Evaluation of longitudinal impact from a university teacher preparation program

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The impact of professional training for teaching academics on teaching and student learning has been much debated, with researchers noting the dearth of rigorous, longitudinal studies evaluating effectiveness. This study explored perceptions of participants in a mandatory university teacher preparation program to determine whether they demonstrate learning transfer beyond the program. Both quantitative and qualitative data were obtained from academics who had participated in the program over a four-year period. This paper presents a longitudinal perspective on selected survey data. The majority of respondents had a more positive attitude to teaching practice and taught differently as a result of participation. One very clear pattern was that respondents more than two years removed from the program gave a more positive perception of its impact. We surmise this is due to additional time to reflect upon their learning and the time, capacity and opportunity to have translated knowledge into practice. The results indicate that participation influences academics' knowledge, attitudes and broader capacity to teach in a rapidly changing higher education environment well beyond the duration of the program with consequent benefits to student learning. Longitudinal evaluation of program effects provides valuable data to validate current practice and to incorporate into ongoing reflective learning vital to support adaptability and change in Academic Developers' future practice.

Keywords: reflective practice, capacity building, professional learning

Background

Quality teaching is widely identified as one aspect of the university educational experience positively impacting on student outcomes. However, globally, most academics teaching in higher education, while usually required to have a formal research qualification (a PhD), are not required to hold any form of teaching qualification. Nevertheless, professional training for teachers in higher education is common (Gibbs & Coffey, 2004; Parsons, Hill, Holland, & Willis, 2012; Rust, 2000).

University teacher preparation programs (UTPPs) are widely offered as a key means for improving teaching quality (Prebble et al., 2004) . However, the question of their effectiveness has been frequently posed (Bamber & Anderson, 2011; Prebble et al., 2004; Rust, 2000; Stein & Walker, 2010) and as yet not definitively answered.

UTPPs differ in duration, focus, content, delivery, and underlying theoretical orientations. They generally aim to actively involve academics in a relevant way in their learning around educational theory and practice (Prebble et al., 2004). Some also provide academics with the opportunity and scope for critical reflection of their own teaching practice and allow familiarisation with the tenets of higher education and the scholarship of teaching (McLoughlin, 2002; Snell et al., 2000). Previous evidence suggests that some may not change teacher behaviour and their impact is limited to disseminating information about university policy and practice (Prebble et al., 2004). Nevertheless, Prosser and colleagues (2006) indicate some positive impacts from programs on teaching and on student learning including participants having a greater student focus. Stein (2010) also notes that these courses can affirm knowledge and extend articulation about teaching rationales but do not necessarily translate theory into practical knowledge.

However, carefully designed evaluations of the impact of academic development, including UTPPs, specifically focussing on teacher behaviour and student learning have not been commonplace (Chalmers & Gardiner, 2015; Luzeckyj & Badger, 2008; Parsons et al., 2012). Gaff (1975) noted the lack of evaluation of academic development programs as early as 1975 and in 1999, Gilbert and Gibbs further noted a dearth of published studies employing rigorous methodologies evaluating impact of initial training for university teaching. These observations have been repeated by others (Chalmers & Gardiner, 2015; Hicks, Smigiel, Wilson, & Luzeckyj, 2010; Kreber & Brook, 2001; Parsons et al., 2012; Prebble et al., 2004; Prosser et al., 2006). It is hard to assess the impact on teaching behaviour from a short course, let alone then extrapolate this to impacts on student learning (Parsons et al., 2012; Quinn, 2012). As Prebble et al. (2004) observe, the connection between academic development and improvement in student learning is multi-staged and affected by multiple intervening factors. The evidence of impact remains fragmentary, although positive, with much of the argument and support for continued investment in academic development based on faith and theory or assertion rather than data.

This evaluation was undertaken for primarily pragmatic reasons: to provide evidence to the university's senior management of the program's benefits to participants and to the university more generally. A secondary purpose was to contribute to the academic conversation and body of evidence about the efficacy of such programs.

The university where the evaluation was undertaken is a medium-sized university serving approximately 20,000 students, with about 1,100 academic staff in southern Australia. Its UTPP is mandatory for new academic staff as part of its Enterprise Agreement (Flinders University, 2010). Previous regular program evaluations have been primarily process-focused. Little attention has been given to the impacts on teacher behaviour. Rather, the focus has been specifically on developing a culture of ongoing reflection and academic development within higher education and on the development of a teaching philosophy to enable participants to begin to frame or further develop their teaching activities within educational theory. The program aims, structure and content, outlined in the following section, are built on the intention to promote university-wide reflective practice in teaching.

