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Full Length Research Paper

Factors associated with students' satisfaction with their educational experiences, and their module grades: Survey findings from the United Kingdom

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This study explored the factors associated with student satisfaction with their health/social care educational encounter. It examined quantitatively three different student satisfaction indicators: extent, index, and overall satisfaction. An 18-item questionnaire was employed at a British University to examine the factors associated with students' satisfaction with educational experiences, and their achievement in their modules. Student satisfaction and achievement were analysed in relation to nine demographic and educational variables: gender, disability, ethnicity, age bracket, academic level, mode of study, qualification aim, entry qualification and nature of module. The questionnaire exhibited high reliability. The sample reported satisfaction levels in agreement with other studies. For most variables, increase in a group's overall satisfaction was associated with increase in their academic achievement on the module and vice versa, although the differences in grades were sometimes not significant. The nature of the module, study mode and academic level were significant predictors of student satisfaction. Some student groups reported low satisfaction that might require consideration. These were younger males, with disability, of non-white ethnicity, with 'A' level entry qualifications, level 3 full-time students aiming at BSc degrees and attending pre-registration modules. It is concluded that course organisation and support systems will need to attune to the needs of diverse student groups.

Keywords: Health professions education, satisfaction indicators, student parameters, evaluation, learning and teaching.

INTRODUCTION

The educational preparation of health professionals has witnessed considerable changes that have taken many forms. In the United Kingdom (UK), health professionals' education has moved into mainstream higher education thus placing the educational management of the health professions in the hands of independent educationalists, colleges and universities (Pope et al., 2000). This change was also accompanied by a greater focus and quest for quality (El Ansari and Oskrochi, 2006). Higher education administrators consider the degree of student satisfaction with the quality and relevance of their educational experiences an important dimension, where the better understanding of student satisfaction is fundamental to better understanding of the educational process (El Ansari, 2002; Nahas et al., 1999).

The evaluative assessment of student satisfaction (using opinion surveys) and its relation to student achievement (using their attained grades) is a critical undertaking that serves many crucial purposes. For instance, student satisfaction information has been used as: guidance for students in their learning; decision-making relating to students' grades; the derivation of quality and performance indicators (Balla and Boyle, 1994); and the assessment of the effectiveness of

learning and teaching institutions. Students are viewed as customers of the higher education market and as such their satisfaction is invaluable (Playle, 1996). To understand student satisfaction is to identify their concerns about course shortfalls. This provides room for improvements that contribute to quality. Indeed there is commitment to the feedback of such data to the responsible committees and the effective use of this information could enhance the quality of teaching and learning (El Ansari, 2002; Shelvin et al., 2000). In the UK, the Higher Education Funding Council for England (HEFCE) started the national student survey early in 2005 and yearly thereafter (Richardson et al., 2007).

In evaluations of satisfaction, a commonly used data source is students (Pozo-Munoz et al., 2000), by obtaining their perceptions of satisfaction with their learning. Student feedback questionnaires (Coffey and Gibbs, 2001) and surveys are widely used for module assessment as a useful measure of features that characterise the teaching quality (Harris, 1998). Students can make valid comments on the teaching and learning experience from their perspective (Marsh and Dunkin, 1992), where more studies of student evaluations than of all the other means used to evaluate college teaching have emerged (Cashin, 1988). In the UK, findings from the National Student Surveys are available on the Teaching Quality Information website (http://www.tqi.ac.uk) (Richardson et al., 2007). Such data are employed in a wide variety of analyses, including inquiries that explore the impact of educational institutions (Porter and Umbach, 2006). Indeed, the University where this study was implemented views student satisfaction to be an important indicator to guide lecturers in enhancing the quality of learning and teaching.

Two main issues that affect satisfaction comprised the basis of this study. The first issue was that evaluations of satisfaction needed to be based on sound concepts and processes that capture the breadth of the learning 'environment': the teaching method/s and assessment, course structure, curriculum, and teacher effectiveness. Many variables are required for a holistic conceptualisation of satisfaction with learning and teaching. These included the course content and structure; teaching-learning strategies; feedback and support; and assessment and grading. Thus the current study's questionnaire comprised 18 satisfaction items (Kerridge and Mathews, 1998) that addressed the module administration and content, teaching arrangements, assessment procedures, student support and university resources, and module stimulation and relevance to participants' work and aspirations (Table 1). These variables have been highlighted in the literature (e.g. Kerridge and Mathews, 1998; Cash, 2000).

