

PRO-Teaching – Sharing Ideas to Develop Capabilities

Steve J. Drew and Christopher J. Klopper

Abstract—In this paper, the action research driven design of a context relevant, developmental peer review of teaching model, its implementation strategy and its impact at an Australian university is presented. PRO-Teaching realizes an innovative process that triangulates contemporaneous teaching quality data from a range of stakeholders including students, discipline academics, learning and teaching expert academics, and teacher reflection to create reliable evidence of teaching quality. Data collected over multiple classroom observations allows objective reporting on development differentials in constructive alignment, peer, and student evaluations. Further innovation is realized in the application of this highly structured developmental process to provide summative evidence of sufficient validity to support claims for professional advancement and learning and teaching awards. Design decision points and contextual triggers are described within the operating domain. Academics and developers seeking to introduce structured peer review of teaching into their organization will find this paper a useful reference.

Keywords—Development loop, Multiple data sources, Objective reporting, Peer review of teaching.

I. INTRODUCTION

PRO-TEACHING is a developmental peer review model that was designed with the ever evolving contextual and cultural needs of an organization in mind. In order to provide value to the organization's management and to academic teachers as key project stakeholders a novel combination of data is combined in a highly structured process to create reliable and validated evidence for both developmental and evaluative purposes. Reporting provides an analysis of combined contemporaneous data captured from teacher reflection, student evaluation of teaching, student learning outcomes, and observations from discipline and learning and teaching expert peers. It presents an objective, multi-perspective snapshot of observed teaching performances as validated summative evidence and also as a comprehensive record of the development journey undertaken.

Peer review of teaching has been used in educational settings as a quality review and improvement tool for many years. With teaching quality and student outcomes becoming key determinants in the competition to attract high quality students to universities it has an increasingly important role to play. Historically, peer review of teaching has either been undertaken informally to provide feedback, but executed in

ways that provide little valid evidence of quality; or, adapted formally by an organization to summative purposes. For the purposes of this paper, peer review and observation of teaching is the process where academic colleagues are invited into a learning environment to observe, analyze, and discuss a teacher's practice. Its minimum form offers observations from colleagues at a holistic level on a teaching performance in terms of: "what worked"; "what didn't work"; and, "ideas for change". More comprehensive forms may involve a focus on particular characteristics of effective teaching and provide qualitative and/or quantitative evaluations. Variants may involve peer assisted reflection, multiple observers, multiple observations, student evaluations, student learning outcomes and a range of other supplementary data [1] from which correlations can be discerned. As a guided developmental activity, with multiple observations, it can lead a teacher through an action learning [2] development loop that tests and refines the implementations of those "ideas for change". The peer review of teaching is recognized [3]-[5] as an effective method for assessing quality enhancement from a range of sources and generating professional development for incremental improvement of teaching.

Universities utilize a range of different learning environments and each context presents to the teacher a range of different learning and teaching activities that may be undertaken. Each context presents its own affordances and constraints for the observation of teaching ranging from immersion in the "mega-lecture" [6], to the safety requirements of the science laboratory, and the space constraints of studio [7], [8] and one-to-one teaching and supervision. It is therefore important that any peer observation process, or suite of processes, is designed with those affordances and constraints in mind, and offers a high degree of flexibility. Large class teaching in lecture theatres may be most conducive to having a team of observers present that effectively disappear into the crowd of students [9]. In smaller classes such as laboratories and tutorials the interactions between student, teacher and learning objects can become more individualized and varied yet observers are more obvious. In situations like studios and one-to-one teaching it is concentrated on individual learning needs and even one observer creates a crowd. In such instances the use of video cameras to record the session followed by peer-led reflection with the teacher and even the student can be effective [10]-[12]. Teaching itself is not limited to the performance in the classroom and each of the different aspects of teaching from curriculum and resource design, to the

S. J. Drew is with the Griffith Institute for Higher Education, Griffith University, Queensland, Australia (phone: +61-7-5552-7088; fax: +61-7-5552-8979; e-mail: s.drew@griffith.edu.au).

