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An application of the revised ‘Lecturer Self-Efficacy Questionnaire’: an evidence-based route for initiating transformational change

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This article presents findings arising from the first UK application of a revised 70-item lecturer self-efficacy questionnaire recently developed for use in the Australian higher education context. Intended to probe and systematically measure confidence in the core functions of research, teaching and other academic or service-related activities among lecturers, the institutional case-study presented here suggests that this instrument has considerable diagnostic potential for leaders, managers and administrators wishing to explore operational aspects of policy, evaluate strategy and initiate professional dialogue at a variety of levels. Its indicated value as a diagnostic tool suggests a relevance not only to higher but also to further education, where degree-level provision is established and likely to increase. Following an earlier rigorous reassessment and re-evaluation of the questionnaire’s validity and reliability, including a robust statistical analysis of its associated scales and subscales, findings indicate that respondents felt most confident across all aspects of teaching – the core function which also occupied most of their time. Perhaps surprisingly for the institution involved in the case study, research – which occupied the least amount of time – generally displayed the most pronounced confidence hierarchy, from activities attached to data collection and analysis to leading funded research projects. Outcomes for other academic or service-related activities were generally mixed, but confidence attached to internal academic events was higher than that linked to external ones. Taken together, the findings, including the effects of career stage, qualifications, gender, research output and workload distribution, were considered sufficient to initiate an appropriate strategic response directed towards transformational change. The limitations of the questionnaire are considered in detail.

Keywords: Research; teaching; service-related activities; lecturer self-efficacy; questionnaire; transformational change

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Introduction and purpose

What does the work of a lecturer in a higher education institution entail? Despite the complexity and highly contextualised nature of academic endeavour, in tandem with acquired roles and emergent identities (Taylor 1999; Henkel 2000; Henkel 2005; Talib 2002; Robertson and Bond 2005; Clegg 2008; Boyd and Harris 2010; McKeon and Harrison 2010), the simplest and most traditional answer to this question would probably be research, teaching and other academic or service-related activities (Robertson and Bond 2001; Harley 2002; Deem and Lucas 2006). Such is the internationally acknowledged importance attached to these three core functions that each receives considerable attention in institutional mission statements, strategic plans, prospectuses, and so on, and each exerts considerable influence across various institutional measures of 'impact' and 'performance' (Talib 2002; Scott 2006; Abukari 2010; Oancea 2010). Indeed, research, teaching and other academic or service-related activities are so enshrined within ideas about what lecturers do that they define and confirm the legitimacy and credibility of the academy itself. Certainly, at least in countries where higher education drives social, economic and intellectual growth, it would be difficult to imagine any other functions providing comparable reach and significance.

While opinion varies (e.g. Brew 2006; Åkerlind 2008), there is now a substantial body of literature revealing how lecturers experience and understand research and teaching (Kember 1997; Prosser and Trigwell 1999; Wood 2000; Brew 2001; Samuelowicz and Bain 2001; Major and Dolly 2003; Ramsden 2003; Biggs and Tang 2007; Entwistle 2009). This includes their conceptions of each, their practices and environments, and measures of research productivity and teaching effectiveness (Grbich 1998; Fairweather 2002; Marsh and Hattie 2002; McGrail, Rickard, and Jones 2006; Santo, Engstrom, Reetz, Schweinkle, and Reed 2009). Of a broader ranging and more eclectic nature, the same cannot be said for other academic or service-related activities (Becher 1989; Bailey 1999; Ward 2003; Neumann and LaPointe Terosky 2007). Until very recently, however, there appears to have been little attempt to systematically measure an individual academic's self-efficacy in relation to research, teaching and other academic or service-related activities, including confidence in the many skills, tasks and other elements commonly associated with each. Given the perceived pressures attached to modern-day academic life, together with an ever-increasing demand for accountability monitored largely through exercises which measure the quantity and quality of work relatively or against established standards (Erwin 1999; Woolfe 1999; Garlick and Pryor 2004; Oancea 2010), such an exercise might be considered both useful and valuable to leaders, managers and administrators alike. Benchmarking self-efficacy in the core functions of research, teaching and other academic or service-related activities could, for example, shed light on institutional culture by providing valu-

able information concerning workload distribution and confidence in key operational areas. With this, it would be possible to more effectively evaluate and inform policy implementation, performance management, professional development and training, resource allocation and investment decisions (Hekelman, Zyzanski, and Flocke 1995; Bazeley 2003; Major and Dolly 2003; Kamler 2008; Laudel and Glässer 2008). It would also be possible to assist with the identification of those areas which require capacity building.

The case study presented and discussed here was prompted by and undertaken with a desire to attempt such a benchmarking exercise in one institution and to apply findings in some of the areas described, making full use of a revised 70-item lecturer self-efficacy questionnaire originally developed by Hemmings and Kay (2009), Hemmings and Kay (2010). The work, which is the result of an international collaboration with Hemmings and Kay themselves, also provided the first opportunity to explore the value of this particular research instrument in the UK higher education context.

Theoretical framework and the research instrument

Social cognitive theory and the self-efficacy construct

The original 70-item lecturer self-efficacy questionnaire developed by Hemmings and Kay (2009), Hemmings and Kay (2010) has a theoretical framework located in Bandura's social cognitive theory, which essentially highlights the reciprocal and deterministic interactions between personal factors, environmental conditions and behaviours in learning (e.g. Bandura 1993; Bandura 1997; Bandura 2001). Thus, self-efficacy is influenced by both internal and external drivers. Within general social cognitive theory, self-efficacy is a multidimensional construct often used with reference to an individual's belief in or awareness of his or her own capability to organise, manage and implement actions to perform certain tasks, and reach a certain level of performance (Schunk 1991; Schunk 2004; Zimmerman 2002). Sources of self-efficacy come from mastery experiences (regarded as the most important), arousal, vicarious experiences and social modelling. In general terms, self-efficacy theory distinguishes between those who approach tasks as challenges to be mastered and those who see them as threats to be avoided. It has particular relevance in higher education where, as indicated earlier, lecturers have complex professional roles, identities and expectations of themselves, in addition to the expectations projected upon them by others (Major and Dolly 2003). Self-efficacy has featured in previous studies within the academic world, but often with varying emphases and relationships (Bailey 1999; Blackburn and Lawrence 1995; Schoen and Winocur 1988; Vasil 1992; Blackburn, Bieber, Lawrence, and Trautvetter 1991). Recurrent features include higher reported self-efficacy for teaching tasks compared to research and other academic or service-related activities, higher levels of self-efficacy in research among those in posses-

sion of doctoral-level qualifications and those who publish more frequently and, in some instances, higher levels of self-efficacy in selected areas among men.