The second issue was that a wide range of demographic and educational variables influenced student satisfaction with their educational encounter (Wachtel, 1998; El Ansari, 2002; El Ansari and Oskrochi, 2006). These variables included the *course* characteristics: the academic level of the course (Kerridge and Mathews, 1998); the study mode (full- or part-time) (Lee et al., 1999); the nature of the module; and the qualification aim (El Ansari, 2002; Eaton et al., 2000). The variables also included the *student* characteristics: gender (Tatro, 1995); ethnicity (Chevannes, 2001); disability status (Scullion, 2000); age (El Ansari and Oskrochi, 2006); and students' prior entry qualifications (Ofori, 2000). Similar attention has also been paid to the student's achievement in terms of the grades that students accomplished at the end of a module (Marsh and Dunkin, 1992). Collectively, such multiplicity of variables implied that a holistic evaluation of satisfaction would comprise many 'background' variables (Tatro, 1995).

Study Aims

This study explored the associations between nine demographic and educational variables (gender, disability, academic level, mode of study, ethnicity, qualification aim, age bracket, entry qualification and nature of module) and student satisfaction with their educational experiences as well as their academic achievement (using mean module grade as a proxy for achievement). The study was undertaken at the School of Health and Social Care at a British University in the United Kingdom. The four specific objectives were to:

- Assess the internal consistency of the student satisfaction questionnaire employed in the current study using Cronbach Alpha Reliability coefficient of the 18 questionnaire items.
- Assess the demographic and educational variables that are significantly associated with educational satisfaction (i.e. *combined* effects of nine variables on satisfaction).
- Assess how each demographic and educational variable is associated with both, satisfaction and with student academic achievement (i.e. *individual* effects of each of the nine variables separately). Three indicators of satisfaction were computed: the extent, index, and overall satisfaction.
- Identify the student groups that were least satisfied with their educational experience employing the extent and index of satisfaction.

METHODS

Sample

The study was undertaken at the School of Health and Social Care at a British University in the South of the

Table 1. Student perception of module - questionnaire items

Q1	Module ran smoothly
Q2	Module increased my interest in the subject
Q3	Module team provide opportunity to ask questions
Q4	Module material was well presented
Q5	Module was thought provoking
Q6	Assessment methods were appropriate
Q7	Module team displayed good knowledge
Q8	Module team correctly assumed level of skills I had
Q9	Module information available at beginning of module
Q10	Receive helpful feedback
Q11	Seminar group size small enough
Q12	References needed for module available in library
Q13	Work required for module was appropriate
Q14	Module elements integrated into meaningful whole
Q15	Module was intellectually stimulating
Q16	Expect module to be of direct use in my career
Q17	Module made me look at my profession differently
Q18	Teaching staff styles clear and stimulating

United Kingdom. Data was collected during the first term of 2000-2001 academic years. Four hundred and sixty satisfaction questionnaires were completed and received from students attending various health and social care modules. Students completed a self-administered satisfaction questionnaire only for the module they were attending at the time of data collection (i.e. module evaluation, not course evaluation). Participation was voluntary and anonymous. The sample comprised 90% females reflecting the high majority of female students who undertake health and social care courses in the UK. Less than 1% of the sample reported disability. Two academic levels were considered: Level 1 (12%) and Level 3 (88%). Most participants (80%) were full-time students and 'White' (94%). On the whole, students were undertaking a degree course (90%), with small numbers of diplomas (9%), or single modules (1%). About half the participants were undertaking BSc degrees (53%), while BA, diploma and postgraduate students comprised about 37, 9, and 1.5% of the sample respectively. Mean student age was 30 years (range 18 to 53 years). About 30% of the participants were traditionally aged (<21 years), while 11% were mature (21 – 25 years) and more than half (59.4%) were older mature students (>25 years). Pre-registration (52.4%), post-qualifying (46.3%) and post-graduate (1.3%) modules were examined. Seven categories of students' entry (admission) qualifications were identified:

- Advanced Level (A Level) (56%) – taken at the end of their first year of the sixth form, Access qualification, and Scottish higher.
- General Certificate of Secondary Education (GCSE) / Ordinary level (O-level) (2%) – qualifications taken by 15/16 year olds at secondary school.
- Sub-degree (10.4%) – at higher education level but which is not a degree e.g. Higher National Certificate or Higher National Diploma.
- Professional or intermediate (5.2%) – e.g. Certificate in Social Work.
- Degree (14%) – first degree e.g. Bachelor of Arts (BA) or Bachelor of Science (BSc).
- Other postgraduate qualification (1.5%) – other than master's or Doctorate degrees e.g. postgraduate diploma.
- No level assigned (2.2%) – experience that does not fit into the other categories.

