

The Role, Responsibilities and Remuneration of Graduate Teaching Assistants in Scotland

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ABSTRACT

Graduate teaching assistants (GTAs) are students who assist in the delivery of higher education programmes. Surprisingly, such employment is not recorded by HESA.

In the absence of national data, this paper reports the findings from a survey of postgraduate students studying in Scotland.

The analysis of the data provides evidence to suggest that GTAs perform an assortment of academic duties and receive a wide range of hourly rates of pay. Training provision varies and is often generic. Feedback and support mechanisms are evident but not universally provided. Increased attention is likely to focus on the GTA labour market as the quality and value for money debate gathers pace and becomes a priority for new high fee paying students that opt to study in Scotland. This paper exposes some interesting characteristics of this opaque and imperfect market.

INTRODUCTION

Academics working within Higher Education Institutions, (HEIs) in Scotland, are members of a highly structured labour force of teaching and research staff ranging from Professor to postgraduate student. Postgraduate students, mainly research (PhD) students, assist in the learning and teaching process and are here collectively described as graduate teaching assistants (GTAs).

GTAs are a subset of a diverse group of teaching assistants, that include part time professionals and semi-retired academics. Such general professional assistants who work under a variety of employment contracts are not part of this survey. This paper is primarily concerned with the role of the student/teacher defined here as GTA.

Of all academics that deliver educational courses within HEIs, this group is the most difficult to characterise as statistics are not computed at a national level.

At the time of writing, the Higher Education Statistical Agency, (HESA) does not collect data from HEIs on the number of postgraduate teaching assistants both working and learning in Scotland. However, collection of such data is now under consideration by HESA and hopefully this will prove fruitful for further analysis.¹

Without national data to determine the size and significance of this labour market, it is difficult to assess the contribution made by GTAs in the delivery of higher education.

Therefore, given the shortage of official data this paper tries to shed light on the GTA labour market. The preliminary results presented here represent the analysis of data, collected via an e-questionnaire distributed to postgraduate students by email link. It is an attempt to gain some insight on the role and responsibilities of this group of working students.

¹*"We can certainly identify the numbers of postgraduate students, but we don't hold any information on their employment whilst a student - we would only discover this after they leave, and we ask about their employment history in the context of what they then do after qualification. [...]"*

It is something I believe we'll be looking at collecting information on in the next review of the staff data we collect". Mark Jones, Information Analyst, HESA. May 2011.

The analysis exposes a labour market with an imperfect structure, a market which lacks transparency and is without universally accepted conditions regarding responsibilities, duties, rates of pay and training. Increased attention is likely to focus on this neglected labour market as the quality of teaching and value for money debate gathers pace and becomes a priority for new high fee paying students that opt to study in Scotland from 2012.

Teaching quality has been relatively high on the agenda of Scottish policy makers and practitioners for some time² yet little attention has been directed at the market for GTAs. The focus on enhancement themes, research informed teaching and student centred learning all require priority to be given to quality improvements in teaching. Yet the GTA contribution to this process is rarely mentioned and attention to this market must be considered long overdue. An education policy which focuses on the pursuit of quality and excellence in higher education should address the issues surrounding this opaque and unrecorded labour market.

As the demands of the REF 2014 increasingly take priority, many university managers will be anxious to release leading researchers from teaching duties in an attempt to secure quality research output in print before the deadline in December 2013.

These same university managers will also want to guarantee that quality academic contact time with students is maintained and that research informed teaching is of the highest standard possible. Such a strategy would enhance the student experience and help secure the desired outcome in research output, undergraduate examinations and student surveys. However, the ability to achieve these goals by releasing leading researchers from teaching duties while maintaining teaching standards could well depend upon the quality and availability of well informed and highly motivated GTAs to fill the teaching gap.

The needs of a large student cohort combined with institutional expectations of high quality research output place great demands on full time academic staff in the current climate. Given the present resource constraint such demands might prove difficult to meet without an increased reliance on GTAs to help maintain quality and excellence in higher education.

Background

The term GTA originated in America where this professional group of student/teachers is a recognised part of the labour force. This American labour market has a more formal structure and greater transparency than in the UK. Graduates as teachers have been well established in North America for a number of years and have significant responsibilities in teaching large undergraduate classes (Park 2002a).

The recognition of the important contribution made by GTAs to education in America took a long time to secure and is well documented.

I used to think graduate students were apprentices learning scholarship and not employees in the normal sense of the word. But over the last twenty years or so we have turned graduate students into a very significant and very underpaid part of the academic workforce. Clara Lovett President, American Association for Higher Education. 2002. (American Federation of Teacher Higher Education 2004:5)

The evolution of the American market provides a useful insight to the development of academic labour markets in the UK. During the first decade of the 21st century when fulltime academic staff numbers decreased in Scotland (Table 1), an increase in demand for higher education and a rapid increase in student intake exposed a resources shortfall which has partly been filled by part time staff and relatively inexpensive teaching assistants.

²e.g. Scottish Government Quality Enhancement Framework, QAA Enhancement Themes 2003.

Table 1: Academic Staff Employed in Scottish Higher Education Institutions 2000-2010

Academic Staff	2000-01	2009-10	% Change
Full Time	14045	13160	-6.3%
Part Time	2115	3695	+74% ³

Source: HESA⁴

Education policy in Scotland, designed to increase participation rates in higher education, has resulted in a significant increase in both undergraduate and postgraduate student numbers. Teaching support for large first and second year undergraduate classes has become essential in the management and delivery of education to undergraduates. To illustrate recent trends in Scotland, Table 2 documents the increase in student numbers at both undergraduate and post graduate level 2000–2010.

Table 2: Number of PG and UG Students studying at HEI's in Scotland 2000-2010

Student Type	2000-01	2009-10	% Change
Undergraduate First Degree	111,935	145,535	+30
Postgraduate Taught	28,190	44,165	+57
Postgraduate Research	8,085	10,665	+32

Source: Scottish Government Statistics⁵

³ The substantial increase in part time staff could reflect change in employment law regarding p/t. staff.

⁴ HESA, Resources of Higher Education Institutions 2000/2001 Table 15. and <http://www.hesa.ac.uk/dox/dataTables/staff/download/staff0910.xls?v=1.0>

⁵ Scottish Government Statistics, Lifelong Learning Series: Higher Education Students and Qualifiers at Scottish Institutions 2009-10 Table 1. Students in higher education at Scottish HEIs & colleges by institution type and level of study: 2000-01 to 2009-10 <http://scotland.gov.uk/Publications/2011/03/25132517/7>

GTA's filled an important gap in the delivery of teaching, specifically tutoring, demonstrating and laboratory assistance (Park, 2002a). In the natural sciences large practical classes could not be run without the assistance of demonstrators (Scott and Maw, 2009).

This form of delivery of education appears to be a pragmatic solution to the expansion of the Scottish higher education market. The advantages of employing students as teachers are discussed elsewhere (Park, 2002b), most notably they provide a relatively cheap source of labour leaving full time academics free to pursue research activities. Research students themselves benefit by gaining useful teaching experience to add to their skills portfolio and an opportunity to supplement their income.

