Psychological predictors of National Student Survey course satisfaction

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ABSTRACT

Course satisfaction has been linked independently to University provision quality, student self-efficacy and basic psychological need fulfilment. In the current paper we seek to unite those disparate areas with a view to understanding how University factors interact with psychological factors in the determining of student satisfaction, as measured by the National Student Survey (NSS). Study one was focused on data from the NSS itself (N=1321), in which it was demonstrated that variance in overall course satisfaction is mostly driven by satisfaction with teaching quality and the students' personal development. Study two (N=250) was focused on the psychological factors that relate to students' personal development that might influence course satisfaction. This questionnaire-based study indicated that self-efficacy, skill confidence and the three basic psychological needs of autonomy, competence and relatedness were associated with course satisfaction. However, those variables shared much variance and only the fulfilment of the need to feel competent uniquely predicted levels of course satisfaction. We conclude that efforts to maximise student satisfaction should focus on enabling academic staff to excel as inspirational tutors, tutors who foster competence and confidence in their students' academic journey.

Keywords: basic psychological needs, self-efficacy, personal development, teaching quality, course satisfaction, student satisfaction

General Introduction

The last decade has heralded a surge of interest in students' perceptions of the quality of their undergraduate course provision. Increased tuition fees, demands for public accountability, increased competition for enrolments and, notably, the National Student Survey (NSS), have provided much of the fuel. The NSS was developed by the Higher Education Funding Council for England (HEFCE) and surveys final year undergraduate students in universities all four nations of the United Kingdom about their course satisfaction. The percentage of satisfied students is accessible publicly and is used as a metric in league tables such as the Times Higher Good University Guide and the Guardian University Guide to compare course provision across UK institutions. Specific aspects of course satisfaction, in particular student satisfaction with assessment and feedback, are now used in the new Teaching Excellence Framework (TEF), which will in turn determine the fees UK Universities may charge their undergraduates. The potential impact of student satisfaction, therefore, is felt most keenly by university departments wishing to compete for students in an increasingly market-orientated arena. To this end, increased resource has been put to examining those elements of students' course satisfaction that might be causing overall satisfaction rates to be lower than desired. Largely this has been focused on assessment and feedback, (e.g. HEA, 2012) despite little support for that domain of student experience necessarily being an important underlying factor of course satisfaction (e.g. Bell & Brookes, 2018; Burgess, Senior, & Moores, 2018; Fielding, Dunleavy & Langan, 2010). Moreover, despite 'satisfaction' being an inherently psychological construct, very little research has attempted to explicate the psychological underpinnings of student satisfaction. Attempts to address these key shortcomings are addressed in the present article.

In the UK the NSS is administered by IPSOS Mori on behalf of HEFCE to all final year undergraduates to assess student satisfaction at a fixed time-point with the aim of capturing their experience across six broad domains of University provision and students' personal academic development. Research examining predictors of student satisfaction has concentrated on the tangible elements of the university experience, such as the library and IT facilities, responsiveness of staff (administrative and teaching) and student learning outcomes as measures of student satisfaction (Parasuraman, Zeithaml & Berry, 1998). More recently Douglas, Douglas and Barnes (2006) conducted a survey at a UK University which examined what factors students valued in University service provision. Teaching quality (teaching ability and subject expertise of staff) was ranked as most important, while the least important provision was the physical environment of the institution. Interestingly, the authors also ranked satisfaction of all the provision, and interacted this with perceived importance. High importance-high satisfaction elements included teaching equipment and resources, lectures, tutorials and teaching materials. High importance-low satisfaction elements focused on resource value for money, feedback usefulness and promptness. This study

was useful for understanding which elements of teaching provision – an external factor – are important drivers of satisfaction in university students.

As psychologists and educators we have a duty to understand the relative importance of both the external and internal factors to the overall experience of students on our courses. Whereas research such as that by Douglas and colleagues (2006) shows that teaching quality is important in predicting course satisfaction, little attention has been dedicated to students' internal, psychological factors that may be influential in their course satisfaction. Only one domain of the NSS – personal development -contains items that relate to the student per se, yet this domain may be the foundation of students' feelings about the course. A recent, large-scale analysis of ten year of NSS data shows that this personal development domain is important to student satisfaction (Burgess et al., 2018), more so than academic support, learning resources and assessment and feedback. However, the psychological reasons for this have yet to be explored. To that end we present two studies that investigate how students' satisfaction with their course experience is predicted by a) the domains of experience tapped by the NSS (study one), and b) psychological factors of the students (study two).