Measurements and Data Collection

Students completed the Student Perception of Module (SPOM) questionnaire (Kerridge and Mathews, 1998), to which additional questions were added (Cash, 2000). The questionnaire was first piloted on a smaller sample of students from the same university and minor modifications were implemented. Table (1) outlines the items, and the detailed questionnaire is described elsewhere (El Ansari, 2003). Respondents rated the items on a five point scales (1= 'Positive Perception'; 5 = 'Negative Perception'). Students' accomplishment (actual grade achieved by the student in the module/s under investigation) were imported from the university's computer systems. Such use of both satisfaction data and actual accomplished grade is in agreement with the concepts of 'soft' (satisfaction) learning environment outcomes and 'hard' (academic achievement) outcomes (Lizzio et al., 2002) of university students.

Participants' opinions of 14 Health Care modules (term 1, 2000/2001) that contributed to 7 Diplomas, 14 BSc and 13 BA degrees were analysed. Students participated in the survey if they wished. A participant information sheet detailed the study aims, as well as issues of anonymity, confidentiality and data protection. The university research ethics committee approved the study and the participation of modules and students was totally voluntary. After permissions from the module leaders and co-ordinators, the questionnaire was administered usually at the end of a teaching session (by the author to students who wished to complete it). The data were collected towards the end of the term, as the time at which evaluations are administered has no effect on the results (Frey, 1976).

Data Analysis

The data was analysed employing the Statistical Product and Service Solutions software package (SPSS Ltd, Chicago, USA). For descriptive analysis, low ratings (1, 2, or 3 out of a five point scale) were taken as strong, intermediate and weak agreement, i.e. ratings of approval and satisfaction. High ratings (4 or 5) were taken as disagreement with the statements suggesting a need for change (Donald and Denison, 1996).

For the study's first objective, Cronbach Alpha Reliability coefficient was computed as an indicator of internal consistency of the 18-items for the whole sample (Cronbach, 1951).

The second objective was to examine the combined effects of all the nine variables on satisfaction, in order to identify those variables that explained satisfaction and could act as confounders. This entailed the examination of the *combined* effects of nine variables on satisfaction. For this purpose, a 'satisfaction score' was created for each participant, representing the average (rather than the total) of the participant's ratings of the 18 items. Logistic regression analysis was performed to examine the joint effects of the nine variables on the 'satisfaction score'. For all estimates, 95% confidence intervals were calculated and significance level was set at $P < 0.05$.

The study's third objective was to examine the *individual* effects of each of the nine variables separately on satisfaction and on academic achievement (mean grade), while controlling for confounders. This entailed the examination of the *individual* effects of each of the nine variables separately on satisfaction and on mean module grade. Three consecutive steps where undertaken. First, for each level of the variables, three satisfaction indicators were computed (Hayden and Thompson, 1996).

Extent of satisfaction Σ: the total number of respondents not expressing disagreement (i.e. expressing strong, intermediate and weak agreement) with the 10 items stated in a positive style (items 1-7, 15, 17, 18), expressed as a percentage of the maximum possible total score (equal to 10*N*, where *N* is the total number of respondents).

Index of satisfaction Ψ: the proportion of total agreement expressed in the strong agreement category by respondents. Thus, for the 10 positive statement items taken together,

$$\Psi = \frac{\text{Total number of respondents in strong agreement}}{\text{total number of respondents in (strong, intermediate and weak agreement) categories}}$$

with values of Ψ ranging between 1.0 (when all respondents fall in the strong agreement category) and 0 (when all respondents fall in the intermediate or weak agreement category).

Overall satisfaction θ: it was felt that there would be a virtue in using a combined factor, θ (the product of Σ and Ψ), which represents a more severe test of agreement with the questionnaire's positive items, as it is the proportion of total respondents expressing only *strong agreement* with the items.

Then, bivariate correlation coefficients were computed to explore the relationships between the extent, index and overall satisfaction (Σ, Ψ and θ) with the module grades. Independent samples *t*-test and one-way ANOVA were used to compare the mean grades of the student groups.

Finally, in order to control for the effects of the confounders on individual relationships, a two-step procedure was undertaken for each of the variables. This comprised: 1) Pearson's correlation to test the significance of correlation between the variable and module grade; and, 2) Partial correlation between the same variable and module grade, this time controlling for confounders. If Pearson's correlation was initially significant but the significance disappeared in the subsequent partial correlation, this indicated that the confounder/s could be affecting the relation.

