
Big Data Analytics: Towards recuperating National Student Survey (NSS) in Modern Universities.

“The case of The University of West London”

Thomas Anthony Morris

Yehia Sabri Nawar

Claude Littner Business School

University of West London, UK

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Abstract

This research paper explores the topic of “Does Attainment impact on National Student Survey (NSS) Student Satisfaction responses? The case of The University of West London”. The aim of this research paper is to explore whether Student Satisfaction as measured by the NSS is impacted by students attaining high grades, observing that student satisfaction at UWL has been on an increasing trend over the previous 10 years at a time when tuition fees, and therefore student expectation have also been increasing. Whilst there is a large body of research into the concepts of student satisfaction, student expectation and the concept of ‘student as a customer’ following tuition fee increases, there is little research on the impact of student attainment on student satisfaction. This research paper uses a quantitative research approach as this approach will help to bring numerical, data driven evidence to identify the link between high student attainment and the probability of a positive experience at University. The research also questions any correlation between ‘Teaching and Learning’, ‘Assessment and Feedback’, ‘Organisation’ and ‘Resources’ with student satisfaction to facilitate better strategic decision making around policies to improve student satisfaction. Additionally, the choice of questions and use of quantitative data analysis mirrors the approach adopted both internally and externally to capture student satisfaction.

To support the quantitative research, approach this paper has followed a positivistic research philosophy and deductive research strategy. Moreover, the researcher has opted for a cross-sectional, single case study research design; using University of West London (UWL) as the case study. The sampling technique used in this research was convenience sampling as questionnaires were offered to any student approaching UWL’s Ealing campus Academic School Administration Office reception. Due to the quantitative approach, a mono-method strategy was used to collect the data and analysed by SPSS to identify reliability and significance of correlation between student satisfaction and the identified themes of questions.

The results of the study show that Student Attainment does not have a significant impact on student satisfaction, supporting the existing theory that satisfaction actually drives student attainment. Moreover, the research supports existing research that satisfaction with ‘Employability’ and ‘Teaching and Learning’, specifically contact time with tutors is the most significant aspect to focus on when considering methods to increase student satisfaction. The paper concludes with the recommendation that engaging students to feel that they a part of the University community appears to be one of the key methods to increase satisfaction given the complex nature of student expectation and satisfaction of a ‘product’ they are unfamiliar with, and that there may be more value gained in seeking a view of student satisfaction once students have completed their studies.

1. Introduction

This research project case study will investigate student perceptions on the factors that influence student satisfaction as currently measured by National Student Survey (NSS) responses. It

is the intention of this study to investigate and understand whether students directly attribute the attainment of good marks with a positive student experience. The provision of a good student experience is the first objective as set out in The University of West London's (UWL) 5-year strategic plan, *Ambition 2018* (UWL, 2017) with reference made to course design, increased graduate employability, embedded scholarly research and innovative delivery systems. By understanding what, if any, impact attainment has on the perceived student experience, Senior Managers at UWL may be able to use that information to improve strategic planning and decision making. Examples of where this information could be of strategic value may include considering future course and assessment design and delivery systems which are created with the intention of maximising both attainment and student experience. Increasing the student experience is of particular relevance given current discussions around the proposed introduction of accelerated and intensive two-year degree courses, proposed revisions to the fee and funding structures for English Universities and attempting to mitigate the effects of Britain leaving the European Union. UWL provides an interesting case study as it is a widening participation University (UWL, 2018), with an unusually diverse mix of age ranges with many students being the 1st in their families to attend University (Dent, 2017, pp. 101; Leathwood and O'Connell, 2003)

It can be observed from Figure 1 that overall student satisfaction, defined by the NSS as students responding that they 'agree' or 'strongly agree' with the question 'Overall, I am satisfied with the quality of the course' (Hefce, 2018), at UWL has been on an increasing trend from academic year 2011/12 to academic year 2016/17. The trend of increasing student satisfaction at UWL is framed in a rapidly changing higher education landscape, most notably with the increase in student satisfaction as seen in Figure 1 occurring at the same time as the rise in tuition fees for Universities in England from £3000 to £9000 per year from September 2012 (Bates and Kaye, 2014; Callendar and Mason, 2017). The introduction of the increase in tuition fees from academic year 2011/2 is the justification for the choice of this as the base year in the dataset used in Figures 1 - 5, as opposed to using a wider range of data.

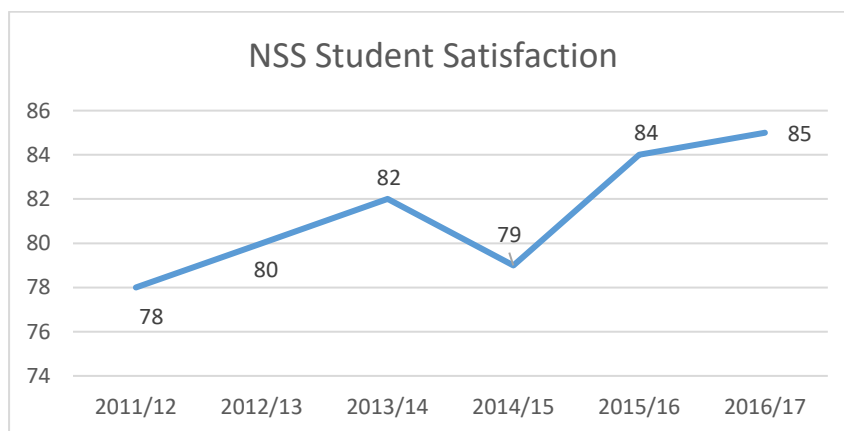


Figure 1: UWL overall student satisfaction results from NSS survey (Hefce, 2017)

Figure 2 (below) demonstrates that the number of 'good degrees', accepted as being a 1st or 2.1 (Dent, 2017, pp. 97) awarded by UWL has also increased over the same timeframe, whilst Figure 3 isolates the award of 1st class degrees. The rising number of 'good degrees' being awarded is due to a range of factors, including; increasing student numbers, the raising of entry requirements and profiles, a higher proportion of students progressing to full degrees from lower awards (DipHE, Foundation Degree, etc...) or joining UWL from collaborative partner institutions and the annual revision of academic regulations relating to awards following benchmarking with the rest of the HE sector.