Preliminary study: Introduction

The aim of study one was to examine the drivers of overall course satisfaction by examining how the six domains of the NSS relate to students' overall course satisfaction. We present data from NSS surveys completed by students from a variety of courses at a University in the North of England. We expected to broadly corroborate the findings of Bell and Brookes (2018) and of Burgess and colleagues (2018) such that teaching quality, organisation and management, and personal development will be the stronger predictors of overall course satisfaction, and that the remaining domains of learning resources, academic support and assessment and feedback will be relatively poor predictors of overall satisfaction.

Method

Data

The raw data consisted of the individual scores for every item on the NSS endorsed by 1321 final-year undergraduate students. The students, from a University in the North of England, were studying a diverse range of subjects including built environment, education, social sciences, law and humanities. No other demographic data is available.

Measure

National Student Survey (NSS). The NSS captures students' satisfaction with their course on 21 items across six domains – teaching quality, assessment and feedback, academic support, organization and management, learning resources, and personal development – plus one item indexing overall satisfaction. Responses to all 22 items are recorded on five-point Likert scales. The internal consistency for each domain was good (all Cronbach's alphas above .7).

Results

Data across the 21 items of the NSS survey were collapsed into the six domains of course satisfaction as arranged in the survey. Variance is quite restricted and the distributions are negatively skewed. All variables were log transformed in an attempt to address these issues.

As would be expected, satisfaction in all domains correlated at the zero level moderately to strongly with overall course satisfaction (see Table 1). The strongest correlate of course satisfaction was teaching quality and the weakest was satisfaction with learning resources. All variables intercorrelated (rs >.29, <.64), indicating a good deal of shared variance. In order to tease apart the unique contributions of the individual domains to overall course satisfaction, we conducted a multiple regression. This approach also provides an estimate of the percentage of variance the model, i.e. all the satisfaction domains combined, can explain. The model we created comprised the six domains of course satisfaction as predictor variables and the overall course satisfaction as the outcome variable. N.B. The overall satisfaction measure is a stand-alone item on the survey, and not an aggregate score of the individual survey items.

The multiple regression analysis revealed that the model significantly predicted course satisfaction, (F[6,1314]=280.13, p<.001), and explained 56% (adjusted R^2 = .56) of the variance in overall satisfaction. The regression output (Table 2) indicates that two domains substantially explain overall student satisfaction: teaching quality and personal development. Satisfaction with the organisation and management of the course and academic support followed, assessment and feedback satisfaction was very weakly associated with overall satisfaction, and the learning resources domain was uniquely associated with very little variance in overall satisfaction.

Table 1. Zero order correlations between specific course satisfaction domains and overall course satisfaction (bivariate N = 1321)

Specific satisfaction domain	Correlation with course satisfaction
Teaching quality	.65*
Assessment and feedback	.56*
Academic support	.60*
Organisation and management	.54*
Learning resources	.36*
Personal development	.58*

Note * = $p < .001$

Table 2. Regression of course satisfaction onto satisfaction domains (N = 1321)

Domain	B (95% CI Upper, lower)	SE	t
Teaching quality	.37 (.29, .45)	.04	10.51**
Assessment and feedback	.13 (.06, .19)	.03	4.02**
Academic support	.17 (.09, .25)	.03	5.45**
Organisation and management	.17 (.11, .22)	.03	6.10**
Learning resources	.06 (.01, .10)	.02	2.55*
Personal development	.26 (.20, .32)	.03	10.42**

Note: ** = significant at $p < .001$, * = significant at $p < .05$

Study two: Introduction

The results of the first study showed that satisfaction with one external factor – teaching quality – and one internal factor – personal development – were the main drivers of course satisfaction as captured by the NSS in our sample. In this second study we collected primary data recording internal, psychological factors related to well-being and overall course satisfaction. Based on previous literature and extrapolating from the findings in our first study, we chose psychological factors that feed into personal development and psychological wellbeing especially relevant to the workplace/study environment which we now outline in more detail.

