the Royal Society of Chemistry)

Working across the higher education sector with a particular focus upon the disciplines of Chemistry, Engineering, Mathematics and Physics. The National **HE STEM** Programme supports higher education institutions in encouraging the exploration of new approaches to recruiting students and delivering programmes of study. It enables the transfer of best practice across the higher education STEM sector, facilitates its wider adoption and encourages innovation. Through collaboration and shared working, the Programme focuses upon sustainable activities to achieve long-term impact within the higher education sector. As part of this philosophy The National **HE STEM** Programme actively disseminates project outcomes and evidence based good practice to HEIs beyond those involved in the project.

References

Appendices

The National STEM programme
Engineering Innovation Projects

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1 Introduction

The purpose of this booklet is to offer some practical advice and guidelines on evaluating the impact of your teaching practice. Although it focuses on development projects in support of the STEM programme, it will be relevant to any teaching practice.

It will explain the significance of evaluation in the context of the overall STEM programme, and particularly the Engineering Innovation scheme, as well as give some general guidelines as to what you may wish to focus on when designing an evaluation strategy for your particular project or teaching practice.

The focus will be to help you to design ways of determining the impact of your teaching practice on the student learning experience. This guide draws on existing literature on evaluating projects and is largely based on previous work undertaken by the RAEng curriculum adviser, Ivan Moore.

The appendices to these guidelines provide some examples of evaluation surveys by Moore (2003) and by Ramsden (1996) as well as useful references and resources for further advice and support.

2 The purposes of evaluation

The overall purpose of a teaching innovation is to develop an enhanced learning environment for the students. Such environments make learning more accessible and engaging and support the students in developing learning and other skills and attitudes. Learning is therefore not simply about the end grade (although that is of course important as well). Similarly, course or programme evaluation is not simply about making judgements about the perceived success of the programme in question, or of student satisfaction, but should rather be thought of in terms of learning and development (Macdonald, 2006). Reflecting this, evaluation in the context of innovation projects is to be used as a tool for development, and you should therefore think of it as a formative process.

Chelimsky (1997) identifies three conceptual frameworks for evaluation, which identify three different purposes:

Evaluation for accountability (measuring results or efficiency)

Evaluation for development (providing information to help to improve practice)

Evaluation for knowledge (to obtain a deeper understanding of some particular area of practice such as student learning or change management)

The first framework may be seen as summative evaluation, which measures the overall impact or effectiveness of an initiative. The second framework may be seen as formative evaluation, where the information is gathered during the process and is used to inform improvement. The third framework may be seen as evaluation for learning, and may contribute to an educational research agenda.

3 Who are you evaluating for?

Evaluation is carried out for the benefit of both the learner and the educator. The purposes are to help you to identify the impact of your teaching practice on the student learning experience; to give you insights into how and what the students are learning; to provide you with information about how you might improve your own teaching practice; and hopefully to provide you with an evidence base which will help you to turn your findings of good practice into scholarly publication. Effective evaluation practice includes feedback to students to provide them with insights into themselves as learners and help them to identify how they might improve their own learning practices.

4 Things to consider before evaluating your project

What will you evaluate?

There is often a tendency to try to evaluate everything about a project without due consideration as to what the central focus of the evaluation process should be. If you are involved in an innovative pilot project, you should also bear in mind that in all probability, your focus will shift through the life-cycle of the project as it evolves and takes shape. In planning your evaluation, you may find the RUFDATA grid developed by Saunders (2000) helpful (see Appendix 3). As an educational practitioner, involved in a teaching development project, your evaluation might usefully focus on the student learning experience and your own (academic staff) experience:

Student learning experience (impacts of your practice on student development and learning experience):

- learner involvement (level of motivation, engagement, and enthusiasm);
- learner/learning experience (and in particular identifying the processes of what happens when the project/course is going well/not going well; the extent to which the students feel their learning needs have been met);
- learner outcomes (e.g. are there improvements in pass rates?)

Academic staff experience (facilitating learning: impacts on staff):

- perceptions of own role and the teaching culture (i.e. strategies and techniques adopted for teaching), and how engaging in evaluation changes these;
- teaching experience (perceived benefits or challenges);
- emerging staff development/support needs (opportunities for improvement, development and recognition).