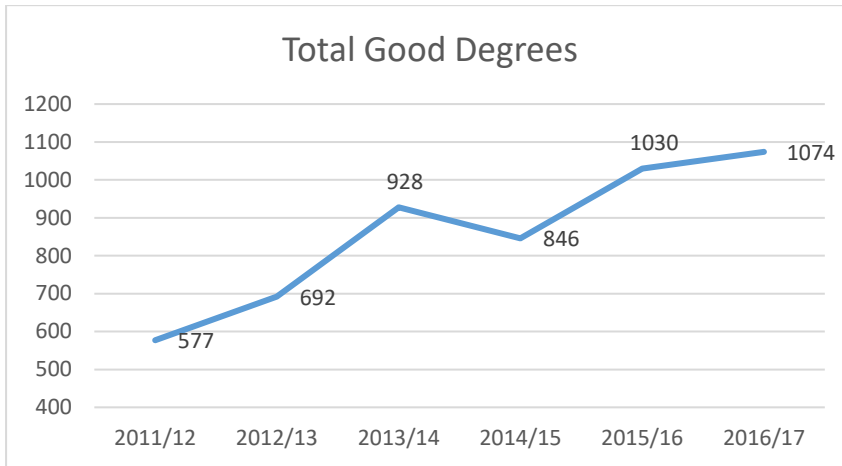


Figure 2: UWL 'Good Degrees' (awards at 1st or 2.1 level)

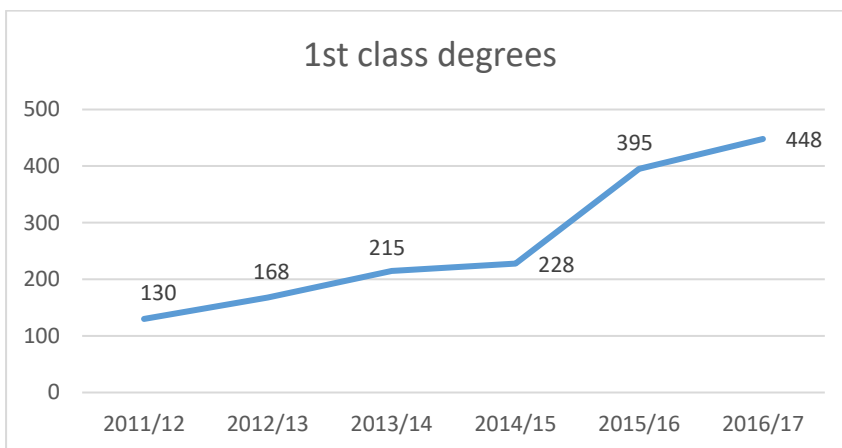


Figure 3: UWL 1st class degree awards

Widely accepted as the most useful and frequently used analysis tool for the analysis of data in organisational sciences (Tonidandel and LeBreton, 2011), regression analysis conducted on the data for student satisfaction and awards in Figures 1 and 2 indicates a positive correlation between the award of 'good degrees' and student satisfaction. The results in appendices i and ii demonstrate an adjusted R Square value of 79%, and an adjusted R Square value of 80% between student satisfaction and students obtaining 1st class degrees, indicating that students obtaining a 1st class or 2.1 degree are likely to respond in the NSS that they were satisfied with their course.

To further consider student satisfaction in the context of rising tuition fees, comparisons have been run between UWL and institutions in Scotland, where students are not charged tuition fees (Figure 4) as well as extending the regression analysis back to 2005 when the NSS was first used in its current form (Appendices iii and iv).

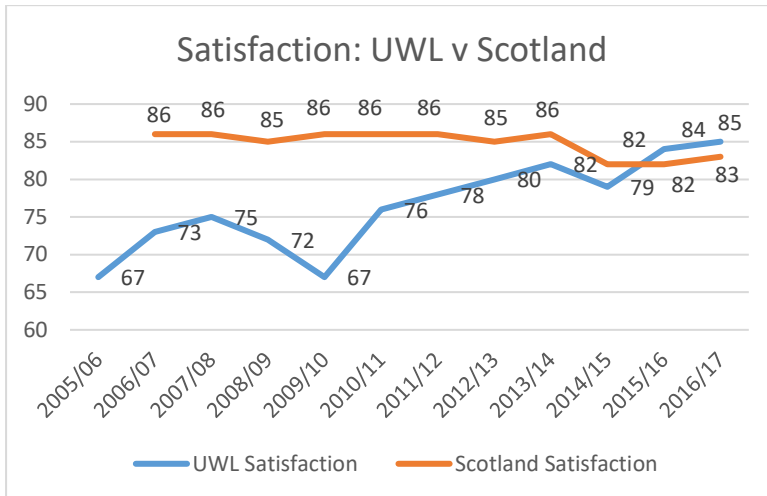


Figure 4: Comparison of student satisfaction between Scottish institutions and UWL

In Figure 4 it can be observed that student satisfaction in Scotland remained constant at either 85% or 86% from 2006/7 to 2013/4, with a minor dip to 79% in 2014/5 before recovering back to 83% by 2016/7. One possible justification for this is the increasing number of institutions being considered in NSS data from 8 institutions in 2006/7 to 21 institutions in 2016/7. With relatively few institutions being considered, a single outlier can have a significant impact on the overall results, which can be seen with City of Glasgow College returning overall satisfaction of 18% in 2015 and 31% in 2016 significantly impacting the overall Scottish student satisfaction mean. The significance of the comparison between student satisfaction at UWL and across Scotland indicates that tuition fees may not be a causal factor in student satisfaction. This is something that will be explored in greater depth throughout the research project.

As with appendices i and ii, appendices iii and iv consider the regression analysis conducted on UWL's awarding of 'good degrees' and 1st class degrees respectively however, they consider the entire period that NSS data exists from UWL, 2004/5 – 2016/7, rather than focussing on the years where students were paying the increased £9000 fee. The analysis on this larger data set demonstrates that there is a 62% probability of UWL students being satisfied if they were awarded a good degree between 2004/5 and 2016/7 as opposed to 79% between 2012/3 and 2016/7, a rise of 27% probability. Furthermore, there is a 56% chance of students obtaining a 1st class degree reporting as being satisfied between 2004/5 and 2016/7 as opposed to 81% of students reporting as satisfied between 2012/3 and 2016/7, a rise of 44% in probability. This demonstrates that, since the rise of tuition fees in England since 2011/12, there has been an increase in the likelihood of students at UWL being satisfied at the NSS when they achieve better marks however, it is not known whether this was a conscious decision.