A contemporary theory of personal growth rooted in psychology, Self-Determination Theory (SDT; Deci & Ryan, 2002), seeks to explain the differences in motivation and need-fulfilment which underlie wellbeing and adaptive functioning (Lyness, Lurie, Ward, Moone & Lambert, 2013). Self-Determination Theory posits that the interpersonal context of an individual's environment influences the extent to which they will experience intrinsic motivation, and thereby the extent to which they feel autonomous rather than controlled (Black & Deci, 2000). Furthermore, in order for individuals to enjoy intrinsic motivation, they need an autonomy-fostering environment in which three basic psychological needs can flourish (Deci & Ryan, 2008). The theory may explain why certain students experience motivation and enjoyment within their academic environment, while others feel demotivated and consequently devoid of satisfaction and wellbeing.

The three basic psychological needs have been likened to plant nutrients water, sunshine and minerals, insofar as they provide the nourishment required for psychological health and are essential for optimal human development and integrity (Gagné & Deci, 2005; Ryan, Sheldon, Kasser & Deci, 1996). The first of the needs is autonomy – the sense that we are free from outside control or influence and can enjoy a general sense of independence in managing our day-to-day existence; the second is competence – the idea that we feel able to manage the tasks we have been set, a sense of mastery, knowledge and expertise; and the third is relatedness, the general feeling that we are connected and feel understood by those around us, a sense of support that may be felt on a direct or group level. In short, if people feel competent and autonomous within a supportive context, their intrinsic motivation (enjoyment and interest in what they are doing) will be fulfilled.

SDT has already been shown to provide a framework for understanding and enhancing student motivation (Jang, Reeve, Ryan & Kim, 2009) and course satisfaction (Levesque, Zuehlke, Stanek & Ryan, 2004). Higher levels of perceived autonomy relate to lower course drop-out in both high school and higher education students (Taylor, Lekes, Gagnon, Kwan & Koestner, 2012; Vallerand, Fortier & Guay, 1997), and greater success for higher education providers in recruiting, retaining and fostering achievement among learners (Black & Deci, 2000; Lyness et al, 2013). Williams and Deci (1996) found that students who felt that they were being educated within an autonomy-supportive environment were more likely to internalise the values of the university and their course. Furthermore, Black and Deci (2000) found that greater perceived autonomy-fostering support from course tutors predicted an increase in motivation and performance (as measured by grade increase). These findings support the idea that autonomy-fostering environments encourage productivity and result in happier, more motivated students.

The fulfilment of the need for connectedness has been associated with student satisfaction. Clemes, Gan and Kao (2008) found that the quality of interaction between staff and students was most important in this regard. Likewise, staff-student relationships have been shown to be important to student satisfaction (Deshields, Kara & Kaynak, 2005), and perceived belonging to their university bolsters student satisfaction (Elliott 2012). Feelings of relatedness have in turn been shown to be strong predictors of student engagement and wellbeing (Furrer & Skinner, 2003).

The fulfilment of the need to feel competent depends upon individuals' capacity to exercise and extend their personal capabilities (Levesque, Zuehlke, Stanek & Ryan, 2004). Of the three basic psychological needs, competence need fulfilment has been shown to be the most reliable predictor of academic achievement (Hardre & Reeve, 2003). In a pair of studies that are the closest in the psychology literature to the current study, Filak and Sheldon (2003; 2008) found that the three basic psychological needs of autonomy, relatedness and competence predicted approval of, and satisfaction with, certain aspects of course provision. All three needs predicted student approval of their tutors, and the fulfilment of needs for autonomy and competence was associated positively with course satisfaction and approval (Filak & Sheldon, 2003; 2008). The later study showed that autonomy-fostering tutors and the students' self-motivation were central to course satisfaction, satisfaction with tutors, and predicted grades. Crucially, the most influential factor in course satisfaction was the fulfilment of a need for competence (Filak & Sheldon, 2003; 2008).

