Can we reliably compare student engagement between universities? Evidence from the United Kingdom Engagement Survey

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# Acknowledgements

This work was supported by the Higher Education Academy. The authors thank Dr. Alex Buckley for the fruitful contacts regarding the data.

Policy changes in the Higher Education landscape have given way to increased interest in the way students perceive engagement in UK higher education. The paper aims to see if we can reliably distinguish between institutions and disciplines, and what key student and institutional variables are a predictor of engagement of undergraduate students. Using data from two waves of the United Kingdom Engagement Survey (UKES), a national survey of undergraduate student engagement, we constructed multilevel models for different aspects of student engagement. The results show that the vast majority of the variance of the models is at the student level, indicating that demographic characteristics seem to contribute most to differential aspects of engagement. Some variance at student level could be explained: females, distance learners, part-time students and disabled student indicators were negative predictors of engagement, while indicators for BME and for students from Africa and Asia were positive predictors of engagement.

Key words: student engagement, surveys, UKES, multilevel analysis, undergraduates

# Introduction

Student satisfaction and engagement have been in the limelight more and more, both in the UK and internationally. This increasing interest is undoubtedly linked to the growing prevalence of tuition funded by students themselves, and its rising cost in Higher Education (HE) systems such as the UK and the US. This has positioned students as consumers whose satisfaction is an important systemic and organisational outcome in itself (Gruber, Fuss, Voss, & Glaeser-Zikuda, 2010). In addition, student satisfaction has been seen as a correlate of or even as a precursor to learning (Carini, Kuh, & Klein, 2006), with others stating that ‘engagement’ could serve as a proxy for learning (DfE, 2016b). Repositioning ‘students as consumers’ has had impact on HE accountability regimes where governments adopt measures for ‘customer satisfaction’. In the UK, this has led to the introduction of student satisfaction surveys, the most well-know of which is the National Student Survey of final year undergraduates. Previously in this journal, Cheng and Marsh (2010) concluded that the NSS might not be very useful for comparing universities, as the within-variance of universities is much larger than the between-variance which was limited to a few percentage points. Perhaps, though, this might be different for the construct of ‘student engagement’. In light of recent policy developments in England regarding teaching quality and engagement, such a finding could have major implications. This paper utilises data from the United Kingdom Engagement Survey (Buckley, 2014) to determine whether we can reliably compare universities on levels of self-reported engagement.

# Background to the study

## The focus of this article pertains to changes in the HE policy landscape and the increasing importance of student engagement.

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## Policy context for student engagement

In November 2015 a government consultation document (known as a ‘Green Paper’) (DfE, 2015) was released by the UK government that formulated proposals around the introduction of a Teaching Excellence Framework (TEF) that ‘will deliver better value for money for students, employers and taxpayers’. In these proposals, engagement was specifically mentioned, making the claim that the TEF should ‘deliver graduates who are more work ready following an active engagement in their studies’ (DfE, 2015, p. 21). ‘Student engagement’ is also mentioned in relation to quality assessment (DfE, 2015, p. 26) and under criteria and metrics for TEF’s teaching quality, in the context of ‘understanding the ways in which students are intellectually challenged and engaged in the curriculum and their learning.’ (DfE, 2015, p. 32). In May 2016 the follow-up ‘White Paper’ reinforced the role of engagement and student satisfaction (DfE, 2016a). It was accompanied with the results of a technical consultation of the TEF for year 2 of its introduction (DfE, 2016b). The consultation discerns three aspects of quality: ‘teaching quality’, ‘learning environment’ and ‘student outcomes & learning gain’. The former is described as ‘Teaching practices which provide an appropriate level of contact, stimulation and challenge, encourage student effort and engagement, and which are effective in developing the knowledge, skills, attributes and work readiness of students.’ (DfE, 2016b, p. 12). As an example of how engagement might be evidenced engagement surveys again are mentioned, for example ‘Impact and effectiveness of schemes focused on monitoring and maximising students’ engagement with their studies e.g. the UK Engagement Survey (UKES) and other mechanisms’ (DfE, 2016b, p. 29). The increasing importance of engagement in the English higher education policy also is reflected in the role of the National Student Survey (NSS). A review of the NSS in 2014 (HEFCE, 2014) describes plans for changes in the NSS. Some alterations were suggested and included some new questions, inspired by the UKES, on student engagement: ‘academic challenge’, ‘reflective and integrative learning’, the ‘learning community/collaborative learning’, and ‘student voice’. Most recently, the Times Higher Education (THE) extended their range of rankings with one on ‘Europe Teaching Rankings’, which included a student engagement pillar based on the results of THE’s first European Student Survey. This is a student engagement survey of more than 30,000 university students from eight countries (UK, Spain, Germany, Italy, France, the Netherlands, Portugal and the Republic of Ireland), which includes questions on whether teaching supports critical thinking, whether classes challenge students and whether students have the opportunity to interact with staff. Given the attention student engagement is getting in the HE sector, also in high stakes contexts, it seems pertinent to look more closely at the way students perceive engagement in UK higher education, not just in terms of the widely publicised performance and student satisfaction measures, but also for a specific ‘engagement’ focus. We now turn to the construct of ‘student engagement’.

