Using Data from the National Survey of Student Engagement to Gauge Students' Adoption of a Deep Approach to Learning as a Basis for Curriculum Development.

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Abstract

The recent review of the undergraduate nurse education in Ireland called for new standards in curriculum design and further research into the effect of curriculum on student learning. The National Survey of Student Engagement (NSSE) is recognised and used internationally as a rich source of information on the undergraduate educational experience including students' approaches to learning. Higher education research literature suggests that curriculum may influence students' approach to learning and ultimately the quality of their educational achievement. In order to make improvements, those with responsibility for curriculum design and development need to be able to ascertain the extent to which their curricula encourages students to take a deep approach to learning.

This project uses data from the NSSE to investigate the extent to which undergraduate nursing students in one Irish university adopt a deep approach to learning. The results are illuminating as they provide the first published evidence of nursing students' approach to learning under the new Irish system of university-based pre-registration education. The results will also stimulate further curriculum development of our own undergraduate nursing programme. We encourage readers working in Irish higher education to consider using data from the Irish National Survey of Student Engagement to inform their curriculum development while international readers are encouraged to make enquiries about local versions of the NSSE.

Key words:

Nurse education, curriculum, approaches to learning, National Survey of Student Engagement, Irish National Survey.

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1. Introduction and Motivation

Introduction

The great majority of teachers in higher education would prefer students whose learning is motivated by an interest in their studies and whose primary purpose is to understand and make sense of what they learn. Too often however, teachers are faced with students whose primary purpose is to pass the course and who are motivated, not by a desire to learn, but by fear of failure. These differences in learning approach were first identified by Marton and Saljo more than 35 years ago. Their discovery has proved a fruitful basis for research into teaching and learning in higher education. The table below outlines the key differences between deep and surface approaches to learning as defined by Marton and Saljo (1976a, 1976b).

Table 1: Key differences between deep and surface learning approaches.

Deep Approach to Learning	Surface Approach to Learning
Student's primary purpose: to understand the material of the subject	**Student's primary purpose**: to pass the course
Student's method: actively engages with the material/subject and links new information to previous experience and knowledge	**Student's method**: memorises material and considers new information in isolation from previous experience and knowledge
Student's motivation: interest	**Student's motivation**: fear of failure
Student's study: reads beyond course requirements	**Student's study**: tends to stick closely to required reading

Professions such as nursing and engineering and employers also have a vested interest in this topic. At the very least graduates whose understanding of their subject is inaccurate or incomplete are likely to be inefficient and ineffective employees. At worst they may constitute a danger to the public.

As teachers, we need to know the extent to which our students adopt a deep approach to their learning in our courses. We should be alert to any changes in approach as they progress. If the changes are insignificant or if too many students are adopting a surface approach, we need to consider what we as teachers can do about it.

1. The Project

There have been studies investigating student approaches to learning across a range of disciplines in higher education, but we have been able to identify only one (Cowman, 1998) which focussed on undergraduate nursing students in Ireland. Cowman's study is now mainly of historical interest as it preceded the introduction in 2002 of pre-registration degree programmes which transferred primary responsibility for nurse education and training in the Republic from hospitals to universities. In 2012, the report of the first national review of undergraduate nursing and midwifery degree programmes in the Republic was released. Among other things, the report called for the systematic use of student feedback to inform curriculum design (Bradley, 2012).

This project is one example of how student feedback can contribute to the curriculum development process. The project is based on data from the National Survey of Student Engagement (NSSE) which originated in the USA where it is used widely by universities to assess the quality of their undergraduate educational experience and for quality improvement initiatives as well as benchmarking (nsse.iub.edu). Versions of the survey are used internationally, for example in the Australian and South African higher education systems and here in Ireland, the Irish Survey of Student Engagement (ISSE), (studentsurvey.ie) was piloted in 2012-2013 with full implementation in 2014.

Project Aims, Method and Limitations

1. To investigate the frequency of undergraduate nursing students' adoption of deep approaches to learning in one Irish University;
2. To investigate if there is a relationship between students' age, gender, reported academic achievement and their adoption of deep approaches to learning;
3. To explore the potential of the NSSE data to provide useful feedback to curriculum development teams;
4. To identify outstanding issues for further investigations.

The project utilised a descriptive cross sectional design with secondary data analysis from a study conducted in 2010 investigating undergraduate student engagement in a Faculty of Health Sciences at an Irish university. The data collection tool was the 2009 version of the National Survey of Student Engagement (NSSE) (Appendix 1.). The NSSE consists of more than 90 questions, 12 of which have been found to be reliable and valid to measure deep learning approaches (Nelson Laird et al, 2005; National Survey of Student Engagement 2012; Nelson Laird *et al.* 2008b). The twelve questions are divided into three subscales: integrated learning, higher order learning and reflective learning as shown in the table below.

Table 2: Questions Measuring Deep Approach to Learning in the National Survey of Student Engagement 2009 Version.

