Journal of Learning Development in Higher Education ISSN: 1759-667X
Issue 8: March 2015

Measuring the academic literacies beliefs and researcher identity of research students

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Abstract

It is increasingly accepted that academic literacies form an integral part of undergraduate learning, yet the field is dominated by qualitative research and too little attention has been paid to the postgraduate level. This paper contributes a quantitative analysis of students at the postgraduate research level. The survey investigated forty-eight postgraduate research students' academic literacies beliefs and researcher identity. The quantitative method employed here proved to be effective. Further, research students' researcher identity and academic literacies beliefs appeared to be related. This study validates the use of quantitative instruments in academic literacies research. It is therefore suggested that similar quantitative instruments may prove valuable in future research.

Keywords: postgraduate students; academic literacies; researcher identity; quantitative methodology

Introduction

The concept of ‘academic literacies’ incorporates ‘skills’ for learning in a context of deeper understanding of their functioning and application. This is based on the principle that learning involves ‘participation in complex ‘social learning systems’’ (Wenger, 2000, p.226), ‘social practices embedded in context’ (Jacobs, 2005, p.476), and ‘social, situated practice’ (Aitchison and Lee, 2006, p.265). Academic literacies therefore are more than isolated skills; rather, the term recognises situated conventions of meaning-making (Gourlay, 2009). Although much of the literature in this field remains focused at the undergraduate level, developing strong academic literacies is essential for students at all levels, including those enrolled in research degrees.

For research students, academic literacies development forms a vital part of their growing identities as professional researchers. It is important to consider that, although research students are studying at an elite level, they are still affected by many elements of transition relevant to all levels of university study (Cantwell et al., 2013). Along this intellectual transition, there is a shift in identity, which is discussed in discourse theory which suggests that understanding of socially accepted discourse can help:

> identify oneself as a member of a socially meaningful group (Gee, 2011, p.158).

Explicit teaching of academic literacies within a research degree can therefore become part of students’ enculturation into a community of practice (Dysthe et al., 2006), supporting the construction of positive identities and helping to mitigate the challenges that confront students attempting to adapt to the norms and expectations of their degrees. It may also contribute to research degrees that prepare doctoral students for life as an active researcher (Sinclair et al., 2014). An alternative pathway is that of the professional doctorate. Research in this area has also suggested a need to develop ‘new academic cultural practices’ (Boud and Tennant, 2006, p. 293). Evidence therefore exists for the importance of academic literacies development for students’ identity, enculturation and professional training. However, these issues might never be explicitly addressed in doctoral programs. This may be exacerbated by the common absence of a doctoral ‘curriculum’ (Green, 2012), and in some cases by a complete lack of structure or support (Baker and Pifer, 2011). It is therefore important that doctoral students’ academic literacies

development is better understood and addressed. Academic literacies research has been, and continues to be, largely qualitative, typically involving case studies, interviews, or action research (e.g. Jacobs, 2005; Christie et al., 2008; Cameron et al., 2009; Fergie et al., 2011; Green and Agosti, 2011). However, other fields, such as Educational Psychology, commonly use quantitative instruments to measure individual beliefs and attitudes such as epistemic beliefs (Schraw et al., 2002) or self-efficacy (Schwarzer and Jerusalem, 1995). Well-designed quantitative instruments retain conceptual clarity whilst also allowing efficient collection and analysis of large data sets. Established instruments have been translated and validated in different languages facilitating international comparison and collaboration (Scholz et al., 2002). Such large-scale comparison is arguably more difficult when drawing results from different qualitative studies. Of course, quantitative methodology also has its weaknesses. However, it is argued here that academic literacies research stands to benefit from the strengths of both quantitative and qualitative methods. Therefore this study was designed to test the hypothesis that quantitative instruments can be used to gauge research students' academic literacies beliefs and sense of researcher identity.

Context

A core assumption of our work is the understanding that both student and staff communication, learning and teaching extend beyond the university. This study focused on research students who had accessed support from Learning Advisers in a Centre for Teaching and Learning at a large regional university in Australia. These research students were at various stages of traditional doctoral degree programs. Learning Advisers are employed to promote academic literacies development for students at all levels and across disciplines, typically through consultations or workshops, and in collaboration with faculty staff where possible. Specific support is provided for research students, including workshops such as 'Writing Literature Reviews' or 'Presenting Research', as well as English-language classes. A number of multidisciplinary writing circles are also available (see McKeowen, 2011 for details). Research students who access these opportunities offer positive feedback in two categories: development of writing skills, and increased confidence from peer-interaction within a supportive environment. Students who had participated in any of these forms of support were eligible to participate in this study.

