

Developing teaching capability – the missing link for global employability of post-doctoral students?

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Traditionally doctoral students are expected to work as sessional academics, however, they are not necessarily well-prepared for, nor confident about, the full range of academic roles expected of them upon employment. Since 2007, Flinders University has run a year-long Academic Internship Program for Doctoral Students (AIPDS) to provide academic training and support to 24 doctoral students employed as sessional teaching staff. This paper outlines the AIPDS Responsive Evidence-based Adaptable Assessed and Layered (REAAL) Framework and draws on the program's evaluation to demonstrate how participation in the program supports both the preparedness of its participants to be responsive and adaptive professionals and helps build academic confidence and skills so individuals are better equipped to navigate uncertainty and complexity.

Within the program quality learning and teaching is fostered through interactive workshops and program activities which also support the interns as they learn about scholarly, theoretical and practical approaches to teaching. Interns face a number of challenges during the program and in their teaching that align with those in the sector. The REAAL framework allows the program to be responsive and adaptable enough to meet those challenges effectively.

We have used a thematic analysis approach to explore survey and interview data from program participants and teaching staff. This qualitative research approach has informed the development of the REAAL framework. The REAAL framework is flexible and is not institutionally bound. It therefore provides a model for the development of other programs which prepare doctoral students for future academic roles which involve teaching.

Keywords: Academic Internship; developing teaching capability; higher education

Introduction

Academics teaching in higher education institutions are often required to undertake mandatory university teacher preparation programs premised on the idea that quality teaching improves student learning (Goody, 2007; Prebble et al., 2004). However, no such mandated programs exist for doctoral students who are often expected to work as sessional teaching staff with little or no training, nor is there any requirement as part their higher degree studies to pursue these skills. Much has been written about the importance of university teacher preparation programs and the development of the PATHE

framework (Hicks, Smigiel, Wilson, & Luzeckyj, 2010) has provided some much needed resources to support them. This framework, whilst worthwhile for an institution-wide program with generally larger numbers of participants, was assessed by the authors as being too unwieldy as a basis for a program to teach doctoral students about teaching.

While a number of universities include programs to support the teaching development of their doctoral students, as discussed in the literature review, there is no common structure in relation to what doctoral students might access. The REAAL (Responsive Evidence-based Adaptable Assessable and Layered) framework was designed as a solution to the lack of commonality between and across university teacher preparation programs and other academic supports available for doctoral students. As Flinders University has been facilitating their Academic Internship Program for Doctoral Students (AIPDS) for more than 7 years a significant amount of evaluation data was available for analysis to inform the development of a more relevant, adaptable framework than PATHE can offer in this context.

Literature Review

Given the focus of our paper was on a program which supports the sessional teaching aspects of doctoral students in an Australian institution, we explored literature which considered the teaching and learning, rather than the research role of academic work, to support the development of the framework. The body of literature that underpins teaching and learning in higher education contexts includes the ground-breaking work of Boyer (1996, 1997) who was among the first to overtly discuss the importance of the scholarship of teaching and learning and the importance of preparing graduates for their chosen field. Probert (2014) argues that Boyer remains important to the current higher education context because he places scholarship at the heart of teaching. As argued by Probert, Boyer critiques the way in which higher education institutions privilege research rather than teaching, an issue which remains relevant today.

A number of authors discuss the necessity of ensuring sessional staff are given training and support (Kift, 2003; Percy et al., 2008; Ryan, Dearn, & Fraser, 2003). However there is very little literature which considers the specific needs faced by doctoral students who teach in universities (Austin, 2002; Austin & Sorcinelli, 2013; Austin & Wulff, 2004; Bexley, James, & Arkoudis, 2011; Coates & Goedegebuure, 2012; Jepsen, Varhegyi, & Edwards 2012; Jonas & Croker, 2012; Matthews, Lodge, & Bosanquet, 2014; Norton, 2013; Probert, 2014; Sorcinelli & Yun, 2007) and even fewer discuss explicit programs to support these students (Austin, Connolly, & Colbeck, 2008; Brightman, 2009; Regan & Besemer, 2009; Vergara et al., 2014). Nutley et. al. (2003) explore the importance of evidence-based practice and its importance in informing professional practice in various contexts including education. Nutley et. al.'s (2003) explicit discussion in relation to types of knowledge informed the development of the framework.