Through a combination of the literature review in section 3; research into the formulation of NSS questions and UWL's internal Module Evaluation Questionnaire and via analysis of the responses to a questionnaire to be completed by students, this research project aims to identify the key factors that comprise a student's overall satisfaction within their time at UWL. The questions asked to final year undergraduate students in the NSS are grouped into seven broad themes; 'Teaching on your course', 'Learning Opportunities', 'Assessment and feedback', 'Academic Support', 'Organisation and Management', 'Learning Resources', 'Learning Community', 'Student Voice' before asking for 'Overall Satisfaction on the course'. These themes provide a basis for the generation of the questionnaire used in this study (appendix xxvi) which will see questions grouped in the following four categories; 'Teaching and Learning', 'Assessment and Feedback', 'Organisation' and 'Resources' before asking a single question to measure overall student satisfaction. The questions that form these groups will have their responses aggregated and tested against student satisfaction responses to identify the impact each grouping has on student satisfaction.

Given the correlation between the recent rise in NSS student satisfaction scores for UWL and the number of 'good degrees' and 1st class degrees achieved by its students as identified in Figures 1, 2 and 3, this research study seeks to test the hypotheses H₁, H₂, H₃ and H₄ which are discussed in greater detail in 1.4.

2. Literature Review

This literature review aims to consider some of the fundamental topics relating to student satisfaction, including the concept of 'student as customer' and how institutions approach the concept; student expectation. The literature review will also consider the recent rise in tuition fees in England, the influence of league tables, the National Student Survey (NSS) and management theories which evaluate service quality such as SERVQUAL and Total Quality Management (TQM) to establish how and why student satisfaction is measured, and how it can be improved.

The focus of this study, which is to link student satisfaction directly with academic performance, seeks to investigate an area that is currently very under researched in the fields of higher education and student satisfaction and is drawn from reading around the topic including identifying trends and models within student satisfaction (Wiers-Jenssen, Stensaker & Groggaard, 2002) and on the teacher influence on student achievement (Brophy, 1986).

The concept of 'student as a customer'

Following the Browne report in 2010, which allowed Universities in the UK to raise their tuition fees to a maximum of £9000 per year, there has been an increasing focus on student expectations, with them progressively viewing themselves as customers of Universities (Laing & Laing, 2016). The general concept of 'student as customer' has become so commonplace within the management of and literature considering HEIs in England that recent studies have declared "one area where the debate needs to stop is whether students are customers. That ship has sailed, what needs to be determined is how to steer it" (Guilbault, 2018). Cuthbert (2010) observes that a student is more than just a customer, due to the unique complexity between a student and the University they attend, and the theory is.

The concept of 'student as a customer' is explored by many scholars, including Sharabi (2013), who identifies a shift in higher education provision from being a supplier' market to a customer' market and explores the importance of implementing and monitoring service quality. In addition, the research of Budd (2017) demonstrates that students at English universities perceive that their institutions should play a considerable role in their time at an institution and emphasises the link between fee payment and the concept of 'student as a customer'. Furthermore, Tight (2013), observes that students have not only been considered as customers, but as consumers, clients, co-producers and apprentices. This highlights the variety of internal and external approaches and expectations of educational institutions to interacting with students and further explored by Koris & Nokelainen (2014) state that HEIs have increasingly adopted a customer driven service model who operate "in a dynamic environment of intense competition and students from all around the world may choose the best place for them to study".

There is continued debate and discourse across literature and between scholars and academics on the best ways to approach working with students when considering the best way to maximise student satisfaction. Nevertheless, it is almost unanimously accepted by those considering the issue that students need to be treated as the customers of the product Universities are offering. By placing students, as opposed to academic staff or research profiles, centrally when considering strategic decision-making, Universities are better placed to maximise student satisfaction. By taking this approach when considering matters such as course portfolio and curriculum design, investment into facilities and the adoption of human and technological resources to support students pastorally, Universities are far better placed to serve the needs of students as the primary customer (Budd, 2017; Sharabi, 2013; Tight, 2013).

Reynolds and Dang (2017) identify and explore different methods of approaching the delivery of a University course to students in their role as a customer. The authors identify the pedagogical, or educational, paradigm; that of delivering educational expertise and marketing the courses appropriately as very separate to the business paradigm; that of creating a marketing a service dependant on the demands of the prospective student body. The fundamental difference between the two paradigms is concluded by the authors as 'Educate' (Pedagogical paradigm) vs 'Satisfy' (Business paradigm). Furthermore, the authors state that to improve student satisfaction, institutions would be best served adopting the business paradigm by including the student body in areas of course management such as curriculum design which are traditionally dealt with internally due to the perception of 'instructor as expert'. The rationale for this, according to Reynolds and Dang (2017) is that if students are able to define their expectations more clearly, universities could approach satisfying these expectations in a more targeted manner.

Institutions adopting the business paradigm identified by Reynolds and Dang (2017) may well draw on the general principles of TQM (Watjatrakul, 2013) requiring consideration of student satisfaction to be at the forefront of strategic decision making. The principle of the student as a customer makes them a far more influential stakeholder in the educational experience (Eagle & Brennan, 2007), proposing that they ought to be viewed as a "professional customer or client" more than a "simple consumer".

Mark (2013) draws reference to previous literature that indicates the shift towards the view that customers, in this case students, are, in part, responsible for ensuring their own satisfaction by engaging in a partnership with suppliers, in this case, Universities. This model adds support to the theory discussed by Bates & Kaye (2014) relating to the rise in student expectation around contact time. Mark (2013) also references TQM, noting a reluctance for Universities to adopt the principle notion that 'the customer is always right', arguing that students have a short-term view, and cannot be knowledgeable about the product to know if it is not delivering the quality it should be. In their 2007 study, Lomas acknowledges that the extent to which respondents concurred with the concept of students as customer varied between academic disciplines and institutions due to internal business culture. There was, however, an identifiable trend that governors and university senior management were much keener to adopt the concept of 'students as customers' than teaching staff. This trend offers support to Reynolds and Dang's theory that academic staff traditionally prefer the 'instructor as expert' view of course management. Additionally, Guilbault (2018) records a response from one faculty member that "students are NOT customers by any definition of the word. The sooner institutions of higher learning disregard a "customer service' model the better". Sharabi (2013) identifies three tiers of provision; Co-ordination (senior management), Boundary (academic staff and support services) and Customer (the students themselves) with the co-ordination tier and customer tier more likely than the boundary tier to value the input of students into the monitoring and planning of delivery of a service.