Methodology

Two instruments were designed for this study to measure academic literacies beliefs and researcher identity. For each instrument, a pool of initial items was generated, each of which was intended to describe a certain aspect of academic literacies beliefs or researcher identity. These items were based on themes common in the academic literacies literature, as previously reviewed. To a certain extent, therefore, the concepts were defined 'a priori' according to theory rather than in a less pre-determined, more interpretivist manner (Walsham, 2006). Most of the items described positive beliefs, such as 'I am involved in the broader research culture', however, some were phrased negatively, and these were later reverse-scored, e.g. 'Sometimes I don't know if I have the academic literacies required to complete my research degree'. The initial pools of items were reviewed and refined by colleagues with expertise in the field of academic literacies' development. From this process, sixteen items for academic literacies beliefs and twelve items from researcher identity were retained for inclusion in the survey, to be rated by participants on a six point Likert-type scale (from completely disagree to completely agree). The first stage of data analysis involved statistical validation of these scales, and during that stage the number of items was reduced further to maximise internal reliability (see 'validation of scales', below). The final lists of items retained are provided in Appendices A and B.

The academic literacies items were prefaced by a short definition of the term 'academic literacies', in an attempt to achieve at least a degree of common understanding among participants of this complex notion. The definition provided was:

> 'academic literacies' means the skills and understanding you need to be able to study successfully. This can include note making; writing skills; presentation skills, etc. These skills can be taught formally (e.g. in courses) or informally (e.g. from friends) or you may develop them without teaching.

A definition was not provided for researcher identity, as none of the items included this term: instead, these items described specific examples that related to a sense of identity, for example 'I feel I am part of my department's research community'. In addition, the survey included a number of items to gather basic demographic information (e.g. age,

gender, international or domestic enrolment status). Participants were also asked to report how frequently they had accessed various forms of academic literacies support, such as workshops, consultations and online or printed resources.

The survey was designed for online participation. This was recognised to have some disadvantages, such as reliance on written communication and lack of opportunities for clarification (see Opdenakker, 2006). In this case, however, the advantages outweighed the limitations. The asynchronous nature of an online survey allowed flexibility in participation and the inclusion of students who might have been unable to attend interviews or discussions. Furthermore, it has been suggested that the absence of face-to-face communication may permit some participants to respond more openly and honestly, particularly if they are culturally averse to expressing criticism or negative opinions (Hughes, 2004). On balance, an online survey was the most appropriate means of data collection. A link to the online survey was included in an email invitation which was sent to potential participants. These were the 305 research students who had accessed support from Learning Advisers during the previous eighteen months. The survey remained open for one month, after which the data was downloaded for analysis.

Results and analysis

Of the 305 potential participants, 57 responded giving a 19% response rate, which can be deemed ‘considerable’ (Deutskens et al., 2004). The data set was visually inspected, and 9 cases were removed prior to analysis: 7 were substantially incomplete, and 2 were highly inconsistent (with clear response sets). Of the 48 remaining respondents, 83% were enrolled full-time (35 hours per week), 67% were female, and 58% were domestic students. Of the domestic students, 96% were native speakers of English, and 100% of the international students were non-native speakers of English. Half were aged 18-30 and half over 30 years old. The majority (77%) were enrolled in a Doctor of Philosophy (PhD), and a much smaller proportion (23%) in a Master of Philosophy (MPhil). The proportions of participants representing different groups (e.g. discipline, degree, domestic/international enrolment) were broadly similar to the institutional research student cohort (University of Newcastle, 2012), and to a lesser extent nationally (Department of Education, 2014). International students were slightly over-represented, which could indicate a greater awareness or use of support. An overview of the sample is shown in Table 1.

Table 1. Overview of survey participants

		Sample	Institution	Australia
Discipline*	Business and Law	15%	7%	8%
	Education and Arts	25%	24%	36%
	Engineering	21%	20%	15%
	Health	17%	25%	14%
	Science and IT	23%	23%	23%
Degree	Master of Philosophy (MPhil)	23%	13%	Not available
	Doctor of Philosophy (PhD)	77%	87%	Not available
Enrolment	Domestic	58%	64%	69%
	International	42%	36%	31%

Notes: Percentages may not total 100 due to rounding.
*These disciplines groups are based on the faculties at University of Newcastle, Australia. Data from other sources were grouped as required to match the faculty groups as closely as possible, e.g. Education, Arts, and Social Sciences were combined to compare against the Faculty of Education and Arts.