## The construct of student engagement

Throughout the decades, several attempts have been made to synthesise the main themes when talking about student engagement in higher education. In 2010 the Higher Education Agency conducted a review of student engagement literature (Trowler & Trowler, 2010) and came to three dimensions of student engagement: student engagement in individual student learning; student engagement with structure and process; student engagement with identity. But as Kahu (2013) noted of their work ‘Trowler and Trowler’s (2010, p. 9) recent review goes so far as to suggest that ‘the value of engagement is no longer questioned’. According to Kahu (2013, p. 758) student engagement is ‘a current buzzword in HE, increasingly researched, theorised and debated with growing evidence of its critical role in achievement and learning’, and as we have already argued, within the current policy climate, the UK government is increasingly interested in measuring student outcomes (Zepke & Leach, 2010), and there is reinforcement of the idea that student engagement can act as a proxy for quality (Kuh, 2009). HEFCE (2014), in their review of student engagement for the NSS, state that no consensus in the literature was found on what is understood by ‘student engagement’. The review showed that there are ‘numerous and diverse conceptualisations, interpretations, definitions and meanings (and misunderstandings) attributed to the term’ (HEFCE, 2014, p. 27) and that ‘this was also evident in our interviews with stakeholders, who had different and potentially contradictory understandings of the term’ (HEFCE, 2014, p. 27). The NSS review (HEFCE, 2014) therefore highlighted three broad aspects. Firstly, there are ‘policies and practices related to the notion of educational gain and the degree to which students approach their studies in a way that contributes towards desired learning outcomes’ (HEFCE, 2014, p. 27). Engagement is seen as a contributing factor to successful outcomes. Secondly, student engagement can be seen as an issue associated with ‘the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes’ (Hu & Kuh, 2002, p. 555). Finally, student engagement might concern the ‘policies and practices supporting student involvement in shaping their learning experiences’ (HEFCE, 2014, p. 28). These revolve around concepts of feedback, representation and inputs to curriculum design. HEFCE’s distinction (2014) echoes the elements of Kahu’s research (2013), which provides a synthesis of student engagement using four different ‘lenses’ to look at the topic:

* a *psychological* perspective in which engagement is an internal psycho-social process;
* a *socio-cultural* perspective, in which engagement is seen as the impact of a broader social context on the student experience;
* a *behavourial* perspective, which sees engagement as something students do that is, however, affected by teaching practices; and
* a *holistic* perspective, which constitutes the perceptions, expectations and experience of being a student.

In line with the NSS review (HEFCE, 2014) we could see the deployment of the UKES as one fitting in the ‘behavourial’ category, although reflections and comments regarding the TEF seem to suggest a strong belief in a relationship between the ‘behavioural’ metrics and other perspectives on engagement. Policy perspectives in TEF that suggest the use of engagement measures such as UKES for accountability appear to posit two key relationships. Firstly, that student engagement is related (and, it is presumed, causally antecedent) to student learning, and, secondly, that institutional characteristics and policies of HEIs can influence student engagement. As mentioned before, it is the latter statement that forms the object of this study, as, if there is a weak relationship between institutional characteristics and differences in engagement, it would not be sensible to hold complete institutions accountable to this. It is therefore surprising that while a range of studies have looked at the relationship between engagement and attainment, very few studies have looked at institutional, disciplinary and individual students’ characteristics in relation to student engagement, and even fewer have used adequate methodologies such as multilevel modelling to do so. While strong statements are often made regarding institutional and staff philosophies, characteristics and behaviours that supposedly increase student engagement (see HEFCE, 2014) and purportedly ‘teaching quality’, the empirical basis for these claims are usually rather limited. Some evidence in this regard comes from analyses of the National Survey of Student Engagement (NSSE) in the US, where studies tend to show significant but very weak correlations between institutional characteristics and engagement (e.g. Hu & Kuh, 2002). Some relationships are found with individual student characteristics, but these also tend to be weak. Hu and Kuh (2002), for example, found that women, African Americans, Hispanics, and American Indians and students at private colleges had higher levels of engagement. This study aims to contribute to the student engagement literature by analysing two years of results from the United Kingdom Engagement Survey.

## The United Kingdom Engagement Survey

The United Kingdom Engagement Survey (UKES) is a relatively new instrument that was first piloted in 2013 (Buckley, 2013; Kandiko & Matos, 2013). This pilot involved nine institutions, 8,582 responses, with a questionnaire consisting of 14 items all drawn from the National Survey of Student Engagement (NSSE), which was first implemented in the US in 2000 and has since spread across the English-speaking world and beyond (Coates & McCormick, 2014). The pilot included cognitive testing and institutional case studies, and the authors concluded that the student engagement data had value; the cognitive interviews with 43 students found that students were positive and enthusiastic about the idea of the engagement survey, and the questions broadly supported the face validity of the items (Buckley, 2013). In a second pilot year in 2014 (Buckley, 2014). 25,533 responses were gathered from students attending 32 participating institutions, with an overall response rate of approximately 13% (down from 17% in 2013). The survey is a response to growing institutional interest in student engagement, and aims to ‘help HEIs understand and address their students’ engagement with their studies’. The UKES 2014 questionnaire includes 50 items, 39 drawn from NSSE and 11 unique to UKES. The questions reflect 4 core scales, taken by all participating HEIs in 2014, and 5 optional scales, taken by 17 HEIs in 2014. The core scales (Buckley, 2014) with seventeen survey items address Higher Order Learning (emphasis placed in the course on a range of critical thinking and higher-order learning activities), Collaborative Learning (students’ interaction with each other), Academic Integration (various kinds of interaction with academic staff) and Course Challenge (do students come to taught sessions prepared and has the course challenged the student to do their best work). A further 36 optional survey items address Reflective and Integrative Learning (various kinds of reflection on learning and integration of learning), Engagement with Research (students’ engagement with the methods and results of research), Formulating and Exploring Questions (emphasis students formulating and exploring open-ended lines of enquiry), Skills Development (development of a range of skills) and Time Spent on Activities (Buckley, 2014). Take-up of these extra items was varied. Six institutions used only the compulsory items and 11 institutions used all 50; the mean item take-up was 37 (Buckley, 2014). Missing data was largely linked to compulsory and optional questionnaire items. Like the 2013 edition, cognitive testing with 43 students was conducted, with again positive appreciation, and some changes to wordings suggested. One particular aspect noted in the pilot report (Buckley, 2014) is that, like so many large-scale surveys, is that the sample is self-selecting, and therefore prone to response bias. We further discuss this issue towards the end of the article, including a post-hoc analysis of sample characteristics. Notwithstanding these challenges we contend that studying the UKES is the best way to study student engagement at scale. Neves and Stoakes (2018, p. 219) argue that UKES “is widely recognised as the only major undergraduate survey in UK higher education that comprehensively measures students’ perceptions of engagement with their studies.”