This paper is not concerned with selection and quality of GTA delivery of education as this has been well discussed and analysed elsewhere (Walstad and Becker, 2010, Park and Ramos, 2002). This paper focuses on the analysis of data collected directly from postgraduate students. The aim of this paper is to define and explain the nature and characteristics of the GTA labour market in Scotland.

THE SURVEY DESIGN AND RESPONSE RATES

An e-questionnaire was designed and piloted during the summer of 2010 using the Bristol Online Survey system (BOS). The questionnaire was launched and distributed October 2010 by email hyperlink using a variety of post graduate e mailing systems, department representatives, postgraduate societies and contacts. The first launch October-Nov 2010 resulted in 216 responses and the second Feb – March 2011 resulted in 310 responses, a combined data set of 526 responses.

Given the total number of postgraduate students in Scotland, recorded in Table 2, the response of 526 was small but significant. 515 respondents identified their subject area as indicated in Table 3. It was hoped that all postgraduate students would participate, both taught masters and research students. However, the majority of respondents, 447 (87%), were research students. This represents 4.2% of PhD students studying in Scotland.

The number of responses represents a small segment of the total number of postgraduate students studying in Scotland. However, given the number of doctoral students who responded, this provides an adequate amount of information for analysis. Supplemented with detailed individual comments, this data set represents a significant resource which highlights the need for a more comprehensive set of statistics.

Unfortunately, without the availability of national statistics regarding the number of students who teach, it is impossible to give a percentage rate of response to the survey by GTA's.

Table 3 indicates the response rate from postgraduates who study and those who study and teach.

Table 3: Survey Response Rate of Postgraduates by Area of Study 2010-11

Area of Postgraduate Study	Number of respondents	As percentage of total respondents
Accountancy and Finance	6	1.2
Agriculture	6	1.2
Architecture	2	0.4
Arts	15	2.9
Biological Sciences	63	12.2
Business/Management	20	3.9
Chemical sciences	21	4.1
Earth Sciences	9	1.7
Economics	52	10.1
Education	8	1.6
Engineering	61	11.8
Humanities	37	7.2
Languages	6	1.2
Law	9	1.7
Mathematics and Computing	45	8.7
Med/Vet Med/Dentistry	19	3.7
Music/Performing Arts	1	0.2
Physical Sciences	42	8.2
Social Science	55	10.7
Sport	1	0.2
Others inc. Health Psychology and joint study programmes.	37	7.2
Total	515	97.9

Of the total number of respondents, 320 (61%) assisted academic staff in the delivery of education programmes.

The data collected was downloaded from BOS in Excel and transferred to SPSS for further analysis.

Diagram 1: Number of Survey Respondents by Subject Area who Teach.

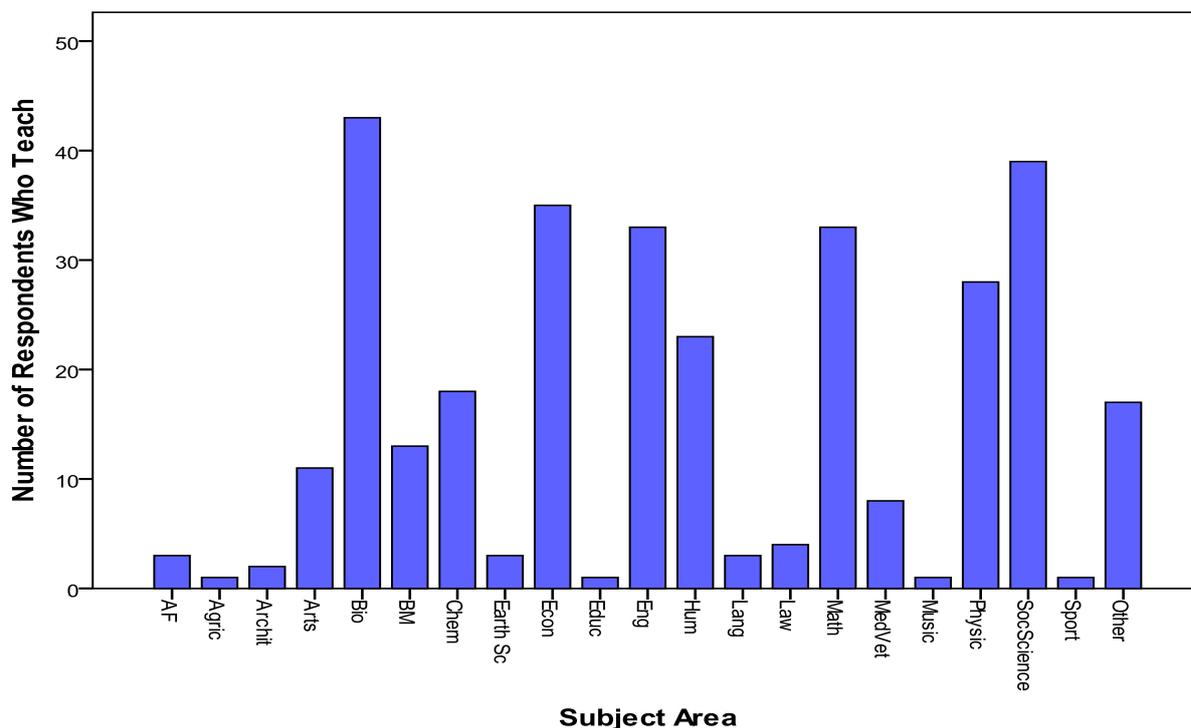


Diagram 1 represents the number of respondents who participate in teaching. The notably higher response rate within some specific disciplines might reflect subject areas where supported teaching is prevalent. Research students already aware of the demands of teaching duties might have a higher motivation to participate in the survey. This could be especially true across the sciences, engineering and social sciences. Previous studies have noted that some science based subjects have traditionally used a greater number of teaching assistants than other disciplines in the UK (Park and Ramos 2002).

ROLE OF THE GRADUATE TEACHING ASSISTANT

The survey questionnaire was designed to elicit responses on four main areas of interest.

The first core section focused on the role of the GTA. Of the students who responded that assisted with teaching the majority 84% suggested teaching was by choice, an optional part of the research student experience and not a compulsory component.

The primary role of providing teaching support by assisting a module/course leader in the delivery of small group teaching and helping with assessment is supported by the evidence provided from the survey data collected. Although duties tend to vary across disciplines there are certain core activities common to the role of GTA.

It was anticipated that most GTAs would help with teaching in the early years of their research studentship, particularly year 1 and 2 of postgraduate study. However, many GTAs continued to teach beyond the first two years of study and a significant number taught across all years of study. Table 4 below shows the distribution of teaching across years of postgraduate study. Years of teaching during research study time are longer than anticipated and might reflect characteristics of specific teaching requirements of individual disciplines.

Table 4: Research Student and Years of Study and Teaching

Research Student Year of Study	Number Who Teach
1	131
2	145
3	96
4	32
All Years	97
Other	24

In Scotland the four year undergraduate programme of study provides ample opportunities for research students to gain some teaching experience. The large early year undergraduate cohort common in higher education provides a good opportunity for GTAs to try small group teaching. Many GTAs are introduced to teaching experience by running first and second year classes as noted Table 5.

