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## **An analysis of student:staff ratios and academics' use of time, and potential links with student satisfaction**

### **Abstract**

The student:staff ratio has been used as a key measure in the provision of higher education in the UK for more than half a century. It is currently used either as an explicit benchmark, or as a broad guideline, by many public, statutory and regulatory bodies in terms of input quality when accrediting university courses. It is quoted by universities as an indicator of investment in resources, and used in a number of national and international league tables for rating higher education institutions, which are of increasing significance when rising tuition fees place more emphasis on informed choice by potential students. However, the student:staff ratio as calculated by the Higher Education Statistics Agency may give a false impression because HESA counts all the time of the standard 'teaching-and-research' academic as spent on teaching, rather than on research and other activities, as well as teaching. Data on time allocation by academics, produced by institutions for the Transparent Approach to Costing initiative and gathered for this study, showed a wide range in the proportion of time spent on teaching. Institutional student:staff ratios and data on time allocation by academics were correlated with particularly relevant measures of student satisfaction, from the National Student Survey. But this analysis failed to show a clear link between low SSRs and high proportions of time spent on teaching on the one hand, and high levels of student satisfaction with prompt feedback and adequate staff contact on the other. The paper considers other potential reasons for student satisfaction – including use of 'adjunct' staff who may not be recorded in the SSR calculation – and proposes that a more accurate SSR is developed, along with the use of health warnings by university league tables using SSRs; it also proposes providing potential students with accurate information about the allocation of academic staff time, and greater investment by universities in staff.

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# 1 Background

In British higher education, the ratio of students to academic staff (the SSR) has traditionally been a key measure of the adequacy of the human resource available for teaching.

The University Grants Committee, which from 1919 to 1988 allocated public funding to British universities, commented in 1964 - at a time when a number of new universities were being developed, and when, following the publication of the Robbins report of 1963, a large rise in future student numbers was being planned:

'Our ... concern arises from the deterioration over the years in the ratio of students to staff. The ratio is undoubtedly open to misleading interpretations but, in the absence of alternative data covering a number of years, it has to serve as a rough and ready measure of the adequacy of staff and of the attention which university teachers can give to their research and to their students.' (p.149) <sup>2</sup>

In its calculation of the SSR, the UGC measured the number of full-time undergraduate and postgraduate students, and the number of full-time academic staff fully paid from general university funding. It excluded part-time students and academic staff, as well as academic staff who were working in universities but whose pay derived wholly or in part from income outside general university funding, for example, research staff on external research grants; academic staff at Oxford and Cambridge universities were also excluded. The wholly-university funded academics included by the UGC were as follows: Professors, Readers, Assistant Professors and Independent Lecturers, Lecturers, Assistant Lecturers, Demonstrators and Instructors; the relatively small number of 'Other' academics were excluded.

The UGC called this unweighted measure its 'simple' SSR. It calculated this SSR to be 10.2:1 in 1938-9, falling to 7.3:1 in 1954-5, before rising slightly to 7.8:1 in 1961-2. The SSR varied according to subject group, with a generally higher ratio in the arts and social sciences (9.5:1 in 1961-2), compared with pure and applied sciences (7.6:1). Using the 'simple' methodology on data in an earlier UGC report, I calculated the SSR in 1925-6 to be 11.4:1, suggesting a gradual reduction in the number of full-time students to academic staff between the 1920s and the 1960s. Most of the improvement of the SSR was due to greater use of full-time staff in teaching medicine and dentistry.

The UGC also developed a weighted SSR, with postgraduate students in the sciences given a weighting of 3 and a weighting of 2 for arts and social studies postgraduates (compared with 1 for undergraduates) to reflect the greater demand on resources in teaching them;

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<sup>2</sup> UGC (1964), University Development 1957-62. London: HMSO, Cmnd. 2267, p. 149

'other' academics were given a weighting of 0.5. This weighting produced slightly higher SSRs, with 11.7:1 in 1938-9, 9.2:1 in 1954-5 and 10.0:1 in 1961-2.

A later UGC report indicated a weighted SSR of 7.8:1 in 1966-7, following the founding of the universities of York, East Anglia and Newcastle (all 1963), Essex, Lancaster and Strathclyde (all 1964), and Kent and Warwick (1965). This suggests that these new universities were well-staffed, perhaps better staffed than their older counterparts, and that the fears of the UGC, expressed in 1964, were unfounded, for the time being at least.

The UGC felt that the student:staff ratio was of continuing value. In 1974, in its survey of the most recent 'quinquennium', of 1967-72,

it said: 'When considering the grants for each university the Committee must necessarily think of total resources, but the measure which those directly involved in teaching and research find most meaningful is the staff-student ratio.'

But it added: 'There is a good deal of misunderstanding about the role of this factor ... there is no such thing as a UGC norm, either in gross or by subject, to which universities are expected to conform'. The UGC advised that for comparisons between universities and other institutions of higher education 'the extent of part-time work and, secondly, the "mix" of the subjects involved, both of which factors vary greatly from institution to institution' needed to be reflected in the ratio.<sup>3</sup>

In 1971-2, after a number of new universities had been created out of the former Colleges of Advanced Technology, the weighted SSR was 8.5:1 overall, with subject groups ranging from 4.0:1 (veterinary science) and 11.5:1 (education).

The public spending cuts of the early 1980s, which saw thousands of academic staff lose their jobs, had an impact on the SSR. The Universities' Statistical Record produced a time series of weighted SSRs, with full-time equivalents used for student numbers (though not apparently for academic staff), showing a steadily growing ratio, from 10.3:1 in 1985-6, to 11.8:1 in 1989-90.

By 1993-4, with higher education once more expanding, the SSR was 14.6:1. This latter SSR reflects in particular rapid growth in university student numbers, from 352,000 in 1985-6 to 554,000 in 1993-4. The 1993-4 SSR was the last one to be produced by USR before the Higher Education Statistics Agency was established, and before student and staff numbers at the former polytechnics - now turned into universities following the 1992 Further and Higher Education Acts - were added into the SSR calculation.

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<sup>3</sup> UGC (1974), University Development 1967-72, London: HMSO, Cmnd. 5728, p.19-20

The concern of the UGC in 1964 about the deterioration over the years in the ratio of students to staff was now being realised, as the weighted SSR grew by nearly 50 per cent from 10.0:1 in 1961-2 to 14.6:1 three decades later, then to around 17:1 by 2010.

Since 1994-5, HESA has gathered and published data on the 'post-binary' UK higher education system, incorporating universities and former polytechnics. Although HESA does not publish a SSR figure, it has produced by University and College Union request a time series for the SSR. Data for 1994-5 and 1995-6 are not shown in Table 1 because of concerns about data quality in HESA's early days. However, the series from 1996-7 onwards shows a relatively stable figure for the SSR, fluctuating at around 17:1.

The data used by HESA for student and staff numbers were full-time equivalents. Because of this, the HESA SSRs are not directly comparable with earlier UGC or USR figures, because the latter both used only full-time academic staff, rather than a FTE; also, HESA's weighting for student numbers does not appear to be the same as UGC or USR versions. Under HESA's methodology (see Appendix 2), the FTE of students who are recorded as being on industrial placement is reduced by half. Students on fully franchised courses in further education are excluded; for those recorded as being on partly franchised programmes HESA take the proportion of each module that is not franchised to produce an accurate FTE. The HESA staff FTE comprised teaching-only and teaching-and-research academics, and atypical (ie irregular and very casualised) teaching staff (atypicals have been included in the staff FTE since 2004-5); agency staff and research-only academic staff were excluded.

**Table 1 UK HE SSR average**

	1996-7	1997-8	1998-9	1999-00	2000-1	2001-2	2002-3	2003-4	2004-5	2005-6	2006-7	2007-8	2008-9	2009-10	2010-11
FTE students to 1 academic	16.5	17.0	16.7	16.4	16.3	16.6	17.1	18.1	16.6	16.8	16.6	16.4	16.3	17.2	17.1

Based on full-time equivalents

Source: HESA data provided to UCU

The UK's SSRs have consistently been higher than for the member states of the OECD as a whole, and for particular economic competitor countries such as the United States, Germany and Japan (Table 2). The UK's SSR has fluctuated around the 18.0:1 figure, without a clear trend appearing; however, the lowest SSR was 16.4:1 in 2006, the year that top-up fees were introduced in England and Northern Ireland, and when first-year full-time undergraduate student numbers temporarily decreased.