Program aims, structure and pedagogy
The Flinders Foundations of University Teaching (FFOUT) program aims to familiarise participants with current theories and research in higher education and how these may be applied in their own practice. It provides a forum within which participants are encouraged to

critically reflect upon their teaching and to develop their own teaching philosophy as well as fostering support networks and providing access to teaching resources.

This program has a nominal six month duration; the initial two months dedicated to workshops (a three-day intensive followed by two half-day workshops) and the remaining to completion of a portfolio; It is designed to incorporate face-to-face intensives with activities intended to promote participants' own reflective and independent learning consistent with the constructivist theories of Piaget (1926), Vygotsky (1978) and Brown and Campione (1990). Our approach is also informed by Carnell (2007) who argues teaching as knowledge construction results in more focus on student learning rather than information transmission.

Intensives are designed to prepare staff for all modes of teaching; to introduce the workings of the university; explore theories and perspectives of learning and teaching including e-learning and use of educational technologies; curriculum design; evaluation of teaching; and transition issues. Space is also given for participants to explore teaching issues with their peers. The focus is on learning through dialogue and knowledge and solutions are co-constructed with program facilitators and peers. Participants also undertake and present a small action learning project demonstrating skills and/or knowledge developed through program participation.

Program completion requires attendance at all face-to-face components, participation in a reciprocal peer review of teaching and development of a personal learning portfolio (PLP) intended to prompt reflection on, development, and articulation of their philosophy and practice of teaching and the learning gained through program participation. The PLP showcases each participant's reflections on the program and on their evaluations of teaching, whilst also serving as evidence of ongoing professional development.

Program evaluations

As noted, previous program evaluations did not explore post-participation impact on practice. As longitudinal data on the impacts of UTPPs had been identified as a significant evidence gap in the literature, we chose to look back approximately four years to cover the period January 2011 to September 2014; a period encompassing the current stable program structure and requirements. This afforded the opportunity to determine longer-term impacts; specifically whether participant learnings were demonstrated beyond the program duration in terms of knowledge, teaching practice or attitude to teaching.

Research approach

A mixed methods approach was designed to include both quantitative (via an online survey) and qualitative (via semi-structured interviews) data and to capture as large a pool of potential respondents as possible. This paper focuses on selected survey data.

Academic staff at the university who had participated in the program since January 2011 were invited to contribute. The pool of potential respondents was defined partly on the basis of convenience (i.e. excluding participants who had departed the university and were harder to contact). The potential participant pool comprised 199 people.

Participants were initially approached by email to ascertain interest in participating in an interview about their program experiences. Twenty-four academics across all faculties agreed to be interviewed. [Interview data is not reported here.] After identifying interview

participants, the remaining pool were emailed again inviting them to complete an anonymous survey. Participants indicated their willingness to be involved by clicking on the survey link in the email and completing the survey.

As no existing validated survey for UTPP evaluation could be sourced suitable for our study aims, a new one was developed. The survey comprised 19 questions with closed category responses. The first three questions collected data on respondents' participation: program date, attendance and completion status. Subsequent questions used a 3-point response and prompted respondents to expand on or clarify their answers.

The survey questions were grouped according to:

- changes to teaching practice and attitude;

- confidence in teaching practice;

- program benefits; and

- further study (not reported here).

The survey was administered online through SurveyMonkey – with staff able to complete it with their device and in their location of choice. Forty-two usable responses were received (response rate: 25.8%).

We used a thematic analysis approach (Miles & Huberman, 1994) to explore survey and interview data from respondents, taking a longitudinal filter to data analysis. Common themes were identified, grouped and used to further inform quantitative data. This paper explores results impacting on changes to individual participants only.

Results

Respondents' last participation in the FFOUT program was spread across the chosen period. Twelve (29%) had participated in the previous 12 months; 18 (43%) 1-2 years ago; while 12 (29%) had participated more than two years ago. Thirty-four (81%) had attended all required workshop days: 8 (19%) had not – some were still in progress; others had partial exemption from attendance requirements. Thirty-one (74%) had completed all program requirements.

The responses to closed category questions are presented in tables, according to survey question groupings, with the number and the percentage of valid responses calculated for all respondents and for each sub-group based on time period since participation. Where respondents indicated that a question was not applicable, the open comments were examined to identify their reason for the response. Most closed-response questions were prefaced by the phrase 'Since participating in FFOUT…' to help respondents maintain their focus on the potential subsequent impact of their participation on themselves individually.

