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The Course Improvement Flowchart: A description of a tool and process for the evaluation of university teaching

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Abstract

The use of evaluation to examine and improve the quality of teaching and courses is now a component of most universities. However, despite the various methods and opportunities for evaluation, a lack of understanding of the processes, measures and value are some of the major impediments to effective evaluation. Evaluation requires an understanding of what to evaluate, how to evaluate it, how to collect and analyse the information and how to action and implement what has been learned. The aim of this paper is to describe an instrument to document not only the evaluative process, but also evaluative outcomes. The Course Improvement Flowchart (CIF) provides a template for the application of an action inquiry framework. Throughout this process, the CIF template can be used to document key recommendations emanating from multiple sources of feedback so that a proactive statement of intent or action plan for teaching and course improvement is written. The resultant improvements that may be achieved in teaching and course quality may lead to more satisfying teaching experiences, improved student outcomes and heightened professional growth as a teacher.

The Context of Evaluation and Quality Assurance at Australian Universities

There has been an increasing focus in Australian higher education on performance and measuring output and outcomes. Greater attention is being paid to the evaluation of policies and practice through quality assurance assessment by the Australian Universities Quality Agency (AUQA) (Sharma, 2004). AUQA conducts 'quality' audits of universities that are based on judging whether university procedures match objectives at an institutional level rather than against pre-determined standards. AUQA examines how universities attempt to achieve their goals and whether they have been achieved. AUQA reports on performance and outcomes (e.g. student progress, achievement and graduate attributes) to enhance the quality of universities' academic activities (AUQA, 2007).

Teaching performance is a key component of the quality assurance process and can be measured in terms of scores on the Course Experience Questionnaire (CEQ) and success in the Learning and Teaching Performance Fund (LTPF). The LTPF was introduced in 2003 by the Australian Government to reward universities that can demonstrate excellence in learning and teaching. Universities are asked to submit evidence that their policies and practices relating to learning and teaching, as well as student evaluations of subjects, are publicly available on their websites. Key performance indicators include student satisfaction, student outcomes and success. Student satisfaction indicators are based on the responses to the generic skills scale, good teaching scale, and overall satisfaction items from the CEQ. Notably, the focus on teaching quality in higher education in the last 15 years has resulted in heightened awareness and interest regarding strategies to evaluate teaching effectiveness.

Evaluation of University Teaching

Evaluation of teaching has been described as a vehicle for the improvement of teaching (1986, Saroyan & Amundsen, 2001). Evaluation may facilitate improvement in the quality of teaching but also can focus on other elements such as courses and administration (Hughes, 2002). Evaluation can facilitate change and improvement through reflective practice and provide an indication of course or teaching effectiveness.

Hughes (2002) outlined the many purposes of evaluation in the university context including formative (quality improvement) and summative (quality assurance) methods, although these distinctions often overlap. In quality improvement, university teachers may look to identify aspects of courses and teaching that are effective, explore suggestions for improvement to modify teaching practices and support various processes in performance reviews. In these instances, evaluation can inform how well a teacher is teaching but also what aspects of teaching are good and what aspects need improvement. While higher education institutions contain both good and bad teachers, there is also variation in each teacher's potential to improve over time. Good teachers continually improve and are constantly searching for strategies to ensure the quality of courses they present to students are high. In quality assurance, various evaluative processes can inform promotion, teaching awards,

performance reviews and support claims of teaching excellence. Promotion within universities often requires teaching portfolios and descriptions of one's teaching practices. Evaluation is a key component of any teaching portfolio to demonstrate a commitment to quality teaching.

The use of evaluation to examine and improve the quality of teaching is increasingly common at universities. This change is largely attributable to initiatives such as AUQA and the LTPF which focus on measuring and rewarding performance and outcomes related to teaching. However, an understanding of, and commitment to appropriate evaluation procedures is often lacking within the university setting (Hughes, 2002). Despite the various methods and opportunities for evaluation, the realities of academic life are that circumstances may not exist for this to occur effectively. Moreover, a lack of accountability and motivation may exist if evaluation is to be instigated by individual teachers who may not realise or believe in its value. Overall, poor levels of understanding of the processes, measures and value are some of the major impediments to effective evaluation being undertaken in universities.