In 2015 the UKES was a full-scale undertaking, with 24 institutions with 24,387 students participating (Buckley, 2015). The UKES scale itself was further developed in 2015, with a new core scale, ‘Reflecting and Connecting’, added, and some changes made to the wording of items in the Course Challenge scale (Buckley, 2015). Some of the other scales were renamed without changing individual items (see Table 1).

## Research questions

For this study, we will use the data from the *core scales* of 2014 and 2015 UKES editions to answer two key research questions that relate to the overarching question of determinants of student engagement, and in particular the respective importance of individual and institutional factors:

1. What proportion of the variance in student engagement is explained by student, discipline, and institutional characteristics, thereby determining whether the UKES survey can reliably distinguish between institutions, and between disciplines?
2. What is the relationship between key student and institutional variables and engagement of undergraduate students?

# Methodology

To answer the research questions we conducted multilevel analyses of the UKES datasets.

## Description of the dataset

For the 2014 UKES the dataset we only looked at the core set of scales (4 scales: Higher Order Learning (HOL), Course Challenge (CC), Collaborative Learning (CL), and Academic Integration (AI)). In the UKES 2015 edition one additional core scale was added, as presented in Table 1.

Table 1 Core scales for UKES 2014 and UKES 2015

|  |  |  |
| --- | --- | --- |
| **UKES 2014** | **UKES 2015** | **Change** |
| Higher order learning (4 items + 1) [[1]](#footnote-1) | Critical Thinking (4 items) | Only the name changed |
| Course challenge (2 items) | Course challenge (2 items)  | The items for Course Challenge were reworded |
| Collaborative learning (4 items) | Learning with Others (4 items) | Only the name changed |
| Academic Integration (6 items) | Interacting with staff (6 items) | Only the name changed |
|  | Reflecting and Connecting (6 items) | The optional 2014 Reflective and Integrative Learning scale was reworded and became a core scale in 2015 called Reflecting and Connecting.  |

As well as changes to the scales, there were also some changes to demographic variables and some additional variables included in the dataset. For example, HEI size was no longer included, but location was. Items in both the UKES 2014 and 2015 datasets were Likert scale type items with a score 1 to 4. A higher score denotes ‘higher engagement’ for that particular item. One question on memorising course material was not included in the analyses, as the 2014 UKES report indicated it would lower the reliability of the scales (Buckley, 2014). For more details on this and the questionnaire we refer to the UKES reports (e.g. Buckley, 2014; 2015).

## Analytical approach

The dependent variables for the analysis of both UKES datasets were the core scales and a newly created ‘overall’ engagement scale with the mean of all the survey items. The factor structure of the 2014 and 2015 datasets were confirmed through Confirmatory Factor Analysis (for more details on this see Bokhove & Muijs, 2016). The independent variables can be divided into respondent characteristics, discipline characteristics and institutional characteristics. Respondent characteristics taken from the UKES survey at the student level were gender, age, ethnicity, mode of delivery (distance or not), student status (part time or full time), origin (country) and disability, although not all could be included for both analyses as the UKES 2015 dataset had more variables. A standardised 19-discipline split, ranging from ‘Medicine and Dentistry’ to ‘Education’ was used at the discipline level. The institutional characteristics included in the datasets were type of university (e.g. post-92, Russell Group), size in 2014 and location (e.g. Scotland, Wales) in 2015. Reference categories were different for UKES 2014 and 2015 editions because of a change in the dataset (see results).

## Multilevel models

Data from the UKES is hierarchical in structure. Each of the *students* surveyed studies a certain *discipline,* which can be said to be nested in an *institution*. With multilevel modelling we can explore the unique impact of student, discipline and institutional characteristics upon students’ responses to items. Multilevel modelling is an adaptation of the general linear model for hierarchical datasets, which partitions the variance in the dependent variable across the relevant levels. This solves the problem of attenuation of standard errors in standard linear regression models, which results from hierarchical samples such as this where individuals within a subject or university may be more similar to one another than they would be to the population of students as a whole (Snijders & Bosker, 2012).

For each dependent variable we built three multilevel models, each with three levels (students within disciplines within universities). The models are constructed with several dependent variables, being the scales that could be calculated from the data. The models were built in three steps. In step 1 we ran an empty model (Model 0), with only a constant as predictor as a baseline model which will provide us with a partition of the variance in the outcomes to be explained at each of the three levels. In the second step, the institutional characteristics were added to the model to test their relationship to outcomes (Model 1), while in the third step student characteristics were added to the models (Model 2). Note that throughout the models three levels were maintained (students, disciplines, universities) but that no discipline level variables could be included. The full model tables report estimates with standard errors and model fit. Significant values at the *p*<.05 level are indicated in italics. In conducting the analyses we tried to adhere to the recommendations Dedrick et al. (2009) formulated with regard to multilevel analyses. Relevant technical decisions include that throughout the analyses we did not use centering, we have assumed normally distributed dependent variables, we used list-wise deletion for missing data, and conducted analyses with MLwin version 2.34 using IGLS estimation[[2]](#footnote-2). As the study concerns secondary data analysis, ethical Approval from the University of Southampton was sought and obtained (number 16933).