Probing confidence

While self-efficacy is a multidimensional construct, one way of exploring it is through confidence, which motivates and directs the choices made with regard to activities undertaken and the amount of time spent on or returning to a task. In the development of their questionnaire, which was designed to probe lecturer self-efficacy through the determination of confidence, Hemmings and Kay (2009), Hemmings and Kay (2010) set out to identify the major elements of the lecturer self-efficacy construct as recognised by lecturers in the Australian higher education context and to develop subscales to measure self-efficacy in research, teaching and other academic or service-related activities. The development of the questionnaire followed essentially conventional pathways, informed by an extensive review of existing literature, the views of an expert panel, and a phase of piloting and refinement (Creswell 2002; de Vaus 2002). The final version of the questionnaire was divided into three sections: Section 1 provided background information on respondents; Section 2 elicited respondents' levels of confidence in relation to performing identified work-related tasks using a 10-point scale ranging from 0 (low and not confident at all) to 9 (high and completely confident); and Section 3 allowed respondents to state the importance of and satisfaction derived from research, teaching and other academic or service-related activities, as well as providing details of published research output. Section 2 was partly based on an updated version of an earlier questionnaire presented by Schoen and Winocur (1988). Participants in the original study were drawn from staff working across a range of different subject disciplines at two institutions: one a regional university, the other a university located in a state capital. Participation was voluntary, resulting in a 36.2% response rate (357 useable returns from an initial mail-shot of 985 individuals). Subsequent statistical analyses of responses to the final 32 research items, 22 teaching items and 16 academic or service-related activities items that were included – reflecting the diversity of each core function as determined by participants – resulted in the identification of four research subscales accounting for 69% of the variance ('reporting and supervising research', 'conducting and managing research', 'writing up and reviewing research', 'having a broad view of research'); two teaching subscales accounting for 64% of the variance ('designing and assessing instruction', 'delivering tutorials and lectures'); and two service subscales accounting for 59% of the variance ('carrying out professional activities', 'executive administrative tasks').

Cultural context

The original questionnaire was developed for use in a different cultural context, albeit still in higher education. Its application for our purposes necessitated changes to the terminology and language employed within the original questionnaire, as well as its structural layout. This prompted a reassessment and re-evaluation of the instrument as a whole. This work was undertaken by distributing revised questionnaires to 366 lecturing staff in four purposively sampled UK higher education institutions offering mainly undergraduate and postgraduate courses in education, social sciences and the arts. The sampling was purposive in the sense that heads of research were known to the authors and willing to participate, and the institutions in which they worked were judged to present the broadest possible range of experiences and expertise in core function. In all, 200 completed and usable questionnaires were returned. Taking the content of the questionnaire at face value, reflecting as it does the core functions associated with conventional lecturing contracts as they are commonly understood, and following the analytical precedent set by Hemmings and Kay, the construct validity of the three main scales was interrogated using principal component analysis with varimax rotation. This involved a consideration of Kaiser's criterion (K-M-O) and Bartlett's sphericity in association with eigenvalues, communalities, factor loadings and scree plots, together with interpretability and meaning. Principal component analysis helped identify and understand any underlying factors present within each scale by locating where individual items correlated and clustered, ultimately leading to the formation of subscales. Determination of the internal consistency or reliability of each subscale was made using Cronbach's alpha. Test requirements, including sampling adequacy, were satisfied in all and exceeded in most cases (Field 2009). A complete table of statistical outcomes is presented in Table 1. For the final version of the revised questionnaire see Appendix.

In brief, a five-component solution explaining 71.9% of the variance was accepted for research ('data collection and analysis', 'leading funded research projects', 'literature and writing', 'disseminating research', 'supervising research'); a three-component solution explaining 71.4% of the variance was accepted for teaching ('assessment', 'tutorials', 'lectures and seminars'); and a three-component solution explaining 68.5% of the variance was accepted for other academic or service-related activities ('external academic events', 'outward facing events', 'internal academic events'). The revised subscales established offered an improved account of variance with a 'tighter' clustering of related items while remaining broadly comparable in character to the Australian originals.

Table 1. Validity, reliability and final construction of the self-efficacy subscales.

Scales	Subscales	N	Items	Rotated factor loadings	Inter-subscale correlations	Skewness/kurtosis (KS normality test p values)	Alpha reliability
Research*	Data collection and analysis	7	R2, 5-8, 10, 12	0.524-0.793	0.497-0.678**	-0.479/-0.150(<.001)	0.910
K-M-O=.943 $\chi^2=5357.5$, p<.001	Leading funded research projects	6	R11, 13, 23, 24, 30, 31	0.543-0.725	0.678-0.775**	0.109/-0.739(>.200)	0.903
	Literature and writing	7	R1, 3, 4, 19-22	0.580-0.633	0.573-0.786**	-0.287/-0.354(<.05)	0.894
	Disseminating research	7	R14-18, 28, 29	0.525-0.776	0.601-0.786**	-0.255/-0.837(<.001)	0.943
	Supervising research	3	R25-27	0.578-0.787	0.497-0.682**	-0.196/-0.921(<.001)	0.786
Teaching	Assessment	12	T43-54	0.574-0.813	0.701-0.722**	-1.538/5.129(<.001)	0.947
K-M-O=.943 $\chi^2=4072.3$, p<.001	Tutorials	5	T35, 36, 40-42	0.587-0.825	0.709-0.722**	-1.082/1.529(<.001)	0.910
	Lectures and seminars	5	T33, 34, 37-39	0.657-0.691	0.701-0.709**	-1.285/2.600(<.001)	0.854
Other activities	External academic events	5	O62, 65, 67, 68, 70	0.519-0.883	0.616-0.621**	-0.103/-0.719(<.05)	0.868
K-M-O=.887 $\chi^2=2208.3$, p<.001	Outward facing events	7	O59-61, 63, 64, 66, 69	0.528-0.794	0.612-0.621**	-0.502/-0.047(<.01)	0.869
	Internal academic events	4	O55-58	0.578-0.884	0.612-0.616**	-0.517/0.001(<.01)	0.885

Note: (N=200; *Items R9 and R32 not used in research subscales; **denotes correlations significant at the 0.01 level of significance; std. error for skewness and kurtosis 0.172 and 0.342 respectively; KS Kolmogorov-Smirnov test of normality)

Case study parameters

Sampling and respondents

The work presented here involved one of the four UK higher education institutions sampled. The institution offered mainly undergraduate and post-graduate courses in education studies and initial teacher training, with an additional arts and humanities portfolio. Of the 60 academic or lecturing staff contributing to courses in these domains, 47 voluntarily returned completed and usable questionnaires – an effective response rate of 78.3%. Of those (Table 2), 16 were male (34.0%) and 31 were female (66.0%), reflecting the ratio across the institution as a whole. Years of experience teaching in the sector ranged from 0 to 20, with a mean of 7.8 (median 7.0). While the sample included two newly appointed staff (4.3%), most could be described either as early career academics, with up to five years' service (21, 44.7%), or as experienced ('established' or 'advanced'), having worked for longer (26, 55.4%). The majority of staff had been formally educated to master's level, and 10 were in possession of doctorates (21.3%). Eight of those with master's qualifications were registered on doctoral programmes externally (PhD or EdD) and all four with bachelor's degrees were studying master's programmes internally. A little under half (42.6%) of all respondents were members of the Higher Education Academy (HEA), the UK professional organisation which aims to support lecturers to provide the best possible learning experiences for all students and networking opportunities for its members. Nine (19.1%) respondents were considered to be research-active and regularly publishing at the highest level. Respondent

Table 2. Frequencies and percentages of respondent characteristics (N=47).

