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The Academic Boredom Survey Instrument (ABSI): a measure of trait, state and other characteristic attributes for the exploratory study of student engagement

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ABSTRACT

In this article, we present details of a new Academic Boredom Survey Instrument (ABSI) incorporating different measures of academic boredom's trait, state and other characteristic attributes for the exploratory study of student engagement in Higher Education (HE). Developed from a review of international research literature and our own empirical work in the field, validation of the ABSI proceeded in detail from a sample of 408 undergraduates enrolled on 16 arts, humanities and science degree programmes at two universities and two further education colleges in the UK. In terms of the ABSI's embedded trait and state questionnaires alone, Exploratory and Confirmatory Factor Analysis resulted in the establishment of three scales, with associated subscales, for general use (boredom proneness and class- and study-related boredom). Together with other characteristic attributes (e.g. sites and triggers, boredom frequency, feelings, coping strategies and revision and assignment boredom), additional data obtained from a modified version of the Shortened Experiences of Teaching and Learning Questionnaire (SETLQ) and course grades from student records, correlation and cluster analysis contributed further in terms of determining the robustness and value of the ABSI as an exploratory tool, as well as highlighting the predictive and diagnostic potential afforded when using complementary research instruments in combination. Offering availability for interdisciplinary use and critical comment across the UK HE sector as a whole, the ABSI has particular relevance in terms of designing and delivering courses, the professional development of staff, student profiling and the provision of student support.

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Introduction

According to Trowler (2010), student engagement across all areas of Higher Education (HE) provision is a matter:

> . . . concerned with the interaction between time, effort and other relevant resources invested both by students and their institutions intended to optimise the student experience and enhance the learning outcomes and development of students and the performance and reputation of the institution . . . (2)

In an ever-changing sector, perhaps more competitive and politicised now than at any other time in the past, with teaching excellence, student satisfaction and 'value for money' increasingly taking centre stage (Kahu 2013; Zepke 2017), understanding more about the resources associated with

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student engagement is essential. Often overlooked, but important, are emotions and the notion of emotional engagement. For Pekrun:

> . . . emotions can affect students' interest, engagement, achievement and personality development . . . emotions are [also] central to psychological health and well-being, implying that they should be regarded as important educational outcomes in themselves . . . (Pekrun 2006, 333–334)

With academic boredom emerging as one of the most important emotions known to impact usually adversely on students as a whole (Pekrun et al. 2014; Tze, Daniels, and Klassen 2016; Sharp, Sharp, and Young 2020), the work presented here sets out details of an Academic Boredom Survey Instrument (ABSI) designed to incorporate different measures of academic boredom's trait, state and other characteristic attributes for use in the exploratory study of student engagement itself. By trait, we refer here to the recurring propensity or habitual disposition of students towards getting bored at university or college. By state we refer here to the perceived experience of boredom in the moment when in class, when studying and when revising for examinations or completing assignments for assessment purposes.

With the comments of Trowler and Pekrun very much in mind, we consider the development of the new and cross-disciplinary ABSI for the exploratory study of academic boredom and student engagement in the UK an important contribution to the field. In its simplest sense, for example, it would not be unreasonable to anticipate or predict that those students measurably more prone to academic boredom than others might also experience adverse impacts on their academic performance and grades or other aspects of their student lives. Understanding more about academic boredom's sites and triggers, the frequency with which academic boredom occurs and how students respond when bored at university or college is therefore essential. Relatively easy to administer and interpret, the ABSI was constructed and validated following a review of international research literature, including both quantitative and qualitative contributions, and our own empirical work in the field (notably Harris 2000; Pekrun et al. 2002, 2011; Mann and Robinson 2009; Trigwell, Ellis, and Han 2012; Tze et al. 2013a; Goetz et al. 2014; Sharp, Hemmings, and Kay 2016; Sharp et al. 2017). The practical implications of findings are also considered here in terms of course design and delivery, the professional development of staff, student profiling and student support.

Review of literature

Academic boredom: an emerging area of interest

The formal study of academic boredom, the boredom associated with being a student at university or college, has a relatively recent history (Piotrowski 2016). Emerging alongside a growing recognition and definition of boredom at work as the psycho-physiological response to certain task situations in which the patterns of activity are nearly constant or highly repetitive and monotonous (Smith 1981; O'Hanlon 1981; Perkins and Hill 1985), Wright and Moore (1982), Johnston and O'Malley (1986) and Maroldo (1986) were among the first to document its effects on students resulting in a lack of motivation, the adoption of high-risk behaviours, feelings of confinement, the altered perception of time and a negative correlation with grade point average. Aldridge and DeLucia (1989) subsequently reported 41% of 252 college participants in the United States also feeling frequently bored as a result of the mismatch between course expectation and reality. Introducing the term *'academic boredom'* in recognition of its setting in Higher Education (43), Aldridge and DeLucia also referred directly to the academic boredom observed at college, in their minds at least, as something of a *'plague'* (43).

Noting the *'the importance of boredom as an issue in . . . education'* (4), the 1980s also witnessed publication of the Boredom Proneness Scale (BPS) by Farmer and Sundberg (1986). Validated with only 233 undergraduates in the United States, the BPS was subsequently used largely by psychologists in the study of trait boredom among general populations around the world well into the 1990s

and beyond. In the 1990s in particular, and alongside a growing refinement in definitions (e.g. *'relatively low arousal and dissatisfaction . . . attributed to an inadequately stimulating situation'* Mikulas and Vodanovich 1993, 3; *'a pervasive lack of interest in and difficulty concentrating on [the] current activity'*; Fisher 1993, 396), the correlational relationship between academic boredom and a range of human conditions and pathologies also became clear, with an emphasis on negative affect (e.g. anxiety, depression, loneliness and withdrawal), attention deficit and cognitive disorders (e.g. lapses in concentration and memory), personality variables (e.g. extraversion, introspection and personal relationship problems) and impulse control deficits (e.g. gambling, smoking, alcohol and substance abuse, eating disorders and sexual promiscuity). This, in turn, gave rise in many instances to some discussion of student engagement (Watt and Vodanovich 1999; Vodanovich 2003). Originally considered a unitary construct, the factor structure of the BPS also became the subject of intense scrutiny, not only in the United States where it was first developed (Vodanovich and Kass 1990; Vodanovich, Wallace, and Kass 2005; Melton and Schulenberg 2009) but in Canada (Ahmed, 1990), Australia (Gordon et al. 1997), France (Gana and Akremi 1998), Turkey (Dursun and Tezer 2013) and Italy (Craparo et al. 2013). The inability to accurately replicate the factor structure of the BPS pointed not only to methodological issues in how replication was attempted but to situational and culture-specific variation in boredom itself (Mercer-Lynn et al. 2011; Mercer-Lynn, Bar, and Eastwood 2014). Despite its age, the inclusion of now dated statements and psychometric limitations, the BPS retains a limited presence even today (Sharp, Hemmings, and Kay 2016; Vodanovich and Watt 2016).

Control–Value Theory: a contemporary perspective

While arousal and attention-related theories from within psychology remain commonplace in the general study of boredom (Malkovsky et al. 2012; Vogel-Walcutt et al. 2012; Fahlman et al. 2013), Control–Value Theory (CVT) offers a more comprehensive and trans-theoretical educational perspective within which the complexity of academic boredom at university and college is better explained. As the pioneer of CVT, Pekrun (2000, 2006) considers academic boredom a multi-faceted and integrated network of cognitive, affective, motivational, expressive and physiological processes working together in coordinated ways linked directly to both achievement activities and their outcomes. In essence, CVT predicts the positive or negative outcome direction of educational tasks and activities based upon the emotions aroused in relation to the importance attached to completing them. Relative to the perceived benefit of doing so, students who believe that little control is possible over where they are or what they do are thought more likely to exhibit lower levels of commitment towards their academic goals, thereby lowering performance prospects and outcomes (Pekrun and Stevens 2010). In what might easily be perceived as the 'confining' environment of the lecture theatre, with little choice over the subject material and how it is presented, or with little connection with individual student goals, for example, the value attached to learning might easily be diminished. Under such circumstances, students with a greater propensity towards academic boredom are now known to become more state- rather than goal-oriented, with an accompanying sense of 'disordered agency' (Eastwood et al. 2012).