Glaser-Segura, et al (2007) expand on this view, developing the work of Sharrock (2000) in identifying four stages of students as customers depending on their level of transaction and relationship with the university; these stages are defined by the authors as Customer, Client, Citizen and Subject. The subject is a subordinate of the University with no input and in receipt of instruction from the institution; the citizen exercises rights within the university system and it is identified as a co-member of the university; the client is uninformed and merely pays the university to provide expert knowledge, while the customer in the model is fully knowledgeable having conducted research prior to joining, and is in receipt of customer defined instruction and guidance. The varying levels of input the student as customer has in the above models mirrors the roles of the student identified by (Cuthbert, 2010), with students identified as learners, clients, members, citizens and people engaging in aspects of University life ranging from its governance to being members of a sports society. The complexity in identifying what constitutes the student being a customer further complicates the contrasting view of a student from the institutional staff members (Eagle and Brennan, 2017; Guilbault,

2018; Lomas, 2007; Tight, 2013). The work of Voss, Gruber and Szmigin (2007) does, however, surmise that students contact with staff is often the most important factor in ensuring student satisfaction, mirroring the research from Bates and Kaye (2014). The observed diversity in the range of views universities and faculty staff have of students, and indeed that some students may have of themselves, explains why there a lack of an integrated approach to TQM frameworks in the education sector has been (Shams, 2017).

Student expectation and satisfaction

Despite spending up to 14 years in education, as the higher education landscape differs significantly from that of schools and colleges, many undergraduate students join their chosen university with unrealistic expectations (Money, *et al*, 2017). Student perception of quality at University is dependent on their expectations and values, and new undergraduate students may have unrealistic expectations, leading to a feeling of dissatisfaction (Money, *et al*, 2017; Voss, Gruber and Szmigin, 2007). By understanding what students expect from them, universities may be able to manage student expectation and, in turn, increase the likelihood of student expectations being met which will therefore increase the probability of a rise in student satisfaction (Voss, Gruber and Szmigin, 2007). The importance of understanding student expectation is explored by Sander, Stevenson, King and Coates (2000) who observe that universities need to adapt the way in which they approach student expectation. By moving from an 'inside out' approach of education, simply assuming academic staff know what students require and expect, to an 'outside in' model, which requires researching what students expect from their time at university, HEIs are better placed to understand student expectation. The study also indicates that by surveying incoming students, universities can not only understand but also manipulate expectation, particularly that of students from widening participation backgrounds, to result in improved academic performance and, consequently, satisfaction.

Whist considering service quality, Sharabi (2013) states that due to the provision of service being as reliant on the process as it is on the end result, merely obtaining a degree may not be sufficient to guarantee satisfaction with the educational service received. Sharabi (2013) identifies rude or obsolete teaching and supporting services such as administrative support, pastoral care, maintenance and IT as of equal importance to the obtaining of a degree when evaluating overall student satisfaction. Senior, Moores and Burgess (2017) surmise that University managers can "no longer expect students to be satisfied with excellent teaching alone", further observing that "Students expect the provision of excellence with regards to professional skills that they can transfer to the post-graduation workforce".

The impact of tuition fees

This study is considering recent student satisfaction at UWL, framed in the context of a marketplace where the cost of Undergraduate degrees in England has risen from £1000 in 1998 to £3000 per year from 2006/7, rising further to £9000 per year in 2012/3 (Bates and Kaye, 2014; Callendar and Mason, 2017). Since 2017, Universities in England have been able to charge an additional £250 per year dependent on an institutions Teaching Excellence Framework (TEF) rating (Gunn, 2018) as well as increasing interest on tuition loans from Student Finance England (SFE) (Independent, 2018). Although this study is not considering tuition fees themselves as a variable, with the above discussion of students as customers, the author notes there is an assumption that expectation will be higher as the cost of degrees rises and therefore satisfaction with a student's time at University will be harder to achieve.

Bates & Kaye (2014) observe that 'Tutor support and the role of the lecturer', 'Resources' and 'Employability' are all core components of student expectations in an increasing 'consumer culture'. Bates & Kaye (2014) also draw a clear distinction between the eras of 'pre-fee rise' and 'post-fee rise' with regards to students' expectations. Their paper demonstrates that expectations from students who now see themselves as customers, and therefore, their satisfaction, differ in an environment of higher tuition fees, with one student on the lower fees quoted as stating "I'd be expecting caviar in lectures" if they were paying the increased fee.

Lenton's study of the NSS (2015) highlights the importance on monitoring student satisfaction post fee-rise and is one of the few studies that draws a link between attainment and student satisfaction. Lenton does, however, perceive student attainment to have a near negligible effect on their satisfaction, and that it is linked in a wider context to a sense of self-development and employability, rather than seen as a variable in its own right. This supports the findings of Langan, Dunleavy and Fielding (2013) in noting that 'satisfaction with feedback' was one of the most unreliable predictors of overall satisfaction and expands on their analysis of the use of NSS data, which concludes that student satisfaction is a complex indicator with many contributing factors. Research claims that for an institution to improve its overall student satisfaction rates it would be beneficial to consider and measure currently unexplored attributes, such as student attainment (Fielding Dunleavy & Langan, 2010).

Burgess, Senior & Moores (2018) observe that the UK provides a 'natural experiment' of the effects of fees on student satisfaction with Scottish institutions opting to charge no fees for Undergraduate degrees while Universities in England do charge tuition fees. However, their research identifies no observable link between tuition fees and student satisfaction, noting the best correlation occurring between the course being 'well designed and running smoothly' and overall satisfaction in England having increased in recent years.