<i>Sex</i>		
Male	16	(34.0)
Female	31	(66.0)
<i>Years in higher education</i>		
0 (first post)	2	(4.3)
1–5	19	(40.4)
6–10	14	(29.8)
11–15	8	(17.0)
16–20	4	(8.6)
<i>Highest qualification</i>		
Doctorate	10	(21.3)
Master's	33	(70.2)
Bachelor's	4	(8.5)
<i>Membership of the HEA</i>		
Yes	20	(42.6)
No	27	(57.4)
<i>Actively publishing/research-active</i>		
Yes	9	(19.1)
No	38	(80.9)

characteristics of this type are not unusual for institutions, faculties or schools specialising in education and offering undergraduate and postgraduate courses of a similar nature (Rees, Baron, Boyask, and Taylor 2007; Munn 2008). In order to protect the anonymity of individuals, no other background details were collected.

Data handling and analysis

While it is common practice to routinely summarise and report data obtained from instruments such as the revised lecturer self-efficacy questionnaire using mean and median scores, standard deviations, and so on, readers are advised to be mindful of the assumptions and limitations attached to data transformations which involve a shift from response profiles obtained using ordinal scales of measurement to the calculation of averages and measures of dispersion together with any inferences drawn from subsequent statistical analyses. In this particular study, mean and median averages and standard deviations provide an adequate representation of response 'direction' and 'relative strength of feeling', if by proxy. All data handling was undertaken using SPSS in accordance with the principles and procedures outlined by Field (2009). In addition, and following Hemmings and Kay (2009), Hemmings and Kay (2010), it was also considered appropriate to analyse the questionnaire data in terms of certain respondent characteristics. As reported within the questionnaire, these included career stage (early/experienced), qualifications (doctorate/other), gender (male/female) and research output (research-active/not). Readers are also advised to be mindful of the assumptions and limitations attached to the further and inevitable reductions in sample size associated with the different subgroups involved. With uncertainty in the distribution of the data as determined by skewness and the Kolmogorov-Smirnov test of normality at subscale level, non-parametric statistical tests were adopted in the main, with Bonferroni corrections applied where appropriate. *Post hoc* testing involving pairwise comparisons was undertaken with all calculations involving analysis of variance.

Presentation of findings

Time, importance and satisfaction

Across the sample as a whole, the relative amount of time spent on research ranged from 0 to 40%, with a mean of 13.2% (median 10.0%). For teaching, figures ranged from 5 to 90%, with a mean of 51.9% (median 50.0%). For other academic or service-related activities, figures ranged from 0 to 85%, with a mean of 34.9% (median 30.0%). Box and Whisker plots which provide a visual distribution of time are presented below (Figure 1). Observed differences in the amounts of time spent on research, teaching and other academic or service-related activities were significant (Friedman's $\chi^2=45.3$,

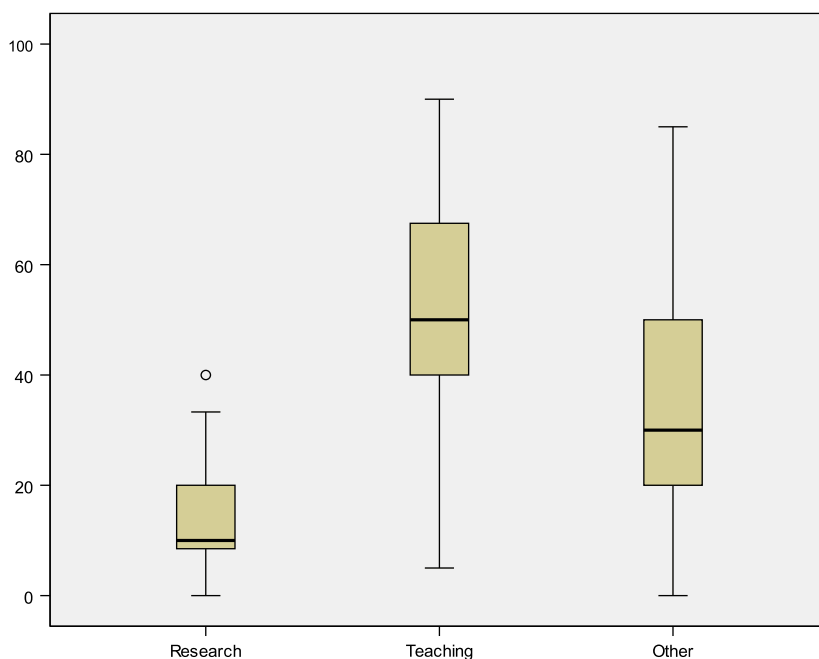


Figure 1. Percentage time spent on research, teaching and other academic activities (N=47).

df=2, $p < .001$), as they were between all three sets of specific matched pairs (research and teaching $p < .001$, teaching and other academic or service-related activities $p < .01$, research and other academic or service-related activities $p < .001$).

When asked to consider which aspect of their work was most important to them, the overwhelming majority of respondents indicated teaching (33, 70.2%); research and other academic or service-related activities lagged some way behind in almost equal measure. The aspect of work considered least important was other academic or service-related activities (24, 51.1%), followed by research (15, 31.9%). Interestingly, however, while a broadly similar number of staff indicated that teaching was also the aspect of their work that they felt most satisfied with (31, 66.0%), research was highlighted as the area perhaps requiring most attention (29, 61.7%). Complete profiles are presented below (Table 3).

Confidence profiles

From the statements presented within the questionnaire, individual confidence scores among respondents over all 32 research items ranged from 1.9 to 8.6 with a mean of 4.95 (median 4.88). For teaching, individual confidence scores among respondents ranged over all 22 items from 3.0 to 9.0, with a mean of 7.55 (median 7.68). For other academic or service-

Table 3. Frequencies and percentages of work aspect (N=47).

Aspect of work	All	Research	Teaching	Other	None	Not sure
Most important	6 (12.8)	4 (8.5)	33 (70.2)	4 (8.5)	0 (0.0)	0 (0.0)
Least important	1 (2.1)	15 (31.9)	2 (4.2)	24 (51.1)	4 (8.5)	1 (2.1)
Most satisfied	2 (4.2)	4 (8.5)	31 (66.0)	9 (19.1)	0 (0.0)	1 (2.1)
Least satisfied	1 (2.1)	29 (61.7)	1 (2.1)	12 (25.5)	3 (6.4)	1 (2.1)

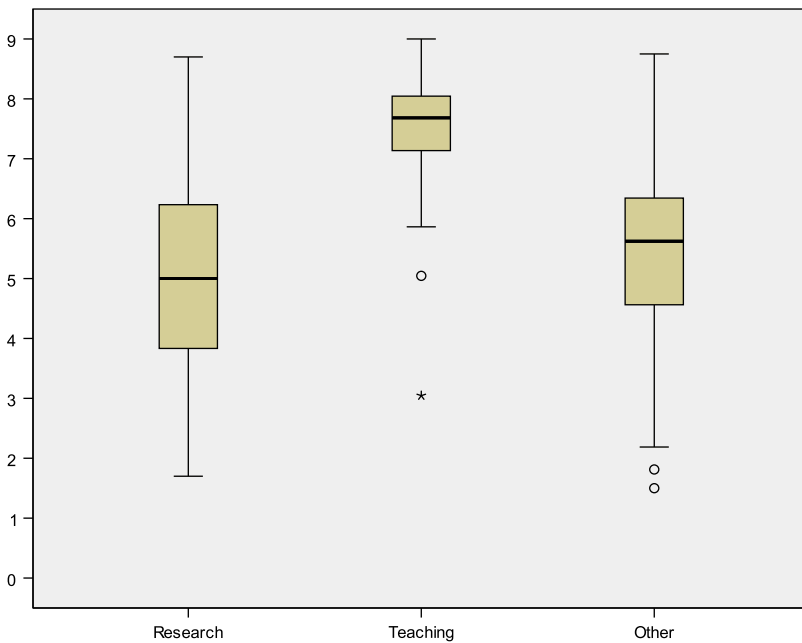


Figure 2. Confidence in research, teaching and other academic activities (N=47).