Table 5: Level of Student Taught by GTAs

Level of Student Taught	Number of GTAs who Teach
Year 1	206
Year 2	180
Year 3	124
Year 4	58
Post Graduate	74

A large number of PhD tutors teach mostly first and second year students. However, the evidence from the survey suggests a significant number of GTA's also help with other years of teaching.

Diagrams 2 illustrate the number of respondents who assist with year 3 classes by subject area. This could partly reflect the teaching support needed for specific science and engineering practical classes.

Diagram 3 illustrates the number of respondents who assist with postgraduate teaching by subject area. Of the 74 GTAs who assist at this level, 36.5% were first or second year research degree students studying within a variety of subject areas.

Diagram 2: GTAs Who Teach Year 3 Undergraduate Students by Subject Area

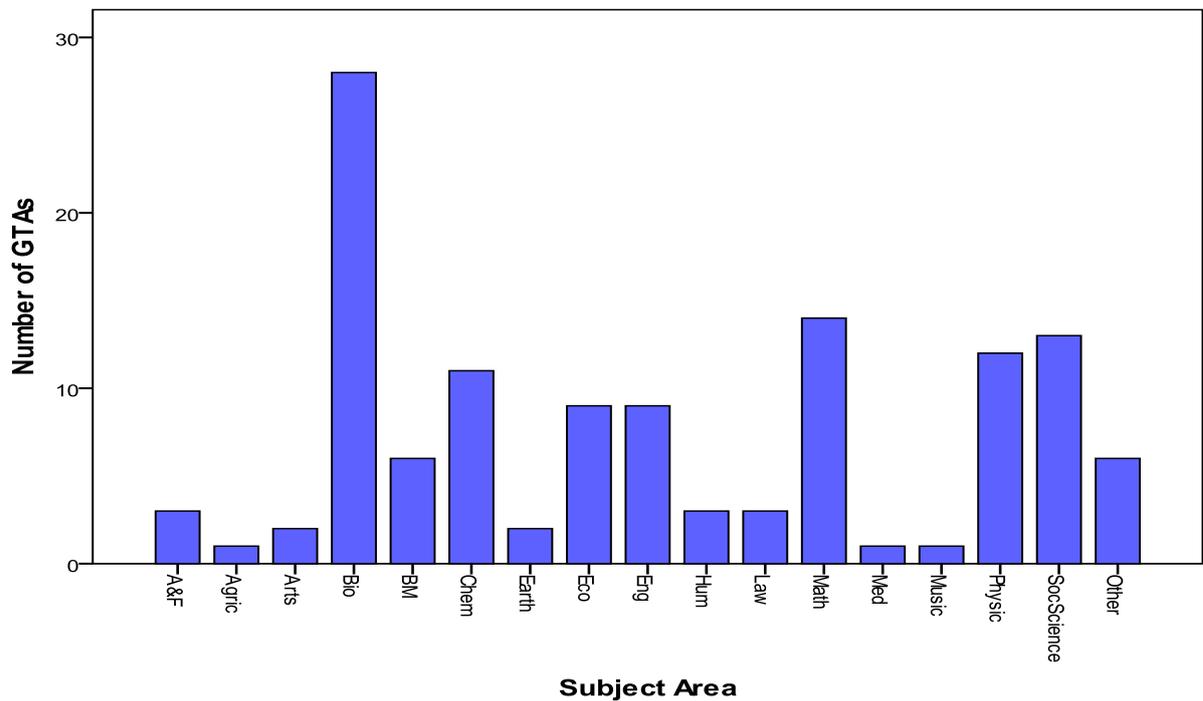
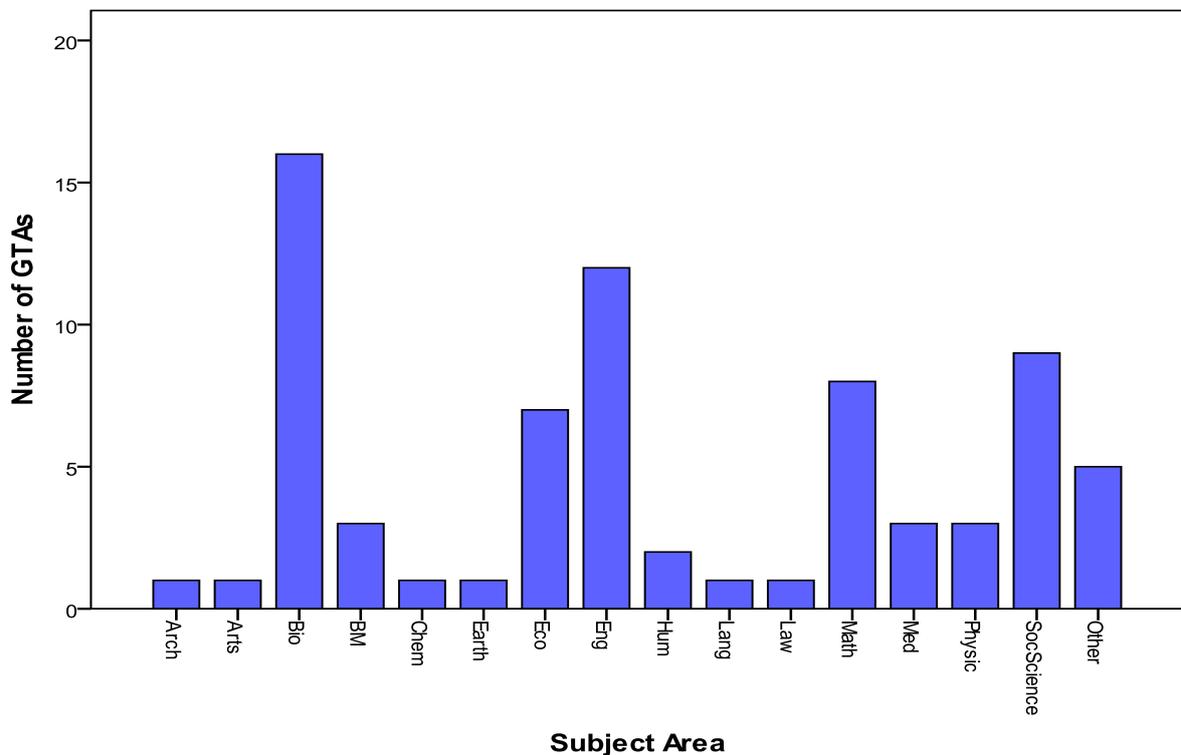


Diagram 3: GTAs Who Teach Postgraduate Students by Subject Area



The initial analysis of survey responses has revealed some of the underlying characteristics of this labour market. To complete this section consideration is now focused on the number of hours devoted to teaching related activity.

Given that this group of GTAs are predominantly research students rather than teachers the expectation is that teaching would be a relatively small part of the research student's

working week. This is confirmed by the majority of responses reported in Table 6, where approximately 78% of respondents reported teaching 1- 4 hours per week.

Some Scottish universities publish guidelines for postgraduate teaching hours and recommend a maximum of 6 hours teaching per week⁶. Similarly, a recent American survey found that economics tutorial assistants work about 15 hours per week in total, (Walstad and Becker 2010). Therefore, allowing for adequate and equivalent teaching preparation time, marking assignments, etc 1- 4 hours would seem appropriate.