**Table 2 Ratio of students to teaching staff in tertiary educational institutions (OECD)\***

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>France</b>	16.9:1	18.3:1	18.1:1	17.9:1	17.6:1	17.8:1	17.3:1	17.0:1	16.6:1	16.2:1	15.7:1	15.8:1
<b>Germany</b>	12.3:1	12.1:1	12.3:1	12.6:1	12.5:1	12.7:1	12.2:1	12.4:1	12.1:1	11.5:1	11.9:1	11.6:1
<b>Japan</b>	11.5:1	11.4:1	11.3:1	11.2:1	11.0:1	11.0:1	11.0:1	10.8:1	10.6:1	10.4:1	10.1:1	n/a
<b>UK</b>	18.5:1	17.6:1	17.6:1	18.3:1	18.2:1	17.8:1	18.2:1	16.4:1	17.6:1	16.9:1	16.5:1	18.5:1
<b>USA</b>	14.0:1	13.5:1	13.7:1	17.1:1	15.2:1	15.8:1	15.7:1	15.1:1	15.1:1	15.0:1	15.3:1	16.2:1
<b>OECD country mean</b>	15.3:1	14.7:1	16.5:1	15.4:1	14.9:1	15.5:1	15.8:1	15.3:1	15.3:1	15.8:1	14.9:1	15.5:1

Based on full-time equivalents

\* All tertiary education: includes Type A 3+ year mainly theoretical degrees & advanced research programmes, and Type B shorter more practical courses

Source: OECD Education at a Glance, series, Table D2.2

## 2 The significance of SSRs

The SSR remains a significant measure, seen by universities, those who accredit university courses, and compilers of league tables, as one of the key indicators of the quality of the student learning experience.

The higher education sector has recently proclaimed that its increased income through tuition fees has in part led to an improvement in the student experience through a reduction in the student:staff ratio. Universities UK, the vice-chancellors' representative body, said in 'Making it count: how universities are using income from variable fees', a report published in 2010 to defend variable fees and also to prepare the ground for further increases in fee income: 'the median student: staff ratio has improved from 17.6 in 2004/05 to 16.8 in 2007/08'.

The report added: 'For higher education institutions in England with significant numbers of full-time undergraduate students (40% of all students at HEI), approximately 60% showed some improvement in their student:staff ratio. Although student:staff ratios are not necessarily directly correlated with quality or contact time, and vary significantly depending on subject type and level of study, qualitative evidence from Universities UK's survey confirms that a significant number of institutions have used income from variable fees to improve student:staff ratios, often with an emphasis on particular subject areas, and have explicitly linked the decision to do this with improving the student experience.'<sup>4</sup> Another indicator of the significance of the ratio comes from the Russell Group, which

<sup>4</sup> Universities UK (2010) Making it count: how universities are using income from variable fees <http://www.universitiesuk.ac.uk/Publications/Documents/MakingItCount.pdf> p.36

represents the larger research-intensive higher education institutions in the UK, and which says that students at its member institutions 'enjoy first class research resources and benefit from valuable cross-disciplinary opportunities, along with some of the lowest student-staff ratios in UK universities', <sup>5</sup> and that 'Low student-staff ratios are integral to a high quality research-led education, and for some Russell Group universities maintaining low student-staff ratios has been a specific focus for investment of the additional income obtained through variable fees'. <sup>6</sup> Brunel University, although not a member of the Russell Group, said in its 2010-11 financial statements that 'the University as a whole is continuing its strategic commitment to increasing the number of academic staff in order to improve its student:staff ratio at a time when other universities are reducing staff numbers.' <sup>7</sup>

One private higher education institution intends to move in the opposite direction with SSRs. Carl Lygo, the chief executive of BPP University College – a for-profit private higher education institution with university status, which has a number of locations in the UK – was reported in 2011 in *Times Higher Education* saying that the BPP's projected SSR would increase from an average of 7:1 to 14:1 or 15:1, and 'could reach 30:1 on some courses'. <sup>8</sup> Mr Lygo said: 'You can still have these kinds of ratios and maintain good teaching'. The *THE* article said that another private provider, the then College of Law (now University of Law), had an SSR of 20:1; in contrast, the private ifs School of Finance had an SSR of close to 12:1, and the University of Buckingham had an SSR of 8:1.

More broadly, data linking staff and student numbers are seen as important in the context of the quality of the student learning experience. As the current universities' minister David Willetts wrote recently: 'Prospective students will ask: "What am I paying for? What kind of educational experience am I going to get?"' He continued: 'I expect university websites over the next year to be more explicit than ever before about exactly how crowded seminars will be, what work experience will be organised, and how rapidly students' academic work will be returned.' <sup>9</sup>

A report published in 2008 by the Financial Sustainability Strategy Group, a body that met under the auspices of the Higher Education Funding Council for England to investigate a sustainable cost of teaching in higher education, noted that student:staff ratios were one of the four factors considered to have a bearing on the sustainability of the student:staff relationship, alongside contact hours and group sizes, 'coping strategies and the impact of

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<sup>5</sup> <http://www.russellgroup.ac.uk/highest-standards-of-education.aspx> accessed 16 October 2012

<sup>6</sup> Russell Group (2012) *Jewels in the crown*. London: Russell Group, para 2.46

<sup>7</sup> [http://www.brunel.ac.uk/\\_\\_data/assets/pdf\\_file/0008/139274/2010-11-Brunel-University-Financial-Statements-Final.pdf](http://www.brunel.ac.uk/__data/assets/pdf_file/0008/139274/2010-11-Brunel-University-Financial-Statements-Final.pdf) accessed 16 October 2012

<sup>8</sup> THE (2011), *More places, along with more students per lecturer, figure in BPP's plans*, 28 July, p. 6-7

<sup>9</sup> David Willetts (2011), *We cannot be certain about every step*, *Times Higher Education*, 26 May, p37-41

raised SSRs', and demands on staff. <sup>10</sup> The report said it was 'important to recognise that SSRs are not, in themselves, an indicator of quality or student satisfaction. They will naturally vary between disciplines, between institutions, and also between subjects in different stages of their life cycle'. However, they 'indicate the total amount of academic staff time available per student, and – subject to other factors, and depending on how this academic time is used – this will often help determine, and may set limits to, the quality of the student experience'. <sup>11</sup>

The report also noted that the most persistent concern, one highlighted by the National Student Survey, was the strain on universities providing timely, tailored and formative feedback to students. The report concluded that 'the current level of SSRs is not sustainable in the medium term (i.e. it is not compatible with maintaining the quality and reputation of UK HE and its contribution to national needs), without some other compensating investments by institutions. If this is not achieved, and the elevated level of SSRs continues, the quality and reputation of UK teaching will be at risk ...' <sup>12</sup>

Many courses at UK higher education institutions are accredited by professional, statutory or regulatory bodies (PSRBs), and a number of these bodies have guidelines relating to degree course accreditation which specify the SSR. Other PSRBs do not specify a SSR, but nevertheless monitor the ratio. It is worth noting that some of the student:staff ratio maxima mentioned below are smaller than the overall ratios for a number of higher education institutions in recent years. For example, the General Optical Council expects a maximum student:staff ratio of 16:1 for programmes it accredits: in 2010-11, 104 out of 162 UK HEIs had a SSR of more than 16:1, with the highest being 31:1. <sup>13</sup> Obviously an institutional average and the SSR at the level of a specific course may vary significantly, but the example is an illustration of expectations and reality in some areas of higher education.