C. J. Klopper is with the School of Education and Professional Studies, Griffith University, Queensland, Australia (e-mail: c.klopper@griffith.edu.au).

development of assessment can benefit from some form of peer review and observation [13].

The following sections of the paper are organized such that a number of contextual considerations underpinning the design of a system for peer review and observation of teaching are presented and their implications discussed. Design and development processes are then elucidated with a description of the design decision points and of the resulting PRO-Teaching model that was derived. Implementation of the model is then discussed in terms of accessibility of instruments, engagement, training and supporting academics as they embark on this institutionally novel practice. The analysis of data from multiple sources is explained and the design and style of the resultant report is described. Finally, the impact that PRO-Teaching has had on the organization is portrayed along with what worked, what didn't work, and what opportunities for change will be taken.

II. CONTEXT RELEVANT DESIGN

Changes in the Australian funding model for universities and a more prescriptive regulatory system [14] are increasing the need for academics and institutions to be able to achieve and demonstrate the quality of learning and teaching. In addition, changes in the competitive landscape for local and international student places provide added pressure to institutions to be seen as effective education providers. Growth in the use of the Internet to publish rankings and in social networking, where students share experiences widely, demand a transparent approach to delivering quality that includes developing and supporting excellence in teaching. Governments and universities have recognized the importance of nurturing and developing the quality of teaching as a way of achieving better student outcomes. We are now beginning to see more academic appointments with an explicit teaching focus. In the research literature, starting with Shulman [15], [16] and Boyer [17], attention to scholarly teaching and the scholarship of teaching has increased. The impetus for universities to value research into teaching practice, and to reward teaching quality, continues to grow. A component of universities' response to this quality agenda is the use of student evaluations of teaching and units (courses). These evaluations can be regarded as providing a "student-centric" picture of quality. However, if used summatively as the sole, or predominant, indicator of teaching performance in an institution they do not inspire academic confidence in the system. Further, their use in formative ways is relatively weak.

The PRO-Teaching process for peer observation was designed within this evolving higher education context and with some local environmental constraints and needs in mind. It needed to fulfill a range of stakeholders' requirements in order to be deemed of value and to gain recognition as a useful and low-risk exercise to undertake. At the basis of discussion was the requirement that it provided a system for academic development that was supportive and demonstrably

effective. That is, that academics' development could be demonstrated through the evidence gathered throughout the process. It needed to be able to provide for each of the four Australian Learning and Teaching Council (ALTC) identified applications of peer observation of teaching namely: teacher development; creating an environment conducive for teacher development; development of academics new to teaching; and, development of sessional or casual teachers [18]. It needed to be able to provide a credible counterpoint to the use of student evaluations as the sole arbiters of teaching quality in the organization. Voluntary student evaluations executed at the end of each semester within a short time of final examinations elicit minimal student participation, tend to promote student reflection on the latest experiences of teaching, and depending upon cumulative assessment score can be quite polarized. Student evaluations executed at the time of observed teaching needed to be a key aspect of the data design so that it provided complementary evidence to support or contrast with the final evaluation data.

At the inception of the PRO-Teaching project the Deputy Vice Chancellor (Academic) stated that reports generated through informal peer observations of teaching were not acceptable as evidence for promotion, being not sufficiently objective. The use of peer observation for evidence to support claims for promotion needed to be developed into something that was demonstrably valid and provided evidence that stood alone. From the academics' perspectives the ability to use the outcome of this process as valid evidence to support claims for teaching awards and advancement was a significant draw card for their engagement with the project. Following human research ethics principles the provision of a safe development environment in which all data was protected and its use remained under the control of the participant was paramount to engender trust. The ability to discuss teaching practice, in a supportive and uplifting environment, with the purpose of gaining and sharing ideas was a novel and potent inducement for some academics that generated momentum as communities heard of the positive experiences of practice.

It is apparent that many academics, particularly in the Science, Technology, Engineering, and Mathematics (STEM) disciplines possess a wealth of discipline knowledge and discipline language that accompanies it, but a paucity of education language and understanding of concepts with which to discuss education related ideas. It was necessary to develop common language during discussions and debriefing that spanned the gulf of communication and this was facilitated through an experiential approach to training so that academics could come to know by doing and gaining feedback.