Whatever your focus will be on, the evaluation process should be thought of primarily as formative, albeit the summative element will obviously be of importance too. As a formative exercise, think of the evaluation process as an opportunity to reflect on the successes and challenges. If you choose to evaluate throughout an innovation project, this will give you an opportunity to change practices while the project is ongoing. In other words, although an end of module questionnaire undoubtedly provides useful information and can be used to build on the lessons learnt in order to effect change next time you run the course, this will not be of use to the learners who have just gone through the learning experience. However, if you choose simply to evaluate at the end of the project, it is useful to make sure that the students are given access to the feedback and your responses to it.

When evaluating the student learning experience, it is useful to combine formative approaches with summative ones, especially when evaluating such factors as involvement, learning experiences and outcomes. Formative evaluation will allow you to make adjustments to your practices as you go along, although students often do not see (and therefore report) the benefits of an approach until close to the end of the learning experience.

When should you evaluate?

It is always a good idea to plan an evaluation strategy before actually commencing your project. There are several reasons for this:

It will give you the opportunity to identify more clearly the purposes of your practice. These may include the goals you have set out to achieve in your practice, such as the development of certain skills, e.g. information literacy, team working or communication skills, or it may include the kind of active experience you are trying to achieve.

It will allow you to make your evaluation process on-going, and so allow you to make adjustments to your plans as you go along.

It will also allow you to establish some baseline data. These types of data are useful if you wish to measure the overall impact of your practice on the student learning experience as they give you a picture of the student at the beginning of the programme. You can then repeat the process at the end and 'measure' the change you have brought about. This baseline data should be collected as early into the project as possible, and may also help you to define what and how you will evaluate the impact of your project.

Who should do the evaluating?

The answer is not necessarily 'you'. Clearly, as the educator, you are responsible for evaluating your practice; you should identify what it is that you wish to evaluate (goals), and what other information you might like to gather; and you should determine the appropriate methods. However, it may not always be desirable for you to carry out the evaluation yourself. It is often the case that the students will give you the answers that they think you want, especially if the evaluation is carried out before they are assessed! If you want to run a focus group to solicit narratives from the students, you may find that their responses are constrained by your very presence in the room. You might, therefore, consider inviting an external evaluator to facilitate discussions, or arrange for a student-led evaluation. Student-led evaluation can be an excellent way of facilitating a much more open and honest exchange of views amongst small groups of students.

5 What principles might be applied to evaluating your teaching development?

Evaluation may be based on a number of principles, including:

1. Evaluation should facilitate enquiry by and amongst students, academic staff and professional services staff about the nature and practice of effective learning. An important implication here is the involvement of **students** in evaluation. They should not simply be the target for responding to questions or completing surveys, but they should be **active** in evaluating their own reaction to learning, the skills they are developing and the effectiveness of their own learning. Clearly, the staff involved in developing and facilitating learning should take responsibility for evaluating their own practices and any staff involved in supporting and advising them should evaluate the effectiveness of their support activities.

2. **Self-evaluation** and **critical reflection** are core skills required to learn effectively, so evaluation should aim to model effective learning. To this end, evaluation should not be something 'done to' people or processes, but rather, anyone involved in the initiative should take responsibility for evaluating the outcomes of their own work.

3. Evaluation should be **participatory** and **inclusive** in that not only will it engage all stakeholders, but it will involve them in **collaborating** in evaluation activities and in sharing the lessons learned from evaluation.

4. Evaluation should distinguish between **formative** and **summative** purposes. Formative evaluation is undertaken for the purpose of improving the learning environment. Summative evaluation is undertaken essentially to provide evidence of the effectiveness of the environment for the benefit of others.

5. Evaluation should be focused on the **core objectives or goals** of the initiative. This includes evaluation of the effectiveness of the actions in achieving the objectives and on the value of the objectives themselves. It distinguishes between monitoring activity, milestones and deliverables (which may be seen as management responsibilities) and measuring the effectiveness of the actions and deliverables.

6. Evaluation should be **open** and **honest**. The purpose should not be to provide evidence of good practice or to find fault, but to provide information on the effectiveness of any activity so as to inform **development**.