Supporting this surprisingly counter-intuitive result, Budd's research (2017) notes no observable difference in the levels of engagement or satisfaction between fee paying students in England and those who did not have to pay for fees in Germany. Budd's 2017 study claims that any observable differences between the student's experiences were based on other aspects of the institutions organisational culture and not on fees. The structuring of the loan repayment system for students in England at the beginning of the 2017/8 academic year only sees loan repayments begin after the graduate begins earning over the threshold of £21,000, and having any outstanding debt written off after 30 years (Callender and Mason, 2017). Additionally, this earnings threshold for repayments is due to increase from £21,000 per year to £25,000 per year for students who started their degrees in 2012 or after in a move that is set to reduce monthly repayments for millions of students (FT, 2018). The loan repayment system is credited with reducing the gap in attendance between rich and poor students in England (Economist, 2017). One Economist (2017) article notes that university attendance from poorer areas is rising slower in Scotland, where no tuition fee is charged, than in England and estimates that around three-quarters of all graduates in England will never pay back the full value of their student loan. This claim differs from the research conducted by Callender and Jackson (2005) which identified concern from prospective students that accruing higher levels of debt may dissuade them from attending university.

This is particularly relevant for UWL as a widening participation institution, appealing to a demographic of poorer students who are often the first in their families to attend University (UWL, 2018), as there is no prior experience of University for them to draw their own expectations from. Consequently, expectation will likely be formed from a student's experience of previous education provision at high school or college or from experience of provision of other goods and services, often which do not require the levels of engagement required at a University (Fearne, 2008; Money, *et al*, 2017). Examples of this are the expectation of both the high level of service and product guarantees received when as a customer purchasing a new mobile telephone.

Setting expectation and measuring satisfaction: OfS, NSS, TEF and League Tables

With Universities operating in an increasingly marketised industry (Rudd, 2017), and reflecting a shift towards the 'Business to Customer' model (Senior, Moores and Burgess, 2017), the use of league tables, surveys and metrics to quantify university performance has become increasingly common. The results of the NSS, TEF and league tables from the Guardian, Times and Sunday Times Good University Guide and Complete University Guide all feature prominently in the advertising of most Universities, including UWL.

In reaction to the marketisation and privatisation of the higher education sector in the UK, the Quality Assurance Agency (QAA) has implemented the TEF as a means of 'putting students at the heart of the system' (Maskell and Collins, 2017). TEF aims to ensure quality of teaching and learning as well as measuring value for money and better informing students' choices regarding where to study by ranking institutions as Gold, Silver or Bronze (Rudd, 2017).

Critics of the metrics by which institutions are measured highlight the 'crude and distorted' view of teaching 'excellence', stating that they are a further example of the marketisation of education in recent years. Rudd (2017) highlights the potentially damaging sector wide pedagogical impacts of the increased use of metrics such as TEF and league tables such as the Guardian or Times and Sunday Times Good University Guides. The adoption of metrics and league tables is an attempt to employ a 'one size fits all' approach which over-simplifies the complex nature of student engagement and satisfaction (Maskell and Collins, 2017). Additionally, Christie (2014) states that these metrics are counter-productive for Universities, and the increase in external accountability "threatens the moral purpose of higher education as a guardian of independent knowledge with responsibility 'for conserving, understanding, extending, and handing on to subsequent generations the intellectual, scientific, and artistic heritage of mankind.'" Furthermore, TEF has created controversy amongst the student body, with 25 Students Unions boycotting the NSS survey in 2017 due to its impact on TEF and institutions with a Silver or Gold rating being able to charge additional fees (THE, 2017b). Moreover, the addition of graduate earnings as a metric after the first TEF has been criticised for undermining the testing and skewing results back in favour of Russell Group institutions whilst deflecting attention away from teaching (THE, 2017c).

3. Methodology

This study adopted the approach of issuing self-administered, Likert scale-based questionnaires with ranked questions from 'strongly agree' to 'strongly disagree' to students at UWL which will be completed anonymously. The aim of the questionnaire is to obtain responses identifying students' satisfaction with a range of factors and overall student satisfaction with their course, in order to test the hypotheses H₁, H₂, H₃ and H₄. Although the approach is modelled on existing methods of evaluating student satisfaction, this chapter explores the academic rationale behind the authors chosen approach. Utilising the 'Research Onion' as identified by Saunders, Lewis and Thornhill (2015, pp. 124), this chapter will consider research philosophy, approach, strategy and design. Additionally, the chapter will consider the chosen population of respondents and investigating sampling techniques and data analysis tools employed throughout the research.

The importance of establishing a robust methodology prior to collecting data has been outlined by Bryman and Bell (2015, pp. xxxiii) as it enables researchers to make appropriate choices about which methods and techniques to employ, thereby promoting high quality research. 6 and Bellamy (2012, pp. 12) also observe that sound methodological principles allow a researcher to reach conclusions by designing all stages of the research project based on those principles whilst Sekaran and Bougie (2013, pp. 20) state that "a sound methodological design adds rigor and a degree of exactitude to a purposive study".

Additionally, this study is Cross-Sectional as it seeks only to understand the impact of attainment on student satisfaction from current students at UWL, rather than recently graduated members of the alumni association, looking to potential, future students or considering students at other Universities in England. This approach is particularly relevant as the students being surveyed are studying in an uncertain climate with rising student tuition fees in England and the proposed introduction of new funding and study methods. These external factors can be combined with UWL's recent rises in student satisfaction and league table rankings and unusual demographic profile to provide a unique case study. Furthermore, the targeted respondents are studying in UWLs two recently re-developed campuses (Ealing and Brentford sites), which have recently had significant financial investment. The investment into facilities has been identified by Senior Management as a

significant factor in improving the recent student experience and UWL being ranked 2nd nationally for spend per student (Complete University Guide, 2018; UWL, 2018b).

The questionnaire itself (as seen in appendix xxvi) was designed in two main sections, with the main section asking a range of questions split into four main categories; Teaching and Learning, Assessment and Feedback, Organisation and Resources, with a final question on overall satisfaction. The second section asks four demographic questions to identify the students' academic school, year of their course, gender and age, which may be utilised for further analysis.

4. Data Analysis

Of the 231 responses that were collected, only 19 came from the Brentford Campus – 8.22% of all responses – and in total 5 questionnaires (2.16%) were discarded for being incomplete or answered entirely with a single response for each question.