The General Medical Council, which regulates medical education, says in its handbook on medical education, *Tomorrow's Doctors*, 'There will be enough staff from appropriate disciplines, and with the necessary skills and experience, to deliver teaching and support students' learning', but does not prescribe a SSR. <sup>14</sup> However, the GMC does take note of

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<sup>10</sup> Financial Sustainability Strategy Group (2008), The sustainability of learning and teaching in English higher education, p.20

<sup>11</sup> Financial Sustainability Strategy Group (2008), The sustainability of learning and teaching in English higher education, p.20-21

<sup>12</sup> Financial Sustainability Strategy Group (2008), The sustainability of learning and teaching in English higher education, p.26

<sup>13</sup> The University of the Highlands and Islands (because of extreme outlying data) and Liverpool Hope University (because it withheld data) were not included in this analysis

<sup>14</sup> [http://www.gmc-uk.org/static/documents/content/GMC\\_TD\\_09\\_\\_1.11.11.pdf](http://www.gmc-uk.org/static/documents/content/GMC_TD_09__1.11.11.pdf) accessed 16 October 2012

the ratio. For example, the report of a GMC team visit to Queen's University Belfast Medical School stated: 'The visiting team noted that the staff: student ratio appeared worse at this School than at most other UK schools, and that this may have serious implications for the School's ability to cope with the planned expansion of student numbers.'<sup>15</sup> Likewise, the General Dental Council does not stipulate a SSR for those providing dental education, but its document, *Standards for Education*, says that the staff to student ratio should form part of the evidence when evaluating patient protection, saying 'When providing patient care and services, students are to be supervised appropriately according to the activity and the student's stage of development'.<sup>16</sup> The Nursing and Midwifery Council, in its requirements for pre-registration nursing education, simply states 'Programme providers must ensure that sufficient staff are allocated to deliver the programme effectively'.<sup>17</sup> However, the General Optical Council, another regulatory body, says it expects a maximum student:staff ratio of 16:1 for optical programmes.<sup>18</sup> By contrast, the General Pharmaceutical Council, merely requires 'evidence that the staffing profile can support the delivery of the course and the student experience'.<sup>19</sup> The Royal College of Veterinary Surgeons, which approves veterinary courses, says 'Appropriate teacher supervision requires satisfactory teaching staff/student and teaching staff/support staff ratios'; although the RCVS does not specify a ratio, it asks for considerable detail on the number and proportion of teaching and support staff.<sup>20</sup>

In addition to individual PSRBs, there are several umbrella organizations - for example, the Engineering Council, and the Health and Care Professions Council - which oversee the work of or act as a membership organisation for a number of PSRBs. The Engineering Council, which licenses various professional engineering institutions, such as the Institute of Civil Engineers (ICE), says its licensed members should gather information from education providers it accredits, including information on the human resources involved, but the EC does not specify an SSR. While the ICE in turn does not specify a SSR, the ratio is still important. The regulations for academic course providers the ICE accredits ask providers to: 'Give the School/Departmental student:staff ratio based on full-time equivalent students and staff. Explain the effect of MSc programmes on the ratio. Some Schools/Departments may wish to give more than one figure. Explain how each figure has

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<sup>15</sup> [http://www.gmc-uk.org/static/documents/content/Belfast\\_2005.pdf](http://www.gmc-uk.org/static/documents/content/Belfast_2005.pdf) accessed 23 Sept 2011

<sup>16</sup> <http://www.gdc-uk.org/Dentalprofessionals/Education/Pages/default.aspx> accessed 16 October 2012

<sup>17</sup> <http://standards.nmc-uk.org/PreRegNursing/statutory/Standards/Pages/Standards.aspx> accessed 16 October 2012

<sup>18</sup> Personal correspondence from the GOC, 15 October 2012

<sup>19</sup> [http://www.pharmacyregulation.org/sites/default/files/GPhC\\_Future\\_Pharmacists.pdf](http://www.pharmacyregulation.org/sites/default/files/GPhC_Future_Pharmacists.pdf) accessed 16 October 2012

<sup>20</sup> <http://www.rcvs.org.uk/document-library/criteria-and-guidance-for-visitations/> section 1.10, accessed 17 October 2012



been calculated.’<sup>21</sup> The Institution of Mechanical Engineers, also under the Engineering Council, does not specify a SSR either, but says: ‘On the accreditation visit, the SSR is taken into consideration, and is a factor in our final decision whether or not to award accreditation to a programme – ideally we would look for a SSR of under 1:20. It should be pointed out that we would expect SSRs to vary between undergraduate and postgraduate programmes.’<sup>22</sup> Another body under the EC, the Institution of Engineering and Technology, does not specify a SSR, but asks courses it accredits to provide a ratio because ‘The IET needs to be assured that there is appropriate support available to students during the period of accreditation and that delivery of the curriculum and other aspirations of the department are being adequately addressed.’<sup>23</sup> The IET adds that the ratio should not include technicians, administrators or postgraduate tutors. The institution says it is not prescriptive about the SSR, but needs to know whether the ratio is ‘adequate to support the programme’.

The Health and Care Professions Council, a statutory regulatory body, oversees higher education courses for various professions allied to medicine, such as occupational therapists, physiotherapists, and radiographers, as well as psychologists and social workers. In its *Standards of education and training*, it says, ‘There must be an adequate number of appropriately qualified and experienced staff in place to deliver an effective programme’, but is not prescriptive about a SSR. However, the College of Occupational Therapists, which comes under the aegis of the HCPC, specifies that ‘There is a sufficient number of qualified staff to deliver the programme(s), preferably within the COT recommended staff/student ratio of 1:15; there is a sound rationale if the recommended ratio is exceeded’.<sup>24</sup> But another body under the HCPC, the Society and College of Radiographers, which used to specify a staff:student ratio of 1:12, is now less prescriptive and no longer specifies a ratio.<sup>25</sup> On the other hand, for example, the British Psychological Society stipulates a minimum staff student ratio of 1:20 for undergraduate programmes it accredits, and 1:10 for postgraduate programmes, although it says there are specific instances where variance from this standard is appropriate and acceptable. It says: ‘This standard is included as contact with and support from sufficient numbers of appropriately qualified staff will contribute significantly to the quality of the overall experience of

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<sup>21</sup> [http://www.jbm.org.uk/uploads/JBM131\\_UniversityAccreditationSubmission.pdf](http://www.jbm.org.uk/uploads/JBM131_UniversityAccreditationSubmission.pdf) accessed 16 October 2012

<sup>22</sup> Personal correspondence from the IMechE, 15 October 2012

<sup>23</sup> [http://www.theiet.org/academics/accreditation/policy-guidance/form\\_a\\_part2/7\\_6\\_student\\_ratio.cfm](http://www.theiet.org/academics/accreditation/policy-guidance/form_a_part2/7_6_student_ratio.cfm) accessed 16 October 2012

<sup>24</sup> <http://www.cot.co.uk/sites/default/files/publications/public/PreReg-Ed-Stnds.pdf> accessed 16 October 2012

<sup>25</sup> Personal correspondence from the SCoR, 15 October 2012

psychology students.’<sup>26</sup> The Royal College of Speech and Language Therapists, also under the umbrella of the HCPC, specifies a student staff ratio of 15:1. Also in the area of health, but not under the HCPC, the General Osteopathic Council does not make an overall stipulation about the student staff ratio, but it does suggest ‘that the student to tutor ratio during practical sessions would normally be no greater than 10:1’.<sup>27</sup>

A number of PSRBs in the area of science are linked to the Science Council, but the council – a membership organisation that brings together learned societies and professional bodies across science and its applications – does not have any specifications on the SSR in accredited courses. Nevertheless, the council says: ‘A number of our professional bodies do, however, stipulate a minimum as part of their accreditation criteria’.<sup>28</sup> The Society of Biology, one of the organisations which belongs to the Science Council, cites ‘the experience and expertise of [sic] teaching team’ as part of an education provider’s supporting infrastructure, but does not specify a SSR.<sup>29</sup>

Several annual UK university league tables, including those of The Times and The Guardian, use SSRs; student:faculty ratios (along with class sizes) also appear in higher education league tables in the United States (eg US News); on the other hand, one of the better-known international surveys, the Shanghai Jiao Tong University Academic Ranking of World Universities, focuses almost entirely on research performance and output, and does not appear to have any education measures.<sup>30</sup>

One of the main reasons for the existence of these league tables is to inform the university choices of prospective students as they seek to enter higher education. A low SSR is seen as one of the measures used by league tables to determine the quality of universities. For example, the Times Higher Education annual World University Rankings are based on an overall score derived from scores for teaching, research, citations, industry income and international outlook. The score for ‘teaching – the learning environment’ comprises five indicators ‘designed to provide a clear sense of the teaching and learning environment of each institution’: an academic reputation score; staff-to-student ratio (worth 4.5% of the overall ranking score); ratio of doctoral to bachelor’s degrees; ratio of PhD awards to academic numbers; and institutional income ‘scaled against academic staff numbers’. The THE says its staff-to-student ratio is ‘a simple (and admittedly crude) proxy for teaching