Finally, the fourth objective of the study was to employ the extent and index of satisfaction in order to identify the student groups that were least satisfied. This was undertaken to identify the groups that exhibited the least extent and index of satisfaction. In order to categorise the satisfaction extent and index of the various student groups, a 2 X 2 table was constructed by using 'cut off' values for the extent and index of satisfaction. These 'cut off' values were considered after examining all the values in order to achieve a sensible division of the data. Employing this technique, it was possible to separate the sample into four categories of satisfaction.

FINDINGS

As regards internal consistency, Cronbach Alpha Reliability coefficient of the 18 questionnaire items was 0.90 indicating excellent reliability, where values > 0.7 are

taken as reliable (Nunnally, 1978). However, concerns about student ratings are not only about the reliability and validity of the ratings *per se* but rather, how such ratings are interpreted and used to make comparisons among courses and teachers.

Regarding the *combined* effects of all the 9 demographic and educational variables on student satisfaction in order to identify any significant predictors, Table 2 depicted the demographic and educational predictors of satisfaction. The nature of the module and the academic level of the module emerged as significant predictors (0.37 and 0.27 respectively). Study mode also was a significant predictor of satisfaction, but of a smaller magnitude (0.13). These findings suggested that these three variables could act as potential confounders.

Regarding the individual effects of each of the nine demographic and educational variables separately on satisfaction and on mean module grade, Table 3 shows the effects of the variables on the *extent*, *index* and *overall* satisfaction (Σ, Ψ and θ). The three satisfaction indicators for the whole sample were 83.4, 0.32 and 26.7 respectively, and the lowest extent (74.5), index (0.25) and overall satisfaction (18.6) were those of the traditionally aged participants.

Spearman's bivariate correlation coefficients between the extent, index and overall satisfaction (Σ, Ψ and θ) and the module grades confirmed linear relationships of considerable magnitudes (0.45, 0.54 and 0.52 respectively), significant at $P < 0.05$ level (data not presented). These findings suggested that the higher the satisfaction indicators of a student group were, the higher the group's academic achievement in terms of the mean grades accomplished. Table 3 depicts that particularly for overall satisfaction (θ), this was true in most cases, whether the differences in grades were significant (study mode; qualification aim; age bracket; nature of module), or not significant (gender; disability status; ethnicity). In one instance an increase in overall satisfaction (θ) was associated with a significant increase in the mean grades, following a stepwise fashion (e.g. traditional, mature, and older mature students, $P = 0.001$). In another instance, the grade differences were significant but did not follow a particular trend (e.g. entry qualification, $P = 0.01$, no trend). Taken together, these findings suggested a parallel relationship between student satisfaction and their academic achievement: for most variables (except that of entry qualification), an increase in a group's overall satisfaction was associated with an increase in the grades that the students accomplished on the module and vice versa. However, the differences in grades were sometimes not significant.

For a clearer interpretation of the findings, it was appropriate to examine the effects of any confounders on the relation between each of the demographic/educational variables and the grade achieved. Two confounders were controlled for. The first was age, as although it was not found to be a significant predictor of satisfaction in this study, it was nevertheless included as a confounder as it has been widely cited to be an important predictor of performance (Ofori, 2000). The second confounder was the nature of module, which this study identified as a significant predictor. Conversely, two confounders were not included in spite of being acknowledged as significant predictors of satisfaction in the regression analysis. The first (study mode) was excluded because of its small explanatory power of satisfaction (standardized $\beta = 0.13$). The second confounder (academic level) was not included because it ran fairly parallel to the nature of module (already included as a potential confounder; Pearson's correlation between the two variables = 0.35, $P = 0.001$). Hence it was felt appropriate to control only for the effects of students' age and the nature of module.

The last column in Table 3 depicted the possibility of confounding effects of student age and nature of module on the relationships between individual parameters and academic achievement (module grade). The findings confirmed that the relation between each of the academic level, study mode, qualification aim and entry qualification variables in relation to grade could possibly be confounded by the effects of age and nature of module.