related activities, individual confidence scores among respondents ranged over all 16 items from 1.5 to 8.8, with a mean of 5.40 (median 5.63). Box and Whisker plots which provide a visual distribution of confidence are presented in Figure 2. Observed differences in individual confidence scores among respondents across research, teaching and other academic or service-related activities were significant (Friedman's $\chi^2=49.8$, $df=2$, $p<.001$), as they were between two sets of specific matched pairs (research and teaching $p<.001$, teaching and other academic or service-related activities $p<.001$).

Research items and subscales

Individual item-total statistics for confidence in research and statistics for the five related research subscales are presented in Tables 4 and 5. Individual item averages varied considerably, from R17: Attending conferences (mean 7.4, median 8.0) to R30: Applying for research grants (mean 2.4,

Table 4. Individual item-total statistics for research ranked in order of descending mean value (N=47; Items R9 and R32 not used in the construction of research subscales)

Item	Research statement	Mean	Median	SD	Range
R17	Attending conferences	7.4	8.0	1.58	3-9
R4	Expressing your ideas in writing	6.6	7.0	1.82	0-9
R8	Collecting data	6.6	6.0	1.65	0-9
R7	Adhering to research ethics requirements	6.5	7.0	1.86	0-9
R1	Keeping up to date with research literature	6.1	6.0	1.89	1-9
R3	Reviewing literature for a research project	6.1	6.0	2.06	0-9
R10	Analysing research results	6.0	6.0	1.97	0-9
R26	Supervising students' research projects	5.7	7.0	2.61	0-9
R5	Designing research	5.7	6.0	1.75	2-9
R6	Conducting pilot studies	5.7	6.0	1.92	0-9
R19	Writing for an academic audience	5.6	6.0	2.29	0-9
R2	Generating research ideas	5.3	6.0	2.01	0-9
R14	Delivering research findings at staff seminars	5.3	6.0	2.79	0-9
R12	Collaborating with colleagues about research	5.2	6.0	2.38	0-9
R18	Delivering conference papers	5.1	6.0	2.94	0-9
R24	Reviewing books	4.8	6.0	2.69	0-9
R20	Writing journal articles	4.7	5.0	2.54	0-9
R15	Presenting papers in other depts/institutions	4.7	5.0	2.86	0-9
R27	Supervising postgraduate students	4.7	5.0	3.00	0-9
R23	Reviewing journal articles	4.6	5.0	2.53	0-9
R16	Preparing conference papers	4.6	5.0	3.06	0-9
R9	Using computer software	4.5	5.0	2.64	0-9
R28	Submitting papers for publication	4.3	5.0	2.69	0-9
R32	Applying for study leave	4.3	5.0	2.82	0-9
R22	Writing textbooks	4.1	4.0	2.59	0-9
R29	Resubmitting papers for publication	3.9	4.0	2.73	0-9
R25	Examining theses	3.9	4.0	2.85	0-9
R11	Leading research projects	3.8	4.0	2.74	0-9
R21	Writing research-based books	3.7	4.0	2.68	0-9
R13	Working with research assistants	3.5	3.0	2.79	0-9
R31	Preparing a research budget	2.9	2.0	2.45	0-7
R30	Applying for research grants	2.4	2.0	2.22	0-7

median 2.0). Particularly high-scoring items (overall mean plus 1SD or falling in the upper quartile) also included R4: Expressing your ideas in writing, R8: Collecting data and R7: Adhering to research ethics requirements. Particularly low-scoring items (overall mean – 1SD or falling in the lower quartile) also included R13: Working with research assistants and R31: Preparing a research budget. Scores from 10 of the 32 items fell below the mid-point of the scale (31.3%).

Scores across each of the five research subscales (Table 5) revealed a clear confidence hierarchy, the observed differences between which were significant (Friedman's $\chi^2=57.4$, $df=4$, $p<.001$):

Table 5. Confidence score summaries by research subscale.

Subscale (with items)	Average	Overall (47)	Career stage			Qualifications			Gender		Output	
			Early (21)	Experienced (26)	Doctorate (10)	Other (37)	M (16)	F (31)	Yes (9)	No (38)		
Data collection and analysis (R2, 5-8, 10, 12)	Mean 5.88 Median 5.86 Mean 3.66	5.88	5.50	6.19	7.33	5.49***	5.96	5.84	6.95	5.63*		
Leading funded research projects (R11, 13, 23, 24, 30, 31)	Mean 5.86 Median 5.86 Mean 3.66	5.86	2.84	6.00	7.29	5.71***	6.07	5.86	7.57	5.71†		
Literature and writing (R1, 3, 4, 19-22)	Mean 3.50 Median 5.28 Mean 5.29	3.50	2.67	4.42‡	5.50	3.50‡	5.00	3.50	6.67	3.50‡		
Disseminating research (R14-18, 28, 29)	Mean 5.03 Median 5.29 Mean 4.77 Median 5.00	5.03	4.40	5.50	6.43	5.14	5.93	5.14	7.57	5.14‡‡		
Supervising research(R25-27)	Mean 5.03 Median 5.29 Mean 4.77 Median 5.00	5.03	4.43	5.93	6.60	4.61*	5.90	4.59	6.79	4.62***		
	Mean 4.77 Median 5.00	4.77	4.06	5.35	6.79	4.57‡‡	6.29	4.43	8.00	4.79‡‡		
	Mean 5.00 Median 5.00	5.00	5.00	5.33	6.13	4.41*	5.27	4.51	5.85	4.52		
	Mean 5.00 Median 5.00	5.00	5.00	5.33	6.67	4.67‡	5.50	4.67	6.67	4.83		

Note: (t-test * marginal p<.05, ** p<.01, *** p<.001; U test † marginal p<.05, ‡ p<.01, ‡‡ p<.001, ‡‡‡ p<.001; N=47)

- data collection and analysis (mean 5.88, median 5.86, SD 1.510, range 2.0-9.0); highest-scoring item R8: Collecting data (mean 6.6, median 6.0), lowest-scoring item R12: Collaborating with colleagues about research (mean 5.2, median 6.0);
- literature and writing (mean 5.28, median 5.29, SD 1.791, range 1.3-9.0); highest-scoring item R4: Expressing your ideas in writing (mean 6.6, median 7.0), lowest-scoring item R2: Writing research-based books (mean 3.7, median 4.0);
- disseminating research (mean 5.03, median 5.29, SD 2.302, range 0.9-9.0); highest-scoring item R17: Attending conferences (mean 7.4, median 8.0), lowest-scoring item R29: Resubmitting papers for publication (mean 3.9, median 4.0);
- supervising research (mean 4.77, median 5.00, SD 2.371, range 0.0-9.0); highest-scoring item R26: Supervising students' research projects (mean 5.7, median 7.0), lowest-scoring item R25: Examining theses (mean 3.9, median 4.0).
- leading funded research projects (mean 3.66, median 3.50, SD 2.215, range 0.0-8.3); highest-scoring item R24: Reviewing books (mean 4.8, median 6.0), lowest-scoring item R30: Applying for research grants (mean 2.4, median 2.0).