However, a number of research students reported teaching more than 5 hours per week and some even more than 8 hours per week. Given that 50% of respondents teach more than 8 weeks per semester this would suggest some GTAs are carrying a substantial teaching load.

Table 6: The GTAs Teaching Week

Hours Teaching (Per Week)	% of Respondents	% of Respondents Hours Preparation (Week)	% of Respondents Weeks of Teaching (Per Semester)
1 - 4	77.7	74.8	18
5 - 8	19.8	20.8	34.5
More than 8	2.5	4.5	47.5

Considering that preparation and teaching hours appear to require a similar number of hours, this raises the concern that some PhD students could be spending a disproportionate amount of research time on teaching related activities, especially when other duties such as marking and administration are required. This could place some research students at a disadvantage where the demands of teaching might have a negative impact on research progress. The ESRC has recommended,

Students should not be expected to take on an excessive amount of teaching
(ESRC Postgraduate Training and Development Guidelines 2005)

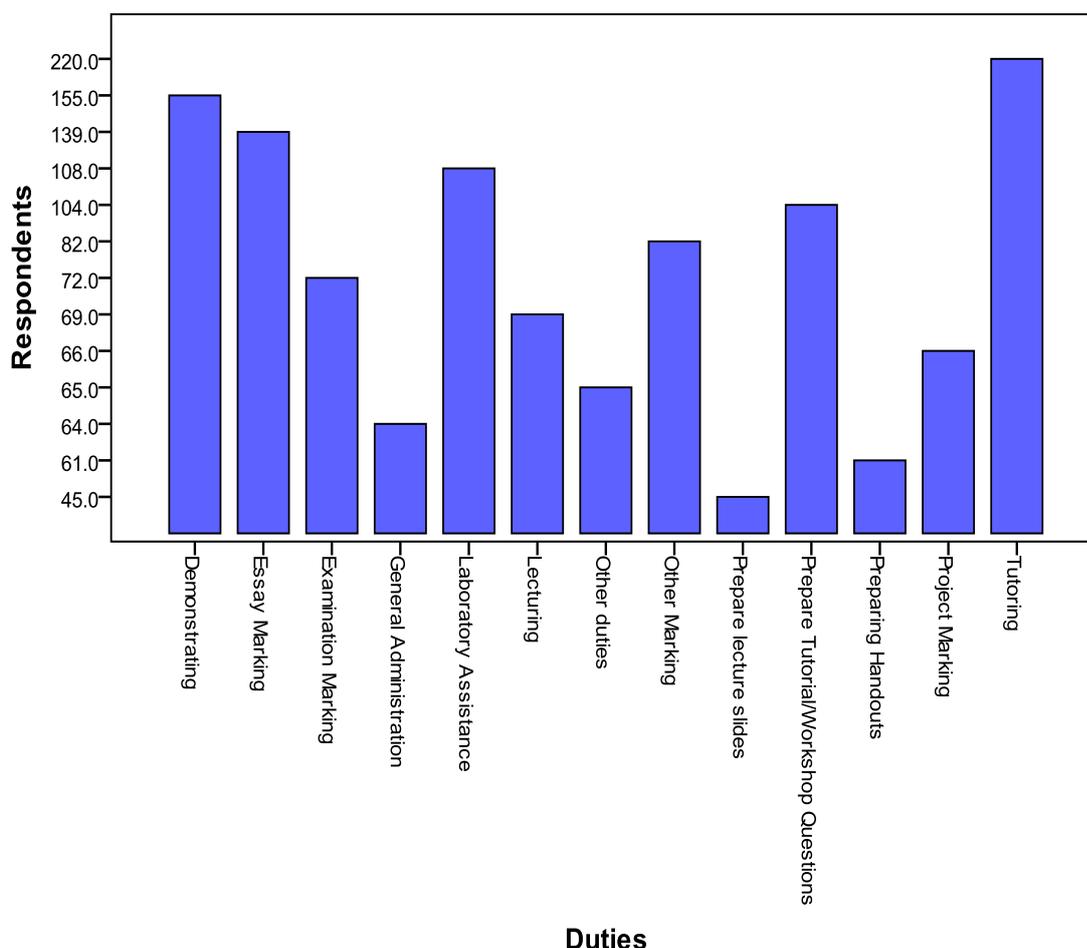
RESPONSIBILITIES OF GRADUATE TEACHING ASSISTANTS

The second core theme of the survey was designed to gather information on duties undertaken to assess the level of responsibility given to GTAs.

Overall responsibility for teaching and assessment tends to rest with full time academic staff, usually the module/course leader. The main duties associated with GTA employment typically include tutoring, demonstrating, laboratory assistance and helping with assessment. Therefore, not surprisingly, the 322 survey respondents who participate in teaching indicated that such activities were some of the main responsibilities as illustrated Diagram 4.

⁶ e.g. University of Stirling and University of St Andrews.

Diagram 4: Main GTA Duties



Other duties were also mentioned by respondents and included invigilation, organising public events, providing various forms of student support, office hours, project, dissertation and masters' supervision, exam question preparation, pastoral duties and supervising research groups.

Therefore, although initially the role of the GTA appeared relatively straight forward, it would seem that some evidence exists to support the view that GTAs in fact perform a wide range of academic tasks.

REMUNERATION OF GRADUATE TEACHING ASSISTANTS

Having identified the significant role and responsibilities undertaken by GTAs the questionnaire then focused on the rewards received for supporting academic staff in their duties, essentially the rate of pay of GTAs.

Most GTA respondents, 77%, reported they receive the same rate of pay for all teaching duties. A similar percentage, 75%, receives payment calculated on an hourly rate basis. Accordingly, the administration of payment appears to be fairly well established in Scottish institutions.

However, the evidence collected here illustrates hourly rates of pay for main duties display substantial variation, ranging from £6.00 to £72.00 per hour. Some of this disparity could reflect a difference of payment criteria used within specific disciplines e.g. the mean hourly rate of pay for science and engineering teaching is around £10 per hour and could

reflect the nature of work undertaken.⁷ This variation could also reflect specific labour market conditions or particular institutional factors. Nevertheless, the evidence presented here shows considerable variation in mean hourly rates of pay by subject area for the main duties undertaken.