In accordance with CVT, academic boredom was (re)defined from earlier work in the 1980s as a psycho-physiological response to a supposedly meaningful educational event, and no longer considered the *'silent emotion'* unworthy of attention (Pekrun et al. 2010, 531). From the advent of CVT, a range of instruments incorporating academic boredom have since appeared (Govaerts and Grégoire 2008; Tze et al. 2013b; Tze, Daniels, and Klassen 2014a; Acee et al. 2010), of which the Achievement Emotions Questionnaire (AEQ) and its derivative the Learning Related Boredom Scale (LRBS) have perhaps received most attention (Pekrun et al. 2002, 2011; Tze et al. 2013a). Firmly identified as an important and largely negative and deactivating emotion with consequences, academic boredom has now been associated in many international studies with a reduction in intrinsic motivation to learn, student effort, self-regulation and a sense of belongingness (Ruthig et al. 2008; Daniels et al. 2009; Pekrun et al. 2014; Artino and Jones 2012; Tze, Klassen, and Daniels

2014b; Ranellucci, Hall, and Goetz 2015; Garn et al. 2017; Heckel and Ringeisen 2017; Ghensi et al. 2020), with a corresponding increase in unproductive social media use, Internet addiction and drop-out intention (Kalpidou, Costin, and Morris 2011; Li et al. 2015; Skues et al. 2016; Skues, Williams, and Wise 2017; Respondek et al. 2017). Experience sampling *in vivo* by Goetz et al. (2014) has also resulted in a detailed typology of five academic orientations ranging from indifferent boredom (the least unpleasant) to apathetic boredom (the most debilitating with a presentation similar to depression). Despite the range of instruments currently available, and the substantial contribution to our understanding of academic boredom arising as a result, however, almost all were developed, validated and applied from within psychology and used to explore the variety of constructs presented from a domain-specific rather than perhaps broader and multi-disciplinary perspective. In addition, the AEQ, originally published in German, was subsequently translated and revalidated with the LRBS in Canada (Pekrun et al. 2002, 2011; Tze et al. 2013a) and later modified for use with students across many of the studies highlighted both there and in China, the United States and Australia. While the LRBS considers academic boredom and certain aspects of student learning more specifically (other instruments focusing on academic boredom's precursors or antecedents, student coping and avoidance strategies or boredom in under- and over-achieving situations), the AEQ considers academic boredom alongside other achievement-related emotions including anxiety, anger, shame, hopelessness, enjoyment, pride and relief. The focus on trait or state boredom in both instruments is not always clearly defined.

Academic boredom and student engagement

Like academic boredom, the formal study of student engagement also has a relatively recent history. Taking many different forms, understanding the ways in which students approach their work, and the now familiar deep and surface features associated with learning and the organised effort required to maximise the use of available resources for achievement, has remained a common theme, helping identify 'more productive' and 'less productive' ways of working (Entwistle and Ramsden 1983; Biggs 1987). Similarly, understanding how students perceive their Higher Education experience has also proved particularly helpful, ensuring the constructive alignment between how courses are designed, taught and assessed (Entwistle 2009; Biggs and Tang 2011). With instrumentation originally developed for use in Australia (Ramsden 1991) and the UK (Entwistle, McCune, and Hounsell 2002), including the Shortened Experiences of Teaching and Learning Questionnaire (SETLQ) adopted here, the nature of student adaptations towards specific course requirements across different disciplinary and cultural contexts is now a more widespread international affair (Entwistle, Tait, and McCune 2000; Lizzio, Wilson, and Simons 2002; Nijhuis, Segers, and Gijselaers 2008), with recent interest in student profiling emerging strongly in Norway and Finland (Diseth 2007; Ruohoniemi and Lindblom-Ylänne 2009; Parpala et al. 2010; Haarala-Muhonen et al. 2011; Hailikari, Tuononen, and Parpala 2018; Postareff, Mattson, and Parpala 2018; Asikainen, Salmela-Aro, and Parpala 2020).

Despite sharing many underlying learning processes in common with other aspects of student life (e.g. cognitive, affective, behavioural, motivational and physiological), studies which consider academic boredom alongside ways of working and perceived course experiences remain relatively few in number, despite their obvious attraction. In the first of two examples, and with 388 first-year biology students at the University of Sydney, Trigwell, Ellis, and Han (2012) reported that those participants who tended to exhibit high questionnaire scores associated with negative emotions like academic boredom also scored more highly in questionnaire items referring to surface approaches to learning. Those same participants were also more likely to do less well in terms of course grades. Conversely, those who tended to score higher in positive emotions also scored higher in deep approaches, with a corresponding increase in achievement. The authors concluded by emphasising the importance of embedding emotional considerations into the design of all new teaching and learning environments in Higher Education. Inspired by the work of Mann and Robinson (2009), but

in a broader and more mixed-methods investigation of 179 final year Education Studies students at a single university in the UK with an earlier ABSI iteration, Sharp et al. (2019) also reported that almost all of the participants involved displayed some propensity towards academic boredom with lower levels of engagement reported in traditional lectures than in other forms of course delivery as anticipated (see also Sharp et al. 2017, 2018; Finkielsztein 2019; Tibubos, Rohrmann, and Ringeisen 2019). While positively predicting the adoption of surface ways of working over others, higher levels of academic boredom were also associated with a reduction in organised effort and a less favourable course experience. In common with other studies of its type (Tze, Daniels, and Klassen 2016; Sharp, Sharp, and Young 2020), those participants more prone to academic boredom and less engaged than others were also found to graduate with lower class degree awards. Easily recognisable as drowsiness and yawning in class, heads resting in hands, bodies slouched in seats and vacant or distant stares, academic boredom was considered to play a far more critical role among UK students than previously imagined.

Addressing its underrepresentation and lack of attention in UK research, the ABSI presented here was developed as a probe specifically for educational use in the broadest sense and to promote interdisciplinarity across a range of UK HE providers including universities and colleges. As reinforced by Vodanovich (2003):

> … It would be beneficial for future researchers to focus on the development of additional measures of boredom … both multidimensional and full-scale in nature … guided by an integrated theory and definition … to differentiate between (and assess) state and trait … (588–589)

Methodology

Instrumentation, data handling and analysis

Located within the framework and definition of academic boredom provided by CVT and developed from a review of international research literature and our own empirical work in the field as indicated, the ABSI was structured into three sections (the final and accepted version is presented as shown in Appendix A):

- Demography: Respondent background including age, sex, year of study, course details, entry qualifications, self-study hours, hours in paid employment, socio-economic background and attendance;
- Scale measurement: Three embedded questionnaires providing the means by which boredom proneness as a trait (18 initial items reduced to 10) and class and study-related states (16 initial items reduced to 10 and 16 initial items reduced to 11, respectively) can be quantified, with item selection itself informed by the work of Pekrun et al. (2002, 2011), Trigwell, Ellis, and Han (2012), Tze et al. (2013a), Sharp, Hemmings, and Kay (2016) and the qualitative findings arising from interviews presented in Sharp et al. (2017). These were carefully worded to reflect the diversity of academic boredom's cognitive, affective, motivational, behavioural and physiological precursors or antecedents and situational contexts and scored using a 5-point Likert scale denoting level of item agreement (high scores reflecting a greater emotional response);
- Other characteristic attributes: Including the sites and triggers of academic boredom (e.g. lecture, seminar or tutorial with causal factors), boredom frequency (e.g. relative time and percentage), feelings associated with being bored (e.g. worry missing out on something), responses and coping strategies (e.g. daydreaming) and the boredom associated with revising for examinations and completing assignments for assessment purposes, with statements informed by the work of Harris (2000), Mann and Robinson (2009), Goetz et al. (2014) and the qualitative findings also arising from interviews presented in Sharp et al. (2017).

In terms of establishing the ABSI's robustness and predictive and diagnostic potential, information was also obtained using a modified version of the Shortened Experiences of Teaching and Learning Questionnaire (SETLQ) with its own sections including course expectation (intrinsic motivation), ways of working (deep, organised effort and surface approaches to learning), perceived course experiences and course demand (the final and accepted version is presented as shown in Appendix B). The SETLQ was selected for its complementarity and frequent use as a means of gauging student engagement (Entwistle, McCune, and Hounsell 2002). End of year course grades expressed as overall average percentages were also obtained from student records where available and with permission.

All numerical data handling and analysis was carried out using SPSS (v.26) and AMOS (v.26), the former for descriptive statistics, Exploratory Factor Analysis (EFA), correlational analysis and cluster analysis, the latter for Confirmatory Factor Analysis (CFA). Researcher involvement was also essential when evaluating statistical outcomes and solutions. Data analysis was, therefore, iterative in nature and involved repeated stages of modelling and decision-making (Ho 2014). Free-response items were analysed for their content.