Regarding identifying the groups that exhibited the least satisfaction, Table 4 categorises the satisfaction extent and index of the various student groups. Employing a cut off value of 84, the extent of satisfaction Σ was categorised into high and low extents, and similarly, employing a cut off value of 0.34, the index of satisfaction Ψ was classified into high and low indices. Due to the narrow ranges of values reported in Table 3 for Σ (74.5 to 100) and Ψ (0.25 to 0.58), the two cut off values were arbitrarily chosen after examining the data in order to achieve a sensible division of the data. Hence the four cells of Table 4 depicted the groupings with different degrees of satisfaction: high extent–high index (4 categories); high extent–low index (6 categories); low extent–high index (no category); and, low extent–low index (9 categories). This latter, least satisfied category comprised younger disabled males, who were non-white, level 3, full-time students, with 'A' level entry qualifications, aiming at BSc degrees and attending pre-registration modules.

DISCUSSION

In many Universities, student satisfaction ratings are an influential measure of teaching and learning environment (El Ansari, 2002a and b). As information on satisfaction could contribute to quality, it is timely to reflect on such sentiments (El Ansari and Oskrochi, 2011).

As regards the study's first objective Cronbach Alpha Reliability coefficient of the 18 questionnaire items was 0.90 indicating excellent reliability considering the interpretation of the values obtained in relation to guidelines of above the recommended level of 0.70

Table 2. Demographic and educational predictors of student satisfaction

Model	Standardized β Coefficient	95% CI for β	*P* Value
Constant	1.847	0.913 — 2.781	<0.001
Demographic variables			
Gender (female)	- 0.002	- 0.242 — 0.234	NS
Disability (not disabled)	- 0.023	- 0.909 — 0.594	NS
Ethnicity (white)	0.045	- 0.244 — 0.581	NS
Age bracket (>25 years)	- 0.119	- 0.399 — 0.072	NS
Age bracket (21-25 years)	- 0.063	- 0.419 — 0.129	NS
Educational variables			
Academic Level (level 3)	0.270	0.305 — 0.752	0.001*
Study Mode (full time)	- 0.135	- 0.522 — -0.018	0.036*
Nature of module (pre-registration)	0.366	0.186 — 0.834	0.002*
Qualification aim (BSc)	0.121	- 0.216 — 0.549	NS
Qualification aim (BA)	0.065	- 0.217 — 0.403	NS
Entry Qualification (A/AS Level/)	- 0.062	- 0.348 — 0.163	NS
Entry Qualification (Professional/ intermediate)	- 0.061	- 0.643 — 0.222	NS
Entry Qualification (Sub-degree)	- 0.051	- 0.422 — 0.209	NS

Total sample N = 460; NS: not significant; * Significant

(Nunnally and Bernstein, 1994; Fornell and Bookstein, 1982). Whilst some studies of student outcomes (achievement and attitude) at university reported the internal consistency of their measures (e.g. Fraser et al., 2010), few published studies of student satisfaction with their educational experience actually report the internal consistency of the instruments that are used (e.g. El Ansari, 2002b; El Ansari and Oskrochi, 2004). In many instances, the reliability of the instruments seems either not undertaken, or at least not reported (e.g. Kerridge and Mathews, 1998; Kinsella et al., 1999). The reporting of the internal consistency of the scales and instruments employed in research needs to be encouraged as such information is important for consumers of research to judge the reliability of the findings.

The study's second objective was to examine the combined effects of nine demographic and educational variables on satisfaction. To this end, Table 2 indicated that three variables emerged as significant predictors of satisfaction. These were the nature of module, study mode and academic level. However, the point estimates of their individual explanatory powers ranged from 13.5 % to 36.6%. This suggested that other educational variables, not included in this study (e.g. subject area, electivity of the course, class size and meeting time, workload of course and instructor rank) could play significant roles in satisfaction (Wachtel, 1998). Other educational variables include learning styles (Curry, 1983; Gardner, 1983 Kolb, 1984; Myers and Briggs, 1995); and interaction with students' peers (Swan, 2001; Graham and Scarborough, 2001). Hence, attributing student satisfaction to particular source/s might remain speculative at present (Ofori, 2000). The implication is that satisfaction studies should include many dimensions, as explanations may rest in the students' study skills, learning approaches (Gibbs et al., 1997), or tuition (French et al., 1998).