Diagram 5: GTA Mean Hourly Rate of Pay for Main Duties by Subject Area⁸

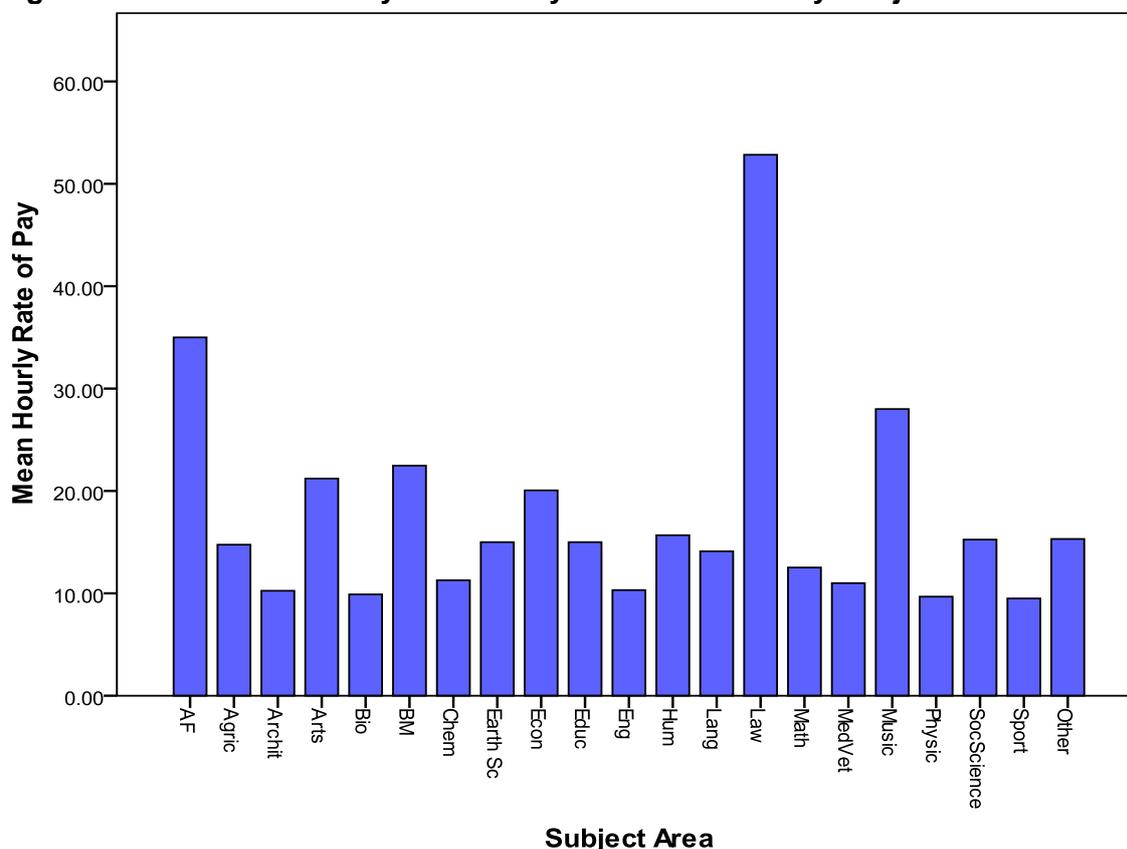


Diagram 5 illustrates the mean rate of pay of respondents across broad subject areas. This suggests that rates of pay for GTAs vary by discipline and might reflect skills required for duties undertaken. However, further investigation also exposes variation in rates of pay within disciplines.

Hourly pay rates of respondents in specific subject areas show substantial variation as Table 7 demonstrates.

Table 7: Variation in Hourly Rates of Pay for Main Duties within Disciplines

Subject Area	Minimum Rate of Pay Recorded (£'s)	Maximum Rate of Pay Recorded (£'s)
Biological Sciences	8	15.00
Economics	11.22	42.00
Engineering	6.00	20.00
Mathematics	8.30	33.00
Physics	9.00	13.63
Social Science	7.00	33.07

⁷ Park and Ramos 2002, suggest demonstrating and some laboratory work require less input and pay less than other forms of teaching.

⁸ Hourly rate of pay information received from 212/322 GTAs surveyed.

Table 8: Variation in Rates of Pay by Main Duty across Disciplines

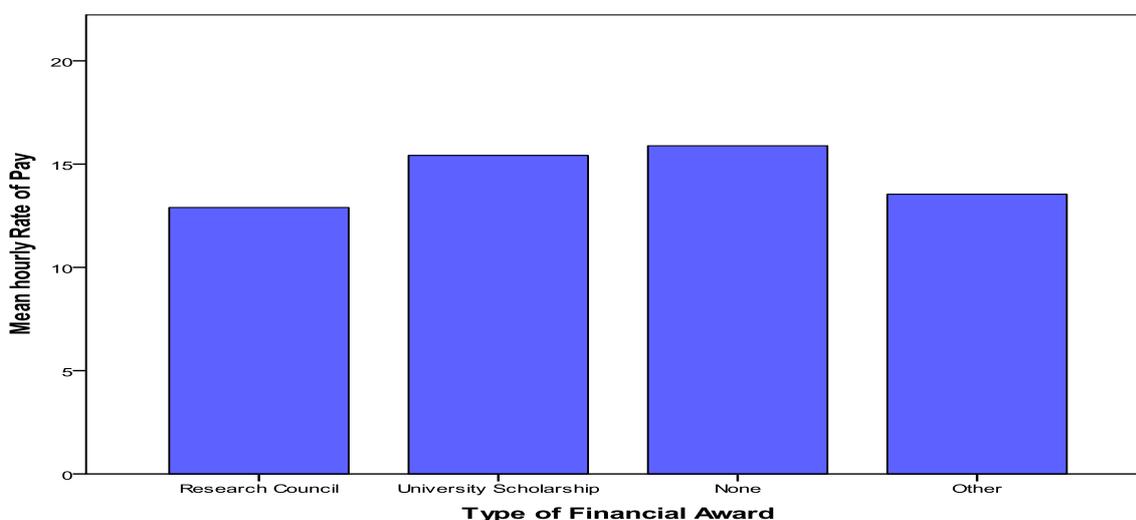
Duty	Minimum Rate of Payment	Maximum Rate of Payment	Mode	Mean
All teaching	6	72	9.5	14.4
Lecturing no tutoring	11	28	11	16
Lecturing	6	72	10	19
Tutoring	6	72	9.5	16.3
Tutoring no Lecturing	7	42	9.5	14.9
Tutoring no lecturing, demonstrating or lab assistance.	7	41	12	15.8
Demonstrating	7	16	9.5	9.9
Demonstrating, no lecturing or tutoring	7	16	9.5	9.9
Lab Assistance	7	42	9.5	12
Lab Assistance, no lecturing or tutoring	7	20	9.5	10.1

The information analysed and reported in Tables 7 and 8 clearly demonstrates a wide variety of hourly rates of pay appear to be used both within and across disciplines and duties undertaken. Clearly the collection of national data is required to assess the extent of such variation across hourly rates of pay in Scotland.

Considering the basic minimum wage rate for young adults aged 21+ was £6.08 from October 2011 it would appear a number of GTAs are paid around this minimum rate.

The broad range of hourly payment rates adopted could reflect other factors such as the type of funding received to support postgraduate study. However, Diagram 6 illustrates that the type of financial award received does not appear to be a factor in determining hourly rate of pay. Further analysis of the respondents with no financial award showed there was still evidence of significant differences in hourly rates of pay both between subject areas and within subject areas.

Diagram 6: Type of Financial Awards Received by Post Graduate Respondents



Variation in Pay Rates by Duty

The majority of respondents reported receiving the same rate of pay for all teaching duties, nevertheless a substantial number, 23%, receive different pay rates for different tasks.

It is beyond the scope of this paper to report all additional comments by respondents on pay rates for different tasks but examples include marking, teaching and demonstrating with different pay rates attached. Although essay marking is often reported as the most time consuming, it appears to attract the lowest pay rate for this group of GTAs.