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<sup>26</sup> [http://www.bps.org.uk/sites/default/files/documents/undergraduate\\_accred2010\\_web.pdf](http://www.bps.org.uk/sites/default/files/documents/undergraduate_accred2010_web.pdf) accessed 23 Sept 2011

<sup>27</sup> <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/Osteopathy07.pdf> accessed 16 October 2012

<sup>28</sup> Personal correspondence from the SC, 16 October 2012

<sup>29</sup> <http://www.societyofbiology.org/documents/view/1092> accessed 16 October 2012

<sup>30</sup> <http://www.shanghairanking.com/aboutarwu.html> accessed 17 October 2012

quality ... [that] suggests that where there is a healthy ratio of students to staff, the former will get the personal attention they require from the institution's faculty'.<sup>31</sup> And in the Complete University Guide league table for the UK, the SSR (based on HESA data) is one of nine 'quality factors' used in rating HEIs, but the guide does however point out that 'A low SSR, i.e., a small number of students for each member of staff, does not guarantee good quality of teaching or good access to staff'.<sup>32</sup>

### 3 The problem with SSRs

Graham Gibbs, in his analysis of quality in higher education, has provided a useful critique of the SSR and the way it can be used. He adopts, after Biggs,<sup>33</sup> the '3P' model of 'Presage', 'Process' and 'Product'. The SSR is one of four presage – or input - variables of quality that exist in a university before a student starts learning or being taught, the others being funding, the quality of teaching staff and the quality of students. Class size, on the other hand, is put under the process dimensions relating to 'what is going on in teaching and learning', along with contact and study hours, the quality of teaching, the research environment, the level of intellectual challenge, and assessment and feedback.<sup>34</sup> So, in terms of the analysis in this paper, SSRs are an input variable, whereas the proportion of academics' time spent on teaching, along with number of teaching contact hours and feedback, are process variables.

Gibbs notes that low SSRs offer the potential to arrange educational practices - such as close contact with teachers - that are known to improve educational outcomes, but adds that 'Low SSRs do not guarantee close contact'. He points out that while good quality, timely teachers' feedback is also a good predictor of educational outcomes, such feedback is not guaranteed by low SSRs. And 'while low SSRs do not guarantee small classes, they certainly make them possible'.<sup>35</sup> Nevertheless, educational gains were found to be largely unrelated to SSRs once the entry quality of students had been taken into consideration. He suggests that this may be because institutions with low SSRs are not 'exploiting their potential advantages', or that the SSR figures are related to other factors, or both.

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<sup>31</sup> THE World University Rankings 2012-13 (2012), 4 October, p.35

<sup>32</sup> <http://www.thecompleteuniversityguide.co.uk/league-tables/key/> accessed 17 October 2012

<sup>33</sup> Biggs, J.B. (1993) From theory to practice: a cognitive systems approach. Higher Education Research and Development. 12 (1), pp 73-85

<sup>34</sup> Gibbs, G. (2010) Dimensions of quality. York: the Higher Education Academy, p 12

<sup>35</sup> Gibbs, G. (2010) Dimensions of quality. York: the Higher Education Academy, p 15

SSRs at institutional level do not necessarily reflect the educational process in the classroom, and an institutional average may mask considerable differences in teaching provision at the level of the department or course. The amount of teacher contact time may vary according to the subject being studied, and which year of a course a student is on. What staff do with their time – such as the amount of time spent on administration and/or research – also has an impact on the student experience. 'The overall consequence is that effective SSRs, as students experience them, within a year of their study, within a department, may bear little resemblance to SSRs reported at institutional level.'<sup>36</sup>

Although the higher education student:staff ratio is widely used and referred to in the UK, and may be significant in terms of the way institutions market themselves, courses are accredited, and potential students choose what and where to study, there is however a flaw in how SSRs are compiled in the UK.

The source of this can be found in the SSR methodology of the UK's Higher Education Statistics Agency (which supplies the providers in the UK of university league tables) and its predecessors, in including all the time of the 'traditional' teaching-and-research academic as being spent wholly on teaching, and not on research, or administration or 'third stream' activities. The UGC, whether for its 'simple' or weighted calculation, appears to have included professors, senior lecturers and lecturers and other teachers in the calculation without any weighting related to the proportion of their time spent on activities other than teaching. Today, HESA's SSR methodology includes in the SSR a full-time equivalent (FTE) for 'non-atypical' academic staff whose 'academic employment function is teaching [ie, teaching-only] or teaching and research'; more casually employed FTE academic staff, termed 'atypical', are also deemed to spend their time teaching (for the current HESA definition, at the time of writing, of the staff component of the SSR, see Appendix 2).

HESA FTE data for academic staff in 2009-10 indicated that 17,390 were teaching-only, 37,571 were research-only and the majority, of 83,066, were 'teaching-and-research' academics. While 'research-only' academics are excluded from the HESA SSR calculation, the 'teaching-only' and 'teaching-and-research' academics are counted as spending all their time on teaching. HESA do not weight the time of the teaching-and-research academic according to academic employment function.

As a result, the perception is, in the words of the Financial Sustainability Strategy Group's report in 2008, that 'SSRs do indicate the total amount of academic staff time available per student'. So when HESA says that in 2009-10, the UK full-time equivalent SSR was 17.2 students to every member of academic teaching staff, the assumption is that that academic is spending all her or his time engaged in teaching, whether in contact time, preparation, marking or meetings related to teaching. But it has been well known for some

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<sup>36</sup> Gibbs, G. (2010) Dimensions of quality. York: the Higher Education Academy, p 16

time that 'teaching-and-research' academic staff in the UK also spend a considerable proportion of their time engaged in research, administration and other activities, with pre-92 HEI academic staff during term-time recording spending on average 40% of their time on teaching, 20% on research and scholarship, 7% on external activities including consultancy, and 33% on administration supporting these three main activities.<sup>37, 38</sup>

So the SSR as calculated by HESA is likely to give an inaccurate picture of the use time by academic staff, particularly for academic staff who are busily engaged in other activities, such as research, outreach to business and the community, and administration that is not connected to teaching. As a result, the SSR will generally show an inflated amount of time input from academic staff, and the inaccuracy of the picture will increase with the proportion of academic staff time spent on activities other than teaching. This picture of staff use of time is particularly likely to affect the 'pre-92' institutions, which are particularly research-focused.

Section 4 of this paper provides further information on how academic time at different institutions is divided between teaching, research, outreach and support activities.

## **4 SSRs and TRAC data on academic use of time**

Institutional-level data on use of time by academic staff have emerged through the Transparent Approach to Costing programme in UK higher education since the mid-2000s. TRAC is the standard methodology used by the higher education institutions in the UK for costing academics' main activities, of teaching, research and other core activities. TRAC includes requiring academic staff to measure their use of time through Time Allocation Schedules, using categories of Teaching, Research, Other Activities and Support. It should be noted that Support includes activities related to the first three categories (such as timetabling, admissions, writing research proposals, refereeing academic papers), but the data do not show the proportion of Support spent on Teaching, Research and Other Activities. Where staff wholly work on one of the main activities (Teaching, Research, Other) then their costs are attributed directly to those activities and they are not required to complete data on time allocation.