Differences were also significant between five sets of specific matched pairs ('data collection and analysis' and 'supervising research' $p < .01$, 'data collection and analysis' and 'leading funded research projects' $p < .001$, and 'literature, disseminating and supervising' with 'leading funded research projects' $p < .001$).

Observed differences in scores analysed by qualification – consistently higher in those with doctorates – were statistically significant in 'data collection and analysis' ($p < .001$) and in 'disseminating research' ($p < .01$). Observed differences in scores analysed by research output – consistently higher in research-active staff – were significant in 'literature and writing' ($p < .01$), 'disseminating research' ($p < .01$) and 'leading funded research projects' ($p < .01$). Interestingly, while the average amount of time dedicated to research among respondents in possession of doctorates (mean 11.5%, median 10.0%) was about the same as that for those without (mean 13.7%, median 10.0%), those actively engaged in publishing their work at the highest level and considered research-active spent on average twice as much time on research (mean 22.0%, median 20.0%) than others (mean 11.1%, median 10.0%). At the level of individual items, these confidence differences were most apparent in:

- generating research ideas (R2), conducting pilot studies (R6), collecting data (R8), analysing research results (R10), leading research projects (R11) and collaborating with colleagues regarding research (R12);

- adhering to research ethics requirements (R7);
- expressing ideas in writing (R4) and writing for an academic audience (R19);
- presenting papers in other departments and institutions (R15) and preparing (R16) and delivering conference papers (R18);
- submitting (R28) and resubmitting papers for publication (R29);
- writing research-based books (R21);
- applying for research grants (R30) and preparing a research budget (R31).

Observed differences in confidence scores analysed by career stage (consistently higher among those experienced in higher education who also spent more time on research than others) and gender (consistently higher among male respondents who also spent, on average, more time on research than females) were not significant.

Teaching items and subscales

Individual item-total statistics for confidence in teaching and statistics for the three related teaching subscales are presented below (Tables 6 and 7). Individual item averages varied over a more restricted and elevated range than in research, from T42: Consulting with students (mean 8.1, median 8.0) to T44: Setting assignments/exams (mean 6.3, median 7.0). Particularly high-scoring items (overall mean plus 1SD or falling in the upper quartile) also included T53: Leading subjects/modules and T41: Facilitating student discussions in class. Particularly low-scoring items (overall mean – 1SD or falling in the lower quartile) also included T37: Using e-learning and ICT and T54: Leading teams/wider academic coordination. Scores from all 22 items sat well above the mid-point of the scale.

Scores across each of the three teaching subscales (Table 7) indicated little variation, with respondents feeling almost equally confident in all aspects. Despite their proximity, the observed differences between them were significant (Friedman's $\chi^2=29.3$, $df=2$, $p<.001$):

- tutorials (mean 7.97, median 8.00, SD 0.962, range 4.0-9.0); highest-scoring item T42: Consulting with students (mean 8.1, median 8.0), lowest-scoring item T36: Delivering tutorials (mean 7.9, median 8.0);
- lectures and seminars (mean 7.43, median 7.60, SD 1.283, range 2.2-9.0); highest-scoring item T33: Delivering lectures and seminars (mean 7.8, median 8.0), lowest-scoring item T37: Using e-learning and ICT (mean 6.7, median 7.0);
- assessment (mean 7.42, median 7.67, SD 1.164, range 3.0-9.0); highest-scoring item T53: Leading subjects/modules (mean 8.0, median

Table 6. Individual item-total statistics for teaching ranked in order of descending mean value (N=47).

Item	Teaching statement	Mean	Median	SD	Range
T42	Consulting with students	8.1	8.0	0.87	5-9
T53	Leading subjects/modules	8.0	8.0	0.87	6-9
T41	Facilitating student discussion in class	8.0	8.0	0.98	5-9
T52	Consulting with colleagues about coursework	7.9	8.0	0.92	6-9
T40	Revising teaching strategies	7.9	8.0	1.04	4-9
T35	Preparing tutorials	7.9	8.0	1.10	4-9
T36	Delivering tutorials	7.9	8.0	1.26	2-9
T50	Responding to student feedback	7.8	8.0	0.99	4-9
T48	Providing feedback on assessment items	7.8	8.0	1.18	3-9
T33	Delivering lectures and seminars	7.8	8.0	1.30	3-9
T46	Marking assignments/exams	7.8	8.0	1.31	2-9
T39	Preparing handouts	7.8	8.0	1.37	2-9
T34	Keeping up to date and revising lecture materials	7.6	8.0	1.33	3-9
T47	Assessing students' skills	7.6	8.0	1.46	2-9
T45	Preparing assignments/exams	7.5	8.0	1.35	2-9
T43	Designing assessment	7.4	8.0	1.55	2-9
T38	Selecting reading materials	7.3	8.0	1.46	2-9
T51	Developing subjects/modules	7.2	8.0	1.57	3-9
T49	Assigning grades	7.2	8.0	1.97	0-9
T37	Using e-learning and ICT	6.7	7.0	1.79	1-9
T54	Leading teams/wider academic coordination	6.7	8.0	2.35	0-9
T44	Setting assignments/exams	6.3	7.0	2.19	1-9

8.0), lowest-scoring item T44: Setting assignments and exams (mean 6.3, median 7.0).

Differences were also significant between two sets of specific matched pairs ('tutorials' and 'assessment' $p < .001$, 'tutorials' and 'lectures and seminars' $p < .001$).

Observed differences in scores analysed by career stage – consistently higher in those experienced in higher education – were statistically significant in 'assessment' ($p < .01$). The average amount of time dedicated to teaching by experienced respondents (mean 45.5%, median 45.0%) was less than that for those at an earlier stage in their careers (mean 59.8%, median 60.0%). At the level of individual items, these confidence differences were most apparent in:

- setting (T44), preparing (T45) and marking assignments/exams (T46) and assigning grades (T49);
- assessing students' skills (T47);
- responding to student feedback (T50);
- consulting with colleagues about coursework (T52);
- developing (T51) and leading subjects/modules (T53).