A Sample of Individual Comments

- 1. Lecturing £28 hr. Tutoring £23 hr. Lab Assistance £18 hr. Marking is Included in hourly rate. £18 hr for PG exam marking. Preparing questions £18 hr and £10 /hr for invigilation.*
- 2. Lecturing £75 per hour Tutoring £26 per hour Essay marking £8 per script (preparation of slides, course materials, etc is included in the lecturing or tutoring rate).*
- 3. Lecturing = £15/hr, Tutoring = £10/hr, Marking/invigilating = £6/hr*
- 4. Tutoring £35, office hour £14, essays approx £3 per essay.*
- 5 Tutoring £13-26 per hour depending upon if I've taught on the course before (earn more if it is my first time) E. Essay marking £3.33 per essay.*
- 6. £15/ hour for tutoring and we have to tutor 60 hours per year*

Duties Undertaken Without Payment

A particular issue raised by some GTAs relates to work undertaken without payment. Approximately 33% of GTA respondents reported carrying out duties for which they were not paid. A number of respondents clearly consider they are not paid for marking, teaching preparation, administration and generally making time available for students. Other unpaid duties include laboratory assistance, various forms of marking, and teaching preparation time.

A Sample of Individual Comments

- 1. Supervision masters student*
- 2. Assistant supervisor of honours students*
- 3. Preparation time for tutorials*
- 4. General pastoral care, additional assistance with work/mentoring.*
- 5. Dissertation guidance to MSc students*
- 6. The remuneration is based on actual contact hours, but implicitly (perhaps even explicitly, admittedly I haven't checked the small print) covers marking, preparation, admin, etc. related to the actual teaching.*

If some sense of transparency and fairness is desirable then this diverse and opaque system of payments and individual rates requires clarification. Ideally, HESA should give some priority to gathering statistical information on hours of work and income of this group of students who teach.

Employment Contracts

Most respondents, 76%, were provided with a letter of contract and claimed to receive payment on a regular basis. This leaves a significant number of GTAs who are paid informally without contract letter. Approximately 3% claim to receive no payment whatsoever, although this small group appear to be Scholarship or Grant funded students where payment could be already included as part of the Scholarship or Grant.

Some 86% of respondents noted that explanation of the payment offered covered remuneration for all teaching duties performed.

75% reported regular monthly payments while 16% are paid at the end of semester. The remaining 9% reported a variety of payment systems, including weekly payment. Some GTAs are required to submit claim forms for payment.

In general, most GTAs received a formal contract letter of employment and regular payment. For the 21% who noted an informal payment system a lower overall mean rate of pay was evident, £11.9 compared to £15.1 per hour. Further analysis by subject area highlighted that Arts, Chemical Science, Engineering, Humanities and Social Science appear to offer lower rates while some subject areas actually paid a higher hourly rate under informal contracts e.g. Business Management and Economics.

Years Experience

Most GTAs claimed to receive the same rate of pay regardless of experience and this is supported by the survey data. However, the survey responses appear to provide evidence of hourly payment increasing with age.

Diagrams 7 and 8 shows the mean rate of pay by experience and age band respectively.

Diagram 7: Mean Rate of Pay by Years Teaching Experience

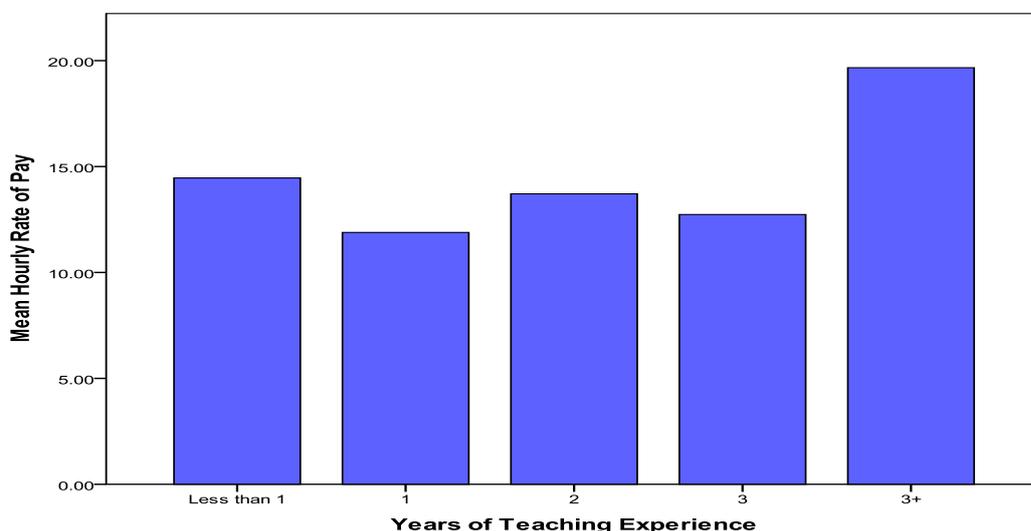
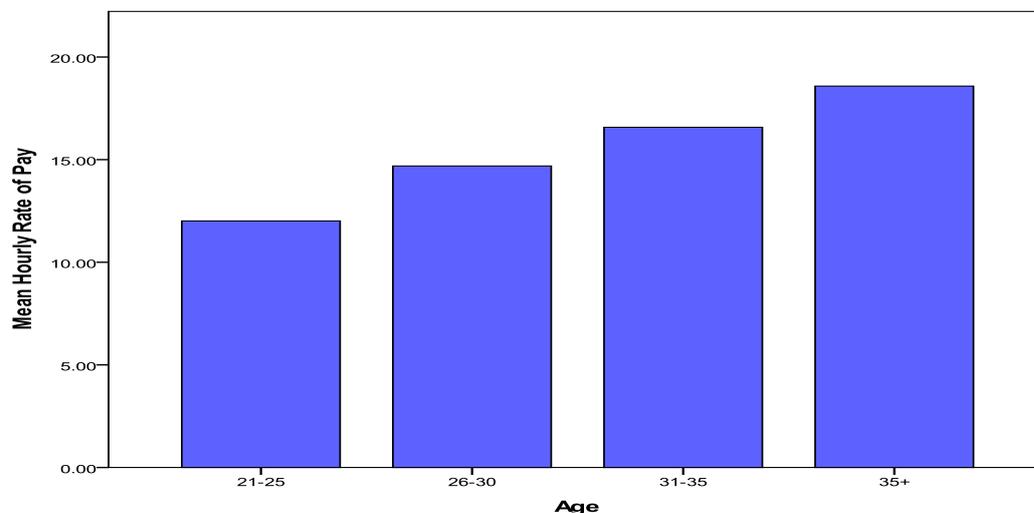


Diagram 8: Mean Rate of Pay by Age Group



TRAINING SUPPORT AND FEEDBACK

The final main area of the survey related to training, support and feedback.