The Process of Evaluation

The process of evaluation is not straightforward as teaching is an inherently complex, multifaceted and personal experience. Evaluation requires an understanding of what to evaluate, how to evaluate it, how to collect and analyse the information and how to action and implement what has been learned. Planning for evaluation requires thinking about the aims of the evaluation, the context, who will be involved, what sources will be used and the outcomes (McCormack, 2003).

In many universities contexts, problems may exist as summative evaluation is given far greater emphasis. The recent shift in universities toward funding practices and quality assurance has meant student evaluation instruments are exclusively viewed as measures of success and status (Hughes, 2002). Given summative student evaluations have been found to be one of the most common sources of feedback regarding university teaching (Saroyan & Amundsen, 2001; Marsh, 1987), there is a danger that they are over used and become the sole basis for judging teaching effectiveness. Furthermore, collecting data on teaching strengths for promotion purposes may take priority over examining areas of teaching that need improvement (Hughes, 2002). It is important that teaching evaluation at university extends beyond summative student questionnaires. Informed judgements about effectiveness of teaching are made when multiple perspectives in a range of teaching characteristics are sought. The information also needs to be sensitive to the context of teaching. Teaching contexts may vary in terms of disciplines, level of the course, teaching styles, philosophies and course objectives.

In terms of evaluation, one single data source (e.g. students, tutors or peers) and one single collection method (e.g. questionnaires, interviews, discussions) may reveal only one perspective of teaching. Evidently, several different sources and methods should be utilised to provide a more comprehensive overview and to ensure a range of teaching processes are explored (Saroyan & Amundsen, 2001). Each of these sources can provide unique information but in isolation do have some limitations. That

is, sources have strengths and weaknesses but the weakness of one source may be overcome via the strength of another. It is also important to recognise that evaluation can operate on a number of different levels and does not necessarily need to be focused on classroom practices. All dimensions of teaching (e.g. content knowledge, pedagogies etc.) and the course (e.g. assessment, lectures, materials, resources etc) need to be evaluated. Evaluation can also examine the design of courses and planning practices and the achievement of student outcomes.

When multiple perspectives and techniques are used, the evaluative process will be a more valid and reliable indicator of teacher effectiveness and recommendations for change will be more credible and valuable. Despite the literature promoting the benefits of multiple methods of evaluation, many universities and teachers do not have access to or utilise an instrument or template to guide and document this process or add credibility and accountability to the evaluation outcomes. Figure 1 (see page 14) illustrates an example of the *Course Improvement Flowchart* (*CIF*) which has been developed as a tool to improve the quality of university courses and teaching. The *CIF* provides a framework for the collection of formative and summative evaluation data which encourage teachers to reflect on their teaching performance and engage in professional learning. The *CIF* systematically and explicitly displays the framework, flowchart and action plan for course improvement, which is based on a number of key evaluative processes. The *CIF* can be used to evaluate teaching and underscores the value of obtaining multiple sources of feedback when teaching and recording and acting upon information that has been collected. This process focuses on revising teaching practice and may inform decisions about future course development and delivery.

The *CIF* is a process that recognises the purposes, teaching activities, outcomes and reflections to improve which is similar to the ADRI cycle (Approach; Deployment; Results; Improvement) endorsed and utilised by AUQA. The ADRI cycle is a widely recognised framework to approach evaluation and is known across the sector as a quality management model and espouses a quality improvement cycle. To this end, the ADRI cycle provides a framework for the evaluation of many aspects of university functioning, standards and practices. As Baird (2005) advised, the ADRI cycle refers to:

- Approach – planned arrangements are suitable to achieve goals and measures of success and improvement are defined
- Deployment – actual practice conforms to planned arrangements and improvement can be based on refinement to determine alternative strategies and not just success
- Results – arrangements achieve the desired results and make recommendations for improvement
- Improvement - learning occurs and results from evaluation are disseminated to key stakeholders.

The ADRI is cyclical in nature and focuses on continuous improvement which aligns with the framework of the *CIF.* The ADRI and *CIF* process both provide a way of thinking about cycles of quality and are designed to be used at more than one time point.