The third objective examined the individual effects of each of the nine demographic and educational variables separately on satisfaction and on achievement (mean grade). To that end, the effects of two confounders (age and nature of module) were tested on the other seven variables. The findings suggested that the relation between each of the academic level, study mode, qualification aim and entry qualification variables in relation to the grade achieved could possibly be confounded by the effects of age and nature of module who might have contributed to the differences in achievement. This implies that educational research will benefit from controlling for such variables (and others) for a precise interpretation of the findings (El Ansari and Oskrochi, 2011). A related point to the study's third objective was the computation of the extent, index and overall satisfaction. Table 3 suggested that traditionally aged participants reported the three lowest indicators of satisfaction. The satisfaction indicators also exhibited variations by the nine variables under study. This is in agreement with Hayden and Thompson (1996) who reported that students' extent, index and overall satisfaction differed by the educational factors such as nature and content of the module, the teaching arrangements, the support for participants and the

Table 3. Three indicators of satisfaction by various units of analyses

Parameter	Group Size[1]	Satisfaction Indicators			Mean Grade % (95% CI)	P Value[2]	Confounding Variables[3]
		Σ	Ψ	θ			
Whole Sample	429	83.4	0.32	26.7	58.5 (57.5 — 59.4)		N/A
Gender[a]							
Males	42	82.6	0.28	23.1	57.5 (53.8 — 61.2)	NS†	No Effect
Females	366	84.2	0.33	27.8	58.6 (57.6 — 59.6)		
Disability[a]							
Disabled	4	75	0.3	22.5	56.5 (48.6 — 64.3)	NS†	No Effect
Not Disabled	390	84.6	0.33	27.9	58.8 (57.8 — 59.8)		
Academic Level[b]							
Level 1	50	91.7	0.3	27.5	54.2 (51.9 — 56.5)	0.001†*	Possible Effect
Level 3	374	83.3	0.33	27.5	59.1 (58.1— 60.1)		
Study Mode[b]							
Full Time	338	83.1	0.33	27.4	57.9 (56.8 — 59.1)	0.03†*	Possible Effect
Part Time	87	87	0.33	28.7	60.5 (58.9 — 62.1)		
Ethnicity[a]							
White	406	84.2	0.33	27.8	58.8 (57.9— 59.7)	NS†	No Effect
Others	15	78.2	0.26	20.3	54.7 (44.6— 64.8)		
Qualification aim[b]							
BSc	214	75.8	0.28	21.2	57.1 (55.9 — 58.4)	0.005ǂ	Possible Effect
BA	150	92.4	0.37	34.2	59.6 (57.8— 61.3)		
Diploma/other	39	94.4	0.36	34	62.1 (59 — 65.2)		
Age bracket							
<21 (traditional)	119	74.5	0.25	18.6	54.8 (53.3 — 56.4)	0.001ǂ*	N/A
21-25 (mature)	36	79.9	0.33	26.4	58.1 (55.5 — 60.7)		
>25 (older mature)	239	89.6	0.36	32.3	60.3 (58.9 — 61.7)		
Entry Qualification[b]							
A/AS Level/ equivalent	255	81	0.29	23.5	57.7 (56.6 — 58.8)	0.01ǂ*	Possible Effect
GCSE/O-level	8	89.9	0.32	28.8	53 (42.6 — 63.4)		
Professional/intermediate	23	86.6	0.43	37.2	58.1 (54.3 — 61.9)		
Sub-degree	47	86.4	0.34	29.4	59.6 (55.5 — 63.7)		
Degree	60	87.7	0.36	31.6	62.3 (59.9 — 64.6)		
Other postgraduate	7	95.7	0.48	45.9	52.9 (42.3 — 63.4)		
No level assigned	10	98	0.31	30.4	61.8 (55.7 — 67.9)		
Nature of module							
Pre-registration	225	78.3	0.27	21.1	56.5 (55.1 — 57.8)	0.001†*	N/A
Post-qualifying	204	93	0.36	33.5	60.7 (59.5 — 62)		

[1]Number of respondents included in each analysis based on number of questionnaires with complete responses to the given variable; [2]P value for differences in mean grades; †Independent samples t-test; ǂOne way ANOVA test; *Significant; N/A Not applicable; [3]tests whether age and nature of module were confounding factors (see text); [a]Age and nature of module were not confounding factors; [b]Age and nature of module could be confounding factors.

Table 4. Satisfaction extent and index of student groups - 2 X 2 table

Index of satisfaction Ψ	Extent of satisfaction Σ: High	Extent of satisfaction Σ: Low
High	● Entry qualification: Other postgraduate; professional/ intermediate; degree ● Nature of module: Post-qualifying ● Qualification: BA; Diploma/ other ● Age bracket: >25	
Low	● Academic Level 1 ● Study Mode: Part time ● Entry Qualification: GCSE/O-level; sub-degree; no level assigned ● Gender: Females ● Disability: Not disabled ● Ethnicity: White	● Gender: Males ● Age bracket: <21; 21-25 ● Disability: Disabled ● Ethnicity: Others ● Academic Level 3 ● Study mode: Full Time students ● Qualification aim: BSc ● Entry qualification: A/AS Level ● Nature of module: Pre-registration

relevance to participants' work.