Sampling

Work involving the ABSI was undertaken in four participating institutions, including two universities (HE) and two colleges of further education offering degree level provision (HE in FE) in the UK. These were purposively selected on the basis of established professional networks to help provide the greatest possible diversity of locations and catchments in terms of student demographics. 1,079 ABSIs with attached SETLQs were distributed among all full-time, campus-based undergraduate students enrolled on 16 different arts, humanities and science degree programmes during normal class time by interested tutors. Four hundred and seventy-one of the 1,079 instrument pairs circulated were returned (43.6%) of which 63 (13.4%) were later found to be incomplete or displayed uniformly extreme or inconsistent patterns of responses throughout and discarded. The remaining 408 convenience sampled and usable returns yielded an effective response rate of 37.8% (varying from 28.5% in the largest institution to 77.8% in the smallest). Distribution at one of the four institutions alone returned 209 ABSIs comprising a little over half of the sample as a whole (51.2%). Film and Media Studies (arts) provided the smallest individual subject contribution (3.7%), Education and education-related, Business Studies and Biomedical and health-related courses (humanities and science) the largest (24.2%, 23.8% and 22.5% respectively).

Ethics

Ethical approval for the work was obtained at each participating institution in accordance with its own ethics policy and procedures with additional ethical guidance provided by the British Educational Research Association (BERA, 2011). Student involvement proceeded with informed consent and remained entirely voluntary throughout.

Findings

Findings here begin with an account of respondent background before exemplifying validation of the three ABSI questionnaires and the derivation of new scales and subscales for measurement. Alongside other characteristic attributes frequently associated with academic boredom, ABSI and SETLQ data are then considered together in the correlation and cluster analysis of engagement.

Respondent background

A detailed breakdown of respondent background is presented as shown (Table 1). In summary, 264 (64.7%) respondents were female and 139 (43.1%) were male (5 respondents or 1.2% preferred not to

Table 1. Respondent background (n = 408).

Characteristic	Frequency (%)
Sex	
Male	139 (34.1)
Female	264 (64.7)
Other (prefer not to say/declared)	5 (1.2)
Provider	
College (HE in FE)	107 (26.2)
University (HE)	301 (73.8)
Year of study	
Foundation year	11 (2.7)
First	183 (44.9)
Second	167 (40.9)
Third	47 (11.5)
Degree	
Foundation (FdA/FdSci)	95 (23.3)
Honours (BA/BSc)	313 (76.7)
Domain	
Arts	38 (9.3)
Humanities	252 (61.8)
Science	118 (28.9)
Entry qualifications	
A-levels	247 (60.5)
A-level equivalents (e.g. Access/BTEC/NVQ)	111 (27.2)
Other (e.g. international equivalents)	50 (12.3)
Higher Education generation	
First in family	210 (51.5)
Others in family	198 (48.5)
Occupational background	
Professional	155 (38.0)
Manual	236 (57.8)
Other (e.g. long term unemployed/deceased/don't know)	17 (4.2)
Working to earn while studying	
Yes	221 (54.2)
Perceived attendance	
Excellent	186 (45.6)
Good	157 (38.5)
Satisfactory	56 (13.7)
Poor	9 (2.2)

say). With a mean age of 21.8 years (range 18 to 53 years), the overwhelming majority were in the first and second years of study (85.8%) and taking Bachelor's degrees in humanities subjects across all sites (76.7% and 61.8%, respectively). A little over half (51.5%) were among the first in their immediate families to participate in Higher Education, with slightly more from 'manual' occupational backgrounds (57.8%). Two hundred and twenty-one (54.2%) respondents were in paid employment while studying full-time, working on average 19.1 hours per week. An average of only 9.9 hours per week were devoted to self-study. Most respondents described their attendance at university and college as excellent or good (84.1%). Though not requested in the ABSI, respondents from Business Studies and Biomedical and health-related courses were known from records to be among the most ethnically diverse.

Validation and the ABSI questionnaires

In order to identify new scales and subscales with which to measure academic boredom's trait (boredom proneness) and state (class- and study-related) dimensions, the three ABSI questionnaires were subjected to both Exploratory (EFA) and Confirmatory Factor Analysis (CFA). During pre-screening (Field 2013), and for each questionnaire in turn, individual items were considered potentially unsuitable if presenting with relatively low individual item variances (insufficiently differentiated), skewness and kurtosis values suggesting a violation of normality (greater than .900), a majority of

relatively low inter-item or item-total correlations (less than .300) or inter-item correlations suggesting multicollinearity (greater than .900). Vulnerable items were nevertheless retained if supported by CVT.

EFA outcomes, used to group remaining questionnaire items into a smaller number of individual latent variables or factors displaying content consistent with each construct under consideration, were analysed in terms of sample adequacy (KMO value greater than .700), item grouping (Bartlett's test of sphericity significant), scree plots, eigenvalues and the percentage of variance explained (Costello and Osborne 2005; Henson and Roberts 2006). Questionnaire items with low communalities (less than .300) and low individual item loadings (less than .350), or where the complex cross-loading of individual items occurred, were considered candidates for further elimination. Cronbach's alpha (α) determined scale and subscale reliability (greater than .700 preferred). Guidelines for CFA practice varies (Bentler 1990; Hu and Bentler 1999; Byrne 2013), with positions surrounding the combined use of EFA and CFA on the same data sets discussed in Van Prooijen and van der Kloot (2001) and Fokkema and Greiff (2017). Nevertheless, CFA usefully models the theoretical nature of different EFA solutions to the fit of empirical data using a combination of published goodness-of-fit indices and threshold values (χ^2/df less than 3.000, TLI and CFI greater than .900, RMSEA less than .080 and pclose greater than .050 preferred). CFA can also help further identify vulnerable questionnaire items on the basis of low individual regression weights (less than .500).

Exemplification of process

Exemplified with a complete exposition of academic trait boredom (boredom proneness) alone, pre-screening of the 18 questionnaire items presented in the original ABSI distributed resulted in the identification of six vulnerable items which were removed. Two further items were subsequently removed during initial iterations of EFA (cross-loading). The reduction to 10 remaining items, given some duplication in wording and focus with those excluded, was considered acceptable. With a KMO value of .879 and a significant Bartlett's test ($p < .001$), the scree plot and eigenvalues remained inconclusive suggesting either one, two or three-factor solutions explaining 42.9%, 53.5% and 62.4% of the overall variance observed, respectively. CFA outcomes confirmed the best fit of theory and data with the three-factor model, while offering measurement with potentially greater exploratory power (χ^2/df = 2.530, TLI = .945, CFI = .961, RMSEA = .061, pclose = .123). Considering the items within each factor collectively, these were subsequently labelled tedium (reflecting repetition and monotony), time (reflecting perception and use) and stimulation (reflecting restlessness and the need for excitement). The same process of validation for the class and study-related state questionnaires resulted in two-factor solutions in each instance: class-related – concentration and confinement (16 items reduced to 10); study-related – disinterest and distraction (16 items reduced to 11). The final EFA and CFA outcomes with scale and subscale statistics, including scale and subscale reliabilities (Cronbach's α trait = .850; class-related = .896; study-related = .903), are presented as shown (Tables 2–4).

Further CFA modelling also confirmed that all three 'first order' questionnaire solutions converged successfully onto 'second-order' constructs as expected, indicating that while academic trait, class and study-related boredom are indeed multidimensional in nature, they can also be represented meaningfully as single scores derived from full-scale measures themselves (overcoming some of the issues presented by sometimes relatively low α values and the small number of individual items per subscale). As the trait and state dimensions of academic boredom are widely acknowledged to be related theoretically but spatially, temporally and psychologically distinct, a final and more integrated and holistic CFA model was also tested and accepted (χ^2/df = 2.044, TLI = .917, CFI = .924, RMSEA = .051, pclose = .405). This is presented as shown (Figure 1).

Table 2. Exploratory Factor Analysis of academic trait and state boredom scales (values <.350 suppressed, n = 408).