Sources of Feedback

As illustrated in Figure 1, the *CIF* includes feedback from students (numerical questionnaire scores, open-ended comments, focus group interviews, course evaluation results), colleagues (classroom observations, meetings, tutor course evaluation) and self-reflection (course evaluation, reflection statements). A brief description of each *CIF* feedback component is now provided:

Student Evaluation of Teaching (SET)

A fundamental component of improvement in teaching is student feedback. SET is the most common source of feedback regarding university teaching (Saroyan & Amundsen, 2001; Marsh, 1987) and provide an indication of student perceptions of the impact of teaching on their learning (Saroyan & Amundsen, 2001). However, many teachers and institutions do not necessarily value or encourage student feedback (Richardson, 2005) despite student evaluations generally being considered as reliable and valid (Paulsen, 2002). Appropriate use of student feedback can have a positive impact on teaching practices. In a review of the impact of evaluation on teaching, Murray (1997) concluded that student evaluation of teaching does lead to improvement of teaching.

The use of student evaluations as a measure of teaching effectiveness has been a contentious issue in the literature (Shevlin et al, 2000; Saroyan & Amundsen, 2001). In a meta-analysis of SET, Cohen (1981) concluded that students' ratings of instruction are a valid measure of instructional effectiveness. Marsh (1987) reviewed meta analyses and various research reports and concluded that student evaluations were relatively unbiased, valid and reliable, and provided a useful means of feedback. But some have argued that student evaluations don't fully reflect the effectiveness of teachers (Kember et al, 2002). Furthermore, research has illustrated that students can provide valuable feedback in some areas (rapport, workload, usefulness of materials, what they have learned, clarity of presentation, concern for progress and welfare) (McCormack, 2003) but may not be able to make accurate judgements in other instances (appropriateness of content, materials, course objectives and assessment of student work).

Ultimately, student feedback needs to be viewed as one component of information regarding teaching. It is generally accepted that having respect for student perceptions of courses and teaching and other issues is at the core of good teaching (Taylor, 1995). Students are in a unique position to contribute useful feedback and effective teachers listen to what students say and are open to their ideas regarding how to improve their teaching (Brookfield, 1990). Students can provide the most useful information regarding the direct impact of teaching and the various processes of teaching.

In a meta-analysis of research on the effects of university education, Pascarella & Terenzini (1998) strongly endorsed that learning is enhanced when students are closely engaged with all aspects of the course they are studying. It is therefore important to ensure that feedback instruments provide students with an opportunity to reflect on all aspects of their learning experiences and are not biased towards more traditional or teacher-centred approaches. For example, only asking students to reflect

on whether the teacher had adequate knowledge may not allow students to reflect on their total learning experience and thus should not be used exclusively to make judgements about the quality of teaching. The items used in surveys should represent a range of effective teaching methodologies and not just the 'sage on the stage' approach where the teacher is seen as the holder of all knowledge and the student acts to 'listen and [passively] learn' from the teacher.

The *CIF* outlines three major types of student feedback of teaching which can be collected in quantitative and qualitative forms: *(a) Numerical Questionnaire Scores, (b) Open-ended questions* and *(c) Focus Group Interviews.*

(a) Numerical Questionnaire Scores can be used to collect data on a range of teaching and course attributes and is one of the most common sources of student feedback. One advantage of questionnaires is that responses can be obtained by the whole student group, are anonymous and can provide longitudinal data on trends. Students can indicate how effective they believe the course and teaching have been. As displayed in the *CIF* (Figure 1), a SET questionnaire can be used as one source of feedback from the evaluative process. The results can be used for two purposes (i) to identify areas of strength and ways in which these might be developed further, (ii) to identify areas that may be improved. Data should be collected from a range of teaching attributes: i.e. the course, studying material in the course, lectures in the course, lecturing, tutorials, students' views of outcomes in the course, assessment, and resources inside and outside the classroom. The interpretation of the results is dependent upon the nature of the course. Although numerical data represent the ratings given by the students to various aspects of teaching, they should be considered as a means to identify trends such as changes in student perceptions.