FFOUT and the individual – changes to teaching practice
Substantial percentages of respondents had changed some aspect of their practice. These figures rose where participation was more than 2 years previously (see Table 1).

Table 1: Changes to teaching practice

Change in attitude to teaching practice	Yes	No	Maybe
All respondents	24 (57%)	11(26%)	7 (17%)
> 2 years	10 (83%)	2 (17%)	-
1-2 years	9 (50%)	4 (22%)	5 (38%)
<1 year	5 (43%)	5 (43%)	2 (14%)
Change in teaching practice			
All respondents	26 (62%)	9 (22%)	5 (12%)
> 2 years	10 (83%)	2 (17%)	-
1-2 years	10 (55%)	4 (22%)	4 (22%)
<1 year	6 (55%)	3 (27%)	2 (18%)
Change in assessment practice			
All respondents	16 (38%)	11(28%)	12 (28%)
> 2 years	7 (58%)	3 (25%)	2 (17%)
1-2 years	8 (47%)	4 (24%)	5 (29%)
<1 year	1 (10 %)	4 (40%)	5 (50%)
Change to course design			
All respondents	19 (38%)	12 (28%)	7 (18%)
> 2 years	7 (58%)	3 (25%)	2 (17%)
1-2 years	9 (52%)	4 (24%)	4 (24%)
<1 year	3 (33%)	5 (55%)	1 (11%)
Change to students' learning			
All respondents	10 (27%)	14 (38%)	13 (35%)
> 2 years	3 (25%)	4 (33%)	5 (42%)
1-2 years	6 (35%)	5 (29%)	6 (35%)
<1 year	1 (11%)	5 (55%)	3 (33%)

Change in attitude to teaching practice
Fifty-seven percent of respondents reported a different attitude to teaching since participating in FFOUT rising to 83% where participation was more than 2 years previously. Several phrases recurred through the comments indicating that staff were: "more confident" (4 responses), "thinking" more critically about teaching and learning (6), "more aware" / "more conscious" (5) and "more structured" (2) in their approach to teaching.

Others commented that the program had opened their eyes to particular issues and opportunities: they were exploring, being creative, activating and engaging students. This increased awareness about and responsiveness to students is a recurring theme in responses to later questions.

Of those who indicated no different attitude to teaching, several self-identified as already experienced and qualified teachers. Some of those were critical in their responses to questions as "there was not much new on offer" [R21]. By contrast another self-identified experienced teacher noted a significant benefit as the program "provided the 'head space' to engage with and critically think about my teaching practice and philosophy". Others who indicated that their attitude had not changed acknowledged that they nevertheless had gained new insights, strategies and/or knowledge.

Change in teaching practice
Sixty-two percent of respondents reported changes to their teaching. Again, this figure rose to 83% more than two years post-participation. When asked to provide examples of changes to their teaching since FFOUT, key terms from answers included teaching that is now more:

- interactive (11);

- engaging (5);

- inclusive of and responsive to their students (5); and

- structured (4).

For respondent 19 the program provided validation and

> more confidence to teach in the way that I teach….

Similarly for respondent 28

> FFOUT hasn't changed the way I teach in a major way. This isn't a criticism …. It is a welcome reaffirmation of my methods and attitude.

The theme of validation and affirmation of practice recurs throughout the responses to many questions and clearly indicates a more critical, reflective approach to teaching.

Change in assessment practice
Thirty-eight percent of respondents reported a change to their assessment practice with the figure rising to 58% more than two years post-participation. When asked to describe those changes to assessment practices, respondents indicated that they have been:

- experimenting with a larger variety of assessment tasks (7) particularly in-class and on-line quizzes (6) as student learning opportunities, and

- focussing on alignment assessment with learning outcomes (3).

One experienced respondent noted the program

> didn't necessarily prompt this change, but it provided the time and the structure to formally engage in thinking about teaching, learning and assessment and to consolidate my understandings. [R24]

Two particular areas that attracted multiple responses were marking/grading (5) and feedback (3). The creation, specification and communication, particularly through the use of marking rubrics (4), of clearer criteria and standards for assessment tasks featured often and a few indicated now paying more attention to the quality of their student feedback.

Change to course design
Thirty-eight percent of respondents reported a change to their course design, again with the figure rising to 58% more than two years post-participation. Changes included:

- reducing delivered content;

- more student focus;

- improving structure and linkages within and between topics; and

- changes to integrate assessment more closely with learning.