Validation of scales

Because this was a newly created instrument, exploratory factor analysis (EFA) was conducted to investigate the possibility of sub-dimensions within the academic literacies beliefs items, but none were identifiable. A single-factor confirmatory analysis was therefore conducted, which revealed that six items were loading weakly (<.5). These were therefore dropped, and the analysis was repeated. All items then loaded >.5, and collectively they showed strong internal consistency (α = .871). Therefore, these items were treated as one scale measuring the single construct ‘academic literacies beliefs’, which explained 48% of variance in the sample. (See Appendix A for the full list of items retained in this scale).

The researcher identity items were checked the same way. Again, EFA showed a single dimension. Five items loaded <.5 and were removed, leaving eleven items which showed good internal consistency (α = .816). This seven-item ‘researcher identity’ scale explained 49% of variation in the sample. (See Appendix B for the full list of items retained in this scale).

To test the validity of academic literacies beliefs and researcher identity as separate constructs, all retained items were analysed together to test the possibility that a different factor structure might better describe the data. EFA identified only weak factor structures, the strongest of which was a two-factor solution that very closely replicated the original two scales. This indicates that the academic literacies beliefs and researcher identity scales do represent two separate, but related, constructs. Bivariate correlation confirmed that academic literacies beliefs and researcher identity were significantly but weakly correlated ($r = .373$, $p = .009$). Having established the validity of these two scales, subsequent analysis was based on participants' mean scores for the twelve-item academic literacies beliefs scale and seven-item researcher identity scale.

Comparison of groups

A key advantage of working with quantitative data is that it is relatively simple to identify statistical relationships between variables and to compare results of different subgroups within a sample. Independent sample T-tests and one-way ANOVA analyses were used to explore variation in participants' results according to a range of demographic variables. No differences in academic literacies beliefs or researcher identity were found for age, gender, research degree, study load or duration of enrolment. This may simply be due to the small sample sizes involved. However, between-group differences were identified, by a one-way ANOVA, for academic literacies beliefs according to faculty [$F(4,43) = 2.72$, $p = .042$]. Education and Arts students had a significantly higher mean score than students in two other faculties: Business and Law [$t(17) = 2.80$, $p = .012$], and Engineering [$t(20) = 2.58$, $p = .018$). Given that the Faculty of Education and Arts includes a large number of Education students, it is possible that these students have greater awareness of literacies development, which may result in a more adaptive approach to their own studies. Alternatively, these differences may reflect varying proportions of native and non-native speakers in different faculties. However, given the small sample sizes, it is difficult to draw meaningful conclusions within the current data set.

Significant differences in academic literacies beliefs were also found for enrolment status (i.e. international or domestic), [$t(46) = 2.58$, $p = .013$] and native-speaker status [$t(46) = 2.72$, $p = .009$). In the majority of cases, these two statuses aligned; all domestic students were native speakers, and most international students were non-native speakers of English. However, closer inspection of the data revealed that one participant was enrolled as a domestic student yet was a non-native English speaker. Thus, subsequent

comparisons were made based on only native-speaker status. Item-level differences between native and non-native speakers were investigated using one-way ANOVA.

Table 2: Item-level differences in academic literacies beliefs for native speakers (NS) and non-native speakers (NNS)

Item number	Item description	T(46)	P	NS mean (n.27)	NNS mean (n.21)
2	My academic literacies are strong enough	2.53	.02	4.59	3.90
3*	I want to strengthen my academic literacies	2.23	.03	1.93	1.38
5	I can argue academically	2.53	.02	4.26	3.43
11*	The university should help develop my academic literacies	2.05	.05	2.30	1.71
15	I can critically read	2.11	.04	4.70	4.05
* Items 3 and 11 were reverse scored, so that a high score represented greater confidence.					

Differences were found for five academic literacies beliefs items (2, 3, 5, 11, and 15), as shown in Table 2. These items cover issues of competence (e.g. 15: I can critically read other researchers' work) and confidence in independence (e.g. 11: The university should help me develop academic literacies). Because native-speaker status was relevant to academic literacies beliefs, relationships between other variables were re-investigated to compare native and non-native speakers. Academic literacies beliefs, researcher identity and use of support correlated differently for native and non-native speakers (see Table 3).