Table 7. Confidence score summaries by teaching subscale

Subscale (with items)	Average	Overall (47)	Career stage			Qualifications			Gender		Output	
			Early (21)	Experienced (26)	Doctorate (10)	Other (37)	M (16)	F (31)	Yes (9)	No (38)		
Assessment (T43-54)	Mean	7.42	6.88	7.85**	7.21	7.48	7.32	7.47	7.45	7.41		
	Median	7.67	7.08	8.00††	7.08	7.75	7.79	7.67	7.67	7.71		
Tutorials (T35, 36, 40-42)	Mean	7.97	7.61	8.27*	7.94	7.98	7.64	8.15	7.98	7.97		
	Median	8.00	8.00	8.10†	8.10	8.00	8.00	8.20	8.00	8.00		
Lectures and seminars (T33, 34, 37-39)	Mean	7.43	6.99	7.78*	7.42	7.43	7.13	7.59	7.62	7.38		
	Median	7.60	7.20	7.70†	7.60	7.60	7.60	7.60	7.60	7.60		

Note: (t-test * marginal p<.05, ** p<.01, *** p<.001; U test † marginal p<.05, †† p<.01, ††† p<.001; N=47)

Observed differences in scores analysed by qualification, gender and research output (almost equivalent in all cases) were not significant (though those with doctorates, female respondents and those respondents not considered research-active spent, on average, more time teaching than others).

Other academic or service-related activities items and subscales

Individual item-total statistics for confidence in other academic or service-related activities and statistics for the three related other academic or service-related activities subscales are presented in Tables 8 and 9. Individual item averages varied from O61: Advising prospective students (mean 7.6, median 8.0) to O67: Editing a journal (mean 3.1, median 2.0). Particularly high-scoring items (overall mean plus 1SD or falling in the upper quartile) also included O55: Participating in School/Department activities, O63: Entertaining visitors on campus and O56: Participating in University-wide committees. Particularly low-scoring items (overall mean – 1SD or falling in the lower quartile) also included O65: Liaising with external agencies about research, O62: Organising conferences and symposia, O59: Responding to the media and O68: Serving on an editorial board. Scores from four of the 16 items fell below the mid-point of the scale (25.0%).

Scores across each of the three other academic or service-related activities subscales (Table 9) revealed a further confidence hierarchy – less pronounced than that for research – the observed differences between which were also significant (Friedman's $\chi^2=36.4$, $df=2$, $p<.001$):

Table 8. Individual item-total statistics for other academic or service-related activities ranked in order of descending mean value (N=47).

Item	Other academic or service-related statement	Mean	Median	SD	Range
O61	Advising prospective students	7.6	8.0	1.51	2-9
O55	Participating in School/Department activities	6.7	7.0	1.93	0-9
O63	Entertaining visitors on campus	6.7	7.0	1.97	1-9
O56	Participating in University-wide committees	6.6	7.0	1.97	0-9
O70	Participating in courses outside the University	6.1	7.0	2.35	0-9
O58	Participating in professional associations	5.9	7.0	2.46	0-9
O69	Writing a reference for a colleague	5.9	7.0	2.61	0-9
O64	Consulting professionally	5.8	6.0	2.55	0-9
O66	Liaising with external agencies about coursework	5.7	6.0	2.33	0-9
O60	Answering public enquiries	5.4	6.0	2.36	0-9
O57	Chairing academic meetings	4.9	5.0	2.65	0-9
O65	Liaising with external agencies about research	4.5	5.0	2.58	0-9
O62	Organising conferences/symposia	4.3	5.0	3.01	0-9
O59	Responding to the media	4.1	4.0	2.76	0-9
O68	Serving on an editorial board	3.2	2.0	2.84	0-8
O67	Editing a journal	3.1	2.0	2.72	0-9

Table 9. Confidence score summaries by other academic or service-related subscale.

Sub-scale (with items)	Average	Career stage			Qualifications			Gender		Output	
		Overall (47)	Early (21)	Experienced (26)	Doctorate (10)	Other (37)	M (16)	F (31)	Yes (9)	No (38)	
External academic events (O62, 65, 67, 68, 70)	Mean	4.24	3.22	5.07**	4.82	4.09	5.24	3.73*	5.67	3.90*	
	Median	4.00	3.00	5.50††	4.70	3.80	5.70	3.60††	6.20	3.80†	
Outward facing events (O59-61, 63, 64, 66, 69)	Mean	5.88	5.25	6.39*	5.61	5.95	6.78	5.42**	6.35	5.77	
	Median	6.43	5.71	6.50‡	6.43	6.29	6.86	5.71††	6.57	6.36	
Internal academic events (O55-58)	Mean	6.00	5.25	6.62*	5.10	6.25	6.61	5.69	6.22	5.95	
	Median	6.25	5.00	6.75††	5.50	6.75	6.50	5.25	6.25	6.00	

Note: (t-test * marginal p<.05, ** p<.01, *** p<.001; U test † marginal p<.05, †† p<.01, ††† p<.001; N=47)

- internal academic events (mean 6.00, median 6.25, SD 2.000, range 0.0-9.0); highest-scoring item O55: Participating in School/Department activities (mean 6.7, median 7.0), lowest-scoring item O57: Chairing academic meetings (mean 4.9, median 5.0);
- outward-facing events (mean 5.88, median 6.43, SD 1.771, range 2.0-9.0); highest-scoring item O61: Advising prospective students (mean 7.6, median 8.0), lowest-scoring item O59: Responding to the media (mean 4.1, median 4.0);
- external academic events (mean 4.24, median 4.00, SD 2.210, range 0.6-8.8); highest-scoring item O70: Participating in courses outside the University (mean 6.1, median 7.0), lowest-scoring item O67: Editing a journal (mean 3.1, median 2.0).

Observed differences were also significant between two sets of specific matched pairs ('internal academic events' and 'external academic events' $p<.001$, 'outward facing events' and 'external academic events' $p<.001$).

Observed differences in scores analysed by career stage – consistently higher among those experienced in higher education – were statistically significant in both 'external academic events' ($p<.01$) and 'internal academic events' ($p<.01$). Observed differences in scores analysed by gender – consistently higher among males – were significant in both 'external academic events' ($p<.01$) and 'outward facing events' ($p<.01$). The average amount of time dedicated to other academic or service-related activities by experienced respondents (mean 39.6%, median 40.0%) was greater than that for those at an earlier stage in their careers (mean 29.2%, median 30.0%) and male respondents dedicated, on average, more time (mean 40.0%, median 40.0%) than female respondents (mean 32.3%, median 30.0%). At the level of individual items, these confidence differences were most apparent in:

- chairing academic meetings (O57);
- liaising with external agencies about coursework (O66);
- participating in professional associations (O58) and organising conferences and symposia (O62);
- responding to the media (O59) and answering public enquiries (O60);
- consulting professionally (O64) and participating in courses outside the University including external examining (O70);
- serving on an editorial board (O68) and editing a journal (O69).

Observed differences in scores analysed by qualification and research output were not significant (differences in time dedicated to tasks were, on average, negligible).

Discussion and implications

Summary of findings

In summary, and following an earlier re-assessment and re-evaluation of the questionnaire's validity and reliability, findings from the first UK application of the revised lecturer self-efficacy questionnaire present a case study of respondents in one higher education institution spending on average 13.2% of their time on research. The different research items and subscales revealed the widest range of confidence levels, including some of the lowest measured values recorded. Respondents considering themselves research-active, who also tended to be those holding doctoral-level qualifications and experienced in higher education, also spent more time on research than others. While many more were evidently engaged in research in different ways, far fewer were able to complete the research cycle and disseminate or publish their work.