Fulfilment of a need for competence is distinct from a sense of competence, which is likely to stem from indicators of capability (e.g. grades), and is best captured by the psychological construct of self-efficacy. Self-efficacy is an individual's belief or confidence in his or her own ability (Bandura, 1997), in contrast to a desire that he or she fulfils a need to feel competent. Thus, the fulfilment of a psychological need to feel competent is likely to be more determined by a competence-fostering environment, and the confidence associated with self-efficacy is more likely to be more internally located and trait-like – less susceptible to change from the effects of the environment. As part of a positive self-concept, self-efficacy has been shown to predict job satisfaction (Judge & Bono, 2001) and college satisfaction (DeWitz et al., 2002). Diseth, Danielsen and Samdal (2012) found that the need for competence predicted mastery and goal achievement directly and indirectly via self-efficacy in secondary school aged students. In addition, they found that all three basic needs and self-efficacy together explained almost half the variance in mastery. They concluded that self-efficacy and basic needs are more important factors in goal mastery than performance. The established link with college satisfaction and the conceptual overlap with competence need fulfilment provide a rationale to consider self-efficacy as an important, additional variable. Diseth and colleagues found that, as would be expected, there is also some overlap between competence need satisfaction levels and self-efficacy, but the overlap was not of a great magnitude (c.12%, $r = .37$), thus the two are likely distinct constructs.

In the current study, we aim to partially replicate the Filak and Sheldon studies, and extend them to test the hypothesis that basic need fulfilment predicts overall course satisfaction independently of students' positive core concepts, self-efficacy, and additionally self-reported confidence in their academic skills. To that end, we expect that course satisfaction would be positively associated with all the psychological variables entered in the study – self-efficacy, three basic psychological needs – and students' confidence in their academic skill.

Method

Participants

Two hundred and fifty second-year undergraduate students from a range of social science courses completed the study. The majority (168) were female, and the ages ranged from 19-51, with a mean of 22.22 years (SD=2.47) and a median of 20

years. Participants confirmed they were giving informed consent and ethical approval for this data collection was granted by the Sheffield Hallam University Ethics Committee.

Measures

Students' skills set

We used a shortened version of the HEA skills audit in order to tap students' confidence in four course-relevant domains: Communication skills (example item: Taking part in discussions), Working with peers (e.g. Developing cooperative working relationships with others), Problem solving skills (e.g. Generating and comparing different options for tackling a problem), and Intellectual skills (e.g. Ability to think critically). Responses to each item were made on a Likert scale indicating level of confidence from 1 'Not at all confident' to 5 'Very confident'. The overall scale demonstrated good internal reliability with a Cronbach's alpha of .81.

Self-efficacy

Self-efficacy was assessed using the Generalized Self-Efficacy Scale (GSES: Schwarzer & Jerusalem, 1995). Participants respond on 4-point Likert scales to ten items, indicating how 'truly' the item reflects their perceptions of how they can deal with problems and difficult situations. This scale had high internal consistency ($\alpha = .86$).

Basic Psychological Needs

The Basic Psychological Needs at Work scale (Ilardi, Leone, Kasser & Ryan, 1993) assesses the extent to which the needs for autonomy, competence and relatedness are fulfilled. The original scale was designed to capture needs satisfaction in the workplace. However, the authors allow for adjustments to the instructions and items for use in different contexts. Changes to the instruction wording were made to reflect the university context. For example, participants were asked to reflect on their *course* in place of *job*. Items in the scale were altered in the same manner. A reverse-coded example item from the autonomy subscale is When I am at university I have to do what I am told, an example from the competence subscale is People at university tell me I am good at what I do, and from the relatedness subscale I consider the people I study with to be my friends. Internal consistency for the subscales in this sample was variable and not always fully satisfactory: Cronbach's alphas were .43 for the 7-item autonomy subscale, .55 for the 6-item competence subscale, and .82 for the 8-item relatedness subscale.

Results

The extent to which skill confidence, self-efficacy, and the three basic psychological needs intercorrelate and relate to overall satisfaction scores is shown in Table 3, along with the descriptive statistics.