Design challenge: Creating valid evidence through triangulation of multiple data sources that would be acceptable as evidence supporting applications for awards, grants, and promotion.

Question: Evidence of what?

- Evidence of engagement with academic development for teaching

- Evidence of engagement with scholarly approach to teaching
- Evidence of development with respect to one or more dimensions of effective teaching
- Evidence of effective alignment of educational objectives, pedagogical practices, and assessment
- Evidence of observed strengths in teaching practice
- Evidence of obtaining achievable development foci
- Evidence of engaging in reflective practice
- Evidence of engaging in analytical practice with respect to observed teaching
- Evidence of collaborative approach in mentoring colleagues with respect to teaching
- Evidence of excellence in teaching based on multiple observed sessions

III. DESIGN PROCESS

A participatory action research methodology was employed to cyclically evaluate the question: "How can peer review of teaching be used to enhance the quality of teaching within the University?" Participatory action research is cyclical in nature and the relationship between action and reflection can be understood as a self-reflective spiral that involves "multiple cycles of reflecting, planning, acting and observing" [19]. In order to operationalize the project administrative hubs were created to facilitate staff engagement, training and foster an institutional culture of professional development and quality enhancement opportunity. Creswell [20] explains that participatory action research strives for "open, broad-based involvement of participants by collaborating in decisions as consensual partners and engaging participants as equals to ensure their well-being". Over time, the methods and modes of action are formed through a "dialectic movement between action and reflection" [21]. In the PRO-Teaching project stakeholders that were regularly consulted included academic reviewers and reviewees, project team members, student focus groups, senior academics making up the project reference group, members of the academic development unit, Deans (L&T), and Heads of Schools. Analysis of input and development of interventions were undertaken in collaboration with the project team.

The first design decision was the fundamental choice of a formative rather than summative focus for the peer review process. As we are investigating how the process might be used to improve teaching quality within an organization then the developmental model is well justified. Given a generally narrow academic understanding of education principles, and mixed capabilities as reflected by student evaluation a cyclic, experiential development approach with small attainment steps to provide small successes was needed to create positive experiences for participants. At the organizational level, by embedding formative peer review a means to lift organizational maturity around teaching quality is provided. A judgment step occurs in both developmental and summative processes however the notion of judging or being judged by a

peer in a persisting culture of closed classroom doors can be confronting and risks alienating academic staff. Creating the perception of power distance has potential for unduly affecting a teacher's performance. In the organization hosting this study there are no agreed standards of effective teaching that relate to contexts or appointment levels so a summative focus under those circumstances risks accusations of arbitrariness and unreliability that may affect trust in the process.

Decision points for the design of an embedded, institutionally sensitive model of peer review of teaching espoused by the ALTC [18] assume a purpose of quality enhancement for teaching and thus focus on developmental processes. Within that context and considering the university's needs above, the design questions and answers were as follows:

1. Whose teaching will be reviewed? The student learning experience relies on interactions with teaching staff from every experience level and so it was decided that PRO-Teaching would be accessible to all staff with teaching responsibilities. This fits with the ethical design principle of not excluding any teaching staff from participation. Indeed, as a means of dissemination of exemplary practice it can be most effective having less experienced teachers observing and reviewing the practice of their more accomplished colleagues.
2. What will be the policy regarding participation? PRO-Teaching was conceived by discipline focused academics to assist colleagues in a supportive way to share and try new teaching ideas. Academics from the STEM disciplines were predominantly research focused and did not share a culture of open door classrooms. Falling back to ethical design principles it was decided that participation should be optional/voluntary and based on fully informed consent.
3. What will be reviewed? Good teaching is based on preparation of structured curriculum and resources to aid student learning as much as the face-to-face component that is the most frequently observed. Given the existing organizational culture it was decided that it was important first to introduce colleagues to a new culture of open classroom doors and to generate good experiences through collegial discussion and supportive feedback. Thus the focus of review was any aspect of face-to-face teaching as nominated by the reviewee.
4. Who will the reviewers be? In introducing a new and potentially confronting process to the organization it was deemed important to be sensitive to the quality and impressions of the process that participants were experiencing. To that end the term "reviewer" was replaced with "observer" to reflect a lower power distance between roles. Having one of the reviewers as a discipline colleague ensured confidence in the explanation of approach and in the appropriateness of feedback. Having a second reviewer from a different discipline and with a recognized learning and teaching

expertise expanded the range of techniques and approaches that could be discussed [22], [23].