	Boredom proneness (trait)				Class-related (state)			Study-related (state)	
	Rotated loadings (pattern matrix)				Rotated loadings (pattern matrix)			Rotated loadings (pattern matrix)	
Item	Factor 1	Factor 2	Factor 3		Factor 1	Factor 2		Factor 1	Factor 2
P9 We seem to do the same things over and over again, it's a really familiar and tiresome routine	.860	-	-	C5 My mind begins to really wander on to other things	.918	-	S5 I get more and more moody and down	.792	-
P3 I find that that the things we have to do are really repetitive and monotonous	.593	-	-	C7 I start to really lose my concentration	.819		S8 I get more and more impatient and irritable	.789	-
P10 I find most of what we do really tedious, I'd rather be doing something far more useful somewhere else instead	.540	-	-	C3 I get really tired and sleepy or start yawning all the time	.713	-	S7 I get really tired and start drifting off to sleep	.713	-
P2 I find myself trapped in situations having to do really meaningless things	.396	-	-	C4 I start to really slump or sink into my chair	.670	-	S11 I feel really isolated and cut off from everyone else	.671	-
P6 I find myself just sitting around on my own doing little of any real value	-	.765	-	C8 My brain just 'switches off'	.667	-	S6 Time just seems to slow down to a complete standstill	.579	-
P7 I find I struggle to occupy my time or to use it really productively	-	.751	-	C2 I have real problems staying focused and alert, particularly if there's no way to make a contribution	.641	-	S10 I get really fed up because the work is too challenging, I don't understand it or know what to do	.501	-
P1 I find myself at a loose end not really knowing what to do next	-	.387	-	C6 I think about what else I'd rather be doing instead of just sitting here in class	.639	-	S2 I'd rather put the work off until later and do something completely different instead	-	.852
P4 I need a lot more stimulation to get me going than most other people I know	-	-	.671	C1 Because time just drags on by, I find myself clock-watching more and more	.560	-	S1 When I feel like this, I have no real desire or motivation to learn	-	.747
P5 I find it difficult to get really excited about my work	-	-	.486	C10 As time goes by, I get more and more irritable and frustrated, particularly if I can't get involved	-	.771	S3 I get really fed up just sitting at my desk working all the time	-	.656
P8 I get quite restless or even frustrated unless I'm fully engaged	-	-	.483	C9 I feel stuck in the room and unable to escape	-	.739	S4 I really struggle to stop my mind wandering on to other things	-	.643
							S9 I find it really hard to concentrate and get easily distracted as a result	-	.558

Table 3. CFA outcomes for the different academic boredom models tested (n = 408).

Dimension	Model tested	χ^2	df	χ^2 /df	TLI	CFI	RMSEA (90% CI)	p (close)
Boredom proneness (trait)	First-order: One factor	412.811	36	11.467	.625	.700	.160 (.147–.174)	<.001
	First-order: Two factors	120.061	34	3.531	.909	.931	.079 (.064–.094)	<.01
	First-order: Three factors	80.970	32	2.530	.945	.961	.061 (.045–.078)	.123
Class-related (state)	First-order: One factor	212.857	35	6.082	.878	.905	.112 (.098–.126)	<.001
	First-order: Two factors	113.848	34	3.348	.944	.957	.076 (.061–.092)	.003
Study-related (state)	First-order: One factor	256.135	44	5.821	.872	.898	.109 (.096–.122)	<.001
	First-order: Two factors	105.042	43	2.443	.962	.970	.060 (.045–.074)	.131
Academic boredom: Integrated trait and state (Figure 1)	Second-order with three first-order factors	866.821	424	2.044	.917	.924	.051 (.046–.055)	.405

Table 4. Summary statistics for academic boredom scales/subscales (n = 408).

	Boredom proneness (trait)				Class-related (state)			Study-related (state)		
Measure	Full-scale	Tedium	Time	Stimulation	Full-scale	Concentration	Confinement	Full-scale	Disinterest	Distraction
Number of items	10	4	3	3	10	8	2	11	6	5
Scale/subscale mean	2.66	2.51	2.64	2.89	3.05	3.19	2.49	2.92	2.65	3.24
Standard deviation	0.636	0.738	0.813	0.745	0.773	0.803	1.023	0.796	0.874	0.859
Range	1.00–4.75	1.00–4.75	1.00–5.00	1.00–5.00	1.00–5.00	1.00–5.00	1.00–5.00	1.00–5.00	1.00–5.00	1.00–5.00
Inter-item correlation	.251–.623	.416–.623	.416–.611	.296–.400	.292–.689	.404–.689	.609	.308–.692	.394–.692	.492–.644
Item-total correlation	.554–.730	.739–.836	.738–.846	.736–.766	.480–.824	.685–.824	.897	.649–.792	.687–.821	.782–.819
Skewness	0.238	0.347	0.057	0.281	−0.136	−0.167	0.510	0.139	0.358	−0.082
Kurtosis	−0.088	−0.032	−0.397	0.106	−0.436	−0.378	−0.378	−0.154	−0.087	−0.372
Cronbach's α	.850	.791	.740	.612	.896	.894	.757	.903	.851	.860

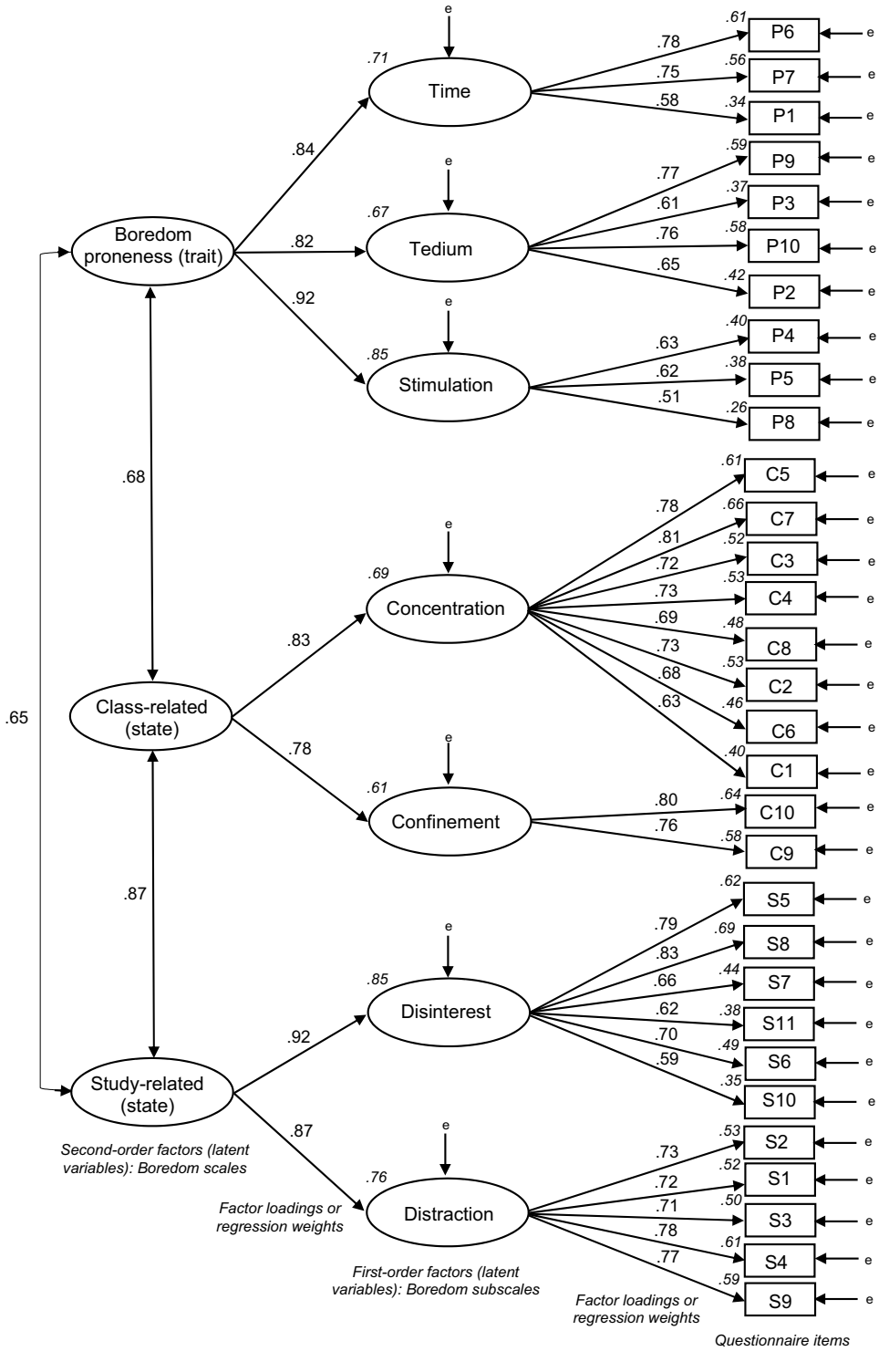

Figure 1. Annotated structural and measurement model of academic boredom (n = 408).

Table 5. Relationship between stated frequency and percentage of time bored in class and academic trait and state boredom scores (n = 408).

How often do you get bored in class?	Frequency (%)	Mean time estimate (%)	Mean score boredom proneness (trait)	Mean score class-related boredom (state)	Mean score study-related boredom (state)
Always	32 (7.8)	85.1	3.18	3.77	3.33
Usually	116 (28.4)	65.2	2.95	3.38	3.13
Occasionally	173 (42.4)	35.6	2.58	2.96	2.85
Rarely	82 (20.1)	14.8	2.26	2.50	2.63
Never	5 (1.2)	0.0	2.16	2.44	2.25

Other characteristic attributes

Drawing on the questionnaire scales and additional information extracted from within the ABSI in different ways (Appendix A), other characteristic attributes frequently associated with academic boredom can be described more fully (see also correlation and cluster analysis). With reference to academic boredom as a trait, full-scale scores ranged from a mean of 1.00 (those with little to no discernible propensity towards academic boredom whatsoever) to 4.75 (those most highly prone). With reference to the greatest relative strength of feeling among individual items alone, however (selecting usually and always), 153 (33.1%) respondents rated the restlessness or frustration associated with the lack of meaningful engagement the single most important contributing factor overall (P8), with any tedium associated with what they do at university or college the least (P10). Other potentially important contributors including the struggle to use time productively and the monotony associated with repetition rated moderately highly, but only among 22.8% and 16.9% of respondents, respectively.