7. Linked to this principle is the need for evaluation to be **appreciative**, to identify and build on strengths rather than for it to adopt a wholly deficit model of development.

8. Evaluation should be **ongoing**. It is not an activity that is carried out at the end or only at fixed points during an initiative or development activity. Effective evaluation provides continuous feedback information to inform development, support recommendations and to underpin management decisions. To this end, evaluation should be an embedded and integrated aspect of any development activity.

9. The **resource** spent on evaluation should be proportional to the resource spent on the activity. Although evaluation is important, it is also important not to over-evaluate.

10. Evaluation should be both **convergent** and **divergent**. Convergent evaluation focuses on the intended goals. Divergent evaluation seeks to identify unintended outcomes (goal-free) and activities beyond those of the initiative that have an impact on goal achievement (context-free).

11. Evaluation needs to consider the activities **not** undertaken, and the impact of **not** undertaking these activities.

12. It is axiomatic that evaluation should recognise and follow the code of **ethics** set down by the university, or organisation.

6 Evaluation methods

Common approaches to evaluation can range from 'quick and often' to 'comprehensive and periodic'. Quick methods include end-of-session student responses to one or two questions (see later), whereas comprehensive methods include questionnaires, surveys and focus groups. Clearly, the former could be used on a regular, frequent, basis, whereas the latter would only be undertaken towards the end of a programme of learning, or at most twice during the programme.

Another way of comparing methods is to identify a continuum from richness of information to breadth of coverage. Rich data can be gained from methods such as structured interviews, reflective logs and video diaries. Rich data essentially come from student comments and are illuminative. The drawback with rich data collection is that it is an intensive process and usually involves a small number of students whose feedback is taken to be representative of the whole cohort of students. Wider coverage, on the other hand, could be achieved through the use of questionnaires or short written surveys, with the disadvantage that the data produced are superficial and subject to misinterpretation. The choice of method will depend to some extent on the number of students in the cohort and it is a matter of balancing the continuum when evaluation is required for a large class. Focus groups, of course, provide wider coverage (representation) than interviews, while also producing relatively rich data compared to that obtained from questionnaires.

The focus of the evaluation will, by and large, determine the methods of evaluation. So, while questionnaires are useful in getting an idea of a trend, you may wish to consider running some focus groups to elicit in-depth qualitative data on the issues that pertain to learner experience; or perhaps you will want to combine the two. However, whatever you decide to do, be realistic about the resources you have to carry out evaluation. Make sure you focus on the key goals of your project.

There are various methods you may wish to consider, and a selection of these is outlined here. (This section is adapted from Moore, I. and Poikela, S. (2010) Evaluating Problem Based Learning Initiatives, in New approaches to problem-based learning, Barrett, T. and Moore, S. (eds), New York: Routledge.)

Illuminative data

Illuminative data involves approaches that try to 'get into the head of the student', in order to gain detailed insights into how the students are reacting to the learning environment, how they feel and behave and what they are getting out of the experience. To be effective they will require intensive contact with students and involve significant resource on the part of the students, and for that reason your sample would typically be a limited number of students. Methods include structured or semi-structured interviews (one-to-one), video diaries and maintaining reflective logs or diaries. However, the draw-back of the first two methods is that they involve only a small number of students, and are thus not necessarily representative of the whole group.

Reflective logs and diaries

These can provide rich data and personal insights whilst also benefitting from broad student coverage (i.e. they are representative). However, they may be unstructured and unfocused, and this may make it difficult to extract consistent themes for evaluation. To maximise their usefulness for evaluation purposes, here are some points to consider:

1. **Give some guidelines or set a framework: this allows the students to focus their thoughts, and will make evaluating easier.**
2. **If a framework is provided by means of suggested headings, change these regularly to avoid exhaustion of a theme, and repetition of material.**
3. **Ensure that the students feel that there is a significant level of confidentiality attached to their reflective thoughts.**
4. **Students are more likely to maintain reflective records if they are provided with opportunities to share their reflections. It may be helpful to encourage them to discuss or share their thoughts with others or with the evaluator (tutor).**

Video-recording as a means of evaluating

It may be possible to video or audio-record tutorial sessions, group or other learning activities. This can provide useful insights into both student and facilitator activity, particularly when the facilitator is unable to make direct observations of the activity as a result of being involved in the activity itself. Visualising methods may also be useful if you are interested in recording student learning experiences not only in the class room, but away from the typical class room surroundings as well.