One respondent noted

> the culture here … has a more creative focus, so [the] combination of FFOUT and culture have influenced what I do and how I teach. [R13]

Change to students' learning

More than a quarter of respondents (27%) noted changes to student learning and acknowledged this was difficult to gauge given other changes to their teaching context. While some noted they had not had time to make or evaluate changes, others identified student behaviour as more:

- actively engaged and excited;

- informed with questions and discussions;

- prepared to share experiences;

and that student outcomes were enhanced through improved learning due to better use of constructive alignment.

FFOUT and the individual – confidence in teaching practice

Most respondents had increased confidence around various aspects of their teaching. The proportion was substantially higher more than 2 years post-participation and was particularly the case for supporting colleagues with their teaching (see Table 2).

Table 2: Confidence in teaching practice

Increased confidence in educational language and terminology	Yes	No	Maybe
All respondents	21 (51%)	8 (20%)	12 (29%)
> 2 years	8 (66%)	2 (17%)	2 (17%)
1-2 years	10 (56%)	5 (28%)	3 (17%)
<1 year	3 (27%)	1 (9%)	7 (64%)
Increased confidence in supporting colleagues with their teaching			
All respondents	27 (69%)	6 (15%)	6 (15%)
> 2 years	12 (100%)	-	-
1-2 years	9 (50%)	4 (22%)	5 (28%)
<1 year	7 (70%)	2 (20%)	1 (10%)
Increased confidence in discussing teaching and learning			
All respondents	20 (51%)	7 (18%)	12 (31%)
> 2 years	8 (73%)	1 (9%)	2 (18%)
1-2 years	8 (47%)	4 (24%)	5 (29%)
<1 year	4 (36%)	2 (18%)	5 (45%)

Increased confidence in educational language and terminology

More than half the respondents (51%) reported feeling more confident in this area, again with more identifying change with the passage of time (up to 66%). While a few experienced staff indicated little gain in this area, the benefit of a refresher was acknowledged.

Several respondents noted the combined benefit of the face-to-face sessions, on-line materials and particularly preparation of the PLP in coming to understand terminology.

> … writing the portfolio. This encouraged me to engage with the literature more closely. This has improved my understanding of the language of education [R16]

Additional engagement with the educational literature and further study in the area were also noted as benefits.

Increased confidence in supporting colleagues with their teaching
More than two-thirds (69%) of respondents were more confident to support their colleagues with their teaching but interestingly, this rose to 100% of respondents who had participated more than two years previously. Several respondents who are subject coordinators noted increased confidence and enhanced ability to assist sessional staff.

> … much of my time is spent teaching casual tutors to teach the material I prepare for them. Having completed FFOUT has been critical for me to understand the principles (and policies) underlying this teaching and so manage such a large teaching team. [R3]

One noted that they faced the challenge that

> old school lecturers don't accept change [R30].

Increased confidence in discussing teaching and learning
More than half (51%) of respondents reported they were more confidently engaging in collegial discussions around teaching with this rising to 73% two years post-participation.

Discussion

Chalmers and Gardiner (2015), in their paper published after our data collection, note the need to move beyond process evaluations to evaluate whether intended learning outcomes are achieved in UTPPs. This evaluation suggests that for our program, this is indeed the case. These results, whilst limited to the survey data, clearly indicate the perceived value of the program to respondents. Most respondents have a different and more positive attitude to teaching since program participation and teach differently as a result.

One particularly notable pattern in the data is that respondents from more than two years ago generally have a more positive perception of the program's impact and value. This is particularly evident in looking at changes to attitude and practice. Whereas overall 57% of respondents have a different attitude to teaching, 83% of those who had participated more than two years ago do so. Again, where overall 62% of respondents teach differently, 83% of those who participated more than two years ago teach differently. This pattern is exceptionally clear throughout all the survey responses.

We postulate this pattern may be due to a number of factors, some designed into the program.

i. additional time to reflect upon learning
Parsons (2012) and others have noted that longer program length positively affects learning quality and the potential for transfer to practice. Our participants have a minimum of two months program duration and an additional three months (frequently longer) to reflect on their learning and make sense of it in their own teaching contexts. By reviewing impact

beyond actual program duration, we too observed that additional time for reflection was conducive to realizing changes to practice.

ii. opportunity to complete and reflect upon their PLPs

The PLP documents ongoing professional development relevant to teaching and provides, sometimes the first opportunity to develop and articulate the participant's philosophy of teaching. Schönwetter, Sokal, Friesen, and Taylor (2002) suggest that teaching philosophies provide rationale for teaching, guide teacher behaviours, promote personal and professional development and encourage the dissemination of effective teaching. An understanding of teaching and learning theories, of what constitutes teaching and learning excellence and being able to conceptualise how teaching and learning processes occur are all necessary to develop a teaching philosophy. We suggest that development of a teaching philosophy as part of the PLP is a necessary requirement for sustained impact to result from UTPPs. This, and the undertaking of regular teaching-related professional development helps to develop a pattern of ongoing reflective practice.