Similarly, full-scale class-related scores ranged from a mean of 1.00 (little to no perceived experience of boredom in class whatsoever) to 5.00 (those most likely experiencing boredom in class particularly frequently). One hundred and ninety-six (48.0%) respondents rated a loss of concentration the single most important contributing factor overall (C7), with feeling stuck where they were and unable to escape the least (C9). Class-related boredom was also commonly associated with feeling tired or sleepy and having trouble staying focused and alert, scoring highly among 41.9% and 41.5% of respondents, respectively. As also reported by Mann and Robinson (2009) and Sharp et al. (2019), traditional lectures were considered less engaging and more boring than seminars, tutorials, or other forms of delivery, with respondents citing an excess and inappropriate use of *PowerPoint* (e.g. reading from text-laden slides), a lack of relevance, coherency or pace, and student (mis)behaviour in the lecturer theatre most responsible. Regardless of location, daydreaming, just 'switching off' or doodling were among the most frequently adopted alternative behaviours, with many turning at different times to social media and the Internet (36.4% and 25.0% of respondents, respectively). The most common feelings when bored in class included a desire to be somewhere else instead and the anxiety and worry of missing something important (29.7% and 27.9% of respondents, respectively).

Full-scale study-related scores also ranged from a mean of 1.00 (little to no perceived experience of boredom when studying whatsoever) to 5.00 (those most likely experiencing boredom when studying particularly frequently). One hundred and eighty-three (44.8%) respondents rated having a lack of desire or motivation to learn the most important contributor overall (S1), with isolation and being cut-off from others the least (S11). Study-related boredom was also commonly associated with a loss of concentration and ease of distraction as well as putting off work until later (44.1% and 41.6% of respondents, respectively). For many, the experience of boredom when studying was also associated with sitting at a desk for long periods of time and moodiness (36.8% and 27.7% of respondents, respectively). When revising for examinations or completing assignments for assessment purposes, free-response comments drew most attention to academic boredom arising from repetition, overly long lead-in times and a lack of choice over what to do and how to do it.

Of course, deriving scores from a questionnaire, no matter how high or low, gives no indication of the actual onset or frequency of academic boredom itself. Within the ABSI, however, respondents were also asked to declare how often they thought they got bored in class in particular, and to provide a corresponding time estimate in percentage terms. The direct relationship between all variables is presented as shown (Table 5), with 87 (21.3%) respondents reporting hardly ever getting bored at all (never or rarely), 148 (36.2%) getting bored on a regular basis (usually or always), and the majority, 173 (42.4%), experiencing boredom at least occasionally as might be expected. With a matching range of full-scale scores supporting the internal validity of the ABSI, male respondents were slightly but significantly more prone to academic boredom than female (mean score 2.83 vs 2.57, $t_{[401]} = 3.991$, $p < .001$), those at university were slightly but significantly more prone to academic boredom than those at college (mean score 2.73 vs 2.48, $t_{[406]} = 3.480$, $p < .01$) and those taking degrees in the humanities were slightly but significantly more prone to academic boredom than those in science (mean score 2.78 vs 2.44, ANOVA $F_{[2,405]} = 12.462$, $p < .001$). No significant differences were observed with respect to class and study-related boredom.

Predictive and diagnostic potential: correlation and cluster analysis

As indicated earlier, the value of the ABSI as an exploratory tool is further highlighted with reference to the predictive and diagnostic potential afforded when used alongside other research instruments of a complementary nature and by including end-of-year course grades. The Shortened Experiences of Teaching and Learning Questionnaire (SETLQ) adopted here was modified and reduced from the 60-item original to a more parsimonious 45-item, 4-scale version using EFA and CFA in order to improve utility, to help reduce questionnaire fatigue and to provide a degree of continuity with the research literature (Appendix B). The four scales included course expectation (4 items measuring intrinsic motivation), ways of working (11 items, three subscales, measuring deep and surface approaches to learning and organised effort), experiences of teaching and learning (21 items, five subscales, measuring different aspects of course design and delivery) and course demand (9 items, two subscales, measuring academic and information retrieval skills). An additional item considering lack of purpose as a measure of 'amotivation' was also included. As with the questionnaire sections of the ABSI, each section of the SETLQ generated respondent scores from a 5-point Likert scale (high scores reflecting a more positive response). End of year course grades among the 215 (52.7%) respondents for whom data was available ranged from 38% to 82% with a mean of 62.1%.

In brief, the majority of SETLQ responses were largely positive as might be anticipated. By way of example and with reference to the greatest relative strength of feeling among individual items again (selecting agree and strongly agree), 383 (93.9%) respondents expected that things they would learn at university or college would help develop them as people and broaden their horizons (E1), 332 (81.4%) rated the enthusiasm of staff and a personal interest in course content particularly highly (TL18 and TL20, respectively), 270 (66.2%) considered following arguments and understanding the logic behind what they were studying really important (A4) and 263 (64.5%) put a great deal of effort into learning (A5). By way of contrast, however, a relatively large number of respondents (30.4%) still felt that much of what they were learning seemed unrelated (A10), with teaching and learning items focusing on course coherency, feedback and choice scoring among the lowest (e.g. TL2). In terms of course demand, accommodating workload and tracking down information for themselves presented the greatest difficulty, affecting 33.8% and 21.1% of respondents, respectively (D5 and D8). Surprisingly, 84 (20.6%) of all respondents when asked had, at least at some point in time, questioned why they had chosen to go to university or college at all (LOP).

With correlation measuring the linear relationship between relevant variables, a detailed correlation matrix incorporating ABSI, SETLQ and end of year course grade data is presented as shown (Table 6). All correlations presented in the directions predicted: positively and often moderately between academic boredom (all scales) and the percentage of time bored in class, lack of purpose and surface approaches to learning; negatively and often moderately between academic boredom

Table 6. Pearson correlation (n = 408; †215 grades; nsnot significant, * p < .05, ** p < .01).

	Boredom proneness (trait)	Class-related boredom (state)	Study-related boredom (state)	% time bored in class	Lack of purpose	Initial expectation (motivation)	Deep	Organised effort	Surface	Experiences of teaching and learning	Course demand (academic)	Course demand (information)	% Course grade†
Boredom proneness (trait)	-	.480**	.521**	.473**	.422**	−.136**	−.244**	−.365**	.529**	−.426**	−.087 ns	−.236**	−.257**
Class-related (state)		-	.646**	.480**	.249**	.005 ns	−.107*	−.281**	.348**	−.286**	−.020 ns	−.141**	−.042 ns
Study-related (state)			-	.272**	.302**	−.016 ns	−.145**	−.398**	.456**	−.252**	−.157**	−.201**	−.189**
% time bored in class				-	.237**	−.322**	−.226**	−.219**	.278**	−.322**	−.003 ns	−.066 ns	−.126 ns
Lack of purpose					-	−.247**	−.226**	−.207**	.450**	−.382**	−.115*	−.214**	−.216**
Initial expectation (motivation)						-	.367**	.242**	−.123*	.328**	.066 ns	.124*	.079 ns
Deep							-	.342**	−.258**	.452**	.201**	.257**	.101 ns
Organised effort								-	−.269**	.333**	.181**	.349**	.193**
Surface									-	−.289**	−.206**	−.343**	−.287**
Experiences of teaching/learning										-	.209**	.302**	.169*
Course demand (academic)											-	.505**	.128 ns
Course demand (information)												-	.138*
% Course grade†													-