As the framework has been developed in an Australian university we felt that it was particularly important to explore research that related to the local context. Three papers which explicitly discuss programs within Australian institutions are those by Smigiel

(2008) who describes the AIPDS program offered at Flinders University; Barthwal et al. (2011) who discuss the Pinnacle program delivered at the Australian National University (ANU) and Partridge, Hunt and Goody (2013) who write about the Postgraduate Teaching Internship Scheme (PTIS) offered through the University of Western Australia (UWA).

The UWA began offering a year-long program to post-graduate students in 2000. The PTIS provides its participants with intense training sessions and opportunities to meet for workshop sessions through the year. Flinders AIPDS was first developed in 2007. It is also a year-long program that includes intensive introductory sessions followed by monthly meetings across the year. Participants in both the UWA and Flinders programs are paid for their attendance and both programs are assessed. In both of these programs participants are required to undertake some teaching and in the PTIS they are given a formal appointment within their school. Although participants of the Pinnacle program also meet regularly to reflect on what they learn and are required to teach in their faculties, the program differs from the other two as it is only a semester long, involves a mentor and has a large component of online delivery.

Given the paucity of national literature on the availability of teaching programs for doctoral students within Australian institutions, a website search was also conducted. This search did not reveal any other Australian universities that currently offer programs for doctoral students that are explicitly aimed at developing their teaching skills. Through our national network connections, developed as a result of participation in conferences and meetings related to teaching and learning, we have become aware of examples of programs aimed at supporting doctoral students. Most of these programs do not explicitly focus on teaching, or the scholarship of teaching, although some include these aspects. Other programs offered within Australian institutions include the Queensland University of Technology's (QUT) Teaching Advantage program. Initially developed in 2011 in the Business School the program was expanded across the whole university in 2013. The program offered at the ANU has a much longer history, having initially been established in 1994. Originally known as the Graduate Teaching Program, it was revitalised and changed, then in 2012 doctoral students at the ANU were invited to participate in the institutions' foundations program offered to all university teaching staff new to the institution. Both the QUT and ANU now offer doctoral students the opportunity to become Associate Fellows of the Higher Education Academy which is based in the United Kingdom.

There is little doubt that quality teaching improves student outcomes (Prebble et al., 2004) and that with the professionalisation of teaching practice (DEST, 2002), university teacher preparation programs (UTPP) offer an avenue for improving teaching and thus student learning (Prosser, Rickinson, Bence, Hanbury, & Kulej, 2006). This is recognised by many institutions even where they do not have a formal program to support doctoral students learning to teach. These institutions encourage doctoral students to participate in sessional teaching workshops or other academic development activities, or in their UTPPs. As will be discussed in this paper, there is a distinct advantage in having a

specific program aimed at developing the teaching capabilities of doctoral students wishing to take up academic careers.

Background

The program that formed the basis for the REALL framework has been running since 2007 and has undergone annual revisions and changes over the 8 years of its existence. It differs from sessional teaching support programs because all participants must have access to teaching opportunities, be enrolled in doctoral study and participate for a full year.

It has two main aims, to:

1. promote and raise the awareness of the importance of teaching and learning in higher education by developing the teaching skills of a cohort of PhD students who have aspirations to pursue a career in academia;
2. develop the academic and professional skills required for the participants to become successful academics in both teaching and research.

Initially the program aimed to address both the research and teaching responsibilities of an academic role, however it is now believed that the research needs of students can be best catered for through programs offered elsewhere within the university. Resourcing of the AIPDS is predominantly through the Centre for University Teaching which considers it one of its flagship programs and maintains support of sessional staff and doctoral students' teaching as a priority.

Methods

This paper has been developed through an exploration and discussion of the literature (Kirk, 2002), including a search of Australian university websites (Madden, Ford, Gorrell, Eaglestone, & Holdridge, 2012; Tyndall, 2010) and as a result of extensive reflective practice on a program for doctoral candidates at one institution (Kane, Sandretto, & Heath, 2004). In developing and evaluating the initial implementation of the REAAL framework, we drew on Nutley et al.'s (2003) discussion about tacit and explicit knowledge to inform our review of the evaluation data generated across eight years of running the AIPDS as well as revisiting our reflective dialogues on the successes and shortcomings of each program since 2007. The framework recognises and is informed by Nutley et al.'s (2003) discussion regarding the multidimensional nature and importance of bringing research into practice.