Focus groups

Focus groups provide useful and illuminative data in addition to the comprehensive coverage of questionnaires and surveys. The first consideration is what the evaluator might consider to be a representative sample of students. It is useful to bear in mind that if focus groups are the only evaluation method employed, then this might not provide sufficient representation. Organising more focus groups might put too much of a burden on the evaluation resource, especially if they are to be organised during, and again at the end of, a teaching programme. To the right are some aspects that an evaluator might consider when organising and running a focus group.

1. Ensure that all of the discussion is recorded in some way. It is difficult to lead a focus group and to record the feedback in writing, so it is often useful to use digital voice recording methods. Seek the permission of participants in writing before doing this.

2. Have a list of the key aspects of the learning programme on which feedback is sought. These might be clustered around a small number of key themes such as organisation, goals, support, information, activity, learning, or assessment.

3. Allow time for 'free' discussion in which the students are encouraged to follow their own path of discussion. However, it is important not to allow the discussion to become unfocused and irrelevant.

4. Try to ensure that all students are involved and make a contribution. To this end, address some questions to some of the quieter students in the group, and provide positive feedback to them after their contribution. Special forms of focus group can be helpful here, and include normative group technique, which is a structured approach to gathering feedback from all members of a group.

5. When dealing with a very large focus group (say 20 students or more), it is possible to sub-divide into groups, allocate a discussion facilitator for or within each group, establish clear topics for discussion and gather feedback from each group. This is akin to group teaching and learning processes common in PBL environments.

Questionnaires

1 End of session evaluations

It is possible and useful to ask a few questions of the students at the end of each significant teaching and learning session, or on a regular basis (once a week or fortnight). The students can write short responses and leave them on a table as they leave the session. To prevent overload, focus on only two or three questions. These can be recycled periodically from a base of six or eight questions:

1. **What was the most useful learning point from the session?**
2. **What did you not understand from this session?**
3. **What did you find most difficult?**
4. **What would you like me to stop doing, because it hinders your learning?**
5. **What would you like me to continue doing, because it helps your learning?**
6. **What would you like me to start doing, because it will help your learning?**
7. **What do you do that hinders your learning?**
8. **What can you start to do that will help you to learn more effectively?**

Simple questions such as these can provide a rich array of useful feedback from students. It is helpful when using this approach to analyse the responses quickly and to provide feedback to the students on what they have written and what changes have been made as a result.

2 Approaches to study and study strategies

Questionnaires that aim to help the student to identify their approaches to study, their learning strategies or their preferred learning styles can also be used for the purposes of evaluation. Examples of these include The Approaches to Study Inventory (ASI); the VARK guide to learning styles; and Learning and Study Strategies Inventory (LASSI) (See Moore, I. Towards using Learning Styles Questionnaires.) To establish a baseline, process the questionnaires at an early stage in the learning programme and then repeat towards the end of the programme in order to identify any changes in styles or strategies that engaging with the innovation may have resulted in.

Advantages include:

They have been researched, designed and published, and so they have public acceptance.

This also means, of course, that evaluators do not have to design their own.

The students can gain useful insights into their approaches to learning, directly benefiting the student.

Many such questionnaires come with comprehensive analysis and developmental material, allowing students to read the advice on how to build on and develop their approaches to learning.

It is possible to process the questionnaires for a whole cohort of students, which enables you to gain comprehensive coverage for evaluation.

On the other hand, these questionnaires have increasingly come under criticism, and you may also wish to see the following 'health warning' on these in the Guardian (Coffield, 2006).

3 Bespoke questionnaires

For large student cohorts, or large scale development programmes (which may even involve a significant number of staff), the use of questionnaires and surveys can be helpful. However, rather than using an off-the-shelf questionnaire, it is often useful to develop a customised questionnaire in order to gain feedback on any particular teaching and learning development (See appendices for examples of these that you might want to modify to suit your projects). These include goal-oriented evaluation, goal-free evaluation and context-free evaluation.