In considering the demographic information in Table 5, it can be observed that almost half of respondents are Undergraduate students not in their final year and as a result may not have the opportunity to complete the NSS should they withdraw from UWL due to dissatisfaction with the course or institution. The author notes that this may result in a disparity between the previously published NSS results and those gathered as part of this survey as students viewing their tenure at University through the prism of their being a valued customer may well change service provider before getting to the point of award if they are sufficiently dissatisfied.

5. Discussion on Data Analysis

Scrutiny of the correlation and regression analysis conducted on the responses to questionnaires will allow the author to test the four identified hypotheses, in order to address the research aims and questions of the study. The established research aims were to identify the impact of identified factors on student satisfaction, and to ascertain whether attainment is the most important factor. The established research questions were: 'Do students directly attribute attainment with a positive experience at University?', 'Is attainment the most significant factor in determining student satisfaction?' and 'Should UWL focus primarily on increasing student attainment in increase student satisfaction rates?'

4.6 Correlation Analysis on key questions vs Student Satisfaction

The results of the correlation analysis in appendix v demonstrates no observable linear relationship between Q11 '*With better organisation I could have received better marks*' and overall satisfaction with a Pearson's r (the relationship between variables) value of +.055 and, furthermore, are not statistically significant as the p value result is above .05 at .414 (Bryman and Bell, 2015, pp.360).

The analysis between responses for student satisfaction with Q7 '*The marks I received are good*' and Q8 '*The marks I received are fair*' are both statistically significant with a p value of .000 and a weak, positive relationship with a Pearson's r of +.425 and .319 respectively.

As a result of the low correlation coefficients observed above, further correlation analysis was run against the aggregated results for the three questions relating to marks (Q7, Q8 and Q11), as well as the combined factors in the questionnaire based on the groupings of questions in NSS questionnaires and UWL's MEQ; Teaching and Learning, Assessment and Feedback, Organisation and Resources. In all five sets of results, which can be seen in appendix vii, the correlation analysis returns a p value of .000 meaning the results can be considered significant. The resulting Pearson's r for the five groupings of questions all return a weak to moderate positive relationship between student satisfaction and Marks (.387), Organisation (.490), Assessment and Feedback (.507), Resources (.534) and Teaching and Learning (.614).

The above correlation analysis has also been conducted on the responses from final year students only, with the results discussed below. When the analysis is applied to responses from final year undergraduate students for Q7, Q8 and Q11 (appendix viii) there is a reduction in either statistical significance, observable relationship, or both for all three questions. For Q7, p value rises from .000 to

.013 and Pearson's r drops from .425 to .275. For Q7, the p value rises from .000 to .067, making the results statistically insignificant with Pearson's r dropping from .319 to .204. For Q11, p value is still statistically insignificant at .304 with a Pearson's r of -.116 which, if significant, would indicate that student satisfaction may actually drop as attainment rises.

This trend of seeing a weakening of the relationship between satisfaction and individual markers continues when considering correlation analysis against the aggregated results (appendix viii). The p value for the aggregated marks questions rose from .000 to .118, and whilst Pearson's r value still demonstrates weak to moderate relationship, there was a reduction in the strength of relationship for all five factors. Pearson's r values dropped from .387 to .175 for 'Marks'; from .490 to .315 for 'Organisation'; from .507 to .398 for 'Assessment and Feedback'; .534 to .476 for Resources and from .614 to .576 for Teaching and Learning.

The above results support research which notes that student satisfaction is a complicated concept to predict, with various contributing factors that will differ from student to student (Bates and Kaye, 2014; Hassan, et al, 2008; Langan, Fielding and Dunleavy, 2013). The findings of the analysis also support the supposition that Teaching and Learning, and contact time are the key factors in providing a positive student experience (Bates and Kaye, 2014), even if the relationship is only moderate. It could be proposed that the perceived effect that learning, or at least the development of new skills and knowledge, has on a students' graduate employability is one of the factors behind this (Budd, 2017; Jones, 2010; Senior, Moores and Burgess, 2017).

With the above correlation analysis showing a weak - moderate relationship at best between the factors identified in the questionnaire and student satisfaction, the study will now utilise bivariate regression analysis to consider the probability of student satisfaction increasing if marks, or satisfaction in other areas, increase.

Bivariate Regression Analysis on key questions vs Student Satisfaction

For consideration of all the bivariate regression analysis considered below, this study will use the adjusted R Square value rather than the R Square or R value. This is done to demonstrate the probability that improving marks, or the experience within one of the groups of areas questioned, will improve student satisfaction. The rationale for using the adjusted R Square value is that whilst the R Square value, also known as the 'coefficient of determination', is that the adjusted R Square value ignores inputs or variables that have no impact on the outcome of the data, providing a more statistically relevant output in determining the strength of impact of the independent variable on the dependent. Whilst the R Square value demonstrates the causal effect of the independent variable on the relationship with the dependent variable rather than simply the presence of a relationship as is evidenced by the R value, also known as the 'coefficient of determination' (Bryman and Bell, 2015, pp. 353-354) the use of the adjusted R Square value provides more rigorous testing.

Appendix ix provides the results from the regression analysis on the three combined questions from the completed questionnaires that were targeted directly at addressing students' own perceptions of their marks; Q7 '*The marks I received are good*', Q8 '*The marks I received are fair*' and Q11 '*With better organisation I could have received better marks*'. The results from these questions can be considered significant owing to the Significance F value of .000, however the adjusted R Square value of .146 demonstrates negligible impact.

When further considering the impact of marks on student satisfaction, Appendices x, xi and xii show the output of analysis comparing responses to the individual questions regarding student marks and responses to satisfaction. In Appendix x, the comparison between responses to Q7 '*The marks I have received are good*', and in Appendix xi, responses to Q8 '*The marks I have received are fair*' with student satisfaction both return a Significance F value of .000, but with adjusted R Square values of .177 and .098 respectively. With such low adjusted R Square values, students do not identify any link between their attainment and their satisfaction further disproving the hypothesis H_1 against individual measures of attainment vs satisfaction as well as the aggregated response score. Appendix

xii provides the analysis of responses to Q11 *'With better Organisation I could have received better marks'* and cannot be considered as the Significance F value is .414 and, therefore, the results are rejected.