(b) Open-ended questions: A key component of student feedback is open-ended questions which can be included as part of the course survey. Open-ended questions are a valuable source of students' ideas about improving courses using questions such as *'What are the best things about the course?' How could the course be improved?* By reading all open-ended comments and searching for important themes, one can obtain a valuable measure of students' perceptions and satisfaction with the course. These questions may enrich quantitative data and allow students an opportunity to list positive and negative aspects of the course. Weaknesses of the course are often identified and suggestions useful in trying to determine how to improve courses and teaching. The quality of information in terms of modifying courses and teaching is often more useful than numeric results. These comments may help explain numeric results from SET and/or complement mean scores.

(c) Focus Group Interviews are most effectively conducted with groups of students at the middle or end of the course in a semi-structured group interview format. These interviews allow a deeper analysis of all issues relating to ways to improve the course and allow the interviewer to probe for further clarification and meaning. They are considered a particularly valuable strategy to discuss results with students in more detail. Students' views on content, assessment and delivery can be further explored and suggestions for improvement can be explained and/or challenged. The interviewer can either be the teacher or another tutor or colleague if greater anonymity and objectivity

is preferred. The focus groups should ideally consist of about six to eight students. The disadvantage is the whole student group cannot be interviewed due to time constraints. While student perceptions of course strengths and weaknesses are valued, it must be realised that students may not have a full understanding of pedagogy or content and interviews should be complemented with other forms of evaluation. Any weaknesses recognised by students can be challenged in this format where appropriate.

Furthermore, in Australia, there have been some unique and useful developments in measuring and improving teaching and learning in the tertiary education sector. The software resource known as *CEQuery* is available to Australian universities at no cost. University staff can investigate the opinions of current and past students through the examination of feedback collected from completion of a variety of instruments (e.g. the CEQ). The process of examination is facilitated as comments are organised into themes and sub-analysis can extend to a range of background variables such as graduation year, field of study and gender.

Peer Evaluation of Teaching

Peer evaluation of teaching is an important source of feedback but is rarely used by academics. Centra (1987) has previously found that academics are more likely to ask a colleague to review a research manuscript than review a course outline or even visit a class. He suggested that academics may believe teaching is personal, observations are time consuming and stressful, research is more important and teaching improvement is not a high priority. However, just as peer review and discussion of research is essential, teaching can benefit from similar processes and opportunities (Paulsen, 2002) and can suitably complement other forms of evaluation. Lomas & Nicholls (2005) believed peer review of teaching should be viewed as a quality enhancement rather than a quality assurance process and can lead to considerable professional development of teachers.

The value of peer evaluation has been discussed in the literature (Centra, 1987; Osborne, 1998). Peers generally have the contextual and content expertise to make meaningful judgements on a range of teaching processes (Paulsen, 2002). Peers may be in a better position to judge the quality of teaching in terms of subject matter knowledge, curriculum development, materials, course design, delivery and assessment. Students are usually only able to make informed judgements about delivery and assessment (Paulsen, 2002). When student feedback is complemented with peer advice, the combined effect on improvement is powerful (Murray, 1997).

It is important that peer evaluation does not solely consist of classroom observations. Peer evaluation of teaching can occur both inside and outside the lecture theatre through both classroom observation and discussions of teaching philosophies and practices and shared critical reflections. Notably, peers can be involved in scholarly conversations about teaching. Evaluations conducted outside of the classroom can involve discussions around all aspects of teaching including assessment, teaching strategies, curriculum development, teaching materials, philosophies, strengths and areas for improvement. These conversations involve collaboration, reflection and mutual learning (McCormack, 2003). Information collected qualitatively may allow richer and more useful, meaningful feedback to

improve teaching practices (Osborne, 1998). It is also useful to ask both junior and senior colleagues to evaluate courses and teaching who may offer different perspectives and ideas. The reviewer should not always be a close colleague.

It is important that the purpose of the evaluation be made explicit and to contextualise the process in terms of professional learning, growth and improvement. It is likely that the peer review process will be enhanced if explicit criteria are decided upon prior to evaluation. Furthermore, it is desirable for more than one peer to be involved and that each peer observes and/or evaluates on more than one occasion. The colleague should meet beforehand to discuss all aspects of teaching and decide upon the focus, purpose and process of evaluation. A useful strategy is for two teachers to evaluate each other on various occasions and use the experiences as a collegial and collaborative effort to improve teaching and course quality.