There are concerns over the consistency and accuracy of TRAC data. TRAC guidance allows for three different approaches to measuring staff time allocation: in-year retrospective recording covering a year (based on three returns each covering four months, which can

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<sup>37</sup> Malcolm Tight (2010), Are Academic Workloads Increasing? The Post-War Survey Evidence in the UK, Higher Education Quarterly, Vol. 64, No. 2, April, pp.200-215

<sup>38</sup> Stephen Court (1996), The Use of Time by Academic and Related Staff, Higher Education Quarterly, Vol. 50, No. 4, pp.237-260

be submitted up to two months after the relevant period: 'This means people can be reflecting on their activities over six months ago'); diary approaches, based on weekly time-allocation diaries – generally seen as more statistically reliable; and other approaches, including structured interviews or workshops. <sup>39</sup> So TRAC allows different methods for data recording, and potentially large time lags with the retrospective approach, giving rise to concerns over accuracy. For the in-year retrospective approach, which is by far the most common allocation method used, <sup>40</sup> TRAC specifies a minimum 75% response rate (an overall average response rate of 85% has been recorded <sup>41</sup>) with the implication that up to one-quarter of academic staff might be omitted from an institution's return, a proportion which could have a bearing on the accuracy of data supplied. From the TRAC guidance on time allocation schedules, it would appear that academics are intended to record their time throughout the year, in term-time and during vacations, but the TRAC statistics produced by HEIs and by HEFCE provided a single set of data, not separate sets of data for term-time and holidays. <sup>42</sup> So the assumption is that the TRAC TAS figures represent an average use of time for term-time and vacations. This too raises concerns about the consistency and accuracy of the TRAC TAS data. As recent consultations with Research Councils UK indicate, 'there are some parts of the sector openly dismissing the reliability of time allocation information' – undermining funding decisions which use TRAC. <sup>43</sup>

Despite these concerns, TRAC data are at the time of writing probably the best indicator about the use of time by academic staff in the UK. In order to gain a more accurate understanding of the student:staff ratio, in February 2011 UCU sent a Freedom of Information Act request to HEIs in the UK for their TRAC TAS data, as these data were not publicly available at the time. While most HEIs were willing to cooperate with this request, some either refused to provide the data, or refused to allow permission to publish. The TRAC data were usually for 2009-10, although for some HEIs the data were for earlier years, normally either 2007-8 or 2008-9. Some smaller institutions said they were not required to gather TRAC TAS data. Institutions with less than £500K of research income from public sources apply a dispensation on TRAC methods. This means that they do not

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<sup>39</sup> KPMG (2012), Review of time allocation methods – a study by KPMG for the TRAC Development Group. Bristol: HEFCE, p. 10

<sup>40</sup> KPMG (2012), Review of time allocation methods – a study by KPMG for the TRAC Development Group. Bristol: HEFCE, p. 22

<sup>41</sup> KPMG (2012), Review of time allocation methods – a study by KPMG for the TRAC Development Group. Bristol: HEFCE, p. 23

<sup>42</sup> <http://www.jcpsg.ac.uk/guidance/annexes.htm> see Annex 7

<sup>43</sup> KPMG (2012), Review of time allocation methods – a study by KPMG for the TRAC Development Group. Bristol: HEFCE, p. 17

have to collect time allocation data from academics to the same level of robustness as other HEIs.

The data provided to UCU by HEIs showed a very wide range in the amount of academic time spent on the four main TRAC activities. At some HEIs, the proportion of academic time spent on teaching was 80% or more; at some others, research took up more than 50% of academic time. 'Other activities', such as consultancy, rarely occupied more than 10% of academic time, while the time given to 'Support' also varied widely, with staff at some institutions barely recording any time against this function, and staff at others saying they spent almost half their time on support.

The wide range in time spent on teaching and research may be due to institutional differences between research-intensive pre-92 HEIs - such as members of the Russell and 1994 groups - on one hand, and teaching-focused HEIs - such as members of the million+ group - on the other. The extreme differences in time allocated to support are harder to understand: it may be that local differences in interpretation of the TRAC guidelines account for a significant part of this variation. When the TRAC data are analysed by groups of HEIs, some of these wide variations disappear.

According to data provided by HEFCE, for 2008-9, for groups of UK HEIs banded according to mission and/or types of income and academic activity, 129 of 165 HEIs gathered TRAC TAS data. Of 126,000 full-time equivalent academic staff at these HEIs, there were 81,700 whose activities meant that they were required to submit TAS data; in addition, there were 33,100 research-only academics, along with 11,200 'other academics' whose time was wholly charged to teaching or other activities. The HEFCE data was analysed by seven groups of HEIs (see Appendix 1). The lowest proportion of academic staff time spent on teaching was 23.7% at Russell Group HEIs (all of which have medical schools) excluding the London School of Economics, plus specialist medical schools; the highest was 58.4%, at 'Teaching institutions with a turnover of between £40m and £119m'. For research, the range was reversed, with the highest proportion of academic time spent on this activity, 39.9%, at Russell Group HEIs (minus LSE) plus specialist medical schools, and the lowest at the £40-119m income teaching-focused HEIs, of 7.9%. For Other activities, the highest proportion of academic staff time was 4.6% at 'Institutions with a Research income of between 5% and 8% of total income and those with a total income of >£120m'. Support for teaching, research and other activities, ranged from 25.8% at specialist music/arts teaching institutions, to 36.0% at smaller teaching institutions.

With regard to the student:staff ratio, the significance of the data provided by individual HEIs to UCU, and the data for groupings of HEIs provided by HEFCE, is two-fold. First, the SSR assumes that all the time of 'teaching-and-research' academics is spent on teaching, whereas according to the TRAC TAS data, perhaps only one quarter of the time of academics at Russell Group HEIs, and less than one third of the time of academics at other institutions with a significant level of research income, is directly spent on teaching (in assessing this data, it should be borne in mind that TRAC Support activities will include

time spent on teaching administration). Second, HEIs with high levels of research activity – such as the Russell and 1994 group institutions – in general have lower SSRs than HEIs with mainly a teaching focus.

This means that the large, multi-faculty institutions teaching undergraduates that 'come out best' in the calculation of the SSR, also have academics spending a low proportion of their time directly on teaching, for example UCL (2009-10 SSR of 9.7:1 / teaching 27% of the time), Oxford (10.8:1 / 25%), Imperial College (10.9:1 / 21%), SOAS (11.1:1 / 23%), Cambridge (11.7:1 / 22%), LSE (11.8:1 / 22%). On the other hand, the large multi-faculty institutions teaching undergraduates that do worst in the SSR calculation, also tend to have academics spending a large proportion of their time directly on teaching, for example Salford (2009-10 SSR of 23.7:1 / teaching 55% of the time), Bournemouth (23.6:1 / 56%).

A correlation analysis of 124 institutions' SSR ratios for 2009-10 and the proportion of time their academics spent directly on teaching – using the data provided by HEIs to UCU – showed a positive relationship between SSRs and the proportion of time spent on teaching (correlation coefficient 0.433, significant at the 0.01 level). So HEIs with a low SSR were likely to have academics who spent a relatively low proportion of their time directly on teaching, and HEIs with a high SSR were likely to have academics who spent a relatively high proportion of their time on teaching. However, because the correlation statistic is not particularly large, some caution should be attached to this finding. In addition, it should be pointed out that while the SSR data include the academic contribution made by teaching-only staff, these academics are probably excluded from the TRAC data if 100% of their time is spent on teaching. So institutions where academics spend a relatively low proportion of time on teaching (as measured by TRAC) may be improve their SSR through the employment of 100% teaching-only academics, who do not show up in TRAC data.

Nevertheless, the correlation matters because the SSR that is used in league tables and other publications is an influential measure. It potentially affects the decisions of thousands of prospective students about choosing courses costing up to £9,000 a year in tuition fees, as well as the decisions of governments and accrediting bodies. But it is potentially misleading because a low student:staff ratio gives the impression of high teacher availability at institutions where many academics may in fact be rather unavailable because of their extensive commitment to research activities.

This paper noted earlier the conclusion of the Financial Sustainability Strategy Group that 'the current level of SSRs is not sustainable in the medium term', and that if 'the elevated level of SSRs continues, the quality and reputation of UK teaching will be at risk ...'. In fact, the position is worse than that perceived by the FSSG, given its assumption that all the time of teaching-and-research academics was given over to teaching. The FSSG noted HEIs were deploying various 'coping strategies' to deal with the increase in SSRs, such as bigger teaching group sizes, the use of a wider range of staff in teaching (such as



postgraduate students, graduate teaching assistants and part-time staff), and the development of online materials.

HEIs with low SSRs and with academic staff time showing a low proportion of direct teaching activity need to make a greater investment in their teaching staffs to ensure that their SSR genuinely reflects the level of access to teachers. From the perspective of academic staff, the great increase in student numbers and the use of larger teaching groups has been a considerable source of occupational stress in higher education.<sup>44</sup> Greater investment in teaching staff by institutions would considerably ease this stress, would make it easier for academics to find time for their research and other activities, and would enable institutions as employers to meet their duties towards their employees in terms of health and safety.