# Results

We report the descriptive statistics and the multilevel models respectively.

## Descriptives

Descriptives for UKES 2014 and 2015 are tabulated in Table 2 and Table 3, respectively. Overall student engagement was between 2.1 and 3.5 (out of 4).

Table 2 Descriptives for UKES 2014 core scales

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **HIGHER ORDER LEARNING** | **COURSE CHALLENGE** | **COLLABORATIVE LEARNING** | **ACADEMIC INTEGRATION** | **OVERALL** |
| **N** | 23650 | 21006 | 23413 | 22436 | 25430 |
| **Mean** | 3.0 | 3.2 | 2.7 | 2.1 | 2.6 |
| **SD** | 0.7 | 0.6 | 0.7 | 0.6 | 0.5 |

Table 3 Descriptives for UKES 2015 core scales

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | **CRITICAL THINKING** | **LEARNING WITH OTHERS** | **INTERACTING WITH STAFF** | **REFLECTING AND CONNECTING** | **COURSE CHALLENGE** | **OVERALL** |
| **N** | 24367 | 24354 | 24370 | 24361 | 24373 | 24377 |
| **Mean** | 3.1 | 2.7 | 2.1 | 2.8 | 3.5 | 2.7 |
| **SD** | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 |

Although not all scales could be compared because of changes in the questionnaire, it is noticeable that most comparable scales seem to have similar means in 2014 and 2015, despite the designation ‘pilot’ for 2014 and ‘full-scale’ for 2015. The highest levels of engagement were recorded for Course Challenge, the lowest for Academic Integration (in UKES 2015 this was ‘Learning with Others’). The scores for engagement, on the whole, seem somewhat lower than typically obtained in the HEA’s student satisfaction surveys (Bokhove & Muijs, 2016).

## Multilevel models

The analyses of the null model for the core UKES 2014 scales show that the majority of variance to be explained is at the individual student level, between 76% and 96% (see table 4). The HEI level tends to account for the least variance, except for the Collaborative Learning scale, which also inflates the overall score. At the discipline level variance ranges from 3.0% (Course Challenge) to 6.4% (Collaborative Learning).

Table 4 Variance at the three levels for the 5 dependent variables/scales UKES 2014

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **HIGHER ORDER LEARNING** | **COURSE CHALLENGE** | **COLLABORATIVE LEARNING** | **ACADEMIC INTEGRATION** | **OVERALL** |
| **Level: HEI** | 1.9 | 1.8 | 17.4 | 2.9 | 7.4 |
| **Level: Discipline** | 5.9 | 3.0 | 6.4 | 5.3 | 3.9 |
| **Level: Individual** | 92.4 | 95.2 | 76.2 | 91.8 | 88.7 |

The findings from the 2015 UKES survey again show that the vast bulk (over 90% on all scales) of variance is attributable to differences between individual students rather than their discipline or the HEI they attended (see Table 5). The HEI level tends to account for almost no variance, never explaining more than 1.9%. The discipline level explains between 2.7 and 7.3% of variance. This is different from the UKES 2014 survey in that the ‘Learning with Others’ scale now shows a much lower variance at institutional level.

Table 5 Variance at the three levels for the 6 dependent variables/scales UKES 2015

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | **CRITICAL THINKING** | **LEARNING WITH OTHERS** | **INTERACTING WITH STAFF** | **REFLECTING AND CONNECTING** | **COURSE CHALLENGE** | **OVERALL** |
| **Level: HEI** | 0.0 | 1.1 | 1.9 | 0.0 | 0.3 | 0.5 |
| **Level: Discipline** | 4.4 | 7.1 | 4.8 | 7.3 | 2.7 | 5.5 |
| **Level: Individual** | 95.6 | 91.8 | 93.3 | 92.7 | 97.0 | 94.0 |

The full multilevel models for the overall engagement scale are shown in tables 6 and 7. UKES 2014 and UKES 2015 show similar patterns. Table 6 shows the detailed models for the overall scale for UKES 2014. The scale for overall (core) engagement confirms that the bulk of variance can be explained at the individual student level (88.7%), with HEI (7.4%) accounting for more variance than discipline (3.9%). Over 47% of the HEI level variance can be explained by the HEI level predictors. Being in a post-92 institution appears to be positively related with the dependent variable, with size not being significant. The student level variables explain 4.9% of total variance. This remained the case after introducing student level variables. Size was not significant in this model. Several individual level variables were significant, with age bands 18-25 and 66+ and part-time status being negatively related to engagement, and males, PGT and not being involved in distance learning showing a positive relationship.

Table 6 Multilevel models for Overall Engagement 2014 (significant in italics)