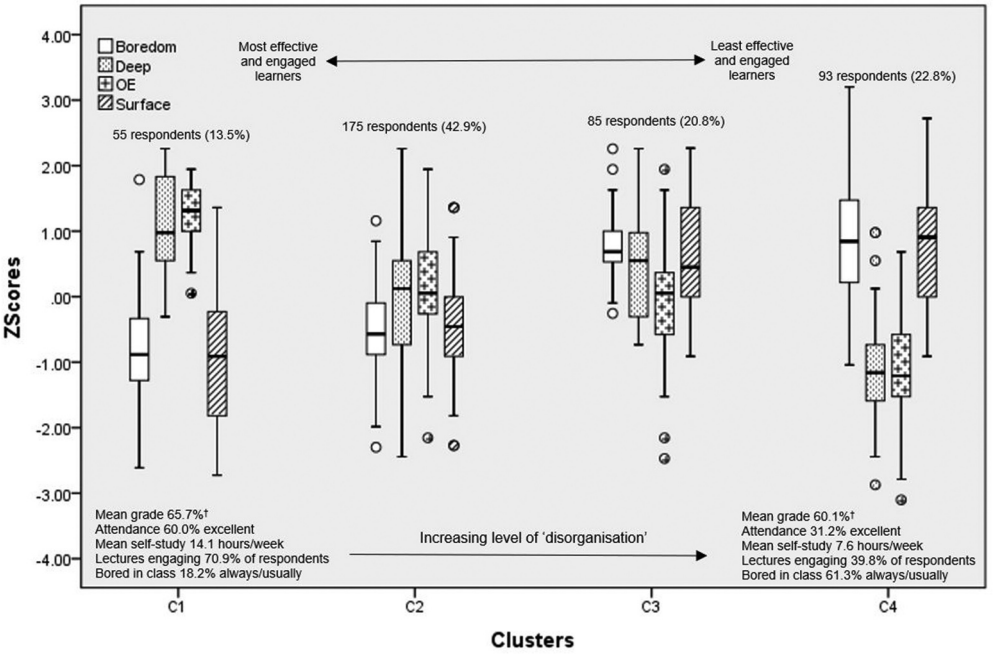

Figure 2. Cluster analysis of boredom proneness (trait) and ways of working/approaches to learning (n = 408; †n = 215).

(all scales) and deep ways of working, organised effort, experiences of teaching and learning and course demand in terms of information retrieval. Academic trait boredom (boredom proneness) and study-related boredom also correlated negatively with course grade. Mixed outcomes were also observed with respect to course expectation (intrinsic motivation) and the more academic demands of the course. A moderate and positive correlation was also observed between deep approaches to learning and experiences of teaching and learning.

Cluster analysis is a statistical technique used to help group individual respondents together on the basis of the structural relationships and patterns of responses to two or more questionnaire variables such as those in the ABSI and SETLQ. With both academic trait boredom (boredom proneness) and ways of working correlated both positively and negatively as indicated and known from within the research literature to exert particular influence over academic performance and achievement, these were entered into a hierarchical cluster analysis (Ward's method) involving the standardisation of data to a common scale using z-scores (with a mean of zero and a standard deviation of one). After considering the range of outcomes presented, a four-cluster solution reflecting the most differentiated variation and levels of organisation was accepted (Figure 2).

Not unsurprisingly, the greatest contrast in outcomes lay between Cluster 1, displaying many features commonly associated with the particularly well-organised and most effective learners, and Cluster 4, displaying many features commonly associated with the less well-organised and least effective learners. These are summarised as follows and profiled as shown (Table 7):

- Cluster 1: Most effective and engaged learners (deep approach – well-organised). Forty female and 15 male respondents (72.7% and 27.3% of the cluster, respectively). Above average deep and organised effort scores, below average trait and surface scores. Professional and manual family backgrounds are almost equally represented (49.1% and 45.5%, respectively). Over half taking science subjects (61.8%). Thirty-nine (70.9%) found lectures engaging with only 10

Table 7. Cluster analysis of variables (n = 408; †n = 215; ANOVA and [2]ϰ: ns not significant, *p < .05, **p < .01, ***p < .001).

Cluster 1	Mean/ %	Cluster 4	Mean/ %
Gender		*Gender***	
Male	27.3%	Male	47.3%
Female	47.3%	Female	50.5%
Not indicated	0.0%	Not indicated	2.2%
Occupational background (family)		*Occupational background (family)**	
Professional	49.1%	Professional	37.6%
Manual	45.5%	Manual	62.4%
Other (e.g. long-term unemployed)	5.5%	Other (e.g. long-term unemployed)	0.0%
Domain		*Domain****	
Arts	7.3%	Arts	9.7%
Humanities	47.3%	Humanities	68.8%
Science	61.8%	Science	21.5%
Degree outcome		*Degree outcome***	
Mean grade	65.7%	Mean grade†	60.1%
Working to earn while studying		*Working to earn while studying* [ns]	
Yes	61.8%	Yes	51.6%
Mean hours per week	16.8	Mean hours per week	20.0
Attendance		*Attendance***	
Excellent	60.0%	Excellent	31.2%
Self-study		*Self-study****	
Mean hours per week	14.1	Mean hours per week	7.6
Experience of teaching and learning (mean)		*Experience of teaching and learning (mean)****	
Mean score	4.32	Mean score	3.45
Level of interest		*Level of interest****	
Lectures engaging	70.9%	Lectures engaging	39.8%
Ways of working/approaches scores (mean)		*Ways of working/approaches scores (mean) ****	
Organised effort	4.55	Surface	3.56
Deep	4.38	Deep	3.09
Surface	2.36	Organised effort	2.69
Academic boredom scores (mean)		*Academic boredom scores (mean) ****	
Mean boredom proneness (trait)	2.17	Mean boredom proneness (trait)	3.22
Mean class-related (state)	2.67	Mean class-related (state)	3.46
Mean study-related (state)	2.39	Mean study-related (state)	3.42
Percentage of time bored in class		*Percentage of time bored in class****	
*Always/*Usually	18.2%	Always/Usually	61.3%
Mean time bored	30.6%	Mean time bored	57.6%
Nature of feeling		*Nature of feeling**	
Feeling anxious, worry missing something important	34.5%	Wishing I was somewhere else	38.7%
Wishing I was somewhere else	18.2%	Feeling anxious, worry missing something important	23.7%
Frustrated, angry, waste of time and effort	14.5%	Actively looking for other things to do	23.7%
Actively looking for other things to do	12.7%	Frustrated, angry, waste of time and effort	8.6%
Coping strategy		*Coping strategy*	
Daydream	50.9%	Daydream [ns]	68.8%
Switch off	29.1%	Switch off*	52.7%
Work on something else	27.3%	Use social media***	48.4%
Doodle	27.3%	Doodle [ns]	44.1%
Talk to a friend	18.2%	Internet**	33.3%
Text	16.4%	Text [ns]	28.0%
Internet	7.3%	Talk to a friend [ns]	28.0%
Leave the class	5.5%	Work on something else [ns]	20.4%
Use social media	2.7%	Leave the class*	16.1%
Struggle with workload		*Struggle with workload****	
Difficult/very difficult	21.8%	Difficult/very difficult	45.2%
Lack of purpose		*Lack of purpose****	
Agree with statement	10.9%	Agree with statement	34.4%

(18.2%) getting bored in class on a regular basis (60.0% excellent attendance). Most likely to daydream and feel anxious about missing something important. Use of social media and the Internet low. Here, 14.1 hours a week devoted to self-study on average (low study-related boredom scores). They are less likely to find workload problematic with only 3 (5.4%) finding

tracking down information by themselves particularly challenging. Only 6 (10.9%) indicated a lack of purpose. Thirty-four (61.8%) worked to earn while studying, averaging 16.8 hours per week. Mean course grade 65.7%.

- Cluster 4: Least effective and engaged learners (surface approach – less well-organised). Forty-seven female and 44 male respondents (47.3% and 50.5% of the cluster, respectively, 2 respondents or 2.2% not declared), with male representation disproportionately high relative to C1 and the other clusters. Above average trait and surface scores, below average deep and organised effort scores. Over half from manual family backgrounds (62.4%) and taking humanities subjects (68.8%). Only 37 (39.8%) found lectures engaging, with 57 (61.3%) getting bored in class on a regular basis (only 31.2% excellent attendance). Most likely to daydream but wish they were somewhere else instead. Use of social media and the Internet high. Only 7.6 hours a week devoted to self-study on average. They are more likely to find workload problematic with 30 (32.2%) finding tracking down information by themselves particularly challenging. Thirty-two (34.4%) indicated a lack of purpose. Forty-eight (51.6%) worked to earn while studying, averaging 20.0 hours per week. Mean course grade 60.1%.

The differences between individual variables across clusters were also significant in almost all instances (e.g. academic trait boredom ANOVA $F_{[3,404]} = 147.435$, $p < .001$).

Discussion

Overview

Drawing on the data from a convenience sample of 408 arts, humanities and science students at two universities and two colleges in the UK, the Academic Boredom Survey Instrument (ABSI) validated here resulted in the determination of three new scales, and associated subscales, with which to reliably measure academic boredom's trait (boredom proneness) and state (class- and study-related) dimensions together with other characteristic attributes together in a single instrument for the first time. Contextualised for interdisciplinary use and critical comment across the UK Higher Education sector as a whole, the ABSI therefore offers potential advantages over other available instruments as an exploratory tool in both reach and scope (full reviews in Vodanovich and Watt 2016; Sharp, Sharp, and Young 2020), particularly when used in combination with other complementary data sources like the Shortened Experiences of Teaching and Learning Questionnaire or SETLQ (Entwistle, McCune, and Hounsell 2002).