After gathering this data, UCU proposed in 2010 to the Higher Education Statistics Agency, when it was consulting on changes to its Staff Record (which is used in the SSR calculation), that data on academic staff use of time was added to the record. However HESA has said that splitting academic staff time on an individual level was not feasible.

The 2011 higher education white paper, *Students at the heart of the system*, published by the Department for Business, Innovation and Skills, proposed a consultation on 'radically streamlining the reporting requirements of TRAC'. BIS also announced that it would work with HEFCE to 'consider how TRAC data might be used to promote greater transparency and help inform the choices of prospective students'.<sup>45</sup> At the time of writing, the Higher Education Funding Council for England was consulting on this.

## **5 Key Information Sets for prospective undergraduates**

The introduction of tuition fees payable by full-time undergraduates in the UK – particularly the prospect of annual fees up to £9,000 starting in 2012 – has seen UK governments and higher education institutions place considerable emphasis on the importance for potential students of reliable information about courses, and related quality assurance. This has led to the production of Key Information Sets for undergraduates.

Since 2005 there has been an annual National Student Survey, giving final year undergraduates at most HEIs the opportunity to provide feedback on the quality of their course, including teaching, assessment, feedback, learning resources and personal development. Data at the level of specific courses at HEIs from the NSS are available

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<sup>44</sup> Gail Kinman and Stephen Court (2010), *Psychosocial Hazards in UK Universities: Adopting a Risk Assessment Approach*. *Higher Education Quarterly*, 64, 4, pp.413-428

<sup>45</sup> Para 6.25-26

(where the level of response was sufficiently high) on the government's Unistats website, along with information on the employment of graduates from those courses. The Quality Assurance Agency for Higher Education provides information on its website relating to its audits of the quality and standards of education at individual HEIs.

In launching a consultation by HEFCE on developing information for students, Janet Beer, Chair, Higher Education Public Information Steering Group, and Vice-Chancellor, Oxford Brookes University, said: 'Whatever their preferences are, it is difficult for students to make the right choices if they do not have relevant, useful information at their fingertips. And sometimes the differences between courses are subtle, and prospective students find it difficult to discriminate between them. In this consultation we seek to resolve these problems.'<sup>46</sup> The HEFCE consultation, which closed in March 2011, did not include the SSR as one of the measures likely to form the Key Information Sets.

After the consultation, HEFCE in June 2011 published an analysis of responses, and its decisions following the consultation. Although one of the additional data items suggested by five respondents to the consultation, including UCU, for the KIS was 'Staff-student ratios/average class size', this was not included in the final version of the KIS. HEFCE said: 'There were numerous suggestions for additional items on the KIS, including non-completion rates and student/staff ratios, as well as the additional contextual information. However, others commented there was too much information on the KIS already and there was a danger of information overload.'<sup>47</sup>

Since 2012 Key Information Sets, at course level (where available), for prospective students, have been available on the Unistats website. The KIS include data from the NSS on student satisfaction with their courses, feedback and facilities; average salary and occupation six months after graduation; cost of university accommodation; the proportion of time spent in different learning activities; the proportion of assessment by coursework; and the degree of satisfaction with the Students' Union at the university. The next two sections look at questions (7 and 11) in the National Student Survey that relate particularly to student satisfaction and the provision of human resources for teaching.

## 6 TRAC data and student satisfaction

'Feedback on my work has been prompt'

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<sup>46</sup> [http://www.hefce.ac.uk/pubs/hefce/2010/10\\_31/#note4](http://www.hefce.ac.uk/pubs/hefce/2010/10_31/#note4) accessed 7.9.11

<sup>47</sup> HEFCE (2011), Provision of information about higher education: outcomes of consultation and next steps, circular 2011/18 [http://www.hefce.ac.uk/pubs/hefce/2011/11\\_18/11\\_18\\_35454121.pdf](http://www.hefce.ac.uk/pubs/hefce/2011/11_18/11_18_35454121.pdf) p.48

One of the key issues for HEIs arising out of the results of the National Student Survey has been students' dissatisfaction with the speed of feedback on their work. It is reasonable to suppose that if numbers of academic staff are sufficient relative to the numbers of students, they will be able to provide feedback to students on their work in a reasonable amount of time. TRAC TAS data were analysed with NSS responses to see whether there was a statistically significant relationship between the two measures. Statistical analysis showed a significant negative correlation, albeit weak (correlation coefficient  $-.236$ , significant at the 0.01 level), at the level of HEIs between the proportion of academic staff time spent on teaching at an institution and agreement/strong agreement with statement seven, 'Feedback on my work has been prompt', in the 2008-9 National Student Survey under the section 'Academic support'. So a relatively *low* proportion of time spent by academics on teaching seems to correlate with a *high* level of satisfaction with the speed of feedback. A reasonable hypothesis might be that HEIs where academics spend a relatively low proportion of time on teaching would achieve low satisfaction scores on speed of feedback. But the opposite appears to be the case. However, because of the weakness of the correlation statistic, other factors may be at work in determining student satisfaction with feedback. One possibility is the relatively high number of 'auxiliary academics' - such as research assistants and students, and sometimes post-doctoral students - employed at more research-intensive HEIs (see section 8). These staff are unlikely to be included in the data return for the Higher Education Statistics Agency, and so won't be counted in the SSR, but they may nevertheless be helping to improve student satisfaction.

'I have been able to contact [academic] staff when I needed to'

It is reasonable to suppose that if sufficient time is spent on teaching by academic staff relative to the numbers of students, students will be able to have contact with staff when needed. TRAC TAS data were analysed with NSS responses to see whether there was a statistically significant relationship between the measures of staff time spent on teaching, and student satisfaction with staff availability when needed. Statistical analysis again showed a significant negative correlation (correlation coefficient  $-.402$ , significant at the 0.01 level) at the level of HEIs, between the proportion of academic staff time spent on teaching at an institution and agreement/strong agreement with statement eleven, 'I have been able to contact [academic] staff when I needed to', in the 2008-9 National Student Survey, under the section 'Academic support'. So a relatively *low* proportion of time spent on teaching by academic staff correlated with a *high* level of student satisfaction with the availability of academic staff. In other words, students at research-intensive HEIs - where academics spend relatively less time on teaching than academics at teaching-focussed institutions - tended to show higher levels of satisfaction with the availability of academic staff than students at the more 'teaching-led' HEIs. Again, other factors may be at work in determining student satisfaction with academic staff availability, including the large numbers of 'auxiliary academics' at pre-92 HEIs who help with teaching, but are not counted in the SSR formula.

## 7 SSRs and student satisfaction

'Feedback on my work has been prompt'

There was a positive correlation, albeit weak, at the HEI level between SSRs and agreement/strong agreement with statement seven, 'Feedback on my work has been prompt', in the 2008-9 National Student Survey under the section 'Academic support' (correlation coefficient =.215, significant at the 0.05 level). In other words, higher SSRs were *positively* correlated with higher levels of reported satisfaction on speed of feedback. A reasonable hypothesis might be that there would be a significant *negative* correlation between SSRs and feedback satisfaction, because academics at HEIs with low ratios of students to staff would presumably have more time to devote to prompt feedback, and achieve high satisfaction scores. But the opposite seems to be the case. However, the weak correlation statistic in this analysis indicates that other factors might be at work, and that not too much importance should be attached to this finding. A regression analysis with a range of relevant variables might shed more light on this issue.

'I have been able to contact [academic] staff when I needed to'

There was a negative correlation, albeit weak, at the HEI level between SSRs and agreement/strong agreement with statement eleven, 'I have been able to contact staff when I needed to', in the 2008-9 National Student Survey under the section 'Academic support' (correlation coefficient =-.311, significant at the 0.01 level). In other words, low SSRs were significantly correlated with higher levels of reported satisfaction on the availability of academic staff. A reasonable hypothesis might be that there would be a significant negative correlation between SSRs and staff contact satisfaction, because academics at HEIs with low ratios of students to staff would presumably have more time for contact with students, and able to achieve high satisfaction scores. This appears to be the case with SSRs and staff contact satisfaction. However, the weak correlation statistic in this analysis indicates that other factors might be at work, and that not too much importance should be attached to this finding.