For the extent of satisfaction, Σ levels above 80% may be taken, arbitrarily, to be acceptable in general terms. According to this cut off, 72% of the categories of student groups examined in this study had acceptable extents of satisfaction (Table 3). But, contrary to Hayden and Thompson (1996) this study employed a more stringent (higher) Σ cut off point of 84%. Hence the student categories depicted in the left column of Table 4 represented high extent of satisfaction based on international criteria as described by Hayden and Thompson (1996).

In connection with the index of satisfaction, Hayden and Thompson (1996) examined three modules that were delivered by the same team in the UK and 10 different international locations, and reported Ψ values that ranged from 0.20–0.63. The current study is in agreement, reporting a narrower range of Ψ values (0.25–0.58). This narrower range might be attributed to the current study's smaller participant sample size but larger module sample size than Hayden and Thompson's study (1996). Finally, as regards the overall satisfaction, this study's θ values (18.6–58) again were in line with Hayden and Thompson's (1996) range (15.8– 59.1).

The study's fourth objective identified the student groups that were least satisfied, employing a matrix of the satisfaction extent and index. To this end, Table 4 separated the participants, according to two satisfaction indicators, into four groups. Attention is required for the low extent–low index of satisfaction groups that the study identified. These were 9 categories: the younger (<25 years) males, the disabled non-white participants, especially those with 'A' level entry qualifications. Also included were those in full-time, pre-registration level 3 study, aiming at BSc degrees. Awareness to the needs of such groups could raise their satisfaction (and achievement).

In agreement with others, this study has highlighted similar student groups who exhibited low satisfaction with their educational encounter. For instance, in connection with the demographic variables: as regards the learners' age, mature students might be at a slight advantage (Richardson, 1994), when studying at university. Age is a good predictor of performance (Ofori, 2000), and although the current investigation did not find that age was a significant predictor of performance (accomplished grade), nevertheless it is in agreement that students' mean grades increased significantly with age (Table 3).

In connection with gender, differences in achievement of males and females have proved controversial (Hoskins et al., 1997). However, in the current study, females were more satisfied and achieved higher grades than males (Table 3). Although the study's gender differences in achievement did not reach statistical significance, they are nevertheless in agreement with Kevern et al. (1999) who reported that mature women performed well overall, and with Tatro (1995) who found that female students achieve higher ratings than males. However, gender findings seem to be multi-factorial and difficult to disentangle; e.g. Connolly (2006) found that both social class and ethnicity exert a far greater influence on GCSE attainment in boys and girls than gender. In addition, although researchers (Duckworth and Seligman 2006) contend that throughout elementary, middle, and high

school girls earn higher grades than boys in all major subjects, mediation analyses suggested girls earned higher grade point averages partially because they were more self-disciplined (Duckworth and Seligman 2006). The type of assessment might also play a role, where boys tended to excel on multiple-choice questions (prevalent format for standardized tests) whereas girls outperformed boys on free-response (e.g., essay) assessments (Willingham and Cole 1997). Moreover, the potential for differences seems higher in countries where teacher grading is based on more than a single test: Lindahl (2007), and Bonesrønning (2008) found that greater weight on coursework elements improves the relative performance of girls. In agreement, Machin and McNally (2005) showed that the gender gap in the UK aroused in the afterwards of the change in examination system in 1988, where the importance of coursework was emphasised in the new system.

Concerning disability, Van Boxtel et al. (1995) reported that disabled students felt frustration and helplessness. Likewise, West et al. (1993) found that the majority of disabled students indicated that they experienced difficulties to their education, including a lack of understanding and cooperation from administrators, faculty, staff, and other students; lack of adaptive aids and other resources; and inaccessibility of buildings and grounds. In the current investigation, disabled students' module grades were less than those of the not-disabled ones. However, the number of learners who identified themselves as disabled was very small, confirming Scullion's (2000) report that people were reluctant to identify themselves as disabled. Hence attention to the perspectives of disabled people is required (Nolan et al., 1997), particularly that about 25% of young people with disabilities go on to postsecondary education after finishing high school (Wagner et al., 2005; Getzel and Thoma 2008). University students with disabilities need to adapt to a completely new array of challenges in managing their academic program and this could contribute to the decreased persistence and retention of college students with disabilities (Gil, 2007; Getzel and McManus, 2005).