5. What form will the process take? As stated above reciprocal partnerships were encouraged but for various reasons non-reciprocal or one-way reviews were also provided for. The same two or more peers were involved as reviewers for two teaching sessions for each reviewee. Timing of reviews was limited by delivery mode and timetabling of all three academics so it was left at the discretion of the colleagues involved and facilitated by the administrative staff assigned to the program. Recognizing that there is often much to be learned in the reviewer's role and that practicing the analysis of teaching is important to successful reflective practice [5] it was decided to have all participants involved as both reviewer and reviewee where possible.
6. What reporting will take place? As part of the ethical design and to gain academic trust in the review process the only people outside of the triad with knowledge of the outcomes of each academic's participation were the peer review program team members. Again, as part of ethical design the observation notes and final reports generated by the process remain in confidence with the only copies going to the reviewee and reviewers concerned. Use of these documents for other reporting purposes remains under the control of the reviewees involved.
7. What type of follow-up will occur after peer review process? After each observation a debrief session with peer led reflection, professional feedback and collegial discussion is conducted at a time and place determined by the review team. Consistent with the answers to the previous questions any dissemination of reports for performance review or probation purposes is under the reviewee's control and executed with agreement of the review team.

IV. MODEL DESCRIPTION

Formation of an observation triad allowed for discussions to be moderated by peer consensus reducing risk of misunderstandings and contributing to the supportive and collaborative manner. From the perspective of ethical design having three or more participants in a professional debrief ensures that no implications of impropriety or insensitivity can be leveled and ensures that professional, personal, and process integrity is maintained. To formulate observation triads discipline colleagues were encouraged to form a dyad so that part of the choice of reviewer was in their hands. External reviewers were then sourced by the project administrator from a list of L&T award winners and education discipline experts that had made themselves available to undertake reviews. In order to reduce some of the system variables affecting reporting it was decided to engage the same observers for each observation of a particular teacher. This allowed for a community of trust and practice to develop with a continuity of approach, perception, and awareness of change of

development possible between observations. Through shared history of experience it allowed for a more accurate determination of any performance differential between sessions. Consistent advice with respect to interventions was traded against access to a potentially richer pool of development ideas from different observers.

Significant innovations are introduced to this process design with the inclusion and triangulation of student evaluation and learning outcome data with peer observation. With a perspective shift, the same quality criteria are used by students to evaluate the teaching as are used by the peers during observation. Similarly, students' response to the teaching and learning activities are recorded by the observers during the observation so that data can be correlated in an observation triangle, as shown in Fig. 1. An important aspect of observation of teaching is to focus on the student as learner and beneficiary of teaching. The nature of student engagement and participation in learning activities reflects the effectiveness of communication of stated learning objectives, their understanding of the activity requirements. By explicitly observing the students it ensures that their engagement with learning remains in focus.

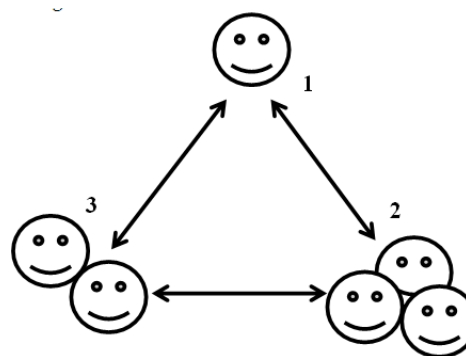


Fig. 1 PRO-Teaching observation triangle

A Harvard one-minute paper is used as a proxy for student learning outcomes and is executed as part of the student evaluation of teaching survey at the end of the observed lesson. The two questions for students to consider are: "What were the most important things that you learned in this lesson?", and "What questions still remain?" Before each observation the teacher is asked to provide a briefing document that lists the learning objectives for the lesson. If the lesson is constructively aligned [2], that is if lesson activities effectively help the students realize the stated learning objectives then there should be a match between objectives and learning outcomes in the one-minute paper. Characteristics of effective teaching that influence constructive alignment are clearly explained learning aims and objectives, approaches to teaching and curriculum design that engage students with learning activities, and formative assessment of achievement of learning aims. These are three of a suite of ten dimensions of effective teaching that both peers and students provide their evaluations of during an