Due to the results from the above regression analysis, and the correlation analysis in 4.6, it can be stated that the hypothesis H₁, 'Students equate receiving good marks to having a positive experience at University' is rejected. The evidence indicates that achieving good marks, and certainly students' own perceptions of whether or not the marks they receive are good, fair and if relevant levels of support were provided to achieve them do not have a direct impact on student satisfaction.

As with the correlation analysis in 4.6, the regression analysis has not identified any observable relationship between questions deliberately intended to examine the impact of attainment on satisfaction. Further analysis was run on the combined factors of Teaching and Learning (appendix xiii), Assessment and Feedback (appendix xiv), Organisation (appendix xv) and Resources (appendix xvi). This analysis was conducted in order to identify whether other factors were identified as having a probable statistical impact on overall satisfaction and to compare this against the outcome for marks to test the hypotheses H₂.

Whilst the results for all of the groupings were observable, with Significance F values of .000, none of the adjusted R Square values were high enough to be considered statistically important; at .374 (Teaching and Learning), .254 (Assessment and Feedback), .236 (Organisation) and .282 (Resources). In relation to the hypotheses H₂, 'Attainment is the most significant factor when considering student satisfaction', whilst the analysis does not indicate a strong relationship or observable causality between any of the factors in all cases, responses to the individual and aggregated questions relating to marks do demonstrate a weaker relationship between attainment and student satisfaction, so the hypothesis H₂ can be rejected.

As was done with the correlation analysis, the regression analysis has also been applied to responses from final year undergraduate students only. This has been done in order to test the hypotheses H₃ 'Final year Undergraduate students equate receiving good marks to having a positive experience at University' and the hypothesis H₄ 'Attainment is the most significant factor when considering student satisfaction for Final year undergraduate students'. This has been done in order to investigate whether the research questions are applicable to final year undergraduate students as this may still have an impact on senior management decisions around issues such as assessment frameworks and regulation changes.

Appendix xvii provides the results from the regression analysis on the three combined questions addressing students' own perceptions of their marks; Q7, Q8 and Q11. The results from these questions demonstrate an adjusted R Square value of .018, reduced from .150 across the whole respondent population, mirroring the weakening relationship observed in the correlation analysis in 4.6. Considering the results of the analysis conducted on each of the individual questions (appendices xviii, xix and xx) this trend continues with shifts from an adjusted R Square value of .177 to .064 for Q7 and from .098 to .030 for Q8, whilst the adjusted R Square value for Q11 moves from -.001 to .001. Of more importance is the increase in Significance F values to .118 for the aggregated marks, .067 for Q8 and the value for Q11 dropping from .414 to .304 when considering final year undergraduate students' responses only. These Significance F values mean the results are statistically insignificant and, coupled with the low adjusted R Square value for responses to Q7, the hypothesis H₃ 'Final year Undergraduate students equate receiving good marks to having a positive experience at University' is rejected.

Further analysis was run on the combined factors of Teaching and Learning (appendix xxi), Assessment and Feedback (appendix xxii), Organisation (appendix xxiii) and Resources (appendix xxiv). This analysis was conducted in order to identify whether other factors were identified as having a probable statistical impact on overall satisfaction and comparing this against the outcome for marks to test the hypotheses H₄.

As with the data analysis for the entire respondent population, whilst the results for all of the groupings were observable, with Significance F values ranging from .000 to .004, none of the adjusted R Square values were high enough to be considered statistically important. Furthermore, the trend of

a weakening of already low relationships and probability when considering responses from final year undergraduate students continues. There were shifts in adjusted R Square values from .374 to .324 for Teaching and Learning, from .254 to .148 for Assessment and Feedback, from .236 to .088 for Organisation and from .282 to .217 for Resources. In relation to the hypotheses H₄, 'Attainment is the most significant factor when considering student satisfaction for Final year undergraduate students', as with the testing for hypothesis H₂, responses to the individual and aggregated questions relating to marks demonstrate a weaker relationship between attainment and student satisfaction. As a result, as with the previous three hypotheses, the hypothesis H₄ can be rejected.

5. Discussion and Conclusion

As was identified in the literature review, student satisfaction is an incredibly complex topic to attempt to understand and quantify (Bates and Kaye, 2013), with a wide range of potentially significant factors having impact on students' own perception of satisfaction. The analysis of data from the questionnaires completed by UWL students indicates that there is no single factor that has a significant impact on the satisfaction of the student body as a whole. Furthermore, we observe a weakening of the relationships between student satisfaction and the five examined factors and a reduced probability that the factors will have an impact when considering the responses final year undergraduate students only. This may indicate that as students grow into their studies they become less reliant on the institution, its staff and facilities, and therefore develop into independent learners who participate far more in their own development. A further possibility is that, as suggested by the research of Douglas, Douglas and Barnes (2016) and Gibson (2010), it may be the case that the link between attainment and satisfaction is actually that satisfied students perform better, rather than high attainment driving student satisfaction.

Whilst there was a very weak relationship and causality observed through both correlation and regression analysis, the results of the questionnaire demonstrate that Teaching and Learning has the highest relationship with overall student satisfaction. This evidence appears to be contrary to the findings of Senior, Moores and Burgess (2017), who state that it is not sufficient to provide excellent teaching alone when aiming to provide student satisfaction. The analysis shows, however, that the relationship is weak and other factors have only marginally less impact on student satisfaction, does support their claim that student experience cannot be enhanced by providing excellent teaching alone. The results of this study echo the views of academic staff surveyed by Lomas (2007) and the 'teacher as expert' model explored by Reynolds and Dang (2017) when comparing the business and pedagogical paradigms of approaching delivery of university courses. With such a weak relationship between any of the factors considered and student satisfaction it can be considered that undergraduate students are either not mature enough or not experienced enough with the style of education delivered at University to accurately define their expectation. As a result, they are not in a position to judge what methods of delivery will provide them the best experience at University. That final year undergraduate students perceive Teaching and Learning to have less of a relationship on their satisfaction may indicate that, by the end of their studies, they have developed into independent learners, more fully utilising the facilities and research skills they have acquired far better than students at other stages of study.