Training

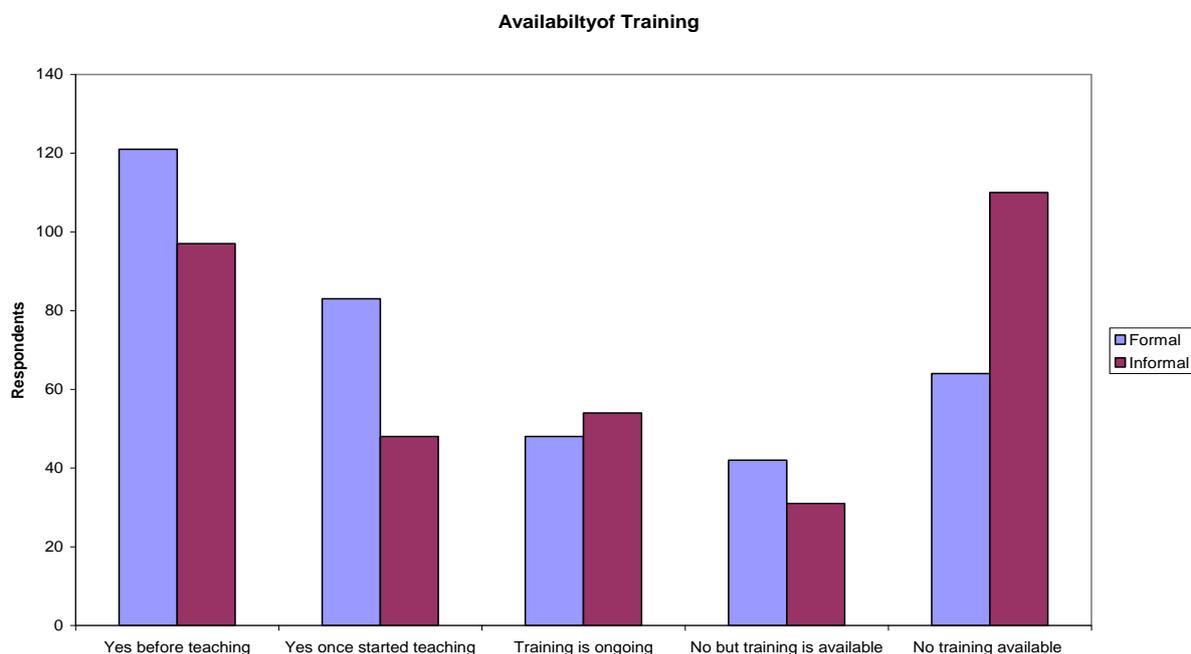
Given most GTAs (81%) recorded no formal teaching qualification, it would be an expected outcome that some form of training formal or informal would be offered to new tutors prior to teaching. For example the ESRC guidelines for postgraduate training states,

Students undertaking teaching responsibilities should receive appropriate training and support, on and off the job for standards to be maintained.

(ESRC, Postgraduate Training Guidelines 2005 Section D p.20 Teaching Skills, and 2009 p.20)

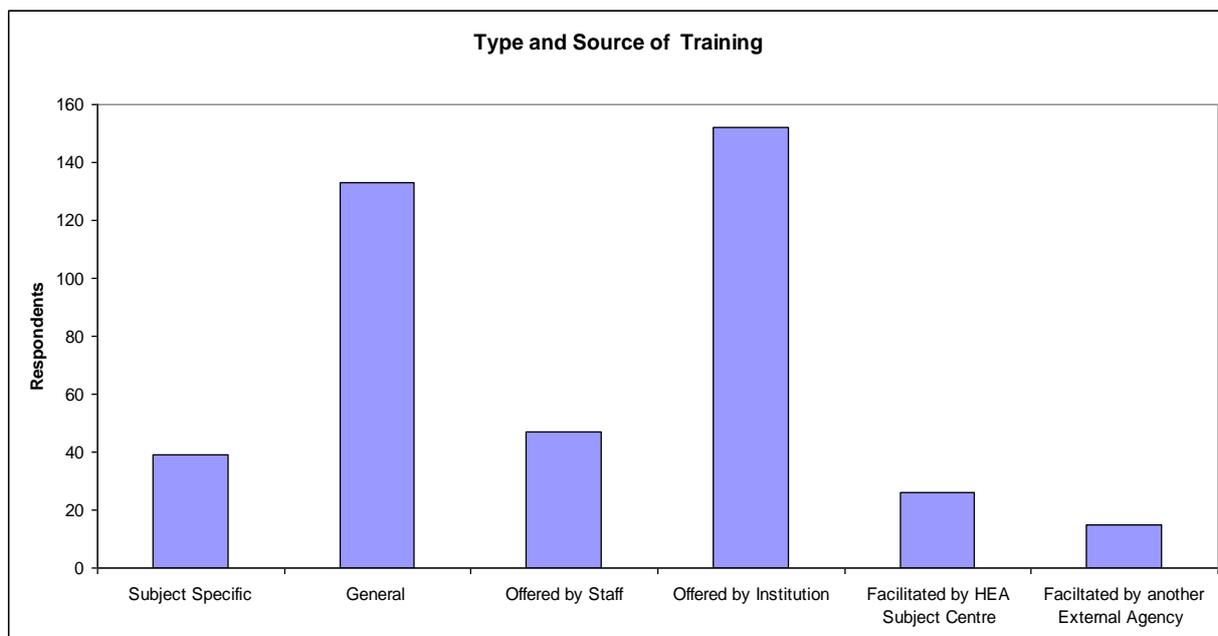
However, the survey findings would suggest training is not comprehensively available. Furthermore, where training is offered it tends to be generic rather than subject specific.

Diagram 9: Availability of Training



General institution based training is widely but not comprehensively available. Approximately 38% of GTA respondents received formal training before starting teaching. Around one third of GTA respondents reported having no formal or informal training. Either training was not taken up or no training was available, as illustrated Diagram 9.

Diagram 10: Type and Source of Training



Subject specific training was limited to 12% of GTAs and tended to be offered most frequently in science subjects. Surprisingly, only 8% of respondents noted training sessions

being facilitated by HEA Subject Centres such included Biological Sciences, Business Management, Economics, Engineering, Humanities, Law, Physical Sciences and Social Sciences.

Concern regarding training has been widely discussed in other research both here and in the United States (Park 2002, Scott and Maw 2009, Walstad and Becker 2010, Woodall and Geissler 2009). Given the perceived need for training, supply of both general and specific training should be high on the agenda of HEIs.