3.1 Goal-oriented evaluation

Usually, and hopefully in all cases of development, a teaching innovation is being introduced into a module, course, year, or programme with certain rationales or goals in mind. It is useful to articulate these goals clearly and early on, and to align them with evaluation plans, as it keeps the development focused on the goals and provides a framework for evaluation.

How to develop a goal-oriented evaluation questionnaire

Stage 1: Establish a framework upon which to build a goal-oriented questionnaire that focuses on the main goals you are attempting to achieve.

These might include:

- **Academic development: developing information literacy and higher level intellectual skills**
- **Professional development: team working, leadership, communication, negotiation, presentation, task orientation, problem solving**
- **Personal development: independence, resilience, taking responsibility for own learning**
- **Motivating the students: challenge, support, feedback, locus of control, confidence**

Stage 2: Develop appropriate questions for each goal.

Questions may focus on the opportunities offered for the student to achieve the goal, and on their confidence that they are achieving the goal. For example, focusing on information skills might suggest the statements below (note that the last statement should be negatively scored, and a high level of agreement indicates a negative response). It is useful to include some negatively scored statements to avoid situations where a student simply 'runs down' a particular score column (say, 4, if they are generally satisfied with the experience).

1. **During the module, I was given opportunities to establish my own research questions**
2. **The staff focused more on encouraging me to find information than on giving me the facts**
3. **I feel I am better able to find information from different sources**
4. **I am more confident in my ability to evaluate the information I have found**
5. **I needed support in establishing my own questions to research**

Stage 3: Combining statements

Repeat this exercise for each goal identified (aiming for about five statements for each goal) and then merge these statements randomly into a single questionnaire of around 20-30 statements.

Stage 4: Analysing the questionnaire

Simply regroup the statements into their original goals and then calculate cohort averages for each particular statement and for each goal (the average of the averages of each statement within that particular goal).

3.2 Goal-free evaluation

Goal-free evaluation attempts to identify experiences, outcomes or attitudes that may go beyond the intended goals. Rather than asking questions, ask the students to complete an open-ended sentence, such as:

1. **The thing I found most helpful was…**
2. **The most useful thing/skill I learned was…**
3. **The thing that most changed the way I learned was…**
4. **What made learning most effective for me was…**
5. **The thing I found most difficult was…**

Section 2 of appendix 2 shows an example of a goal-free approach to evaluation.

3.3 Context-free evaluation

Some parts of your project may have been included to enable the learners to develop particular skills or outcomes. For example, you may be introducing Enquiry Based Learning in order that the students will develop certain skills and qualities. As shown, the approach is to begin a sentence that the student will complete:

1. **What is helping me most to develop my team working skills is…**
2. **I have been developing information skills by…**
3. **The most useful learning experience for me has been…**
4. **I have spent most time learning…**
5. **I have learned about doing research by…**
6. **The best thing about this course is…**
7. **I have gained most confidence as a learner through…**

Evaluation of these statements can be used to identify areas of good practice (see also section 3 of appendix 2 for more examples).

It is useful to explain to students why they are asked to fill out the questionnaire and how to do so.

A good time to ask for responses is during or at the end of a teaching session. If possible, tell the students that they will have access to the results as well, because students may consider such information important too.

7 And it's not only about the student experience...

The idea is that whatever findings you will have, these will be used for developing good teaching practice, which, in turn, will provide a better learning environment for the students. However, evaluation can also be used to inform your general professional practice as an educator. Figure 1 shows a model for developing professional teaching practice, which builds on your previous teaching experience and your existing scholarship, both in terms of the discipline you teach, and on pedagogical practices that you have learnt. These together can be called the 'theory' that informs your teaching practice.

You then apply this theory to the context of your particular teaching (contexts include such things as the nature of the students – full-time, postgraduate etc. and the teaching forum – lecture, practical class etc.), teach the students, and evaluate the outcomes. The evaluation is central for then reflecting on your teaching experiences, and whether the students felt that the goals you set were met. Ideally, these findings should inform further scholarship on teaching and learning practices (and possibly some of it warrants publication). However, even if not, the findings should feed back into your 'theory' of teaching that will inform and improve your practice in the future.