|  |  |
| --- | --- |
|  | **OVERALL ENGAGEMENT** |
|  | Null model | Model 1 | Model 2 |
| **Fixed Part** | **Estimate** | **Standard Error** | **Estimate** | **Standard Error** | **Estimate** | **Standard Error** |
| constant | *2.597* | *0.025* | *2.551* | *0.054* | *2.582* | *0.154* |
| HEI Size: Medium |  | -0.017 | 0.058 | 0.06 | 0.046 |
| HEI Size: Large |  | -0.005 | 0.058 | 0.053 | 0.042 |
| HEI Size: Very large |  | -0.072 | 0.065 | 0.11 | 0.063 |
| HEI Type: Post-92 |  | *0.12* | *0.043* | *0.123* | *0.033* |
| Gender:Male |  |  |  | -0.005 | 0.008 |
| Age:18-25 |  |  |  | *-0.277* | *0.137* |
| Age:26-35 |  |  |  | -0.207 | 0.137 |
| Age:36-45 |  |  |  | -0.183 | 0.138 |
| Age:46-55 |  |  |  | -0.185 | 0.138 |
| Age:56-65 |  |  |  | -0.246 | 0.141 |
| Age:66 and over |  |  |  | *-0.335* | *0.15* |
| Distance learner:No |  |  |  | *0.246* | *0.07* |
| Distance learner:Not used |  |  | *0.22* | *0.056* |
| Status:Part-time |  |  |  | *-0.174* | *0.019* |
| Level:PGT |  |  |  |  | *0.07* | *0.019* |
| Level:PGR |  |  |  |  | 0 | 0 |
|  |  |  |  |  |  |  |
| **Random part** |  |  |  |  |  |
| Level: HEI | 0.017 | 0.005 | 0.009 | 0.003 | 0.002 | 0.001 |
| Level: Discipline | 0.009 | 0.001 | 0.009 | 0.001 | 0.008 | 0.001 |
| Level: Individual | 0.205 | 0.002 | 0.205 | 0.002 | 0.202 | 0.002 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Variance** |  |  |  |  |  |  |
| Level: HEI | 7.4 |  | 4.0 |  | 0.9 |  |
| Level: Discipline | 3.9 |  | 4.0 |  | 3.8 |  |
| Level: Individual | 88.7 |  | 91.9 |  | 95.3 |  |
|  |  |  |  |  |  |  |
| **Percentage variance explained** |  |  |  |  |
| Level: HEI |  |  | 47.1 |  | 77.8 |  |
| Level: Discipline |  | 0.0 |  | 11.1 |  |
| Level: Individual |  | 0.0 |  | 1.5 |  |
| Total |  |  | 3.5 |  | 4.9 |  |
|  |  |  |  |  |  |  |
| -2\*loglikelihood:  | 31277.81 |  | 31171.74 |  | 22002.49 |  |

Table 7 shows the models for overall engagement for UKES 2015. For the aggregate scale, 94% of variance was explained at the individual student level, just 0.5% at the HEI level and the remaining 5.5% at the discipline level. Students in Post-92 and Scottish institutions scored higher on this scale than those in other locations and Pre-92 institutions. The institutional variables taken together explained almost no variance.

Table 7 Multilevel models for Overall core engagement 2015 (significant in italics)

|  |  |
| --- | --- |
|  | **Overall core engagement** |
|  | **Null Model** | **Model 1** | **Model 2** |
|  | **Estimate** | **Standard Error** | **Estimate** | **Standard Error** | **Estimate** | **Standard Error** |
| **Fixed Part** |  |  |  |  |  |
| cons | *2.712* | *0.012* | *2.683* | *0.014* | *2.655* | *0.019* |
| Location: Welsh |  | -0.028 | 0.044 | -0.032 | 0.043 |
| Location: London |  | -0.016 | 0.041 | -0.027 | 0.04 |
| Location: Scottish |  | *0.095* | *0.041* | *0.094* | *0.041* |
| Type: Post\_92\_Group | *0.044* | *0.02* | *0.048* | *0.02* |
| Gender: Female |  |  |  | *-0.027* | *0.007* |
| Gender: Prefer not to say |  |  | *-0.229* | *0.048* |
| Gender: Other |  |  |  | 0.142 | 0.072 |
| Age: 19-21 years old |  |  |  | 0.009 | 0.01 |
| Age: 22-25 years old |  |  |  | *0.058* | *0.013* |
| Age: 26-30 years old |  |  |  | *0.078* | *0.017* |
| Age: 31-35 years old |  |  |  | *0.083* | *0.02* |
| Age: 36-40 years old |  |  |  | *0.087* | *0.022* |
| Age: 41-45 years old |  |  |  | 0.034 | 0.026 |
| Age: 46-50 years old |  |  |  | *0.066* | *0.031* |
| Age: 51-55 years old |  |  |  | 0.005 | 0.04 |
| Age: 56 years old or over |  |  | -0.036 | 0.047 |
| Age: Prefer not to say |  |  | 0.084 | 0.098 |
| Ethnicity: BME |  |  |  | *0.058* | *0.009* |
| Ethnicity: Other |  |  |  | 0.013 | 0.024 |
| Distance Learner |  |  |  | *-0.055* | *0.013* |
| Part-time Learner |  |  |  | *-0.099* | *0.018* |
| Origin: Other EU incl. Cyprus |  |  | -0.012 | 0.015 |
| Origin: Other EEA countries |  |  | -0.018 | 0.065 |
| Origin: Other Europe |  |  |  | 0.028 | 0.05 |
| Origin: Africa |  |  |  | *0.139* | *0.042* |
| Origin: Asia |  |  |  | *0.049* | *0.017* |
| Origin: Australasia |  |  |  | -0.15 | 0.16 |
| Origin: Middle East |  |  |  | 0.019 | 0.048 |
| Origin: North America |  |  | 0.012 | 0.064 |
| Origin: South America |  |  | -0.109 | 0.095 |
| Disability: No |  |  |  | *0.017* | *0.009* |
| Disability: Prefer not to say |  |  | *-0.053* | *0.02* |
|  |  |  |  |  |  |  |
| **Random Part** |  |  |  |  |  |
| Level: HEI | 0.001 | 0.001 | 0 | 0.001 | 0 | 0.001 |
| Level: Discipline | 0.012 | 0.001 | 0.012 | 0.001 | 0.011 | 0.001 |
| Level: Individual | 0.205 | 0.002 | 0.205 | 0.002 | 0.201 | 0.002 |
|  | 0.218 | 0.004 | 0.217 | 0.004 | 0.212 | 0.004 |
| **Variance** |  |  |  |  |  |  |
| Level: HEI | 0.5 |  | 0.0 |  | 0.0 |  |
| Level: Discipline | 5.5 |  | 5.5 |  | 5.2 |  |
| Level: Individual | 94.0 |  | 94.5 |  | 94.8 |  |
|  |  |  |  |  |  |  |
| **Percentage variance explained** |  |  |  |  |
| Level: HEI |  |  | 0.0 |  | 0.0 |  |
| Level: Discipline |  | 0.0 |  | 8.3 |  |
| Level: Individual |  | 0.0 |  | 2.0 |  |
| Total |  |  | 0.5 |  | 2.3 |  |
|  |  |  |  |  |  |  |
| -2\*loglikelihood:  | 30165.61 |  | 30155.09 |  | 28653.89 |  |