Support and Feedback

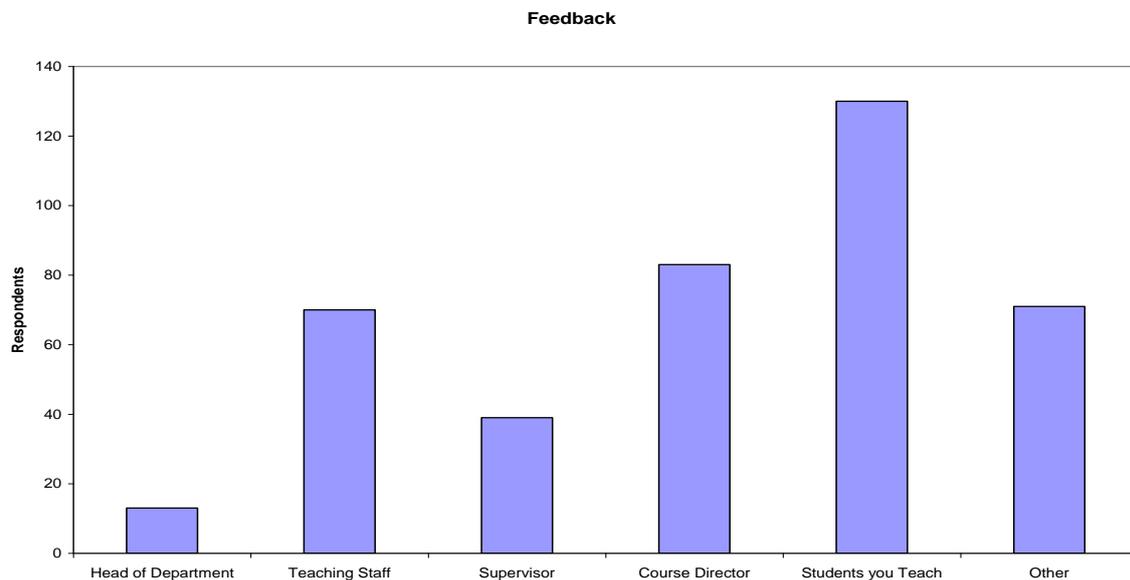
Questions surrounding support and feedback solicited similar responses from GTAs. As expected, support is offered by teaching staff, course leaders and fellow teaching assistants.

However, it would appear students proved to be the best source of feedback on performance for GTAs rather than staff. A number of individual comments received from survey respondents related to the desire to receive feedback where it is not forthcoming from academic staff.

Examples of Individual Comments

1. *Feedback given only on marking, no assessment of tutoring performance.*
2. *Not quite detailed feedback but comments that there were no complaints.*
3. *The feedback form the students fill out at the end of the course is general feedback regarding the course itself and not my teaching techniques.*
4. *None. It would be very welcome.*

Diagram 11: Feedback



CONCLUSION

This paper reports the main findings of a small sample survey which provide some evidence of a wide variation in GTAs' terms and conditions of employment.

GTAs fulfil an important role and are essential players in the higher education market. Many university departments would have difficulty fulfilling teaching obligations and delivering educational programmes without them.

Previous research and much of the analysis to date has focused on the training or effectiveness of post graduate teaching but has not centred on the issues raised here. The limited analysis of this labour market to date is partly due to the previous informal nature of the market and poor availability of data.

Given the development of the GTA labour market in recent years there is now little justification for this data vacuum. Failure to record GTA statistics is not in the interest of learning and teaching, post graduate study, GTAs or higher education.

The survey data supports the view that the role of the GTA in terms of hours worked and responsibilities undertaken could be well underestimated. The commitment required by student teachers acting in a supporting role sometimes appears to be extensive and may impact on valuable research time. The responsibilities of GTAs are often substantial and in some instances quite demanding. The vast assortment of duties undertaken takes the GTA beyond the purely supportive academic role.

Feedback on performance is forthcoming from some academic staff and students. However, there is some evidence of demand for greater feedback on performance. Perhaps a greater supportive role could be offered by course leaders, GTA trainers or experienced GTAs within academic departments.

If training is available it is mostly generic and not subject specific. This surely needs to be addressed if quality teaching is the goal of higher education institutions and the main objective of government education policy.

The aspiration to quality and excellence should continue to be core to all we do, whether this is in access, research, teaching, engaging with business or any other activity. Quality must be a key determinant in all aspects of the Scottish Solution and we must recognise the importance of the link between teaching and research. (Scottish Government 2010:3)

RECOMMENDATIONS

The evidence provided here demonstrates a need to clear the fog surrounding the GTA labour market.

A good starting point would be the establishment of a national data set. Reliable statistics are essential to carry forward meaningful research in this area. It is impossible to estimate the size of this labour market, duties undertaken and payment rates adopted without nationally collected statistics.

An unambiguous definition of the GTA role is desirable to establish clearly the responsibilities and expectations of all concerned. The formation and adoption of a policy framework for GTA employment should be considered. Through various publications a number of organisations have commented on the need for agreed standards and codes of practice for this labour market including the Higher Education Academy (HEA), the University and College Union (UCU), the National Postgraduate Committee (NPC), the National Union Students (NUS) and the Quality Assurance Agency (QAA).

The institutional risk factor for universities increases if undergraduate students perceive teaching is given low priority and delivered by an insufficiently trained, inappropriately paid, and poorly motivated workforce of teaching assistants. Research post graduate students teaching other postgraduates students could be a specific area of concern, especially if experience, training and support are inadequate.

If the hourly rate of pay of some GTAs is comparable to that of a fast food assistant then university managers should not be surprised if little effort or enthusiasm for teaching is forthcoming in the lecture theatre, laboratory or tutorial room. Given such circumstances it is unlikely that the desired objectives of quality and excellence in teaching will be achieved. In the pursuit of such goals, institutions cannot afford to take the risk of giving low priority to GTAs who are often on the front line of delivering teaching programmes.

The increasing demands on academic staff combined with resource constraints could be alleviated by the support of confident, well trained, and motivated GTAs. Such support would facilitate production of research output of an appropriate quality and standard to meet the goals and aspirations of institutional managers. The consequence of failing to recognise and address these demands would have implications for all, especially if it were to result in the deterioration of Scotland's place in the global education market.

The nature of PhD training has changed over recent years. Previously, teaching practice was designed to prepare young potential lecturers for an academic career. Therefore teaching was an important part of research student experience. However, it would appear from this preliminary study that an academic career is no longer the goal of all doctoral graduates. On completion of study only 58% want to remain in academia 14% do not and 28% are unsure.

If GTAs are not interested in teaching and receive low remuneration they could well deliver their lack of interest to the undergraduate students that they teach. This could have a wider impact on student satisfaction, retention rates and reduce the overall quality of the undergraduate student experience.

Given the need to deliver high quality teaching and research output with greater efficiency the funding problem facing higher education institutions is bound to be challenging in the years ahead. The need for flexibility in the provision and delivery of higher education in Scotland is well documented (Scottish Government 2010). However, such flexibility must not result in lower standards. The desire to provide an improved learning experience for large numbers of students will be difficult to achieve and may well require an even greater reliance on GTAs. Quality training and market recognition for GTAs can provide essential flexibility to the higher education system, by facilitating research time for leading research staff while maintaining high academic standards in teaching. It is therefore essential this labour market is given the attention and recognition it deserves. As the Scottish Government (2010:47) has stated more generally.

Our QEF⁹ has rightly received international interest and recognition. However, we need to ensure that we do not rest on our reputation and support our universities to continue to enhance the quality of provision at a time of increasing budget pressures and a changing landscape elsewhere in the UK. We need to consider what the areas of focus should be and in particular those that will continue to drive forward our specific quality enhancement approach. Given the ideas outlined earlier in this paper, especially those around more flexible and more diverse forms of provision, the QEF has to adapt to ensure that different methods of providing degree level study are able to be offered with the confidence that quality will be ensured regardless of which route an individual chooses.

⁹ QEF refers to Quality Enhancement Framework

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