Table 3. Descriptive statistics and correlations between psychological constructs and course satisfaction scores

	1.	2.	3.	4.	5.	6.
1. Course satisfaction	--	.19**	.23**	.21**	.34**	.22**
2. Self Efficacy		--	.52**	.38**	.33**	.10
3. Skill Confidence			--	.29**	.40**	.16*
4. Autonomy				--	.53**	.39**
5. Competence					--	.37**
6. Relatedness						--
Mean	3.67	30.30	36.80	30.72	25.60	40.67
(*SD*)	(*0.68*)	(*4.14*)	(*5.36*)	(*4.68*)	(*4.90*)	(*7.75*)
Range	2-5	19-40	23-50	20-45	14-38	19-56

Note * = $p < .01$, *ns* = not significant

The strongest course satisfaction correlate was competence need fulfilment, suggesting that the better fulfilled the students' need to feel competent at University, the more satisfied they were with their course. The remaining psychological constructs correlated much more weakly with course satisfaction. There was a degree of shared variance between the psychological constructs: Self-efficacy was quite strongly correlated with skill confidence, and moderately with the need satisfaction for both autonomy and competence, and weakly with the need for relatedness.

As there was overlap between the variables there is likely to be shared variance in the prediction of course satisfaction. To test for unique contributions to course satisfaction we created a statistical model in which all the psychological variables were entered into a regression as predictors. The model as a whole was significant (F[5, 244] = 7.70, $p < .001$), and explained 12% in the variance of course satisfaction (adjusted $R^2 = .12$).

Table 4. Regression output for psychological predictors of course satisfaction (n = 250)

Domain	B (95% CI Upper, lower)	SE	t
Skill confidence	.01 (-.02, .03)	.01	1.19 [ns]
Generalized self-efficacy	.01 (-.01, .03)	.01	.77 [ns]
Autonomy	-.01 (-.16, .15)	.08	-.08 [ns]
Relatedness	.08 (-.01, .17)	.05	1.69 [ns]
Competence	.21 (.08, .33)	.06	3.25*

Note: * = significant at $p < .01$, [ns] = not significant

The coefficients for each predictor variable are shown in Table 4. They reveal that only the fulfilment of the basic psychological need to feel competent uniquely predicted variance in students' course satisfaction. Thus, all shared variance between overall course satisfaction and the other variables was explained by the extent to which competence need fulfilment was met.

General Discussion

The two studies presented here were conducted in order to gain an understanding of what underlies students' course satisfaction as measured by the National Student Survey (NSS). The first study indicated that of the six domains of student experience captured in the NSS, satisfaction with teaching quality and with the students' own personal development were clearly the most important. The second study was designed to investigate which psychological factors relating to personal development at University best predicted students' overall course satisfaction. This study indicated that fulfilment of the basic psychological need to feel competent most strongly predicted course satisfaction, outweighing other basic psychological needs, self-efficacy and study skill confidence.

That the teaching quality domain of the NSS is the best indicator of students' course satisfaction corroborates previous studies (e.g. Bell & Brookes, 2018; Burgess et al., 2018; Douglas et al, 2006). Consistent, too, is the finding that personal development strongly predicts overall satisfaction, although in Burgess and colleagues' previous very large-scale study the domain of organisation and management was stronger. The finding that the NSS domain of personal development is such a strong indicator of course satisfaction is of primary importance for educators who wish to do the very best service to their students. This is surely the essence of good higher education provision – to provide a quality experience that fosters personal development as a learner and rounded individual. Consistent with previous research, the remaining domains: assessment and feedback, learning resources and academic support do not individually account for much unique variance in students' satisfaction with their course.

The items in the personal development section of the NSS tap students' growth in confidence to present, communicate, and tackle new problems. Thus, they reflect both specific academic skill development, and a belief in the students' own capabilities. This belief is a core component of self-efficacy. Studies have shown the association between self-efficacy and both student performance and student satisfaction (DeWitz et al., 2002). In case of a conflation of self-efficacy with a simple confidence in academic skills, we included the HEA skills audit. This inclusion also addressed the issue that the items on the NSS might speak to some specific academic skills. In the current study we found that skill confidence correlated quite

strongly with self-efficacy, and that both self-efficacy and skill confidence correlated with course satisfaction, the latter in line with DeWitz and colleagues (2002).