The individual student level variables explained only 2.3% of total variance. Females, part-time students and distance learners scored lower, students aged 22-50, non-disabled, African and Asian students scored higher.

Tables 8 and 9 show the direction of all significant predictors for the UKES subscales. For the UKES 2014 dataset, Table 8, the explanatory power of HEI level variables on HEI level variance was mixed. As demonstrated in Table 8, it can generally be concluded that being in a post-1992 institution was positively related to Collaborative Learning and Academic Integration with regard to engagement. At the student level males generally demonstrated less engagement with Higher Order Learning and Course Challenge, and more with Academic Integration. Age bands 18-25 and 66+ demonstrated less engagement but it must be said that numbers for the latter group are low. *Not* being involved in distance learning was a positive predictor of student engagement, as was level of education. Finally part-time status was a negative predictor for student engagement overall and Course Challenge, Collaborative Learning and Academic Integration in particular. We can see that the overall indicator of engagement reflects the composition of the individual scales, which is to be expected as the overall score combines all the survey items. For gender this means that some negative predictors are ‘cancelled out’ by a positive predictor.

Table 8 Predictors for scales in UKES 2014 (core scales only)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | HIGHER ORDER LEARNING | COURSE CHALLENGE | COLLABORATIVE LEARNING | ACADEMIC INTEGRATION | OVERALL |
| **HEI Size: Medium** |  |  |  |  |  |
| **HEI Size: Large** | **+** |  |  |  |  |
| **HEI Size: Very large** |  |  |  |  |  |
| **HEI Type: Post-92** |  |  | **+** | **+** | **+** |
| **Gender:Male** | **-** | **-** |  | **+** |  |
| **Age:18-25** |  |  |  | **-** | **-** |
| **Age:26-35** |  |  |  |  |  |
| **Age:36-45** |  |  |  |  |  |
| **Age:46-55** |  |  |  |  |  |
| **Age:56-65** |  |  | **-** |  |  |
| **Age:66 and over** |  |  | **-** | **-** | **-** |
| **Distance learner:No** |  | **+** | **+** | **+** | **+** |
| **Distance learner:Not used** | **-** | **+** | **+** | **+** | **+** |
| **Status:Part-time** |  | **-** | **-** | **-** | **-** |
| **Level:PGT** | **+** |  |  | **+** | **+** |
| **Level:PGR** |  |  |  |  |  |

As Table 9 shows, in the 2015 survey the explanatory power of HEI level variables on HEI level variance also was mixed. Generally it can be concluded that being in a post-1992 HEI is positively related to Learning with Others (LO) and Interacting with Staff (IS) with regard to engagement. However, students in post-1992 institutions scored lower for Course Challenge. Scottish institutions also scored higher than the reference category (English institutions) for Learning with Others and Course Challenge. At the student level females generally demonstrated less engagement with most of the scales except Course Challenge. Older age groups answered most scales higher than the reference group (‘18 and younger’) except for Learning with Others. This corresponds with the results for the similar ‘Collaborative Learning’ scale in the UKES 2014 edition. Generally, distance learners and part-time student scored lower for engagement, both overall and for separate scales. With regard to country of origin African and Asian students indicated higher levels of engagement. Finally, not having a disability and being a Black and minority ethnic (BME) student were positive predictors of engagement. Like in UKES 2014, we can see that the overall indicator of engagement reflects the composition of the individual scales, which is to be expected as the overall score combines all the questionnaire items.

Table 9 Predictors for scales in UKES 2015 (core scales only)

|   | CRITICAL THINKING | LEARNING WITH OTHERS | INTERACTING WITH STAFF | REFLECTING AND CONNECTING | COURSE CHALLENGE | OVERALL |
| --- | --- | --- | --- | --- | --- | --- |
| **Location: Welsh** | **-** |  |  |  | **-** |  |
| **Location: London** |  |  |  |  |  |  |
| **Location: Scottish** |  | **+** |  |  | **+** | **+** |
| **Type: Post\_92\_Group** |  | **+** | **+** |  | **-** | **+** |
| **Gender: Female** | **-** |  | **-** | **-** | **+** | **-** |
| **Gender: Prefer not to say** | **-** | **-** | **-** | **-** | **-** | **-** |
| **Gender: Other** |  |  |  |  |  |  |
| **Age: 19-21 years old** |  |  | **+** | **+** |  |  |
| **Age: 22-25 years old** | **+** | **-** | **+** | **+** |  | **+** |
| **Age: 26-30 years old** | **+** | **-** | **+** | **+** | **+** | **+** |
| **Age: 31-35 years old** | **+** | **-** | **+** | **+** | **+** | **+** |
| **Age: 36-40 years old** | **+** | **-** | **+** | **+** | **+** | **+** |
| **Age: 41-45 years old** | **+** | **-** |  | **+** | **+** |  |
| **Age: 46-50 years old** | **+** | **-** | **+** | **+** | **+** | **+** |
| **Age: 51-55 years old** | **+** | **-** |  |  | **+** |  |
| **Age: 56 years old or over** |  | **-** |  |  | **+** |  |
| **Age: Prefer not to say** |  |  |  |  |  |  |
| **Ethnicity: BME** | **+** | **+** | **+** | **+** |  | **+** |
| **Ethnicity: Other** |  |  | **+** |  |  |  |
| **Distance Learner** | **-** | **-** | **-** |  | **-** | **-** |
| **Part-time Learner** | **-** | **-** | **-** |  |  | **-** |
| **Origin: Other EU incl. Cyprus** |  | **-** |  | **+** | **-** |  |
| **Origin: Other EEA countries** |  | **-** | **-** |  |  |  |
| **Origin: Other Europe** |  |  |  |  |  |  |
| **Origin: Africa** | **+** |  |  | **+** | **+** | **+** |
| **Origin: Asia** | **+** |  | **+** |  | **-** | **+** |
| **Origin: Australasia** |  |  |  |  |  |  |
| **Origin: North America** |  |  |  |  |  |  |
| **Origin: South America** |  | **-** |  |  |  |  |
| **Disability: No** | **+** | **+** |  |  | **+** | **+** |
| **Disability: Prefer not to say** | **-** |  |  | **-** | **-** | **-** |