Given that student satisfaction, which has been on an increasing trend at UWL over the past 10 years, cannot be attributed to any of the factors explored as part of this study, it is necessary to consider some of the reasons for the increase. As outlined in *Ambition 2018* (UWL, 2017), UWL has worked to develop its portfolio of courses whilst also developing links with industrial partners; the intention being to increase student employability after graduation. As of 2017 over 97% of UWL graduates were in employment or further study within six months of graduating according to the nationwide 'Destinations of Leavers from Higher Education' (DLHE) survey. The commitment to ensuring UWL graduates are employable and increasing results from DLHE in recent years can be seen to provide evidence to the growing body of research suggesting that employability and the

'graduate earnings premium' is one of the primary factors behind both participation in and satisfaction with higher education (Bates and Kaye, 2014; Budd, 2017; Burgess, Senior and Moores, 2018; Jones, 2010; Lenton, 2015). Furthermore, as with all institutions, UWL has reacted to previous NSS and internal satisfaction surveys to continually update and improve their offering. Additionally, there has been significant investment into facilities and resources available to students in the past five years, including a recent £50 million development of the Ealing site with UWL recently being recognised as the 2nd best HEI for spending on facilities in the UK (Complete University Guide, 2018; UWL, 2018b). This investment has incorporated the opening of a new library with greatly increased resources, improved teaching rooms and specialist spaces including an in-house radio station, music studios, a mock court room and a nursing simulation suite at the Brentford site. Finally, there have been significant developments made in supporting services at UWL including the recent formation of Engagement and Retention and Student Welfare teams and the Students Union, voted as the best Students Union in England in the 2017 NSS (UWL, 2018c), having increased involvement in support and representation of students.

When considering the context of UWLs rising student satisfaction in a time when tuition fees and therefore student debt are increasing, it certainly appears that the increased financial burden does not have a significant effect on student expectation or satisfaction; the results of this study concur with the research of Budd (2017) and Burgess, Senior and Moores (2018). Analysis would also suggest that the structure of student loan repayments, with the threshold for repayments due to rise from £21,000 to £25,000 (FT, 2018), and the 'graduate earning premium' offsetting any increased expectation from prospective students means the presence of a tuition fee does not impact on expectation. Budd (2017) found no observable difference in student satisfaction between students in England and Germany, and differences between average national NSS scores for institutions across the UK with varying fee structures are negligible with 84% overall student satisfaction in England and Wales, and 85% in Scotland and Northern Ireland (Hefce, 2017). Therefore, it can be surmised that whilst the introduction and subsequent increase of tuition fees in England has brought about the concept of 'student as a customer' and has led to a great deal of discussion and research into student satisfaction, there is no obvious advantage to student satisfaction to charging a lower fee, or no fee at all.

As observed in the introduction to this research project, UWL is somewhat of an unusual case study as it does not have a typical demographic for Universities in England. UWL is based in an affluent part of the country (West London) and as a result living costs are likely to be significantly higher than in many other areas of the country. However, as a widening participation institution it has a commitment to focus on working with under-represented social groups, including people from low income backgrounds and people from lower socio-economic groups (UWL, 2018). The portfolio of courses offered at UWL is largely vocational with a key focus on graduate employability, additionally nearly 40% of students are aged 25 or over, thus the cohort of students at UWL may have differing expectations than those studying at older, more traditionally focussed universities. It is therefore a recommendation that the above study be replicated and conducted with students at other universities in England to address whether attainment is linked to student satisfaction for students in a more traditional university setting.

The findings of this research project conclude that attainment does not have an impact on student satisfaction for students at UWL. It also highlights that there is no simple method of continuing to increase student satisfaction as there is no clear factor that has a significant influence on satisfaction across the student body at UWL. In an era of increasing marketisation and with new metrics, league tables and a new regulator (Office for Students) demanding demonstrable value for money, the task of keeping students satisfied is becoming increasingly difficult. Whilst employability appears to have emerged as an important factor in satisfaction, it may prove difficult to assess potential employability whilst still in full time study, adding rationale to the above recommendation of surveying recent graduates. It would also be negligent of HEIs in England to focus purely on employability whilst neglecting areas such as teaching and learning, assessment frameworks and investment in resources.

Ultimately, to achieve student satisfaction, a joined-up approach to the entire student journey is required, taking students from a position of being consumers of the product to co-producers and citizens (Cuthbert, 2010; Sharrock, 2000; Tight, 2013), who become employable through independent learning and as a result of the enriched educational environment they have spent at least three years participating in.

6. Limitations

Limitations of the study include; a tendency for students to be at the Ealing campus rather than the Brentford campus, the need for students to have approached the school office themselves and the lack of 'out of hours' service provision. However, the adopted approach should limit the sampling error and increase heterogeneity of the population (Bryman and Bell, 2015, pp 187, 200). It is also relevant to note that there may be a significant amount of non-response from students offered the questionnaire but electing not to undertake it. Whilst efforts were made to avoid sampling error, there is no guarantee that an even distribution of students across the 8 academic schools can be achieved.

Further potential limitations of the study include the absence of responses from academic schools based at Paragon may see localised issues having a disproportionate impact on the results. Again, considering Table 4, it can be noted that CNMH is significantly the smallest academic school in terms of students eligible for the questionnaire, so the largest discrepancy is with SHSS.

7. Further Research

Further recommendations for future research include restricting the study to final year undergraduate students only. If a study were to mirror the target audience of the NSS and obtain a larger number of responses, the results may provide a better data set to be able to analyse findings. By adopting this more targeted approach and, as a result of the entire target population having been through two years of University life, expectations and therefore the determinants of satisfaction may be better defined and, as a result, be easier to identify. It would also be sensible to include questions relating to employability and whether students feel supported or prepared to find work post study. It may also be of academic significance to conduct a qualitative study with current students to explore what they feel impacts upon their experience. Whilst this study based the questions and their groupings on existing surveys of student satisfaction, by conducting structured or semi-structured interviews or focus groups, students would be able to explore what they feel contributes to their satisfaction. The findings from these interviews could be coded and interpreted as they were presented or used to help formulate a questionnaire more suited to students at UWL.

A final recommendation for future research, given how important employability appears to be linked to student satisfaction, is to target alumni to see how valuable an 'investment in the self' their education has been. Whilst there may be complications with contacting former students or gaining their co-operation with such a study, there may be value in allowing a student to have completed their time at University before gaining more retrospective feedback. This would contrast with current satisfaction surveys which are conducted mid-study and could therefore be skewed by individual issues or problems occurring shortly before the satisfaction surveys are completed.

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