

Table 2.1: A learning-centred framework for whole project evaluation [Adapted from Alexander & Hedberg, (1994); Bain, (1999) and Phillips et al (2000)]

	Phase	Focus	Purpose	Questions	Evidence and methods
Formative	1 Analysis and Design	1.1 Curriculum analysis	To describe the inadequacies/ insufficiencies of the current curriculum, with particular attention to the shortfall in student learning.	<p>What is the learning need and why can't it be met with existing teaching/ learning arrangements?</p> <p>The curriculum analysis should result in a clear statement of the desired learning outcomes—i.e., the learning objectives.</p>	<p>Analysis of the nature of the shortfall in student learning and the probable reasons for it.</p> <p>The analysis is conducted through self-, peer and expert review, review of documentation, informed by relevant educational literature, with attention to the interplay between content, teaching/learning activities and assessments.</p>
		1.2 Teaching-for-learning analysis	To describe and justify the teaching/ learning/ assessment process likely to bring about the desired learning outcome.	<p>What teaching/ learning/ assessment process is likely to meet the learning need?</p> <p>The teaching-for-learning analysis should be informed by the literature.</p>	Description of the proposed teaching/learning process with argument indicating why it is likely to redress the shortfall in learning outcome, based on the evidence from the literature.
		1.3 Specification of innovation	To describe and justify the proposed implementation, and indicate how it will facilitate the desired learning process and outcome (in 1.2)	How does the innovation actualise the desired teaching/learning/ assessment process?	<p>Educational plausibility is established by detailing the implementation within the course context, and specifying how the learning process and outcome will be assessed.</p> <p>Project feasibility is judged through demonstration of proof of concept (e.g. through prototyping, success in a similar context) plus peer/expert review of anticipated costs and institutional 'fit'.</p>
Formative	2. Development	2.1 Formative monitoring of learning environment	To determine whether the innovation is functional in its context and accessible/ attractive to students (and modify as needed).	Can students use the innovation easily (e.g. can they navigate, gain access to materials, perform the requisite tasks, etc) and do they find the innovation attractive, approachable and accessible?	<p>Evidence focused on the workability of the innovation and student involvement with it: observation; video; user tracking – if computer-based; student and peer reactions (expressed through interviews, focus groups, questionnaires).</p> <p>Viability modifications determined through peer and expert review.</p>
		2.2 Formative monitoring of learning process	To determine whether the innovation is influencing the learning process as intended (and modify as needed).	Does the manner in which students use the innovation encourage the desired learning process and is there evidence that the desired learning is occurring?	Evidence focused on the nature of the learning process and its immediate consequences: video; think aloud; stimulated recall; teach-back; reflective journals. Viability/modifications determined through peer and expert review
Summative	3. Implementation	3.1 Summative evaluation of learning process	To determine whether the innovation is influencing the learning process as intended.	<p>Now that the innovation is part of the unit and not 'experimental', do students use it in the way intended?</p> <ul style="list-style-type: none"> Does it encourage the desired cognitive learning process and is there evidence that the learning is occurring as the innovation is used? Are there unexpected cognitive benefits deriving from the ways in which the innovation is used (e.g. do students pose questions or connect ideas or create repetitive practice in ways that you didn't anticipate)? Are contextual processes much as you expected, or not (e.g. are students using the innovation in self-formed groups when it was conceived as a single-user system; are students using the innovation minimally or erratically when you thought it would be highly engaging)? What is the influence of the contextual processes on students' cognitive processes? 	Evidence focused on the nature of the learning process viz-a-viz that intended; methods as per 2.2 above, plus user tracking.