Framework development methods

Each AIPDS run since its inception has undergone a both a content and process evaluation and has a range of other formal and informal evaluation methods. All were used in the framework development.

The two formal AIPDS evaluation points are at:

1. conclusion of the two-day intensive program that sets the foundation for the program as a whole (anonymous paper-based survey),
2. conclusion of the full program (anonymous electronically-administered survey).

These are written feedback surveys which undertake a process evaluation of the face-to-face teaching as well as other relevant aspects of the program (e.g. design, learning activities and assessment). Additionally, in 2012, an online survey of all past 113 participants was undertaken to ascertain the ongoing longer-term impact resulting from participation in the program, specifically in relation to being prepared for academic life and especially with respect to their confidence in teaching. This involved multiple choice questions with open-ended comments boxes provided for participants to expand upon their answers. This open-ended data was thematically analysed (Miles & Huberman, 1994) for commonalities and these were grouped accordingly (response rate 17%).

Informal evaluation strategies are also used throughout the program which include discussion-based feedback throughout the two-day intensives and the workshops. After each face-to-face session with participants, the facilitators met for a reflective dialogue to note their own thoughts about the workshops as well as to discuss feedback given from participants during teaching. Notes are taken and retained for future reference. Other informal strategies include the use of online chat and discussion forums through the institutional learning management system (used for the AIPDS).

A record of stated learning needs and final assessment pieces, reflecting on the value of the program are also retained to inform program development and these too were drawn upon as narrative data for analysis.

Framework evaluation methods

For the evaluation of the REAAL framework, post-program process evaluation data was used. This consisted of 15 multiple choice questions with open-ended comments boxes provided for participants to expand upon their answers. Numerical data was aggregated, where possible, across the two-year period and as per the analysis in framework development, open-ended data was thematically analysed (Miles & Huberman, 1994). Our response rate was 60% (34 participants out of a total of 57 responded).

Findings

Framework Development

By tracking down the 113 AIPDS graduates to 2012, we were able to determine that 47 were in teaching or research-related roles and 27 were continuing in their studies and/or continuing to work as sessional staff at the time of the survey. From the 2012 survey, 90% of respondents indicated that participating in the AIPDS had both increased their confidence as a lecturer/tutor and provided them with a good insight into how to deliver quality teaching and learning activities. Participants also indicated that the program had influenced their decision to pursue a career as an academic as it had given them insights into teaching and 86% stated that the program had provided them with ideas they could use in their teaching including managing diverse groups of students; developing lesson

plans and assessment. 76% of the participants rated peer review of teaching very highly by indicating that it was the most useful program aspect. These results supported the analyses from the informal evaluation data, particularly facilitator reflections.

With the benefits of the program clearly established across the longer term, it was necessary to try to determine the components of the program that were integral to its success. Since its beginnings, the program delivery, content and facilitators had undergone some change, yet the program evaluation consistently indicated benefits to participants in terms of work readiness for academia and especially for their teaching role. What was it about the program that made it a consistent benefit to participants despite its ongoing changes?

All evaluation data was then aggregated and the feedback comments also analysed to investigate what components of the program were most highly valued by participants and what commonalities there were across the cohorts. Important components were identified and grouped into conceptual themes that represented various dimensions of the AIPDS. Results of this analysis suggested that the AIPDS, across the various cohorts, has a number of common dimensions contributing to its success.

These dimensions were used to form the basis of the framework, implemented formally since 2013. The dimensions included