For native speakers, a moderately strong correlation existed between academic literacies beliefs and researcher identity ($r = .659$, $p = .000$) and a weaker correlation between academic literacies beliefs and use of support ($r = .432$, $p = .024$). Use of support was measured by participants reporting how frequently they accessed various forms of academic literacies support. A mean score was then calculated for each participant, representing their overall use of support. For non-native speakers the only significant relationship was a moderate correlation between researcher identity and use of support ($r = .436$, $p = .048$). This indicates a stronger relationship between academic literacies beliefs and researcher identity for native than for non-native speakers. For non-native speakers, researcher identity relates more to use of support than academic literacies beliefs. Given that most non-native speakers are also international students, their researcher identity might be bolstered by past successes in their home country. The

challenge to continue performing highly in an unfamiliar environment may make them more likely to seek support. This is congruent with theory, which suggests that academic literacies are highly context-dependent (Wingate, 2006; Lillis and Scott, 2007; Chanock, 2010; Fergie et al., 2011). International students may therefore exhibit confident researcher identity alongside weaker academic literacies. This may be problematic for at least two reasons. Firstly, confident behaviour could mask underlying weaknesses, inhibiting their identification. Secondly, dissonance between past success and present difficulty is likely to present coping challenges for individuals. Timely and targeted academic literacies teaching might therefore play a key role in students' successful adaptation to an unfamiliar environment.

Table 3: Correlations between academic literacies beliefs, researcher identity, and use of support, by native speaker status

	Type of beliefs		Researcher identity	Use of support
Native-Speaker (n.27)	Academic literacies beliefs	Pearson Correlation Sig. (2-tailed)	.659 .000	.432 .024
	Researcher identity	Pearson Correlation Sig. (2-tailed)		.364 .062
Non Native-Speaker (n.21)	Academic literacies beliefs	Pearson Correlation Sig. (2-tailed)	.382 .087	-.118 .612
	Researcher identity	Pearson Correlation Sig. (2-tailed)		.436 .048

Discussion and conclusion

The hypothesis that quantitative instruments can gauge research students' academic literacies beliefs and sense of researcher identity was supported by results from the present study. The instruments validated here demonstrate that it is possible to create reliable scales to measure constructs such as academic literacies beliefs and researcher identity. This was demonstrated by the good internal consistencies of present scales. Of course, these statistical measures can only reflect conceptual reliability in the terms defined 'a priori' in the instrument's design, as Geertz (1973) describes:

> What we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to. (Geertz, 1973, p.9).

The specific items trialled here may or may not accurately reflect students' own perceptions of academic literacies. However, the results may be considered 'proof of concept' that future academic literacies research may benefit from the use of robust quantitative instruments. This would also enable potentially fruitful mixed methods research. The use of easily administered scales, such as those described here, would allow for larger sample sizes and direct comparison of results from different contexts. Such between-groups analysis of larger cohorts could better our understanding of variation between individuals and groups. For example, preliminary comparative analysis reported here indicates that some non-native speaker students may have weak academic literacies alongside a strong sense of researcher identity. Such variation requires further investigation.

This paper contributes to the growing evidence-base supporting and informing academic literacies teaching for research students. Such teaching is likely to become increasingly relevant in the context of expanding research enrolments (Department of Education, 2014), growing student diversity, and the imminence of national graduate attributes in Australia (Chanock et al., 2004; Australian Qualifications Framework Council, 2013). Methodologically, this research demonstrates the potential of quantitative methods in a hitherto largely qualitative field. A relationship between academic literacies beliefs and researcher identity is evident, although may not hold constant across all groups of students, and this merits more attention. Continued study of the complex relationship between research students' academic literacies and identity is required, and quantitative methodology should form part of this future research.

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Appendix A

Items in the academic literacies beliefs scale

1. At this stage I feel confident that my academic literacies are strong enough to cope well with my research degree.
2. I would like to strengthen my academic literacies to succeed with my research degree in the future.*
3. I am happy to develop my academic literacies without anybody teaching me.
4. I can construct an argument and write it clearly using academic language.
5. Sometimes I don't know if I have the academic literacies required to complete my research degree.*
6. I am uncertain how to appropriately use other researchers' ideas in my own writing.*
7. The university should help me develop the academic literacies that I need to succeed in my research degree.*
8. I am struggling with my research degree right now.*
9. I can critically read researchers' work and extract the ideas that are useful for me.
10. I'm not really confident that I can present my work clearly to other researchers.*

* These items were reverse scored.

Appendix B

Items in the researcher identity scale

1. I have opportunities for social contact with other research higher degree (RHD) students.
2. I am involved in the broader research culture.
3. I am not really part of a research community.*
4. I have my own network of research colleagues and peers.
5. I take part in research events (e.g. seminars, symposia, conferences).
6. I feel I am part of my department's research community.
7. I can see myself mentoring new researchers in the future.

* This item was reverse scored.