In courses where other tutors are used, feedback can be collected regarding the quality of the course delivery and content and general or specific areas of improvement. This information can be particularly helpful to gain insight into the course from another teacher's perspective. A tutor evaluation pro forma which examines a number of key areas relating to activities, assessment, materials etc can also be made available for tutors to complete at the end of the course. Open-ended questions can be asked regarding: *What worked well? What didn't go well? Suggestions for improvement for next year?* Similarly, items can be developed to obtain numeric values for various aspects of the course. For example:

Assessment tasks aligned properly with particular learning objectives	*SD*	*D*	*N*	*A*	*SA*

Self-Evaluation of Teaching

Self-reflection can be used a number of ways including reflective journals, checklists, statements of teaching philosophy. However, it is important that reflections are formally documented. A checklist could be used to rate perceptions of strengths and weaknesses of the course and teaching which may then be compared with other sources of evaluation. The self-reflection could also be a summary of all other sources of information to draw conclusions regarding course quality or elements of teaching that can be improved. A self-evaluation pro forma can be used which incorporates an analysis of a range of course and teaching factors. Open-ended questions can also be asked regarding *What worked well? What didn't go well? Suggestions for improvement for next year?* Similarly, items can be developed (example above) to obtain numeric values for various aspects of the course and compared with results from other tutors (where appropriate).

The quality of each course in terms of content and delivery can be reviewed at the conclusion of each semester, making note of a number of key evaluative considerations. For example, the appropriateness of certain activities, the quality of assessment tasks submitted, quality of teaching materials etc. Comments can be recorded on a course evaluation page to list activities that were perceived to be successful and comment on course effectiveness with a view to improving the course for the next year. Formative evaluative data in terms of anecdotal comments can also be collected

throughout the course after each lecture. Teaching portfolios are also considered a major component of reflective practice and teaching improvements (Saroyan & Amundsen, 2001), but the discussion of this method is beyond the scope of this paper.

Other Components of Evaluation

Mid-course evaluations are a particularly valuable form of formative assessment of the effectiveness of the course and individual teaching. Any of the sources of feedback described above can be utilised to examine positive and negative aspects of the course and explore suggestions as to how the course can be improved. Mid-course evaluations are particularly beneficial as changes can be made during the course rather than waiting until the end. Results of the mid-course evaluation can be made explicit to students who appreciate being involved in course decisions and that the teacher is concerned about the effectiveness of the course.

Closing the Feedback Loop

It is clear that to improve as a teacher one needs to evaluate their teaching. However, a teacher's response to evaluative data is critical to the improvement of performance as the information collected does not automatically lead to improvements in teaching. For example, previous research has indicated that the use of student questionnaires does not improve the overall quality of teaching (Kember et al, 2002). More important than the numerical results is reflection by the teacher on what has been learned from the results. Reflective practice requires thinking carefully about aspects of courses/teaching and moving back and forth between thinking and experience and considering the future (McCormack, 2003). A teacher must use the information obtained to make needed changes. It is critical that the information collected first be summarised, taking into account the context, students and source of information. The extent of agreement and disagreement between sources and additional insights each source offers must be examined, along with a focus on the main strengths and weaknesses of the teaching and course.

The extent to which feedback impacts on teaching practices is commonly referred to as 'closing the loop'. There is a need to 'close the loop' to make sure that feedback sought from a variety of sources is used to maintain standards and to improve performance.

The *CIF* provides a template for the application of an action inquiry framework to document not only the evaluative process, but also evaluative outcomes. Evaluation is described as a cyclical process that is based on an action inquiry framework. McCormack (2003) outlined the action inquiry process as a strategy to improve teaching practice and involves the following steps:

1. collect information from a variety of sources using many approaches (act/observe)
2. interpreting this information through reflection (reflect)
3. Outline personal learning points from the reflection (plan)
4. acting on these points (act).