The strongest correlate of course satisfaction, however, was competence need fulfilment. Moreover, our regression analysis reveals that no other zero-order correlate, including fulfilment of the other two basic psychological needs, uniquely predicts variance in course satisfaction. Thus competence need satisfaction is the strongest correlate and the only predictor to account for course satisfaction when all variables are held constant. The results add to the still limited literature that seeks to understand the psychological underpinnings of student satisfaction. The importance of basic psychological need fulfilment together with self-efficacy has previously been demonstrated in student engagement but not satisfaction (Zhen et al., 2017). Course and tutor satisfaction were shown to be affected by basic psychological need fulfilment, but in a study that did not include self-efficacy (Filak & Sheldon, 2003; 2008). Whilst we partially replicate, then, findings that basic need fulfilment and self-efficacy correlate with a positive experience of the course, we provide novelty in two important respects. First, we chose to use the wording from the NSS to operationalise course satisfaction. This helps us to apply a psychological understanding to what underlies the single-item NSS course satisfaction construct. Secondly, we included both self-efficacy and basic psychological needs in our model, which to our knowledge has not been reported on in the literature. The finding that competence need fulfilment is both the strongest correlate and only unique predictor of course satisfaction, indicates just how important it is that course provision and experience facilitate this personal need for mastery. This contrasts with self-efficacy, which on its own reflects the students' inner confidence to tackle work and problems. Similar to Diseth and colleagues (2012), we found that there was some overlap, approximately 10%, between self-efficacy and the satisfaction of the need to feel competent. This is to be expected, and is likely explained by a sense of confidence intrinsic to self-efficacy, and brought about by satisfying the competence need. Future studies could explore this idea.

That the other two basic psychological needs correlated at the zero level but predicted no unique variance in course satisfaction is partially in line with previous studies. Filak and Sheldon (2003), for example, found that relatedness need satisfaction predicted tutor but not course satisfaction ratings. That autonomy was not uniquely associated with course satisfaction was less predictable, and we suspect that future studies may find a more robust association, as was the case for Filak and Nicolini (2018). In the current study our autonomy subscale suffered with poor internal consistency (see limitations, below) and a better adapted measure may address this shortcoming and produce difference results.

Authors wishing to replicate this study might consider the following limitations. First, the internal consistency of the basic needs scale responses in this sample gives rise for concern. The relatively low alphas for the autonomy and competence sub scales suggests that the items are not satisfactorily encapsulating a single construct each. Although the wording was adapted for the University setting, it is possible that some items simply do not work so well in this context. However, no single items gave rise to suspicion statistically insofar as an examination of the contribution of individual items to each sub scale did not reveal any that would improve the internal consistency if removed. Honing this measure and making it more bespoke to education settings is indicated. It may also be the case that self-efficacy would be better captured with a tool developed specifically for the University environment (see Green et al., 2015). Although the internal consistency of the measure in this study was good and the findings meaningful, a bespoke measure might provide subtle differences to the overall picture. Two related limitations of the design are that it was impossible to link the data of the two studies, and that final year students are off-limits for researchers who wish to ask questions that appear on the NSS. Thus, the psychological factors that underpinned the reasons that NSS completers responded as they did could not be explored, and the experience of the second-year students who were allowed to take part was not equivalent.

Nonetheless, this report elucidates the student level factors at play in the metrics used to evaluate University course satisfaction in the UK. It is now well established that the effect of the course on the students' development is a key factor in course satisfaction. This point alone should encourage the authors of the National Students Survey to rethink the decision to consign the personal development items to the supplementary questions section. Furthermore, the key finding in this report is that course satisfaction is driven by fulfilling the element of personal development that is the sense of competence. It is central to education that the students' capabilities are developed by the University and that the students feel satisfied that this is indeed the case - i.e. that their need to feel competent is fulfilled by their time on their course. Taken together, the findings that teaching quality, academic support and personal development through the fulfilment of competence needs strongly suggest that resources devoted to maximising student satisfaction should be directed at enabling academic staff to excel as inspirational tutors, tutors who facilitate the development of competence and confidence in the personal journey of students.

Biographies

David Bowles is Principal Lecturer in psychology at Sheffield Hallam University where he has worked since 2006. He is the departmental lead for international development and has a teaching portfolio that includes clinical psychology, individual differences and research methods and statistics. His research interests focus on well-being and the interface between personality and abnormal psychology, drawing on attachment and self-determination theoretical frameworks, and introducing priming procedures. He also leads projects investigating the psychological factors behind student responses on the National Student Survey. He is a qualified personality and ability Test User registered by the British Psychology Society.

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