# Conclusions and discussion

The purpose of this article was to perform multilevel analyses of two years of UKES data, 2014 and 2015, to obtain insight in predictors of undergraduate student engagement. Overall student engagement was between 2.1 and 3.5 (out of 4), as Tables 1 and 2 indicate. We set out to answer the following questions:

1. What proportion of the variance in engagement is explained by student and institutional characteristics, thereby determining whether the UKES surveys can reliably distinguish between institutions, and between disciplines?
2. What is the relationship between key student and institutional variables and engagement of UG students?

In our conclusion we add a third: What are the implications of these findings for sector and institutional priorities?

Firstly, we find that the overwhelming majority of variance for both UKES years is at the student level. For the 2014 edition there was only one scale, Collaborative Learning, which showed a percentage of over 10% variance explained at institutional level. However, as the 2015 UKES showed consistent student level variances above 90%, we conclude that there is very limited variance at discipline and institutional level, with the latter generally being the smallest. We can therefore conclude that it is not possible to reliably distinguish between institutions and between disciplines, as the differences between students far exceed the differences between disciplines and institutions. This result corresponds with the conclusions by Cheng and Marsh (2010) when using NSS data, where there also was a substantial lack of agreement among students within each university in terms of satisfaction with their educational experience.

We then turned to possible predictors of student engagement. Tables 6 and 7 show the full models for overall student engagement as dependent variable, and Tables 8 and 9 show the directions of all significant predictors for all the scales for both editions of the UKES survey. Both 2014 and 2015 editions of UKES showed many similarities in predictors, but there were some differences, partly caused by differences in the data collected. In both editions, at the institutional level, being a Post-92 institution was a positive predictor for student engagement. The only other significantly positive predictor at that level was for Scottish institutions in UKES 2015. At the student level, females, distance learners, part-time students and disabled student indicators were negative predictors of engagement, while indicators for BME and for students from Africa and Asia were positive predictors of engagement. Age showed a mixed picture. Within the overall engagement scale there was diversity on the distinct sub-scales in the UKES surveys. However, we can also see that the overall indicator of engagement reflects the composition of the individual scales, which is to be expected as the overall score combines all the questionnaire items. In some cases this caused negative predictors to be cancelled out by positive predictors, for example for gender in UKES 2014.

The policy context mentioned in the introduction, makes it likely that that ‘student engagement’ will remain relevant in the discourse surrounding HE. We posit that this study therefore has important implications for policy and practise. Firstly, as also reported by Cheng and Marsh (2010) in relation to NSS, there is little evidence that institution, or indeed discipline, has much impact on student engagement. Rather, differences between students account for the vast majority of such differences. Having said this, it has to be noted that the student variables included in UKES, which relate primarily to demographic characteristics, also do not explain much of the variance in student engagement. This suggests that other individual characteristics may be more relevant. For example, there were no variables relating to prior attainment, personality or Socio-Economic Status in the datasets. Some results are noteworthy, however. For example, it appears that students from outside the UK who come from different contexts in terms of culture and resources, in particular Asia and Africa, show higher levels of engagement, perhaps pointing to differential prior experiences of secondary education leading to differential expectations of UG study. The result with regard to Black and Minority Ethnic (BME) students in UKES 2015 is surprising in light of some recent studies (Boliver, 2015) that indicate that BME students are disadvantaged. A confounding factor here might be that BME is one big ‘container’ category. Results from other HEA surveys seem to indicate that within the category meaningful distinction might be made between sub-categories of BME (Bokhove & Muijs, 2016).

The current study has several limitations. A first set of limitations are related to the design of the study. For example that due to the large sample size for the datasets involved, many of the results are statistically significant even where observed differences are very small. The UKES surveys do not use a random sample but adopt a census approach which attempts to survey every student in the relevant population. However, this means that, like many surveys (even those which attempt a random sample) the resulting data is vulnerable to self-selection and non-response bias which is not accounted for in statistical significance testing. Measurement error at both the level of the university and the disciplines within a university is an important issue when comparing different universities and courses. In both years only a selection of universities and within universities a selection of students participated, potentially biasing the results. Over the two years of data, from 2014 and 2015, there seems to be quite some consistency in descriptives (Tables 2 and 3) and variance (Tables 4 and 5), despite differing properties of the samples. Perhaps this coincides with Cheng and Marsh’s (2010) observation that “ratings of universities are highly reliable and stable over time due to the large number of students” (p. 707). The volume by Massey and Tourangeau (2013) makes a point of noting that high rates of nonresponse do not necessarily translate into bias: response rates by themselves are poor indicators of bias. Nonetheless, low response rates do indicate a *potential* for bias (e.g. Lessler and Kalsbeek, 1992). Low response rates produce bias only to the extent that there are differences between responders and non-responders on the estimate(s) of interest.