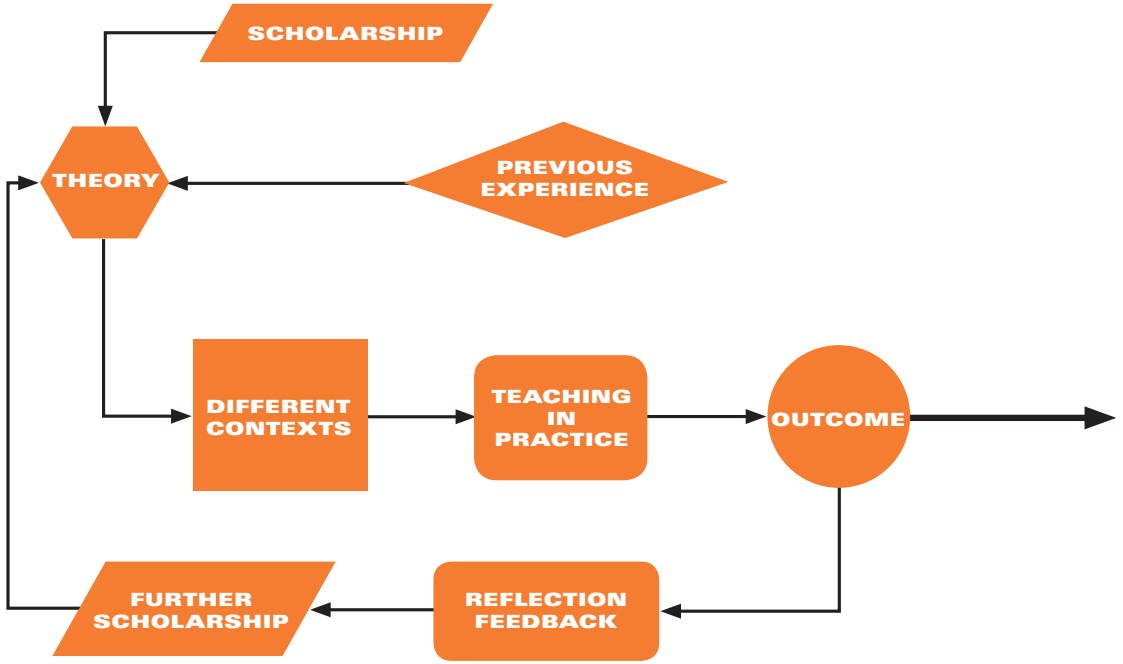

Figure 1. Model for developing professional teaching practice (Moore (2003) adapted from Ramsden (1996))

8 And finally, a really important piece of advice

These guidelines have referred to goals or outcomes several times. It is really important to think about what your goals are, how these are different from the learning outcomes defined for the learning programme, and how these relate to the student learning experience. For example, you need to determine if you are trying to develop certain skills or attitudes that you consider to be important in enhancing employability. Examples include problem solving, the ability to manage projects and time, and the ability to work collaboratively. These often go beyond the stated learning outcomes for the module.

Secondly, whatever you are trying to achieve, you should look at the literature to help you to develop both your practice and your evaluation scheme. For example, you may look at the SCONUL (Society of College, National and University Libraries) definition of information literacy to provide a framework for evaluating that development (SCONUL, 2006). Alternatively, you may look at the literature around factors that influence student motivation and engagement or creativity.

Finally, you should look at the literature around these factors. An example here would be student motivation. It is not just a matter of asking the students if they enjoy what they are doing, but you might look at motivating factors such as working collaboratively, receiving positive feedback, working on a realistic challenge, having some control over what you learn and how you go about learning it.

This simple analysis will help you to construct an evaluation methodology that will be effective in providing the information you require to assure and enhance the quality of your teaching. It will also ensure that you have developed a valid and rigorous evaluation scheme that will stand up to the rigours of academic scrutiny and provide robust evidence of your good practice.