1. Responsive
2. Evidence-based
3. Adaptable
4. Assessable
5. Layered

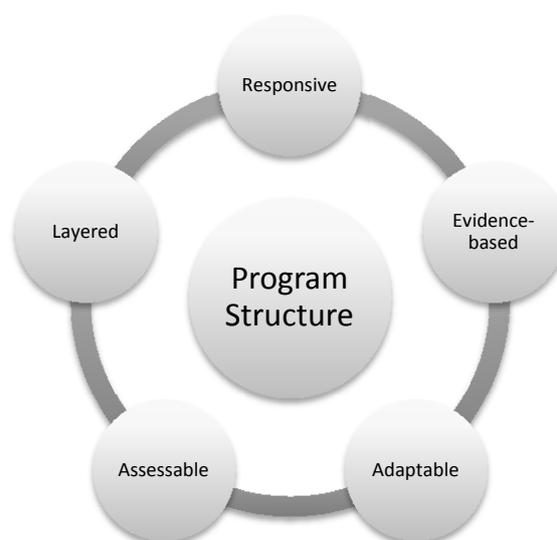


Figure 1: The REALL framework

Having identified the common dimensions, these were then constructed into a single educational framework (see Figure 1). Whilst initially we had only an intuitive understanding as to the relative importance of any one of these dimensions, further analysis of prevalence of conceptual themes provided a foundation for an approximate order to be developed. These are as shown. The applicability of the framework had already been proven from the previous incarnations of the program as the learning activities within them had formed the basis of the dimensions themselves. This, along with the analysis of the evaluation data, then allowed some specific characteristics of each dimension to be delineated (see Table 1)

Table 1: Characteristics of each REAAL dimension

Dimension	Characteristics
Responsive	Focus on participant expressed learning needs Incorporate current higher education research Take account of current institutional context
Evidence-based	Research-informed content Research-informed teaching Inclusion of scholarship of teaching
Adaptable	Flexible program content As needed, regular workshop development / redevelopment
Assessable	Discrete assessment points Attendance requirement (or equivalent)
Layered	Scaffolded learning across program Scaffolded assessment

Responsive

The most highly valued dimension was that of program responsiveness. During the initial two-day intensive that kick-starts the AIPDS, participants are asked to consider their learning needs around being an academic, especially with respect to their teaching role. These are collected and collated at the end of the intensive, grouped into categories and form the basis of the workshops that comprise the rest of the program. In developing the program, up-to-date research in the sector is used to inform workshop planning, particularly in relation to trends in higher education. Institutional context is also used as the framework for a number of discussions, to allow participants' real issues and own

narrative to be part of their learning. This helps to ensure program graduates are prepared to navigate the uncertainty and complexity of life as an academic. This process of engaging with the teaching research is also continually articulated to participants to model a method of responsibility for their 'academic toolbox'.

Evidence-based

All participants in the AIPDS are doctoral students, significantly engaged in the literature in their own discipline. The opportunity to engage, even minimally, in scholarly literature around teaching was another highly-valued component of the program. It provided the participants with sound evidence for the frequently new material they were being exposed to about teaching. The research-informed content, research-informed teaching (that facilitators and participants modelled) and requirement to engage with the scholarship of teaching in program activities and assessments were commonly noted as valuable and providing robustness.

Adaptable

The flexibility of program content was an unexpectedly important domain. In facilitating a UTPP, there are certain content areas that will be necessary to cover. Whilst there were a small number of these scheduled into the program (e.g. assessment), designing the program to meet the learning needs of the participants meant retaining a high degree of flexibility. It also meant workshop content was not identical year to year and needed continual development (or redevelopment) to maintain currency. It was of interest that participants noted this and as a result we discovered that participants communicated with interns from past years to 'compare notes'.

Assessable

Initially the AIPDS assessment comprised predominantly the in-class activities, including an in-session verbal report on the peer review experience and innovative teaching activities. Participants also participated in a faculty group presentation on their learnings from the program at the Vice-Chancellor's Celebration of Teaching. They were also advised to keep a learning journal although this was not collected or formally assessed. In 2010 the assessment changed to include a formal peer review report. In the last two years, assessment has been made more robust to include three discrete activities:

- interns are required to research, develop and deliver an innovative teaching activity (with a partner from a different faculty) to the rest of the cohort based on their philosophy of teaching and supported by relevant learning theories.
- undertake a reciprocal peer review of teaching (with a different partner from another faculty) and write a reflective report on the process.
- produce a final reflection on their learnings from the AIPDS.

The requirement to engage formally with the literature to develop and review their teaching in assessable work has also made the program more robust and improved student engagement. Whilst there is the usual grumbling from interns about undertaking

assessment, recent evaluation shows that this has made the program more highly valued as it is not simply an attendance requirement. Attendance is, of course, still required.