Throughout this process, the *CIF* template can be used to document key recommendations emanating from specific sources of feedback. Appropriate use of this information requires an analysis and interpretation of the recommendations so that an action plan for course improvement is written. An action plan can bring together the recommendations into a proactive statement of intent. The action plan represents a combination of evaluative information and reflective interpretations to develop action-oriented tasks as a focus for future delivery.

Credibility and Accountability of the *CIF*

Two important aspects embedded in the *CIF* process are (i) ensuring students as key stakeholders are informed about the outcomes and action plan of the evaluation and (ii) that teachers are accountable to a colleague that this process has been undertaken and discussed.

(i) It is critical that evaluation does occur in a two-way manner. Teachers who value student feedback may improve their own teaching and the quality of student feedback over time by increasing student motivation to participate in evaluation activities (Hughes, 2002). After taking into account all feedback from multiple sources of evaluation, all students should receive information regarding the impact of the evaluative process, otherwise their future motivation for participating in evaluations may be reduced (Hughes, 2002). Spencer and Schmelkin (2002) reported that students are keen to complete evaluations and are not worried about reprisal but believe their results are not examined or valued by faculties or administrators. Ballantyne (1999) found that students appreciated feedback from student evaluations indicating a concern and respect for students which is inherent with effective teaching. Students in this study really appreciated that their ideas were considered and made them think the teacher was approachable and concerned about their learning. Students felt more empowered and their beliefs were valued.

As such, students should be told of specific changes made in response to their feedback. These can be achieved a number of ways including (1) emailing previous students or posting on student websites such as Blackboard about the specific impact of their evaluation on the new course offering; (2) reviewing changes made to the course in beginning lectures with new students to help them understand that the feedback and opinions from last year's students were valued and influential; (3) the use of 'your view counts' posters which explicitly and publicly detail changes made on the basis of student feedback.

(ii) To improve the chances of course improvement occurring, Moses (1986) believes consultation with a colleague is essential. Discussion with a colleague about the process and outcomes of evaluation allows a teacher to explain some of their personal reactions to evaluative data and seek an opinion regarding the appropriateness and value of the action plan (McCormack, 2003). Use of the *CIF* is much more effective when a colleague reviews the final draft and signs the flowchart. This process increases accountability and may also provide an additional perspective on the value and accuracy of recommendations and the action plan. The *CIF* can then be placed in a teaching portfolio.

Future Research

Universities need to develop a greater understanding of what aspects of students' learning experiences maximise learning, engagement and retention in different degrees. As such, any data collected from quantitative and qualitative evaluation need to be validated to establish the most critical factors in achieving positive student outcomes. For example, students could be asked to judge aspects of their university life in terms of both performance and importance. A key benefit from this more useful approach is that resources to improve practices can be more appropriately targeted at areas that are 'performing' poorly but recognised as of high 'importance'. The current CEQ does not provide this data. Therefore, research should be conducted to help validate the importance/performance mix with successful graduates.

To determine whether use of the *CIF* positively influences key student outcomes, research is required to test (a) whether the process is feasible and the experience worthwhile from a staff and faculty perspective and (b) whether the *CIF* as an evaluation tool impacts positively on student outcomes. To this end, a key question is to what extent systematic and comprehensive evaluative practices lead to improved student outcomes such as learning and satisfaction. Furthermore, each of the data collection methods for evaluation need to be studied more closely to establish both staff and student perspectives on the key advantages and disadvantages. For example, it is important to examine how students respond to feedback from teachers relating to the information they provide in various subject evaluations. A mixed-mode methodological approach to these research issues would provide a unique insight into strategies to improve the quality of teaching at universities.

Conclusion

Good teachers are interested in identifying what aspect of their teaching and course are strengths and which are weaknesses. However, judgments of teaching effectiveness need to be made only after careful consideration of ways to measure teaching and course quality. In order to improve teaching, teachers should learn from students, colleagues and themselves by evaluating what they do and their impact. Comprehensive evaluation involves collecting information form multiple perspectives as each source on its own has limitations. The *CIF* provides a framework and tool to guide teachers through the evaluative process and facilitate the development of an action plan and valued outcomes from evaluation. There is no doubt that the evaluation process described throughout this article takes time and effort to appropriately implement. However, the resultant improvements that may be achieved in teaching and course quality may lead to more satisfying teaching experiences, improved student outcomes and heightened professional growth as a teacher.