observed lesson and analyzed together indicate where improvements can be made.

A common characteristic of many teaching and learning activities is that, for various reasons, they are designed without a full development loop. In the classroom this may mean that a concept is explained but with no formative assessment to determine and develop student understanding before advancing. In the context of peer review of teaching and the design of the PRO-Teaching process a single observation session does not provide a full development loop for the reviewee and thus is unable to capture evidence of development. Three or more observations involving multiple academics create timetabling difficulties and presents significant workload for observers. Thus, two observations were adopted as a minimum to capture evidence of development and allow the teacher to gain feedback on execution of agreed development ideas from the first observation. In short it provides the benefits of two sets of formative assessment, provides opportunities to observe teaching in a range of concept areas, offsets the occasional "bad day", and gains for the observers a broader exposure to the teacher's skillset.

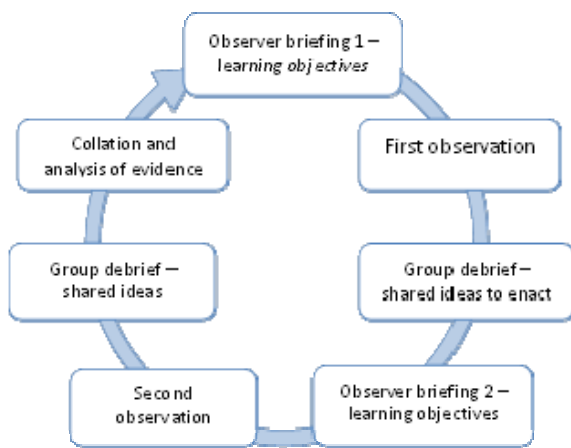


Fig. 2: The PRO-Teaching process [24]

In Fig. 2 the cycle of activities that participants are engaged with in the Peer Review and Observation of Teaching (PRO-Teaching) process is displayed. At the top of the cycle is a briefing of the observers so that the nature of the lesson, its aims and objectives, and particular areas of teaching that might be concentrated on are shared. At the start of the first observation the students are informed of the peer review process and invited to take part in evaluating the teaching with informed consent. Observers find a position amongst the students where the teacher and students are visible and remain unobtrusive and neutral. As the lesson unfolds observers make notes of what pedagogic strategies work and what do not seem to be effective. As soon after the observed lesson as possible the triad meets as a group to debrief and complete the session report. At the initial stage of debrief, before any

feedback is offered, the teacher is asked to reflect and supply answers to the same holistic questions that the observers considered: "what worked?"; "what didn't work?" and, "what would you do differently?" This is done first so that teacher reflection concentrates solely on their experience of the effectiveness of the lesson and is unaffected by observer influence. It is also done to provide areas of agreement so that observers can develop a positive and supportive rapport that renders professional feedback more trustworthy. Feedback starts with agreement then seeks teacher's answers to questions relating to approach and purpose of particular gambits and techniques observed in class. From here feedback devolves to constructive discussion and sharing of ideas for enhancing practice and ending with collaboration on a set of agreed items to try in the next observed lesson. The second observation in the cycle starts with a new set of learning aims and objectives and the agreed development ideas that will be trialed. All other aspects of the process are identical to the first observation.

V. OBJECTIVE REPORTING

After the first debriefing session a short report is compiled from peer observation notes, student evaluations, and self-reflection data and subsequently returned to the reviewee to consider strategies to implement in a following episode. After the second observation episode a similar feedback report is accompanied by a compilation and differential presentation of student evaluations from both episodes. This is correlated with the differential evidence levels from peer observations and self-reflection data for the development of ideas. After both observations were completed and short reports for each observation episode had been returned to the observed teacher, a final report relating the changes in data between observations was compiled. In order to create a consistent structure and provide adequate explanatory notes for non-education academic staff a report template was constructed into which data and analyses could be edited.