Similarly, as regards ethnicity, the current study found that 'non-white' learners achieved slightly less than 'white' participants (differences not significant). Cultural differences may impact on students' learning, and the increase of ethnically diverse students has stimulated educators to consider the differences they face in the classroom. Whilst studies revealed significant differences between racial and ethnic groups on multiple dimensions of the campus cultural climate (Ancis et al., 2000), the educational environment needs to enable such students to obtain the knowledge to succeed (Davidhizar et al., 1998).

On the other hand, in connection with the educational parameters the findings of this study agreed with other published research. For instance, as regards to academic level, the study reported that although Levels 1 and 3 had the same overall satisfaction, the extent of satisfaction of Level 3 participants was less than those of Level 1. This supports Kerridge and Mathews' (1998) findings that Level 3 students' perceptions were more negative than those of Level 1 in relation to 25% of the modules' aspects, perhaps because students' perceptions and expectations change during the course of their education (Vanhanen and Janhonen, 2000). As regards the study mode, full time students were less satisfied and achieved significantly less than part timers. These findings contrast with other views that combining the roles of studying with working might conflict between the demands of the course and of work (Lee et al., 1999; Campaniello, 1988). However, Lee et al. (1999) found that a close relationship between the area of study and care work resulted in enhancement of skills. This lends support to the study's findings that part-time learners were more satisfied.

In relation to the qualification aim of the learners' study, BSc participants exhibited the lowest satisfaction (and achievement) when compared with BA or Diploma students. However, a point to consider is that BAs are frequently 4-year courses, longer than the 3-year BSc programmes, giving learners more time and rendering it less stressful. In connection with the entry qualification, Table 3 suggested that students with 'A' level entry qualification achieved better than those with GCSE/O entry. Similarly, degree entry participants had higher mean grades than those with professional/ intermediate or sub-degree qualifications. These relations are plausible, given that a 'higher' entry qualification (and consequently knowledge) could lead to better grades. Prior education is important for achievement, where students with modest qualifications did less well (Kevern et al., 1999). However, contrary to this study, others have found no achievement differences according to entry qualifications (Ofori, 2000).

This investigation has limitations. Data were collected from only one country, one university, during the first term of 2000-2001 academic year, and from students undertaking modules relating to health and social care. Before any generalisations are exercised, it would be important to contrast the findings across countries, disciplines, and other academic terms and years. The findings represent associations (not causations) between the study parameters and satisfaction. These are not be interpreted as causal relationships. Data was self-reported and hence might suffer from sociability and social desirability. Participants self-selected themselves to participate in the study, hence non participants might have different views. The questionnaire used in the current investigation comprised the original questionnaire by Kerridge and Mathews (1998) to which some questions were added (Cash 2000) in order to expand its scope to provide a more holistic landscape of student satisfaction. Whilst the tests of reliability (internal consist-

ency) undertaken for the whole questionnaire exhibited good/excellent values, the validity (construct or content validity) remain to be affirmed. In addition, qualitative studies are important to enhance an in depth understanding of student satisfaction with their educational experience.

CONCLUSION AND RECOMMENDATIONS

There are many student satisfaction attributes/dimensions that are important to be studied and understood. The study explored the variables associated with student satisfaction with their educational experiences at a British University. The questionnaire was reliable. Three parameters (nature of module, study mode and academic level) emerged as significant predictors of satisfaction. Given the effect sizes of the findings, the implication is that the sources of student satisfaction might need to remain speculative at present.

The relation between each of the academic level, study mode, qualification aim and entry qualification parameters in relation to the grade achieved could possibly be confounded by age and nature of module. This implies that educational research will need to control for such factors (and others) for a precise interpretation of findings.

The extent, index and overall satisfaction of the student groups were comparable with levels reported elsewhere. Traditionally aged participants had the lowest satisfaction. Some student categories exhibited low satisfaction indicators and might require attention ('at risk' groups). These were younger, disabled, non-white level 3 full-time males with 'A' level entry qualifications, aiming at BSc degrees and attending pre-registration modules. This implies that these groups might require support in relation to the module administration, course content and structure; module stimulation and relevance; teaching-learning strategies; feedback; and assessment.

The findings of this investigation are being fedback to the institution's management committees. Staff might be required to revisit their course organisation, management and student support systems with a view to improving preparation, stimulation, relevance and challenge of their learning and teaching materials. Thorough and collective scrutiny of such factors could contribute to higher satisfaction.

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