iii. time, capacity and opportunity to transfer knowledge into practice

The action learning in teaching project allows participants an opportunity to transfer knowledge into practice providing them with the confidence to continue exploring improvements to teaching practice beyond the program duration. This "on-the-job learning" (Parsons et al., 2012, p. 31) provides a greater opportunity for learning transfer to occur. The learning communities developed during the program often continue in an informal (and occasionally formal) way developing the cross-disciplinary discourse around teaching. Participants' learning networks generally include colleagues within their work units and this dialogue, even where it occurs as informal conversations, results in transfer of learning across this network over time (Thomson, 2015; Van Waes, Van den Bossche, Moolenaar, Stes, & Van Petegem, 2015) thus reinforcing the learning from the UTPP and strengthening its broader impact.

The program provides, for many, new foundational knowledge informing their teaching. It clearly increases awareness about, and responsiveness to students, helping to maintain and enact the focus on student-centred learning. Participants are more confident in their teaching, with a number of experienced staff acknowledging the validation of their teaching practice, further improving their confidence. The language of teaching is also noted as becoming more familiar, both enabling and informing collegial discussions around teaching.

There is a wide range of changes to teaching practice informed by participation broadly including improved alignment within and between subjects, and between learning outcomes and assessment; increased student-centeredness, especially in relation to increasing interactivity and student engagement; and differences to assessment (including improved alignment and greater use of e-assessment). However, it is worth noting that changes to practice, especially where subject or course design is involved, can only be undertaken by staff in a position to affect such change. This means academic staff must have been at the university for a period long enough to have achieved this type of position. This may also coincide with a period of more than two years where we have seen the greatest recognition of the program's value to staff.

Whilst its value seems beyond question from this analysis, one recurrent challenge for respondents is that of the tension between research and teaching responsibilities and the disparate value the university appears to place on them. Acknowledgement in our results is

given to the time necessary to developing teaching knowledge and skill but this is simply unachievable for many given the pressures on research productivity and other competing institutional priorities. Whilst analysis of the qualitative interviews is yet to be completed, this is supported by emerging data that although the program is time-consuming, it is well worth the effort to participate and complete.

We propose that our longer program duration compared to many UTPPs and the additional time in completion of the PLP contributes to the overall impact of the program on teaching quality. This is consistent with other studies of longer duration programs (Gibbs & Coffey, 2004; Postareff, Lindblom-Ylänne, & Nevgi, 2007) and contributes to the evidence gap as recommended by Parsons (2012) into UTPP impact.

We acknowledge the limitations of this research. It was undertaken as a one-off study thus providing a longitudinal snapshot of its direct impact, rather than providing data across several time points. Additionally, respondent numbers two years post-participation are small constraining inferences on their significance, although the majority of survey data trends toward the same conclusions. Future longitudinal evaluations will require a commitment of resources or research funding that is increasingly scarce in the current higher education environment. Additionally, due to staff turnover, expertise in evaluation may not always be readily available for similar future evaluations. The study is limited to one institution and no appropriate validated evaluation questionnaire was available to use, meaning the instrument used still requires validation in order to broaden the significance of the quantitative aspects of the study.

While the research has demonstrated that the program is of benefit to participants, we have not in this research started to explore the questions raised by Amundsen and Wilson (2012) and Chalmers & Gardiner (2015). They (as did Prebble et al., 2004) suggest that there is clear evidence of the benefit and that other questions need to be asked: what works for who and why? And what are the barriers to transfer of learning to practice?

Conclusion

The evaluation of this UTPP has clearly shown an impact on the knowledge, values and attitudes of respondents. There are discernible impacts on teaching practice, and although difficult to assess, some indications of positive impacts on student learning: this has significant optimistic implications for quality learning and teaching in higher education.
Longitudinal evaluation of program design and effects provides valuable data to both validate current practice and to incorporate into ongoing reflective learning, vital to support adaptability and change in Academic Developers' future practice. The data provides confirmation of our belief in the program's value. Its emphasis on reflective practices and development of knowledge and skills, combined with its longer duration and active engagement of participants in articulating their thinking about teaching appears to lay the foundation for ongoing development of good practice consistent with the aim of most UTPPs.

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