Important to management acceptance, the style of reporting is objective such that it is presented in the third person, impartial and objective. Focus of the analysis was only on patterns in the quantitative data triangulated from the different data segments and not on any personal aspects of the observations that were undertaken. Report structure was designed to reflect that of a classic scientific paper with an executive summary section followed by tabled presentation of data relating to the achieved constructive alignment in each lesson, the mode and average student evaluation responses to each Likert [25] scale question, and then a presentation of the observation data relating to average levels of evidence of each of the ten dimensions of effective teaching. For the purposes of this section only quantitative data was presented relating to observation of the teacher and again for observation of the students. The next report section presented an analysis of the data and relates aspects of teaching that were consistently done well, were consistently lacking, or underwent significant

change from one observation to the next. Outcomes of constructive alignment change were then related to the relevant observation and student evaluation dimensions. Peer observations of teacher and students were correlated with the student evaluations to establish patterns of evidence. In concluding statements the analyses were summarized and the final sections of the report contained a collation of all of the qualitative data and comments from students and peers and included the list of development ideas that were discussed with peers.

VI. IMPLEMENTATION STRATEGY

It was recognized early in the project that academics rarely responded to email communications that sought their commitment to engage with the peer observation of teaching. Written words were not nuanced or personal enough for what is potentially a very personal exercise and emails were effectively ignored unless there was a strong buy line that implied added value. Similarly, telephone conversations seeking academic commitment were not followed up in many cases leading to the need for multiple phone calls. The approach that was found to be most effective at gaining academics' support was face-to-face, in-person communication in which all misapprehensions and roadblocks to participation could be dealt with in a sensitive and informative manner. Trust was generated by this approach that enabled commitment with high success. Having a fellow academic or a 'real-life' administrator standing in the doorway and asking a personal favor, with potential professional benefits was difficult to ignore or dismiss.

Built on 20 years of teaching, the project leader's personal mantra with respect to interpersonal communication is: "Be engaged, be engaging, and be enthusiastic". It is passion and obvious belief in the importance of what you are engaging academics in that are infectious and highly effective for gaining support. In presentations to colleagues this mantra was reformulated as the energy equation " $E=MC^2$ " but for academic engagement: Engagement equals Motivation multiplied by Communication squared. In the same way, for the project administration role it was found experientially that a vibrant person with an animated approach was most effective at engaging sometimes reclusive STEM academics and busy managers and securing their ongoing participation.

It was found early that communications that were executed by email needed to be short and "punchy" with the focus point or requirement clearly made in the subject header and then succinctly elaborated upon in the first paragraph. This is a response to the need to clearly distinguish emails from the day-to-day academic traffic and to recognize that academics and academic managers in particular do not have time to read every detail in order to get to the point. A more journalistic approach of claim – explanation ensured better impact value. Similar approaches were found most useful for web pages and linked resources that were text rich. Project administrators developed and documented a comprehensive communication

strategy that is undertaken each semester and creates a key part of any future embedding strategy.

Many of the initial barriers to academics' participation can be summarized under two headings: misunderstanding and mistrust. In the former, a cultural memory of the term "peer review of teaching" which has a historically summative purpose and judgmental application in schools needed to be debunked and dismissed. In response this led to a concentration on the terms "developmental" and "observation" in ongoing discussions with participants. In the latter, there was mistrust of how gathered information might be used and who (such as managers and supervisors) might gain access to it, which needed to be effectively communicated in conjunction with an ethical design and informed consent. In summary it was important to be clear about what would happen and what would not happen and how participants' interests were promoted and protected. Supporting this and in order to gain traction with this project in STEM disciplines considerable social capital, gained as a former staff member in that area was spent to generate initial support.