Layered

Scaffolding is a crucial component of any curriculum design. The AIPDS begins with a foundational two-day intensive, introducing a number of areas of content relevant to academic life, particularly teaching. These are then built upon across the subsequent workshops. Content and activities from the two-day workshop are continually referred back to, to illustrate their foundational place in developing further knowledge. This knowledge, as well as the existing and increasing knowledge of the interns is built upon throughout the remainder of the program to scaffold the program appropriately and flexibly as each cohort requires. Each of the monthly workshops are carefully sequenced so that they address needs that students may be encountering at the time (e.g. the assessment workshops occur in Week 3/4 of Semester so that participants can use what they learn as they assess their own students). These workshops are also arranged so that skills, knowledge and abilities are continually developed and built upon. Assessment is also scaffolded, requiring interns to engage with the literature, at a level of their choosing, to develop a philosophy of teaching and research their innovative teaching activity. They are then required to further reflect on their teaching during their peer review and then on the program as a whole and how it has informed their teaching, analysing their experience and creating narrative of their AIPDS journey.

Framework evaluation

Analysis of the formal end of program survey data since implementation of the REAAL framework (2013-2014) has shown that a number of aspects of the AIPDS have been of benefit to participants. What a future academic career looks like as well as confidence in becoming one are strongly evident on program completion (76% and 84% of participants respectively). Participants also felt their skill in teaching in the higher education setting was improved (94%) and most (91%) felt they had acquired many useful strategies to help them in facilitating their teaching across a variety of settings. Some participants also explicitly noted that the program had helped them to think about their options beyond academia and had provided them with not only space to think about their future career but also the skills to market themselves in a different setting. Two thirds of participants (66%) noted that involvement in the AIPDS will influence their career choice. Interestingly, participants also suggested that including their involvement in the program in job and teaching award applications has given them “an edge” over other applicants.

Table 2 shows both the specific content and general aspects of the program found of most benefit to participants across 2013-2014. As content is responsive to participant learning needs, a couple of highly valued workshops (‘making lectures / short sessions engaging’ and ‘designing learning outcomes’) were not offered in 2014, despite being seen as very useful the year prior. Peer review was undoubtedly seen as the most useful aspect of the program and was also, in 2013, one of the aspects of the program that 56% of participants had carried into their teaching practice.

Interestingly there was a significant difference in the value of the innovative teaching activity across the two years with 2014 participants rating both developing and participating in them very highly compared to 2013*. In reviewing the informal evaluation from 2014, we surmise this is due to the activity being made assessable and more robust in terms of expectations and participation by the whole group.

Table 2: Specific program content and aspects considered most useful for 2013 – 2014 AIPDS participants

Content	Percentage	Aspects	Percentage
Making lectures / short sessions engaging	67% (2013 only)	Peer review	83%
Two-day intensive	60%	Cross-faculty aspects	64%
CVs and job applications	59%	Innovative teaching activity – watching and participating	63% (2014) 22% (2013)*
Assessment	57%	workshops	63%
Designing learning outcomes	56% (2013 only)	Innovative teaching activity – developing and facilitating	54% (2014) 11% (2013)*

The cross-faculty networking and collaboration were also highly valued and one of the program aspects that helped to develop both adaptability and responsiveness in participants as it allowed them to see how teaching worked in other faculties, share their experiences and make it less daunting to consider employment outside their own immediate discipline.

I really enjoyed networking with students from other faculties and finding out about how teaching varies from faculty to faculty. I found it really interesting that each faculty is at a different place in terms of curriculum and marking development.

Table 3 shows there were a number of program aspects that participants were able to immediately use in their teaching.

Table 3: Skills participants used immediately in teaching

Component	Percentage
Assessment and e-marking	69%
Engaging lectures / short sessions	65%
Working with and communicating with groups	44%

Peer reviews	43%
Teaching first years	41%

This immediate use of newly learnt skills will help to continue to build confidence as well as to continue to further develop teaching skills in AIPDS participants, making them more work-ready and able to manage a new academic role upon completion of their doctoral studies.