To explore possible sample differences we compared the sample characteristics from 2014 and 2015 with enrolment data from the Higher Education Statistics Agency (HESA). Notable differences at the individual level are that the UKES data has more females than nationally, part-time students are under-represented, and UKES has younger students which might be related to the part-time aspect. Given the groupings used for subject areas it was hard to compare disciplines. At the institutional level the UKES samples included more medium-to-large HEI than nationally and less post-1992 institutions. Whether these differences, except for part-time mostly within ten percentage points, significantly affected the results is hard to tell. In some areas of experimental psychology it is asserted that nonresponse bias will tend not affect estimates of relationships, but this assumption seems problematic (Groves & Peytcheva, 2008, p. 182). More sophisticated bias analyses or post-survey adjustments like the use of weights, might be appropriate here as well. Notwithstanding this limitation, it is not unrealistic, in our view, that regardless of this limitation the survey will be used as ‘representative enough’ in a policy context. We therefore think the conclusions of this article remain worthwhile.

This also is the case for any missing data. In addition, deriving continuous variables (scales) from categorical Likert scales is not without controversy given that the ‘distance’ between categories (such as ‘very much’, ‘quite a bit’, ‘some’ and ‘very little’) cannot be assumed to be the same. Finally, some categories will necessarily concern low numbers (e.g. disabled students). It is therefore advisable to remain critical about coefficients for groups with low membership.

With all self-report questionnaires a key question is whether student judgements are a reliable measure of that what it purports to measure. Cho, Baek and Cho (2015), for example, find that students with good grades tend to highly rate the teaching quality of their instructors, in comparison with those who receive relatively poor grades. They interpret this finding as a ‘psychological gift’ from students to their instructors, rather than as reflecting instructor performance. It might shift the importance of ‘engagement’ as well: ‘if I score low, you must have not engaged me enough and provided a poor teaching experience.’ These might be part of the problem that, according to Kahn (2014), student engagement is still too weakly theorised. Even though we have defined ‘student engagement’, how do we measure it? Might, for examples, student evaluations produce good proxies for student engagement? Carrell and West (2010) find that student evaluations reward professors who increase achievement in the contemporaneous course being taught, not those who increase deep learning. Braga, Paccagnella, and Pellizzari (2014, p. 85) further question the relationship, by stating that it may in some cases be negative: ‘good teachers are those who require their students to exert effort; students dislike it, especially the least able ones, and their evaluations reflect the utility they enjoyed from the course.’ In a sense, engagement might even backfire here: if a teacher engages students by demanding effort, engagement might result in lower scores. Finally, Bassett, Cleveland and Acorn (2017) suggested that students’ lack of motivation and attention potentially threaten the utility of course evaluations. This seems just as applicable to engagement surveys, as they use student self-report as a proxy for either quality and/or engagement. If all this is the case, then HEIs and policymakers need to be clear that by prioritising student engagement and/or satisfaction measures they are essentially positioning students as consumers next to being learners, a position which at the least deserves some serious societal and political debate. Recently, researchers have begun to question the behavioural effects of policies which promote student engagement (e.g. Zepke, 2014).

The direction of the causality engagement-achievement is another factor that has contributed to mixed research results. A first challenge is, as described in the literature, there are many conceptions of the term ‘engagement’. A second challenge is that ‘engagement’ is often associated with other terms like ‘intrinsic motivation’ and ‘self-concept’. As for example Muijs (1997) and others have shown, elements of these are bidirectional. This might imply that solely looking at engagement as predictor of learning outcomes or teaching quality might not be enough, as outcome also influences engagement. Furthermore, these results suggest that even if one accepts student engagement as a suitable predictor of positive outcomes, it is a highly problematic accountability measure for HEIs due to the very low proportion of variance explained at institutional level. What would appear more appropriate with this type of data, is to would be to discern teaching quality, student satisfaction and student engagement in light of individual student characteristics. HEIs could be asked to explain what provisions they have in place for certain groups of students. Within all of this we must keep in mind that UG students on the whole value UK higher education positively, with the large majority of students (85%) being satisfied with their course (Neves & Hillman, 2016).

A final point that becomes clear from these analyses is that it is unclear what factors predict student engagement. If demographic characteristics only explain a limited amount, what individual characteristics do then primarily determine outcomes? Prior research again provides only limited information, with personal characteristics such as self-efficacy also proving of limited explanatory power (e.g. DeWitz & Walsh, 2002). Causality, as mentioned before, is an issue here as well: does more engagement cause better outcome, or do better outcomes also cause more engagement? It would be unfortunate, when connecting outcomes and engagement, when low scores for a module would be equated to the teacher ‘not having been engaging enough’. In our view, this certainly is an important point to scrutinise critically in further developing the TEF and accompanying measures for student engagement. There clearly is a fruitful avenue for further study into student engagement, albeit not one that is ever likely to tell us much about either student learning or university quality.

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1. In the dataset it says ‘memorising’ first which was an additional item and not part of the core scales (see the UKES 2014 report, Buckley, 2014). [↑](#footnote-ref-1)
2. All models converged and no non-admissible parameters were generated. As the independent variables were mainly categorical and ordinal, no centering was used. IGLS (iterative generalized least squares) is a maximum likelihood (ML) method based on estimating the random and fixed parts of the multilevel model alternately assuming the estimates for the other part are correct. This involves iterating between two GLS model fitting steps until the estimates converge to ML estimates. [↑](#footnote-ref-2)