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Contact details

If you would like to discuss your evaluation ideas or even get some initial thoughts together, we would be happy to hear from you. For further information, please contact the The Engineering Subject Centre (**www.engsc.ac.uk**) or the Royal Academy of Engineering (**www.raeng.org.uk**).

Ivan Moore, Higher Education Curriculum Advisor

Tel:+44 (0)1509 227170, Email: **ivan@engsc.ac.uk**

Further information and resources

Further online resources

Harvey, J. (ed.) (1999) The Evaluation Cookbook. Edinburgh: Learning Technology Dissemination Initiative. Available from

http://www.icbl.hw.ac.uk/ltdi/cookbook/contents.html [accessed 15 March 2011].

Moore, I. Towards using Learning Styles Questionnaires. Available from http://extra.shu.ac.uk/cetl/cpla/resources/Towards%20using%20Learning%20Styles%20Questionnaires.pdf [accessed 15 March 2011] (Note: provides examples of approaches to study and learning strategies)

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http://www.campus.manchester.ac.uk/ceebl/about/evaluation_strategy_0107.pdf [accessed 15 March 2011].

Trochim, W. (2006) The Research Methods Knowledge Base. 2nd ed. Available from

http://www.socialresearchmethods.net/kb/survey.php [accessed 15 March 2011].

(Note: this is a very useful and succinct introduction to surveys and interviews, their purpose and uses).

Further printed resources

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Appendix 2

An evaluation survey for enquiry and problem based learning

Sections 1 and 2 of this evaluation refer to the part of your module where you were learning through Problem Based Learning[1]. For the purposes of this evaluation questionnaire, we will refer to it as 'the activity'.

	Statement	1	2	3	4	5
1	I felt that I understood the learning process in this activity					
2	I learned about how to present my findings to an audience					
3	I found this activity difficult					
4	This activity helped me to develop my team working skills					
5	I learned how to plan my learning					
6	During the module, I was given opportunities to establish my own research questions					
7	The staff focused more on encouraging me to find information than on giving me the facts					
8	The activity was more about analysing and evaluating information than it was about memorising it					
9	I feel I am better able to find information from different sources					
10	I am more confident in my ability to evaluate the information I have found					
11	I feel I am better able to evaluate different sources of information					
12	I needed a lot of support from staff in this activity					
13	This activity helped me to discover what was expected of me as a learner					
14	The group was effective in developing shared goals					
15	I enjoyed working in this way					
16	I needed support in establishing my own questions to research					
17	I found the team members to be helpful in my learning					

[1]Evaluators might wish to replace 'Problem Based Learning' with some other term that is understood by the students, e.g. Design exercise, project, investigative study, etc.

	Statement	1	2	3	4	5
18	I didn't need to apply anything I learned					
19	I had opportunities to lead the group					
20	I feel that I am better able to make an oral presentation					
21	There was a lot to learn					
22	I enjoyed working as a member of a team					
23	I feel I am better able to communicate with others					
24	Any interpersonal difficulties were cleared up in a positive manner					
25	I felt I had to work hard to complete this activity					
26	My group worked well as a team					
27	I felt I was able to take more responsibility for my own learning					
28	As a result of this activity, I am now more confident about my ability to establish my own research questions					
29	The group worked well to overcome any difficulties or problems we encountered					
30	I found the activity challenging					
31	I can see a range of ways in which I can contribute to a group task					
32	I feel more confident in my ability to solve problems					
33	The group appreciated my inputs					
34	I felt I could get through the activity simply by memorising things					
35	I felt a sense of control over my learning					
36	I feel I am better able to present my findings					
37	The staff gave me the support I needed to learn in this module					
38	I developed an understanding of technical processes through working with my group					
39	I was able to see good ways of presenting information					

Appendix 2

Section 2. Goal-free evaluation

Please add a comment to follow the introductory statement. For example, "During the activity…"

1	The thing I found most helpful was…
2	The most useful thing/skill I learned was…
3	The thing that most changed the way I learned was…
4	What made learning most effective for me was…
5	The thing I found most difficult was…
6	To help me to improve as a learner, what I need to work on is…
7	What I need to stop doing, which hinders my learning, is…
8	To help me improve as a learner, I would like my tutor to: Stop… Start… Continue…

Section 3. Context-free Evaluation

This section refers to the whole of your year's study so far; not just the activity or even the module, but to all of the modules you are studying on your course.