One of the strongest indicators of the usefulness of any academic development program is its perceived value to participants. Where participants believe they have learned skills and developed through these programs they are likely to consider recommending them to others. The vast majority of participants (96%) in the AIPDS said they would recommend the program to others, with comments including:

- this is a foundation for all of PhD students who wish to be an academic in the future
- it was a great opportunity during PhD candidature to participate in this program to get equipped with techniques and broad perspectives of HE [Higher Education]
- this program is a good opportunity to...learn strategies to manage the demands of casual teaching in a very dynamic educational environment – consider and strategise about post-PhD life

Discussion

Using the REAAL framework

All the dimensions of the framework are important to provide a focus for the development of a successful sessional teacher preparation program or future academic. It provides an organisational structure which establishes the foundational characteristics of an effective sessional teacher preparation program specifically for doctoral students and aims to enhance the academic discourse between academic developers within and across their respective institutions.

It is not intended to outline specific content or learning activities given that these are likely to be institutionally context-dependent. For example, if the REAAL framework is being used by an institution to develop a new program, the learning outcomes, associated activities and assessment should reflect the institution's goals and priorities and be commensurate with the resourcing available. As such, characteristics of each domain are articulated rather than specific activities. Given the variety of higher education institutions, their differing sizes, values and goals, it is neither possible nor desirable to standardise content or learning activities to be uniform across institutions.

The framework is premised upon a few assumptions:

1. Quality in learning and teaching is a valued component of higher education.

2. A framework should be flexible and able to be used across a variety of contexts (e.g. with research or coursework doctoral students; for longer contracted sessional staff).
3. Curriculum design is a vital element of academic development (e.g. training in non-course, non-topic environments).
4. A framework, as a tool, should be simple, practical and readily accessible.

As discussed in the literature review there are few institutions facilitating anything like the AIPDS. The REAAL framework for preparing doctoral students for their teaching role differs from any other similar institutional program in a number of ways. Firstly, it has been running for more than 7 years, with regular evaluations informing program refinements to maintain currency. Secondly, interns are required to be teaching in order to participate in the program; this allows them the opportunity to put into practice immediately their newfound knowledge and skill, as well as having the opportunity to discuss real issues they may be having in a supportive environment during workshops. Thirdly, interns are reimbursed for their time in attending. Fourthly, it is a cross-faculty program enabling the interns to learn about the experiences of other doctoral students. The cross-faculty fertilisation also benefits them from a research perspective as they learn that their research experience can dramatically differ from that of other students. Examples of these differences include: working in isolation with only one or two supervisors who are met irregularly versus working as part of a team where the supervisor meets with the team on a daily or weekly basis; or, in relation to the student's epistemological understandings and approach to their research (a thesis is not strictly developed as a way of resolving a specific problem where a hypothesis is proposed and either proven or disproved). Through their cross-faculty interactions students may also gain insight into different approaches to teaching (problem or case-based learning; working with students in laboratory settings or using scenarios). To date opportunities to extend REAAL beyond Flinders University have not occurred; should such opportunities arise, the relevant, agile and adaptable nature of the framework will be more robustly tested.

Conclusion

Evaluation of the program, particularly since the development and implementation of the REAAL framework, consistently shows the AIPDS is of considerable benefit in preparing our doctoral students both to teach and to face their potential future academic roles with confidence and appropriate foundational skills.

This paper discusses a program developed to support doctoral students as they gain the skills to become responsive and adaptable academics (professionals). It outlines the REALL framework and draws on participant feedback to explain how the framework connects with higher education to prepare graduates for changing workforce requirements both within Australia and across the globe (many of the participants were international students who returned to their home countries after completing their studies). The

REALL framework is carefully scaffolded to help participants build their own resilience, appreciate the importance of engaging effectively with diverse communities and support the building of their students' resilience, as well as developing the skills and dispositions required to access, filter and critically engage with new knowledge and new ways of knowing in a world that is complex. Finally, the framework provides users with opportunities to reflect on which pedagogies are most appropriate to help pass these abilities and dispositions on to the students they teach.

We envisage the REAAL framework is transferable across institutions given its flexible, accessible and simple structure. We have used it as an action research method of improving and maintaining quality in our academic development programs by implementing it as a Plan, Do, Study, Act (PDSA) cycle (Burns, 1992; Taylor et al., 2013). However, it can also be implemented simply in:

1. Developing and agreeing aims (i.e. learning outcomes for program)
2. Planning
3. Implementation
4. Reviewing and refining.

In using it in this manner, its very structure allows it to be responsive and adaptable, helping to develop responsive and adaptable professionals who are indeed able to navigate the uncertainties and complexities of their future academic roles.

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