The universities of Cambridge and Oxford were excluded from this analysis given the unique arrangements they have for college-based academic tutorials.

## 8 Recent research into teaching contact time

Recent research by the Higher Education Policy Institute into the academic experience of students in English universities has provided information about the amount of teaching contact time students received according to subject and institution. Although this is a

different measure of the student experience compared with the SSR, the HEPI research has provided some helpful insights into the issues raised in this paper, particularly regarding academic involvement in teaching.

In 2006 HEPI reported that scheduled hours of timetabled teaching ('scheduled contact time') varied considerably among subject groups, ranging from more than 20 hours per week in medicine and dentistry, and veterinary sciences, agriculture and related subjects, to fewer than 10, for languages, and historical and philosophical studies. In the study, HEPI distinguished between 'Old' and 'New' universities, and although this distinction was not defined in the research report, it is assumed to mean universities existing before 1992 ('Old') and since 1992 ('New'). There was little difference between the two in the weighted average scheduled contact time per week, with 13.7 hours for students in the old universities, and 13.3 in the new (Bekhradnia, Whitnall and Sastry, 2006, Benchmark 1).<sup>48</sup> However, the research did reveal a considerable difference in the proportion of seminars taught by non-academics (such as research assistants and students, and sometimes post-doctoral students), with 30% overall in old universities taught by non-academics compared with only 8% in the new. 'The discrepancy reflects the greater availability of teaching cover from research assistants and research students and could be interpreted as a consequence of universities discharging their responsibility to provide future academics with experience of teaching. However, ... it suggests that the teaching provided by non-academics in old universities very often replaces – rather than supplements – teaching delivered by academics' (Bekhradnia, Whitnall and Sastry, para. 30). The research also revealed a considerable difference in the proportion of tutorials taught by non-academics, with 7% overall in new universities compared with 30% in the old; for practicals the proportions led by non-academics were 36% (old) and 17% (new); and for fieldwork, the proportions were 26% (old) and 15% (new).

A follow-up study by HEPI in 2007 found a slight increase in the weighted average scheduled hours of teaching per week, with the old universities split between Russell Group (14.4 hours) and pre-1992 (not Russell) (14.0 hours); the new universities were split between post-1992 (13.7 hours) and 'other' (data not available).<sup>49</sup> The 2007 report found that for teaching led by non-academics the pattern of the previous year's study was unchanged: '... students at Russell Group and pre-92 universities report much higher rates of teaching by non-academics, particularly where teaching groups are smaller' (Sastry and Bekhradnia, para. 31). In terms of informal tuition, such as the number of unscheduled contacts in a term with staff for substantive discussions, these contacts were higher for students at post-92 and 'other' universities than Russell Group or other pre-92 (para. 34). A further study, in 2012, revealed similar data, with average attended contact hours in

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<sup>48</sup> Bekhradnia, B., C. Whitnall & T. Sastry (2006), *The academic experience of students in English universities*, Oxford: Higher Education Policy Institute

<sup>49</sup> Sastry, T., and B. Bekhradnia (2007), *The academic experience of students in English universities*, Oxford: Higher Education Policy Institute

pre-92 HEIs at 13.1 hours a week for all subjects, compared with 12.4 hours in post-92 institutions and 15.1 hours in others.<sup>50</sup>

Given the data from the HEPI surveys on the range of average contact hours by subject and by university, and on the considerable use of non-academics in teaching roles in pre-92 institutions, it is not surprising that Bekhradnia says: '... until recently universities only rarely provided information to students about what they could expect by way of contact with their teachers, and the amount of formal teaching. So those interested in these questions ... have had to rely on indirect and quite unsatisfactory sources of information, like newspaper league table analyses of staff:student ratios, which are a completely misleading proxy for teaching contact' (2009, para. 16).<sup>51</sup>

Nevertheless, the issue of teaching contact time, and who – including non-academic staff – is actually involved in providing teaching, is linked to the student:staff ratio. Research-intensive institutions usually have relatively low ratios of students to staff, despite their academics spending a considerable amount of their time in research, ie not teaching. It might be expected that such universities, with a lot of absent academics, would have low levels of student satisfaction relating to academic contact. However, these institutions generally have high levels of student satisfaction related to academic feedback and contact. The reason for this satisfaction is not immediately apparent. One possible answer may be that 'non-academic' teaching staff – such as research assistants and students, and sometimes post-doctoral students – who are used far more in the pre-92 than post-92 institutions, are making good the gap left by academics absorbed in their research.

A further reason for higher levels of student satisfaction in pre-92 HEIs, where academic staff spend a lot of their time in research, might also be that pre-92 HEIs provide relatively more courses with high weekly contact hours – such as medicine, dentistry, science, technology and engineering – than do the post-92 HEIs. Since 'dissatisfaction reduces steadily in line with increasing amounts of contact', students in STEM-focused pre-92 HEIs will be more likely to report satisfaction.<sup>52</sup>

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<sup>50</sup> Bekhradnia, Bahram (2012), *The academic experience of students at English universities 2012 report*, Oxford: Higher Education Policy Institute, table 2

<sup>51</sup> Bekhradnia, Bahram (2009), *The academic experience of students in English universities 2009 report*, Oxford: Higher Education Policy Institute

<sup>52</sup> Bekhradnia, Bahram (2012), *The academic experience of students at English universities 2012 report*, Oxford: Higher Education Policy Institute, para 12.

## 9 Conclusion

The student:staff ratio has been used as a key measure in the provision of higher education in the UK for more than half a century. It is currently used either as an explicit benchmark, or as a broad guideline, by many public, statutory and regulatory bodies in terms of input quality when accrediting university courses. It is used in a number of national and international league tables for rating higher education institutions. Although league tables are contested sources of information, they are nevertheless significant when rising tuition fees place more emphasis on informed choice by potential students. An apparent reduction in the student:staff ratio is seen by institutions as a positive development and a justification for increasing full-time undergraduate tuition fees. The SSR also provides an international measure of the quality of investment in higher education, with the UK having a SSR consistently higher than, for example, the OECD average, as well as higher than various 'competitor' nations.

However, it is a matter of concern that the SSR is generally seen as an indicator of the total amount of academic staff time available per student. The SSR in the UK has consistently over-represented the amount of time teaching-and-research academics spend in teaching. The Higher Education Statistics Agency's methodology for calculating the SSR reckons that all the time of a typical 'teaching-and-research' academic is spent on teaching, although, to varying degrees, it is spent on a range of other activities, including research, administration, and links with business and the community. Although Transparent Approach to Costing data are available for many academic staff on their use of time, the agency does not use this data to provide a more realistic student:staff ratio. Neither are staff:student ratios or TRAC data used in the Key Information Sets which the government is providing to students about higher education courses – although universities are used to providing course-level staff and student data to accrediting bodies.

Is there a relationship between student satisfaction with contact time and feedback on their work, and with institutional student:staff ratios or with the amount of time academics spend on teaching?

A reasonable hypothesis would be that high levels of student satisfaction would correlate positively with high proportions of staff time spent on teaching. A further reasonable hypothesis would be that high levels of student satisfaction would correlate negatively with low ratios of students to staff. However, that did not appear to be the case.

High student satisfaction with prompt feedback, and with staff contact, had significant negative correlations with high proportions of time spent on teaching, according to TRAC data. In other words, higher student satisfaction with feedback and contact time was found at institutions where academic staff spent a relatively low amount of time on teaching. Although the correlation coefficients in these analyses were fairly small, they were still significant at the 0.01 level, particularly regarding contact time. These findings do not support the hypotheses made. Why? Perhaps student satisfaction with teaching is also

affected by satisfaction with other attributes of academic staff, such as awareness that academics are actively involved in research. High satisfaction was found at the 'old' or pre-92 institutions, where relatively high numbers of teaching 'adjunct' staff – such as research students – are used to replace the lost time of academics engaged in research. Although these adjunct staff are unlikely to be counted in the HESA data, they are still providing significant student support. Another possibility is that, for reasons noted earlier, the TRAC data are not very reliable, and this is producing curious results when they are correlated with student satisfaction.