It was apparent early in the project that the language of the project should be shared and inclusive. It was necessary to recognize the fact that most of the academics within the university had not studied Education and remain unaware of the particular language around learning and teaching. Until completing a Graduate Certificate in Higher Education or similar qualification and engaging with learning and teaching research this difference in academic language is not always apparent. In order to engage academics with the project it became important to ensure that spoken and written language was context neutral and inclusive in all aspects of communication including meetings, process descriptions, justifications, and instruments. As part of the action research process and reacting to user feedback, language used on surveys and observation instruments was moderated and enriched with examples to provide a more accessible process.

Value for stakeholders needed to be clearly understood so that the inevitable question: "what is in it for me?" could persuasively be answered. Like many students that engage with activities in pursuit of grades rather than learning, many academics can take on a strategic approach to engagement with activities such that time is invested to gain an outcome of value. For senior academics "value" was the ability to share their experience and ideas either as an observer or as an observee; and to gain service points in the area of academic leadership. For junior academics it was about gaining organizational knowledge, professional connections, and being seen to be engaging in professional development activities that would help them gain evidence towards confirmation and academic reviews of progress. In both cases an important buy in factor was the promised production of "professional" reports with analysis of evidence collected, and a certificate of participation that could be used as evidence of professional development engagement. Depending upon the nature of the report and the number of participants for which

this needs to be produced then the scale of the burden of such a commitment can be clearly seen. Add in a deadline when academics are looking for evidence for their supervisors and the pressure can be immense. In effect the unexpected popularity of this project with academics effectively doubled the expected number of reports that had to be generated and assistance was sought to fulfill this expansion of reporting. This also increased the project execution load through training and managing its staffing that was raised from one the three people. Interestingly, it has been suggested that the PRO-Teaching project was designed for “enthusiasts”, however, given the increasingly quality oriented context many academics and their managers have seen their involvement as a professional obligation.

So long as the nature of the impost on academics was primarily academic, professional, and collegial (training, observation, analysis, & discussion) then participation was undertaken in most cases with minimal problems. Indeed, even with project and participant organization undertaken by dedicated administrators, the required paperwork and investment of time were residual issues nonetheless. A similar issue was noted for the productive engagement of academics with activities relating to the project. It was found that many team members were not able to commit to undertaking extra work relating to the project. Further, the extent of their involvement was their feedback on issues raised at meetings and under rare circumstances reporting on findings. It was necessary to understand that what most academics do as a matter of course is talk to their colleagues, and it was this tendency that was a most effective tool to apply leverage. Letting project team members become seed points for communities of practice and for engaging their colleagues in conversation, explaining the project aims and processes was their most valuable and least onerous job. It was apparent that academics and professional staff might benefit from being clearly informed of the expectations of their engagement with the project at the time that they are invited to become part of the team. This level of role definition is not always possible at the time that an expression of interest or grant application is lodged however. As the burden of workload remains with the project leader then this may just be a status quo, but it does speak to the value of an element of training for prospective project leaders in academic settings.

VII. SUCCESSES AND LIMITATIONS

The PRO-Teaching project was developed to provide academics with a complementary source of evidence to the student evaluation surveys that have become the default arbiter of teaching quality for the organization. The expected benefits of the PRO-Teaching project were to provide the organization with a trustworthy counterpoint to the staff perceived over-reliance on student evaluations. It was envisaged to raise the collegial interactions around teaching quality and provide a framework within which they might happen in a structured and developmental manner. In this

way it was about creating an environment that was conducive to developing learning and teaching where it had not happened before. PRO-Teaching was also devised to be a reasonably low level engagement exercise with most observation related collaborations being completed in less than 10 hours of time over a single semester. There were extra-observation activities in which the reviewees, assimilated feedback, planned new approaches, and prepared resources as needed. As such it is still a remarkably short period of engagement with the project for each academic, in which many of the simple ideas and techniques are the ones that will be implemented in subsequent observations. In effect this amounts to the “low hanging fruit” of development opportunities in terms of making improvements. As such it was not expected that involvement in the project would have a significant effect on student evaluations at the end of each semester. Corporate data collected for the academic discipline areas at the time that the project was run (2010-2011) indicated:

- 1.5% improvement in the number of academics showing a positive change in their student evaluations of teaching.
- the average student evaluation score for the discipline area rose from 4.00 to 4.05
- 10 of 14 STEM academic participants for which there were pre and post observation student evaluation data showed increases in the responses to evaluation subscales
- 9 of 14 also showed increases in the overall satisfaction question
- 45 academics did not have pre-observation data with which to compare.