1	What is helping me most to develop my team working skills is…
2	I have been developing information skills by…
3	The most useful learning experience for me has been…
4	I have spent most time learning…
5	I have learned about doing research by…
6	The best thing about this course is…
7	I have gained most confidence as a learner through…

Appendix 3

RUFDATA

What is being evaluated? _____

Reasons and purposes	What are the **Reasons** and **Purposes** for this evaluation? (e.g. planning, accountability, developing, to gain resources)
Uses	What will be the **Uses** of the evaluation? (e.g. staff development, learning from good practice, strategic planning, PR)
Foci	What will be the **Foci** for our evaluation? (e.g. range of activities, emphasis, aspects of evaluation – identification of priority areas)
Data and evidence	What will be the **Data** and **Evidence**? (e.g. qualitative (interviews, case studies)/quantitative (questionnaire))
Audience	Who will be the **Audience**?
Timing	What will be the **Timing**? (e.g. once a year, at year end)
Agency	Who will be the **Agency** conducting the evaluation? (e.g. staff developer, course participants, external facilitator)

(Adapted from Saunders, M. (2000) Beginning an Evaluation with RUFDATA: Theorising a Practical Approach to Evaluation Planning, Evaluation 6(1) pp.7-21)

Course experience questionnaire

This questionnaire is an expanded version of the original questionnaire designed by Ramsden (1996). It measures performance indicators in five different areas.

1. Good teaching
(question 3, 7, 15, 17, 18, and 20)

    - providing useful and timely feedback
    - clear explanations
    - motivating students
    - making the course interesting
    - understanding student's problems

2. Clear goals and standards
(question 1, 6, 13, and 24)

3. Appropriate assessment
(question 8, 12, 16, and 19)

    - higher order of thinking rather than simple factual recall

4. Appropriate workload
(question 4, 14, 21, and 23)

    - too large a workload can lead to superficial learning

5. Generic skills (question 2, 5, 9, 10, 11, and 22)

    - solve problems
    - analytical skills
    - work in project groups
    - solve unknown problems
    - written communication
    - work planning

For each statement, the student records on a Likert scale, where

1=strongly disagree
2=disagree
3=neither agree or disagree
4=agree
5=strongly agree

Appendix 4

	The Course Experience Questionnaire					
1	It was always easy to know the standard of work expected.					
2	The course developed my problem-solving skills.					
3	The teaching staff of this course motivated me to do my best work.					
4	*The workload was too heavy.					
5	The course sharpened my analytic skills.					
6	I usually had a clear idea of where I was going and what was expected of me in this course.					
7	The staff put a lot of time into commenting on my work.					
8	*To do well in this course all you really needed was a good memory.					
9	The course helped me develop my ability to work as a team member.					
10	As a result of my course, I feel confident about tackling unfamiliar problems.					
11	The course improved my skills in written communication.					
12	*The staff seemed more interested in testing what I had memorised than what I had understood.					
13	*It was often hard to discover what was expected of me in this course.					
14	I was generally given enough time to understand the things I had to learn.					
15	The staff made a real effort to understand difficulties I might be having with my work.					
16	The assessment methods employed in this course required an in-depth understanding of the course content.					
17	The teaching staff normally gave me helpful feedback on how I was going.					
18	My lecturers' explanations were clear and simplified the understanding of the subject for me.					
19	*Too many staff asked me questions just about facts.					
20	The teaching staff worked hard to make their subjects interesting.					
21	*There was a lot of pressure on me to do well in this course.					
22	The course helped me to develop the ability to plan my own work.					

23	*The sheer volume of work to be got through in this course meant it couldn't all be thoroughly comprehended.					
24	The staff made it clear right from the start what they expected from students.					
25	I could recommend this course to a fellow student.					

* Negatively scored

Moore, I. (2003) Evaluating a Materials Course. Available from http://www.materials.ac.uk/guides/evaluating.asp and http://www.materials.ac.uk/guides/4-evaluating.pdf [accessed 15 March 2011].