Course design, delivery and the professional development of staff

Importantly, lecturers are not always aware of achievement-related emotions like academic boredom, raising questions about the nature of course design, delivery and the professional development of staff (Illeris 2003; Schutz and Pekrun 2007). Located within the conceptual framework provided by Control–Value Theory (Pekrun 2000, 2006), academic boredom was found to occur among the majority of respondents most frequently in traditional lectures for a number of different reasons including a perceived excess and inappropriate use of *PowerPoint*, a lack of relevance, coherency or pace, and student (mis)behaviour in the lecturer theatre itself. While daydreaming, 'switching-off' and doodling were, for the most part, the commonest responses and coping strategies adopted, many respondents were also turning to social media and the Internet for 'relief'. With respondents indicating a desire to be either somewhere else instead, or anxious and worried they might be missing something important, findings here were consistent with the indifferent, calibrating and searching types of academic boredom described by Goetz et al. (2014). Across all classes, but in lectures in particular, 36.2% of respondents (148 students) got bored on a regular basis with the commonest precursors or antecedents identified as a loss of concentration, feeling tired or sleepy

and experiencing trouble staying focused and alert. The same respondents also exhibited the highest average class-related boredom scores overall. With a moderate correlation observed between class-related boredom (state) and boredom proneness (trait) scores on the ABSI questionnaires (r = .480), those students more susceptible to academic boredom than others were also more likely to experience stronger habitual feelings of restlessness or frustration at a lack of meaningful engagement, the monotony associated with repetition and an inability to use time productively (see also Mann and Robinson 2009; Sharp et al. 2017).

In the light of findings, we would certainly recommend that course teams become more critical and self-critical of their own professional practices and listening to and acting upon student feedback (the student 'voice'). Lecturers also need to remain mindful of the importance of when and how best to introduce, sequence, pace and explain new course material and other content, particularly in the lecture theatre, and to avoid *'death by PowerPoint'* (Entwistle 2009). One possible solution might be to incorporate the creative use of digital technologies and pedagogies to present problem-based activities that not only enhance content itself but revitalise the traditional lecture format and encourage student–lecturer interaction and 'audience' participation (Savoy, Proctor, and Salvendy 2009; Barber, King, and Buchanan 2015). Lecturers might also be encouraged to remain mindful of the motives, intentions and adaptations of students towards particular assessment requirements and how the choices they make can influence different ways of working, not all of which are necessarily productive or match intended learning outcomes (Gijbels et al. 2005; Postareff, Mattson, and Parpala 2018). Drawing on the evidence presented here, and with 30.4% of respondents (124 students) struggling to see the coherency and relationships between different elements of course content or for those bored revising for examinations or completing assignments, greater consideration could certainly be directed towards how all of the different elements involved in teaching, learning and assessment are more constructively aligned and effective, including feedback, with some emphasis on the promotion and reinforcement of deeper ways of thinking and working (e.g. following arguments, using logic, considering evidence, managing time) with a more empathetic and emotion-oriented delivery (Haarala-Muhonen et al. 2011; Tze et al. 2013b; Tze, Klassen, and Daniels 2014b). Students would also benefit from a greater level of supported autonomy to help organise and manage their own learning, to direct effort and to help relieve course demand at critical times. Placing students more centre-stage as outlined here, however, may challenge the cultural traditions and pedagogical norms within some institutions and in some disciplines more than others.

Student profiling and support

Incorporating data from the SETLQ, correlation and cluster analysis helped further demonstrate the robustness and predictive and diagnostic potential of the ABSI by providing valuable insight into the relationships between academic boredom (trait, state and other characteristic attributes), the ways in which respondents approached their work, their perceived course experiences, their achievements in terms of end of year course grade percentages and the respondent demographic (see also Trigwell, Ellis, and Han 2012; Sharp et al. 2018), offering a relatively straightforward means by which those students most in need of support can be profiled and identified. Confirmed in the striking differences between Clusters 1 and 4 (Figure 2 and Table 7), for example, those respondents measurably more prone to academic boredom than others were also found to be the most adversely affected, displaying many of the attributes and characteristics frequently associated with less effective learners (e.g. lower levels of intrinsic motivation, more frequently bored in class, good rather than excellent attendance, less time devoted to self-study and more likely to leave a class when the opportunity arises), emphasising the importance of better understanding the adaptive learning behaviours of different student groups (e.g. Kember et al. 1996; Plant et al. 2005; Ruthig et al. 2008; Kelly 2011; Pekrun et al. 2014; Oldfield et al. 2018; Respondek et al. 2017; Skues, Williams, and Wise 2017; Hailikari, Tuononen, and Parpala 2018; Sharp et al. 2019). Those in Cluster 4 were also more likely to experience and respond to or cope with academic boredom differently, while

indicating a greater lack of purpose associated with being at university or college at all. In combination with the greater levels of surface approaches to learning observed (e.g. lack of sense making and direction), those in Cluster 4 exhibited an overall 5.6 percentage point difference in mean course grade (60.1%) compared with their Cluster 1 contemporaries (65.7%). Why academic boredom should appear to affect a greater proportion of male students from manual family backgrounds attending university and studying humanities subjects in Cluster 4 than others is simply not known.

In terms of providing support, students may not always be aware of the role that emotions like academic boredom might play in inhibiting effective learning or getting the most out of their Higher Education experience (Loon and Bell 2018; Younger et al. 2019). Early intervention might therefore be considered essential if students are to recognise for themselves when academic boredom is proving problematic, when to seek help and to understand what forms that help might take. When studying, for example, the commonest precursors or antecedents of study-related boredom included a lack of desire or motivation, a loss of concentration, moodiness, becoming easily distracted or putting off work until later and sitting at a desk working for long periods of time. Study-related boredom (state) was also moderately correlated with boredom proneness (trait) scores on the ABSI questionnaires ($r = .521$). Importantly, SETLQ data also indicated some 33.8% of respondents (138 students) experiencing difficulties accommodating workload, with 21.1% (86 students) experiencing similar difficulties tracking down information for themselves. Unfortunately, study skills provision in many universities and colleges is often distanced from where courses are delivered and may lack sufficient contextualisation and subject-specific differentiation to provide effective remediation in all instances. Learning developers are perhaps better positioned to help promote a greater awareness of academic boredom and the strategies available to mitigate its most debilitating effects, including how to organise complex workload patterns, focusing in particular on reflection, empowerment, attribution retraining, self-regulation, improving study habits, setting clearer goals and becoming more meta-cognitively aware, all of which are dynamic and can evolve and change over time (Case and Gunstone 2002; Ruthig et al. 2004; Villavicencio and Bernardo 2013). Rather than seeing students and their needs as problematic and adopting a 'deficit' or 'catch-up' approach, learning developers attempt to identify and modify those aspects of the learning environment considered 'inadequate' or 'alienating' and bring a more personalised approach to the development of academic practice (Hilsden 2011). For many students, however, the need for learning development may not be identified until too late to have any lasting effect or to avoid the 'burnout' frequently associated with less effective study profiles (Román, Cuestas, and Fenollar 2008; Macaskill 2013; Hagenauer, Gläser-Zikuda, and Moschner 2018; Hailikari, Tuononen, and Parpala 2018). Regular meetings with advisory or pastoral tutors and working collaboratively with other students may also strengthen relationships and develop a greater sense of engagement and belonging (Garn et al. 2017).

Limitations

Despite recent attention and advances in the field, the ABSI as a means of probing academic boredom and student engagement is not without its limitations. Because of their imposed structure and largely quantitative nature, no questionnaire-based instrument like the ABSI can ever lay claim to adequately capture the complexity of human behaviour, the heterogeneity of Higher Education or the elusive and transient nature of academic boredom as described. The collection and subsequent handling, modelling and interpretation of ABSI data also relies upon a number of assumptions. These include how individual ABSI components are received and understood by respondents across different institutional and situational contexts, the integrity and honesty of respondents themselves, a reliance upon self-reporting alone, the memory and recall of past events, and how ordinal data from Likert-scales are transformed for descriptive and inferential purposes. Similarly, any conclusions drawn from ABSI outcomes were done

without the opportunity for independent verification by other means. Instruments like the ABSI also suffer from other unwanted effects including social desirability bias, image management and the general emotional state of respondents at the time of participation. The ABSI as presented here, therefore, offers at best important, if only 'coarse-grained' and exploratory rather than 'fine-grained' and explanatory, outcomes to be treated with care and with no suggestion of causality. On the as yet untested assumption that those students more prone to academic boredom than others might be more likely to absent themselves from participation in research surveys themselves, findings arising may also present more positive outcomes than actually exist. Programmes of more qualitative, mixed-methods and experimental research undertaken across a wider range of course provision, subject disciplines and different cross-sections of the student population are certainly essential if the operational boundaries of the ABSI are to be established and findings in relation to other instruments and measured variables legitimised (e.g. a comparative study of the relationship between the ABSI and other available measures of academic boredom and the interactions between the ABSI and other questionnaires like the SETLQ), including where academic boredom might also be a force for good, stimulating creativity and helping generate new ideas.