Even with the many possible influences on Group and individuals' performances these data are encouraging but do not necessarily provide a clear picture of impact per se. A clearer impact for peer assistance might only be noticed if it is applied over each step of the academic semester from course planning, execution and assessment in a comprehensive manner.

In order to gauge impact within the university as a “learning organization” it was instructive to consider project impact on the organization as a learning outcome. Benjamin Bloom [26] conceived three taxonomies of learning outcomes one being in the cognitive domain, another in the affective domain, and a final one in the psychomotor domain. It is the taxa in the affective domain that is useful in gauging the impact of this project. Learning outcomes in this domain are about levels of affect that certain principles or knowledge have upon learners' intentions and actions (e.g. ethics, professional practice, etc.) then the current perceived value (impact) of peer observation can be gauged by the behaviors of the stakeholders involved. There are five levels to the taxonomy: Receiving, Responding, Valuing, Organization, and Characterization by Value. At the Receiving level (1) it is about being aware of or hearing about a principle or concept. At the Responding level (2) it is about showing some new behavior as a response to the knowledge. At the Valuing level (3) it is about showing some definite involvement or commitment. At the Organization level (4) it

is about integrating a new value into ones current set of values. And, at the Characterization by Value level (5) it is about acting consistently within the integrated set of values.

At the culmination of the first year of the project an impact survey was undertaken via email to the relevant senior executives, senior managers and school leadership teams to determine the extent of their knowledge of the project. From this sample population of sixteen only three responses were received and these were from the highest office holders. Their responses however, unanimously indicated awareness of the PRO-Teaching project and that it had generated mostly excellent feedback and that they would like to see (and to support) higher levels of involvement in the future. This might be categorized as an outcome at the Receiving level (1). The Dean (Academic) requested a set of five slides that he might use to direct staff needing evidence of teaching excellence to bolster their claims for promotion. This can be categorized as a Responding or level (2) outcome as demonstrated by new behavior. Subsequent interviews with each of the Heads of Schools revealed some willingness and conditions that would be needed to successfully embed peer observation as a regular part of school operations. Top of the list of conditions were administrative support and not making it punitive or mandatory. Again, this is a Receiving or level (1) outcome or impact.

Across the university 124 academics from each of the discipline areas (Groups) were involved in the project. As a consequence of this initiative and the positive experiences reported by participants two of the four Groups set up administrative hubs to locally manage the engagement and reporting using the PRO-Teaching model for their own academics. Using Bloom's taxonomy [26] this would place the impact at the Valuing level (3) in terms of making commitments to trying the project out and facilitating academic involvement.

Following involvement in the project 16 academics to date have used data gathered from their involvement in the project to support claims made in successful applications for national and university level learning and teaching citations and awards as well as promotion applications. Using the taxonomy this might be categorized as a Responding level (2) impact where academics are demonstrating new behavior in terms of making use of peer observation data as a new source of evidence. For each of the academics involved that showed small improvements in their practice as a result of the observations then this might also be a level (2) impact. Evidence of their ongoing adoption of the ideas discussed might be categorized as level (3) or higher if ongoing involvement with peer observation was adopted.

VIII. SUMMARY

In this paper PRO-Teaching is presented as a highly structured peer review of teaching model that realizes an innovative process for triangulating contemporaneous teaching quality data from a range of stakeholders to create

reliable evidence of teaching quality. Further innovation is realized in the application of this highly structured developmental process to provide summative evidence of sufficient validity to support claims for professional achievement. It provides an effective and credible foil to the reliance on student evaluation as the sole arbiter of teaching quality that is acceptable to managers and more balanced to academics as teachers. Future work will be in the application of PRO-Teaching to course materiel, assessment, blended learning and online delivery.

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