Phase	Focus	Purpose	Questions	Evidence and methods
	3.2 Summative evaluation of learning outcome	To determine whether the learning outcome is as intended.	<p>The questions under this heading shift from a focus on what is happening as the innovation is being used, to its impact on achievement towards the completion of the unit. For example:</p> <ul style="list-style-type: none"> • Are improvements apparent in those assessment(s) that are directly based on the targeted learning? Are these improvements consistent with the learning objectives of the project, and can they be linked to the cognitive learning process fostered by the innovation? • Have some unintended learning outcomes occurred, such as students forming self-study groups to bypass the poor quality of the innovation? • Have other more 'remote' aspects of achievement benefited in understandable ways (e.g. curriculum flow-on or improvements in 'generic' capabilities)? • Has there been a justifiable impact on pass rates or grade distributions in the unit? Are the benefits widespread or limited to some students? 	Evidence focused on the nature of the learning outcome using outcome-relevant assessment tasks, supported by conventional assessments and student interviews and questionnaires where appropriate.
	3.3 Summative evaluation of innovation appropriateness	To determine whether the innovation is educationally appropriate in its immediate context.	<ul style="list-style-type: none"> • Is the innovation integrated into the unit or does it function more as an adjunct, and what are the consequences? • Do the learning benefits of the innovation outweigh its educational costs? For example: <ul style="list-style-type: none"> - Is the time allocated by students for use of the innovation appropriate given the other demands on their time? - Is there evidence that students are trading-off the innovation area of the curriculum against other areas? - If some aspect of the unit was displaced to make way for the innovation, is this omission appropriate given the objectives of the unit? • Are there other educational cost benefits of the innovation? For example, has it allowed the reallocation of teaching time to other areas of the curriculum or enabled under-prepared students to be admitted to the unit? • How have other aspects of the operation of the unit been affected by the presence of the innovation (e.g. impact on tutorials, seminars, exercises, group work, lecture attendance, etc)? 	Peer and expert review of the educational worth and viability of the innovation in the unit/subject concerned, based on evidence gathered in 2.1, 2.2 and 3.2, plus evidence on integration of the innovation into the curriculum.
4. Institutionalisation	4.1 Impact evaluation	To determine the robustness of the learning and its transfer beyond the immediate context of the innovation.	<ul style="list-style-type: none"> • What is the impact of innovation-enhanced learning on other aspects of the course? For example, have cognate units reported flow-on benefits ? • Is it possible to trace some improvements in 'generic' capabilities to the influence of the innovation? • Have benefits been detected beyond the academy, for example in work placements or postgraduate employment? • Are improvements in the grade distributions of the unit reflected in retention, progress and pass rates for the course? • Has the project been reported in the scholarly literature and have there been any scholarly benefits (citations, uptake)? 	Evidence of beneficial effects on: understanding and learning in related/subsequent areas of the curriculum; indirect indicators (e.g. progress and retention rates); development of generic capabilities; transfer to the workplace.
	4.2 Maintenance evaluation	To determine the sustainability of the innovation in the context of the whole course.	<ul style="list-style-type: none"> • Are the educational benefits of the innovation (within and beyond the unit) sustainable given its maintenance and opportunity costs? For example, does the innovation require specialised resources that have limited utility outside the unit? • Is the unit being subsidised by other units in the course (or could they also attract similar levels of support)? • Are the peak loads on support staff interfering with the needs of other units in ways that cannot be offset? • Have there been any flow-back benefits from uptake in other faculties/schools or institutions (enhancements, cost-recovery)? 	Peer and expert review of the educational benefits of the innovation considered in relation to its maintenance and opportunity costs, and in relation to the educational and funding policies of the institution.

References

- Alexander, S., & Hedberg, J. G. (1994). Evaluating technology-based learning: which model? In K. Beattie, C. McNaught, & S. Wills (Eds.), *Multimedia in Higher Education: Designing for Change in Teaching and Learning*. Amsterdam: Elsevier.
- Bain, J. (1999). Introduction to 'Learning-centred evaluation of innovation in higher education'. *Higher Education Research & Development* 18 (2), pp. 165-172.
- Phillips, R., Bain, J., McNaught, C., Rice, M. and Tripp, D. (2000). *Handbook for Learning-centred Evaluation of Computer-facilitated Learning Projects in Higher Education*, page 1.5.