Conclusions

Despite its limitations, the Academic Boredom Survey Instrument (ABSI) presented here is believed to provide an effective if exploratory probe of student engagement in Higher Education, and as such makes a valuable contribution to the field of academic boredom research as a whole as well as the relatively recent and emerging field of academic boredom research in the UK. While the emotional demands of being a student at university or college in the UK receives varying amounts of attention across different individual institutions, the issues associated with academic boredom as an important and largely negative achievement-related emotion remain marginalised at best. For many students, of course, academic boredom is nothing to be overly concerned about. For others, its impact can be far more serious. Central to a greater emotional dynamic and evolving network of other factors known to adversely affect how students learn and the quality of their Higher Education experience, the effects of academic boredom are far from trivial and not to be ignored.

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Appendices

Appendix A. ABSI (final version).

Demographic background

Age, sex, year of study, course details, entry qualifications, self-study hours, hours in paid employment, socio-economic background and attendance

Measurement: Academic boredom questionnaires

Boredom proneness (trait) Scale: 5 – Always, 4 – Usually, 3 – Occasionally, 2 – Rarely, 1 – Never

P1	I find myself at a loose end not really knowing what to do next
P2	I find myself trapped in situations having to do really meaningless things
P3	I find that that the things we have to do are really repetitive and monotonous
P4	I need a lot more stimulation to get me going than most other people I know
P5	I find it difficult to get really excited about my work
P6	I find myself just sitting around on my own doing little of any real value
P7	I find I struggle to occupy my time or to use it really productively
P8	I get quite restless or even frustrated unless I'm fully engaged
P9	We seem to do the same things over and over again, it's a really familiar and tiresome routine
P10	I find most of what we do really tedious, I'd rather be doing something far more useful somewhere else instead

Alpha (α) = .850; $\chi^2/df = 2.530$; TLI = .945; CFI = .961; RMSEA = .061 (90% CI = .045 to .078)

Class-related (state) Scale: 5 – Always, 4 – Usually, 3 – Occasionally, 2 – Rarely, 1 – Never

C1	Because time just drags on by, I find myself clock-watching more and more
C2	I have real problems staying focused and alert, particularly if there's no way to make a contribution
C3	I get really tired and sleepy or start yawning all the time
C4	I start to really slump or sink into my chair
C5	My mind begins to really wander on to other things
C6	I think about what else I'd rather be doing instead of just sitting here in class
C7	I start to really lose my concentration
C8	My brain just 'switches off'

(*Continued*)

Appendix A. (Continued).

C9	I feel stuck in the room and unable to escape.
C10	As time goes by, I get more and more irritable and frustrated, particularly if I can't get involved

Alpha (α) = .896; χ^2/df = 2.474; TLI = .944; CFI = .974; RMSEA = .060 (90% CI = .044 to .077)

Study-related (state) Scale: 5 – Always, 4 – Usually, 3 – Occasionally, 2 – Rarely, 1 – Never

S1	When I feel like this, I have no real desire or motivation to learn
S2	I'd rather put the work off until later and do something completely different instead
S3	I get really fed up just sitting at my desk working all the time
S4	I really struggle to stop my mind wandering on to other things
S5	I get more and more moody and down
S6	Time just seems to slow down to a complete standstill
S7	I get really tired and start drifting off to sleep
S8	I get more and more impatient and irritable
S9	I find it really hard to concentrate and get easily distracted as a result
S10	I get really fed up because the work is too challenging, I don't understand it or know what to do
S11	I feel really isolated and cut off from everyone else

Alpha (α) = .903; χ^2/df = 2.443; TLI = .917; CFI = .970; RMSEA = .060 (90% CI = .045 to .074)

Other characteristics

Sites and triggers (e.g. traditional whole year lectures, interactive lectures, seminars, tutorials, specialised practicals, online materials via VLE), boredom frequency, feelings associated with being bored (e.g. I find myself wishing I was somewhere else, I get anxious worrying that I might be missing something important, I start actively looking around for other things to do, I get frustrated or angry as it all feels like a waste of time and effort), boredom coping strategies (e.g. daydream, 'switch off', doodle, work on other things, talk to a neighbour, text, social media or Internet, leave) and the boredom associated with revising for examinations and completing assignments for assessment purposes.

Appendix B. Modified SETLQ (final version).

Lack of purpose Scale: 5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

LoP When I look back, I sometimes wonder why I ever decided to come here in the first place

Course expectation Scale: 5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

E1	I hoped the things I would learn would help me to develop as a person and broaden my horizons
E2	I hoped the whole experience here would make me more independent and self-confident
E3	I wanted to learn things which might let me help people and/or make a difference in the world
E4	I wanted to study my subject in depth by taking interesting and stimulating modules

Alpha (α) = .739; χ^2/df = 0.998; TLI = 1.000; CFI = 1.000; RMSEA = .000 (90% CI = .000 to .058)

Ways of working Scale: 5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

A1	In making sense of new ideas, I often relate them to practical or real-life contexts (deep)
A2	Ideas I've come across in my academic reading often set me off on long chains of thought
A3	I look at evidence carefully to reach my own conclusions about what I'm studying
A4	It is important to me to follow the argument or to see the logic behind things
A5	I generally put a lot of effort into my studying (organised effort)
A6	On the whole, I'm quite systematic and organised in my studying
A7	I organise my study time carefully to make the best use of it
A8	I'm pretty good at getting down to work whenever I need to
A9	I often have trouble making sense of the things I have to remember (surface)
A10	A lot of what I learn seems no more than lots of unrelated bits and pieces in my mind
A11	I just go through the motions of studying without really seeing where I'm going

Alpha (α) = .790 (oe) – .594 (sfc); χ^2/df = 2.684; TLI = .906; CFI = .930; RMSEA = .064 (90% CI = .050 to .079)

(*Continued*)

Appendix B. (Continued).

Teaching and learning	*Scale: 5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree*
TL1	We are given a lot of choice over how we go about learning (course)
TL2	We are given lots of choice over which aspects of the subject to concentrate on
TL3	On this course I am prompted to think about how well I am learning and how I might improve
TL4	The teaching on this course encourages me to rethink my understanding of the subject
TL5	The teaching on this course gives me a sense of what goes on 'behind the scenes'
TL6	The teaching on this course helps me to think about the evidence underpinning different views
TL7	Students support each other and try to give help when it is needed (students)
TL8	Talking with other students helps me to develop my understanding
TL9	It's always clear to me what I'm supposed to be learning during the course (clarity)
TL10	The topics always seem to follow each other in a way that makes sense
TL11	What we are taught seems to match what we are supposed to learn
TL12	The handouts and other materials we are given help me to better understand the course
TL13	I can see how the coursework fits in with what I'm supposed to learn
TL14	I am always encouraged to think about how best to tackle the coursework (staff)
TL15	The feedback given on my work helps me to improve my ways of learning and studying
TL16	Staff give me the support I need to help me complete the work for this course
TL17	The feedback given on my work helps to clarify things I haven't fully understood
TL18	Staff try to share their enthusiasm about the subject with us
TL19	Staff are patient in explaining things which seem difficult to grasp
TL20	I find most of what I learn on this course really interesting (interest)
TL21	I enjoy being involved in the course
Alpha (α) = .920; $\chi^2/df = 2.538$; TLI = .924; CFI = .935; RMSEA = .061 (90% CI = .055 to .068)	
Course demand	*Scale: 5 – Very easy, 4 – Easy, 3 – Neutral, 2 – Difficult, 1 – Very difficult*
D1	What I was expected to know to begin with (academic)
D2	The rate at which new material is introduced
D3	The ideas and problems I have to deal with
D4	The skills or technical procedures needed for the subject
D5	The amount of work I'm expected to do
D6	Organising and being responsible for my own learning (information)
D7	Communicating my own knowledge and ideas effectively
D8	Tracking down information for myself
D9	Using information technology and computing skills
Alpha (α) = .816; $\chi^2/df = 2.567$; TLI = .946; CFI = .962; RMSEA = .062 (90% CI = .044 to .081)	