High student satisfaction with prompt feedback and staff availability might be expected to correlate negatively with low student:staff ratios, on the grounds that a low number of students per staff member would be more likely to promote timely feedback and good access to staff and result in a high satisfaction score. However, there was a significant *positive* correlation between a high level of satisfaction regarding prompt feedback and high SSRs. It should be pointed out with this analysis that the correlation coefficient was small and the significance level was at 0.05, ie not very rigorous. Nevertheless, it might be worth asking why there might be a positive correlation. HEIs with a high student:staff ratio have a significant positive correlation with institutions where academics record spending a high proportion of their time on teaching (correlation coefficient = .397, significant at the 0.01 level). So despite the high SSRs, students at teaching-focused institutions are likely to have prompt feedback.

With the second measure of satisfaction, relating to adequate contact with academic staff, there was a significant negative correlation between high satisfaction and low student:staff ratios. This finding supports the hypothesis that high student satisfaction should go together with low numbers of students per member of academic staff.

In terms of linking student satisfaction with aspects of teaching which might be particularly sensitive to a student:staff ratio and to availability of staff time, in three out of four cases, my hypotheses were not supported. Only one of the four hypotheses, that there would be high satisfaction with teacher availability where there were low SSRs, was supported. In terms of Biggs' '3P' model, the SSR is a 'Presage' or input variable, and in one of two tests, a low ratio of students to staff was linked with high student satisfaction. The proportion of academic time spent on teaching might be seen as a 'Process' variable, and in both tests, a high proportion of academic time spent on teaching did not correlate with high student satisfaction.

While the SSR – a presage or input factor - may be linked to student satisfaction with teacher contact, other factors are likely involved in the process dimension of quality that produce student satisfaction. These, according to Gibbs' analysis, include the *quality* of teaching (rather than the *quantity* of time spent) and research environment: perhaps there is a link here between high satisfaction with feedback and teacher contact, and the HEIs where a comparatively low proportion of academics' time is spent on teaching but a high proportion on research, suggesting a relationship between student satisfaction and a



particularly research-enriched teaching environment. Gibbs also suggests a link between quality and the level of intellectual challenge, which could tie in with the previous point relating to institutions with a particularly research-enriched environment. Another process dimension of quality relates to formative assessment and feedback, but this may be less likely because in my analysis, there was a negative correlation between high satisfaction with prompt feedback and the proportion of time spent on teaching. Other process dimensions of quality referred to by Gibbs include reputation and peer ratings, which are likely to benefit research-intensive old universities.

**Table 3 Summary of correlations**

Quality dimension		National Student Survey, 2008-9, q. 7, Academic support, 'Feedback on my work has been prompt', agree/strongly agree	National Student Survey, 2008-9, Academic support, q. 11 'I have been able to contact staff when I needed to', agree/strongly agree
Presage or input	Student:staff ratio 2009-10	Correlation = .215 sig. 0.05  Negative correlation expected; hypothesis not supported.	Correlation = -.311  Sig. 0.01  Negative correlation expected; hypothesis supported.
Process	TRAC data (mostly 2009-10): Proportion of academic staff time spent on teaching	Correlation = -.236  Sig. 0.01  Positive correlation expected; hypothesis not supported.	Correlation = -.402  Sig. 0.01  Positive correlation expected; hypothesis not supported.

One potential way forward would be to develop a SSR that more accurately reflected the use of time by teaching-and-research academics. Although the TRAC TAS data might in theory be a potential source for that information, methodological concerns raised by HESA and others in the HE sector about this data make this unlikely at present. Until the current SSR methodology is amended, those who publish SSRs based on HESA data should provide a health warning – particularly to potential students - about the accuracy of the data. Where available, HEIs should make public at the institutional and course levels their TRAC data relating to the proportional use of time, including teaching, by the relevant academic staff.

Meanwhile, concerns persist that, given recent slight reductions in the HESA SSR, institutions are complacent about the numbers of academic staff they are employing. Rising occupational stress, not least related to staff having to deal with growing student numbers and class sizes, needs to be tackled by HEIs by employing more academics to share the teaching load. This would improve the student learning experience, staff working conditions, and the opportunity for existing staff to undertake research, scholarship, consultancy and outreach activities. HEIs in the UK should aim over a period of years to bring their SSRs – accurately reflecting the amount of academic time spent on teaching - into line with the OECD average.

## Appendix 1: TRAC data provided by HEFCE

Peer Groups for annual TRAC, TRAC fEC and TRAC (T) benchmarking 2008/09  
Criteria (references to income are to 04/05 data)

<http://www.jcpsg.ac.uk/guidance/revisions/PeerGroups09.pdf>

TRAC peer group

Peer group A: Russell Group (all have medical schools) excluding LSE plus specialist medical schools

Peer group B: All other institutions with Research income of 22% or more of total income

Peer group C: Institutions with a Research income of 8%-21% of total income

Peer group D: Institutions with a Research income of between 5% and 8% of total income and those with a total income > £120m

Peer group E: Teaching institutions with a turnover of between £40m and £119m

Peer group F: Smaller teaching institutions

Peer group G: Specialist music/arts teaching institutions

Allocation of academic staff time (average) to Teaching, %						
Source: Annual TRAC return, Section F						
TRAC peer group	Number of HEIs			% of academic staff time allocated to Teaching		
	2006-07	2007-08	2008-09	2006-07	2007-08	2008-09
A	23	22	24	21.1	22.7	23.7
B	23	23	26	30.4	30.5	31.6
C	19	18	20	35.6	37.7	38.2
D	18	19	23	45.6	47.0	48.5
E	17	17	22	51.4	55.5	58.4
F	8	7	7	49.0	46.6	51.7
G	8	7	7	61.4	50.5	52.0
UK total	116	113	129	38.3	38.9	40.9

Allocation of academic staff time (average) to Research, %			
TRAC peer group	2006-07	2007-08	2008-09
A	42.8	40.3	39.9
B	35.6	34.9	34.1
C	30.7	30.4	28.1
D	18.5	14.1	13.3
E	9.7	8.8	7.9
F	10.0	14.3	8.8
G	18.4	19.6	17.9
UK total	26.8	25.6	23.8

<b>Allocation of academic staff time (average) to Other [ie business &amp; community links] activities, %</b>			
TRAC peer group	2006-07	2007-08	2008-09
A	5.0	5.7	3.8
B	1.9	2.2	2.2
C	3.0	2.6	2.6
D	2.4	2.3	4.6
E	3.7	3.0	3.2
F	2.5	2.1	3.5
G	5.8	3.7	4.4
UK total	3.3	3.2	3.3

<b>Allocation of academic staff time to Support [ie admin, management], %</b>			
TRAC peer group	2006-07	2007-08	2008-09
A	31.1	31.3	32.6
B	32.2	32.4	32.1
C	30.7	29.3	31.2
D	33.5	36.6	33.6
E	35.2	32.8	30.5
F	38.5	36.9	36.0
G	14.4	26.3	25.8
UK total	31.6	32.4	31.9

## Appendix 2: HESA Student staff ratio calculation – 2010/11

### Student staff ratio calculation – 2010/11

#### Student numbers – numerator

The student numbers used in the SSR are FTEs. These are calculated as follows:

1. Population filter: The HESA Session HE and FE populations.
2. The Sum of student FTE (STULOAD) \* the proportion of the FTE taught by the returning institution.
3. For students who are recorded as being on industrial placement for the year as a whole (Location of Study (LOCSDY), code D), divide the FTE (as calculated above) by 2.
4. All these elements of FTEs are then summed to obtain a grand total figure for each institution.

#### Staff numbers – denominator

The staff numbers used in the SSR are also FTEs. They are calculated as follows:

1. Non-atypical staff FTE:

Filters:

Data is based on the HESA Staff Contracts Session Population

Academic staff

Academic employment function is teaching or teaching and research

2. Atypical staff FTE:

Filters:

Data is based on the HESA Staff Contracts Session Population

Academic staff

The non-atypical and atypical staff FTEs are then summed to give a total staff FTE. Note that since academic employment function is not collected for atypical staff it is assumed that all academic atypical staff have some teaching function.

Source: HESA SSR Data Definitions (included with 2010-11 data supplied to UCU)