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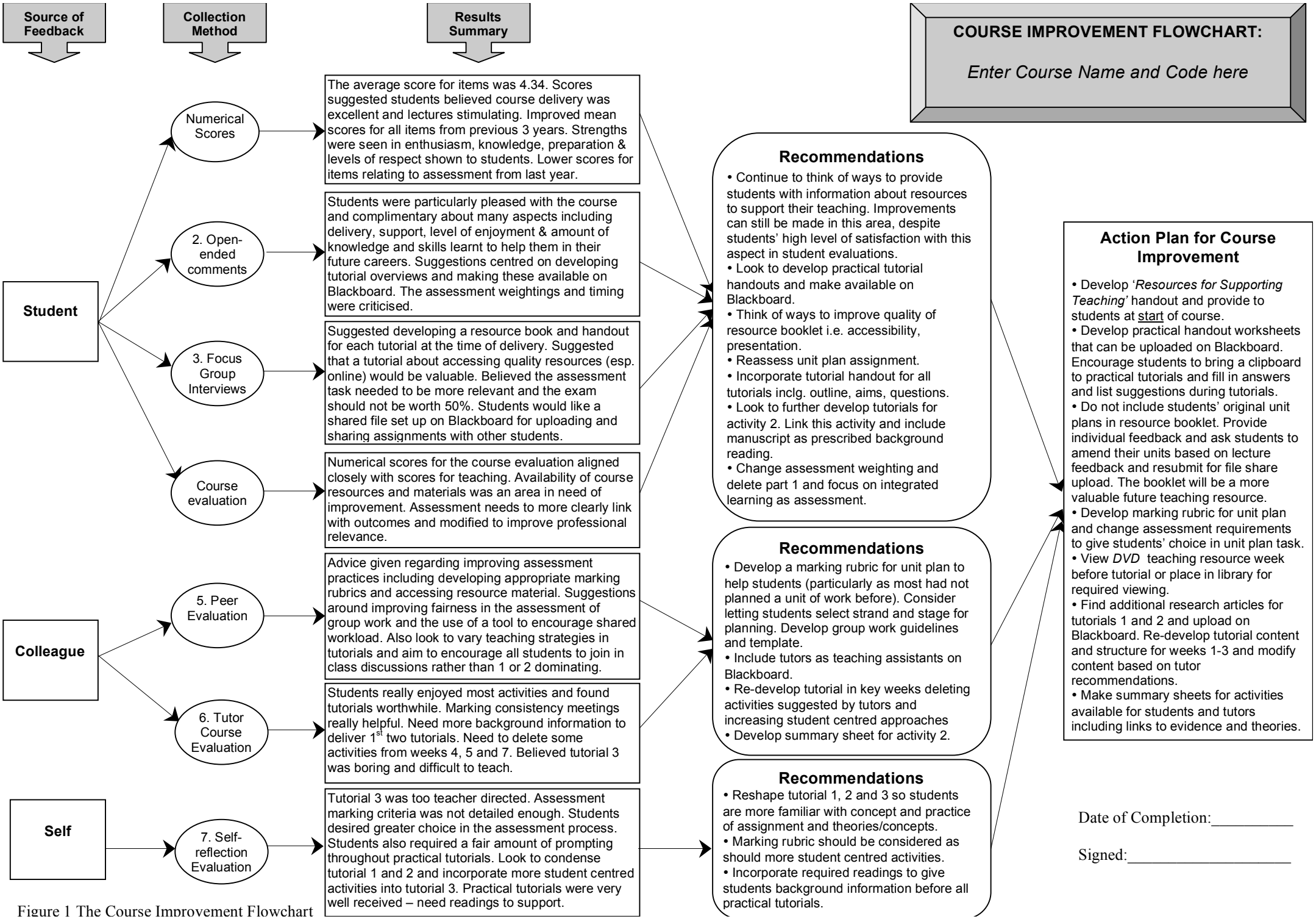

Figure 1 The Course Improvement Flowchart