In contrast to this, respondents spent on average 51.9% of their time teaching, the different items and subscales of which revealed the narrowest and highest range of confidence levels recorded. Those experienced in higher education spent less time teaching, on average, than those in the earlier stages of their careers, who also appeared less confident in assessment – the technical requirements of which presumably gave some cause for concern.

The balance, 34.9% on average, was devoted to other academic or service-related activities, the different items and subscales of which revealed varied levels of confidence. Those experienced in higher education spent more time on this core function than those who reported being less confident in both internal and external academic events. Gender differences were also recorded in external academic and outward-facing events in favour of male respondents, who also devoted more time to this core function than females. While there is no indication within this study of why this should be, greater attention to family commitments, work-life balance, career aspiration and responsibilities towards students have been implicated elsewhere (Deem and Lucas 2007; Griffiths, Thompson, and Hryniewicz 2010).

The inclusion of workload distribution, reflected crudely in time, helped shed some light on understanding the 'doctorate/research-active', 'early career' and 'gender' effects noted here and in other studies. Interestingly, and despite the refinements brought about by revision and extension of the questionnaire for use within the UK, the findings held much in common with those presented in the original Australian study – a feature thought to reflect the common history and heritage of participating institutions and the relative values attached to core activity (Hemmings et al., forthcoming). Nevertheless, and as an example of a benchmarking exercise, the work presented here provides a starting point for further comparative studies, particularly across more diverse settings in both higher and further education.

Emergent tension

But what does all of this tell us about the institution involved and those who work within it? At one level, the findings could perhaps have been anticipated. Teaching was held to be the most important activity by 33 respondents (70.2%), with the highest satisfaction rating among 31 (66.0%). It also received the greatest amount of time. Other academic or service-related activities were thought least important by 24 respondents (51.1%), yet still received a substantial amount of time. Of course, individual academic priorities are determined by a range of factors and may vary according to personal background, expertise, role, opportunity, motivation and efficiency, not to mention employer (McGrail, Rickard, and Jones 2006; Kamler 2008). Indeed, as the research literature itself appears to support, staff working in education – as they largely were here – who are often recruited directly from schools, understandably focus on teaching and attend to those administrative and other tasks which support it, though not necessarily by choice (Griffiths, Thompson, and Hryniewicz 2010). And therein lies a tension, particularly for research – one reflected in the written comments of staff collected during a staff development event following completion of this survey but convened to consider how best to build a research identity:

Issues relating to teaching/admin. always given institutional priority over any research strategy.

Far too much time [is spent] on administration which eats up people's time.

[There's] not enough admin support [...] institution's inability to distinguish between academic and non-academic duties.

[The] general ethos still does not value or encourage research to a sufficient level.

At a deeper level, staff working in education – as was generally the case here – often regard themselves as 'tutors' rather than 'lecturers' and can find themselves uneasy within the academy and its expectations, for despite being experienced teachers they are usually novices at research (Maguire 2000). Such staff also find themselves regularly teaching courses with higher-than-average teaching loads; and placement-based supervision adds considerably to these loads as a result of travel and the sometimes large distances involved (Sikes 2006). Factors involving the level of qualification at entry (mostly master's) are also known to be important (Deem and Lucas 2007). But research was also flagged up as the core function most respondents were least satisfied with (29, 61.7%), with some reasons again reflected in the written comments collected later:

[There is] a tendency to assume all staff have the same skills, potential and career aspiration and interests.

[Need for] collaborative support in developing writing workshops and tutor mentoring.

New staff (new to HE) need further support to build confidence around research and publishing work.

Staffing levels don't allow for research.

However, it might also be true to say that there has always existed a tension between research and other academic tasks and the extent to which these 'compete' for resources; a problem not only experienced by individual lecturers working across different subject disciplines in different departments within institutions but between institutions themselves (Blackburn et al. 1991; Bellas and Toutkoushian 1999; Robertson and Bond 2001; Talib 2002; Bazeley 2003; Blackmore and Sachs 2007; Sellers-Rubio, Mas-Ruiz, and Casado-Diaz 2010).

At another level entirely, with the now seemingly 'entrenched' division of research-intensive and teaching-intensive institutions, together with the further array of 'mission groups' to which they each subscribe, the balance between research, teaching and other academic or service-related activities in the UK is often already determined and enforced, if only through contractual obligation and employer expectation (Sikes 2006; Holligan, Wilson, and Humes 2011). The 'reality' within any given department or institution, is, of course, far more complex and is perhaps determined more, as indicated, by the values, attitudes and aspirations of those lecturers already in post and the communities of practice and cultures they seek to establish (Wenger 1998). The issue here is how and when institutions choose to respond (Murray 2005; Harrison and McKeon 2010).

From deficit to development

Moving on from a discussion based on 'deficit' to one of 'development', upon receiving feedback of the findings emerging from this study, senior managers responded by acknowledging that the work presented portrayed a picture of the institution that they readily identified with and could see in the performance of its teams, albeit of a 'coarse' rather than a 'fine grained' nature. Research, in particular, appeared to be more emergent than had been hitherto imagined. Over a number of years prior to this survey, the institution had, for example, invested a great deal in order to incentivise research through its research centre by giving due consideration to workload, establishing various internal sources of financial support for research, supporting the payment of fees towards the doctoral degrees of staff, and so on. However, recognition of this 'top-down' rather than 'bottom-up' approach,

informed by findings, prompted an immediate re-evaluation of research priorities, acknowledging that the institution must continue to work more effectively towards the establishment of a stronger institutional research identity and a more coherent institutional research culture and continue to enhance and develop its research profile internally and externally.

Of course, such an institutional vision for research, and the institution's efforts to raise its research profile on at least a national forum, is one thing; achieving it 'on the ground' is something else entirely. Nevertheless, at the time of writing, this institution was looking to its research leadership and operational structures and drawing upon the unifying principles and models set out by the likes of Jenkins and Healey (2005), Al-Nakeeb (2007), Laudel and Glässer (2008) and Hemmings and Hill (2009), all of whom embrace the notion of 'legitimate peripheral participation' (Harrison and McKeon 2010), to refocus its research strategy in order to rebuild capacity and capability. Some of the proposals being considered included:

- establishing an agreed institutional understanding and definition of research and what it means to be a research-*er* and research-active;
- undertaking a comprehensive audit of research aspiration, perceived barriers to research, research opportunities, research training requirements and available research expertise;
- developing a network of mentors, role models, common interest groups and critical friends particularly, though not exclusively, for early-career academics;
- establishing expertise in curriculum, pedagogical and practitioner-based research;
- supporting academic writing to improve upon the quality, quantity and level of measurable research outputs, particularly those of national and international significance and which demonstrate impact;
- increasing expectations associated with research so that initial steps follow a pathway from seminar presentations to conference contributions to publications or validation and dissemination by other appropriate means for exhibitions and performances;
- designing and introducing a coherent package of researcher development training in line with national standards and expectations;
- finding an even more appropriate balance of workload in relation to research and teaching;
- looking to recruit and retain, where appropriate, suitably qualified research-active staff who understand the demands of working in a teaching-led institution.

By initiating such a response, the institution also hoped to address the fact that research and teaching in particular were often viewed as competing rather than complementary and rewarded in their own individual ways. At

the highest level, for example, successive research assessment exercises in the UK have resulted in increasing pressure to publish in only the most prestigious and peer-reviewed academic journals. This may not be suitable or even sustainable for those whose careers are located within professional or vocational domains and who might wish to reach a wider audience, leading to issues over status and prestige (Harley 2002; Talib 2002; Furlong 2004; Sikes 2006; Oancea 2004; Oancea 2010). While recent moves drawing attention to the need for integration between research and teaching across the sector are generally viewed as positive (Hattie and Marsh 1996; Elton 2001; Rowland 2002; Brew 2003; Jenkins 2004; Jenkins and Healey 2005; Jenkins, Healey, and Zetter 2007; Prosser, Martin, Trigwell, Ramsden, and Lueckenhausen 2005), attempts to further teaching-enhanced research and research-enhanced teaching have not always appealed or met with approval. According to Lucas (2007) and Couper and Stoakes (2011), the assertion that these might come together profitably stems from work carried out in a number of different areas, where any synergies that might exist between them are known to be influenced by a diverse range of factors (Colbeck 1998; Gibbs 2002; Lindsay, Breen, and Jenkins 2002; Brew 2003; Jenkins and Zetter 2003; McLean and Barker 2004; Healey 2005; Robertson and Bond 2005; Robertson 2007; Simons and Elen 2007).

Limitations

Despite its advantages and potential as a 'first look' instrument, the revised lecturer self-efficacy questionnaire is not without its limitations. First and foremost, no simple questionnaire can ever claim to capture anything of the true nature and purpose of higher education, the complexities and values of institutions and departments or how the lecturers within them are led, managed and operate. In addition, the questionnaire treats research, teaching and other academic or service-related activities as relatively unproblematic and provides no information in terms of what respondents understand by the items presented to them or exactly what they mean when they respond, for this can only be determined using a more qualitative or mixed method approach. Indeed, the items which define the scales and subscales – by no means comprehensive in defining the full extent of the role of a lecturer – are themselves, on occasion, perhaps insufficiently detailed or too loosely expressed. Finally, completion of the questionnaire involves the self-determination of confidence, perceived feelings of which cannot be easily or independently verified or matched alongside actual competence. This particular questionnaire, however, despite the obvious and perhaps more serious charge of being overly instrumental and utilitarian, does appear to demonstrate promise as a diagnostic tool and starting point for initiating professional dialogue and guiding action at a variety of institutional or departmental levels.

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Appendix: The revised ‘Lecturer Self-Efficacy Questionnaire’ (after Hemmings and Kay 2009; Hemmings and Kay 2010)

Section 1

Please respond as required.

- 1.1 I work mostly within:
Specify course as required Specify course as required
- 1.2 I am:
Male Female
- 1.3 I have been employed in HE as an academic for:
_____ years (in total)
- 1.4 My highest qualification is a:
Bachelor’s Master’s Doctorate Other (specify) _____
- 1.5 I am currently registered for a:
Master’s Doctorate Other (specify) _____
- 1.6 I am a Fellow of the Higher Education Academy:
Yes No
- 1.7 In terms of my own teaching I would consider myself to be:
‘New/inexperienced’ ‘Established’ ‘Advanced’
- 1.8 In terms of my own research I would consider myself to be:
‘New/inexperienced’ ‘Established’ ‘Advanced’
- 1.9 I would consider myself to be regularly publishing and research active:
Yes No

Section 2

Three key aspects of your work are considered in this section: research, teaching and other academic or service-related activities. You are asked to indicate how confident you feel about performing the following tasks using the scale 0 (low-not at all confident) to 9 (high-completely confident).

<i>Research</i>	Not confident									Completely confident		
	0	1	2	3	4	5	6	7	8	9		
R1	Keeping up to date with research literature											
R2	Generating research ideas											
R3	Reviewing literature for a research project											
R4	Expressing your ideas in writing											
R5	Designing research											
R6	Conducting pilot studies											
R7	Adhering to research ethics requirements											
R8	Collecting data											
R9*	Using computer software											
R10	Analysing research results											
R11	Leading research projects											
R12	Collaborating with colleagues about research											
R13	Working with research assistants											
R14	Delivering research findings at staff seminars											
R15	Presenting papers in other departments /institutions											
R16	Preparing conference papers											
R17	Attending conferences											
R18	Delivering conference papers											
R19	Writing for an academic audience											
R20	Writing journal articles											
R21	Writing research-based books											
R22	Writing textbooks											
R23	Reviewing journal articles											
R24	Reviewing books											
R25	Examining theses											
R26	Supervising students' research projects											
R27	Supervising postgraduate students											
R28	Submitting papers for publication											
R29	Resubmitting papers for publication											
R30	Applying for research grants											
R31	Preparing a research budget											
R32*	Applying for study leave											

Note: * Items R9 and R32 were not used in the final construction of subscales (see text for details)

<i>Teaching</i>	Not confident						Completely confident			
	0	1	2	3	4	5	6	7	8	9
T33	Delivering lectures and seminars									
T34	Keeping up to date and revising lecture materials									
T35	Preparing tutorials									
T36	Delivering tutorials									
T37	Using e-learning and ICT									
T38	Selecting reading materials									
T39	Preparing handouts									
T40	Revising teaching strategies									
T41	Facilitating student discussion in class									
T42	Consulting with students									
T43	Designing assessment									
T44	Setting assignments/exams									
T45	Preparing assignments/exams									
T46	Marking assignments/exams									
T47	Assessing students' skills									
T48	Providing feedback on assessment items									
T49	Assigning grades									
T50	Responding to student feedback									
T51	Developing subjects/modules									
T52	Consulting with colleagues about coursework									
T53	Leading subjects/modules									
T54	Leading teams/wider academic coordination									

<i>Other academic or service-related activities</i>	Not confident						Completely confident			
	0	1	2	3	4	5	6	7	8	9
O55	Participating in School/Department activities									
O56	Participating in University-wide committees									
O57	Chairing academic meetings									
O58	Participating in professional associations									
O59	Responding to the media									
O60	Answering public enquiries									
O61	Advising prospective students									
O62	Organising conferences/symposia									
O63	Entertaining visitors on campus									
O64	Consulting professionally									

(Continued)

Appendix. (continued)

	<i>Other academic or service-related activities</i>	Not confident							Completely confident			
		0	1	2	3	4	5	6	7	8	9	
O65	Liaising with external agencies about research											
O66	Liaising with external agencies about coursework											
O67	Editing a journal											
O68	Serving on an editorial board											
O69	Writing a reference for a colleague											
O70	Participating in courses outside the University (including external examining)											

Section 3

Please respond as required.

3.1 What proportion of **time** (in percentage terms) do you spend in the following aspects of your academic work?

Research _____% Teaching _____% Other _____%

3.2 Tick the aspect of your work which you regard as the **most important**.

Research Teaching Other

3.3 Tick the aspect of your work which you regard as the **least important**.

Research Teaching Other

3.4 Tick the aspect of your work with which you are **most satisfied**.

Research Teaching Other

3.5 Tick the aspect of your work with which you are **least satisfied**.

Research Teaching Other