1. Integrated Learning Subscale
In your experience at your institution during the current academic year, about how often have you done each of the following?
1d) Worked on an assignment that required integrating ideas or information from various sources/readings.
1e) Included diverse perspectives (different ethnicities, religions, genders, political beliefs, etc.) in class discussions or assignments.
1i) Put together ideas or concepts from different modules when completing assignments or during class discussions.
1p) Discussed ideas from your readings or classes with lecturers outside of class.
1t) Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.).
2. Higher Order Learning Subscale
In the current academic year, how much has your coursework emphasised the following mental activities?
2b) Analysing the basic elements of an idea, experience, or theory such as examining a particular case or situation in depth and considering its components.
2c) Synthesising and organising ideas, information, or experiences into new more complex interpretations and relationships.
2d) Making judgements about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions.
2e) Applied theories or concepts to practical problems or in new situations
3. Reflective Learning subscale
During the current academic year how often have you done each of the following?
5d) Examined the strengths and weaknesses of your own views on a topic or issue
5e) Tried to better understand someone else's views by imagining how an issue looks from his or her perspective.
5f Learned something that changes the way you understand an issue or concept.

The target population for this project was all undergraduate students registered on the nursing degree programme in 2010 at one university in Ireland. The table below provides a breakdown of the population by year of study and gender.

Table 3: Higher Education Authority Figures 2010 undergraduate enrolment, nursing degree in university X.

Year of Study	Male	Female	Total
Year 1	25	204	229
Year 2	16	196	212
Year 3	18	207	225
Year 4	16	190	206
Total	**75**	**797**	**872**

The study sample consisted of nursing students who were in class on the day the survey was administered and who completed the survey. Ethical approval was obtained from the Faculty Research Ethics Committee. As the survey is anonymous, students were deemed to have given their consent by completing and returning the questionnaire.

There are two main limitations to this study both of which are related to design. As a cross sectional study examining students' learning approaches at one point in time across the four years of a nursing degree, definitive conclusions cannot be drawn about changes in students' learning approach over time. Second, although Cowman's study (1998) indicated marked differences in learning approach between the nursing disciplines, this variable was not examined in the current study although the curriculum includes discipline specific components in each year of the programme.

2. Results

The survey response rate across the four years of the nursing degree programme was 64.6% (n=563). The table below presents the response rate for each year of the programme.

Table 4: Percentage of Responses from Each of the Classes and Maximum Possible Response

Class	Maximum possible response	Actual Response	Percentage of actual response per class	Percentage of total response
Year 1	229	162	70.7%	28.8%
Year 2	212	97	45.8%	17.2%
Year 3	225	114	50.7%	20.2%
Year4	206	144	69.9%	25.6%
Missing	-	46	-	8.2%
Total	**872**	**563**	**-**	**100%**

2.2 *Year of Study and Deep Approach to Learning*

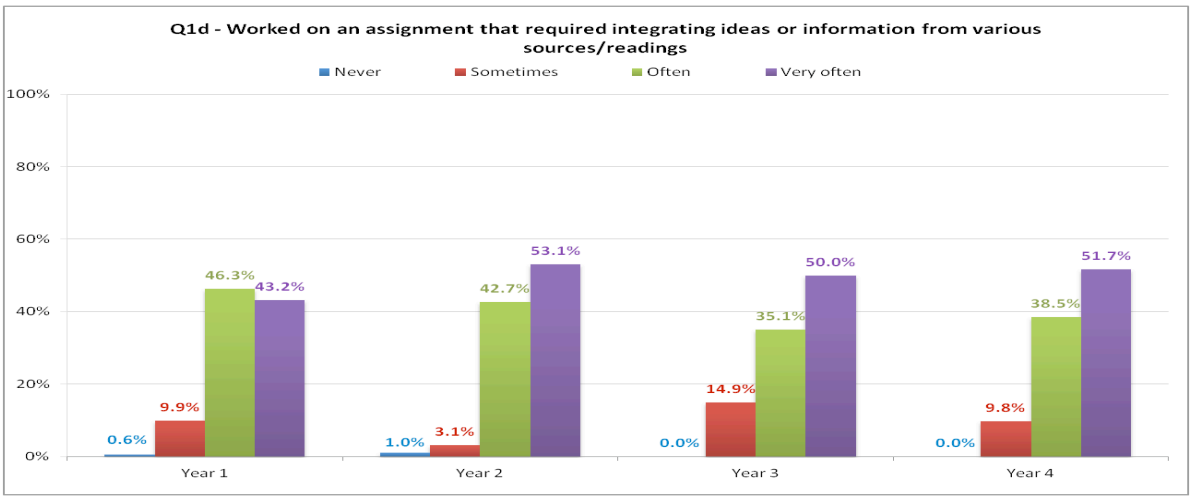
The results relating learning approach to year of study will be discussed under the three subscales: integrated learning; higher order learning and reflective learning.

2.2.1 Integrated learning

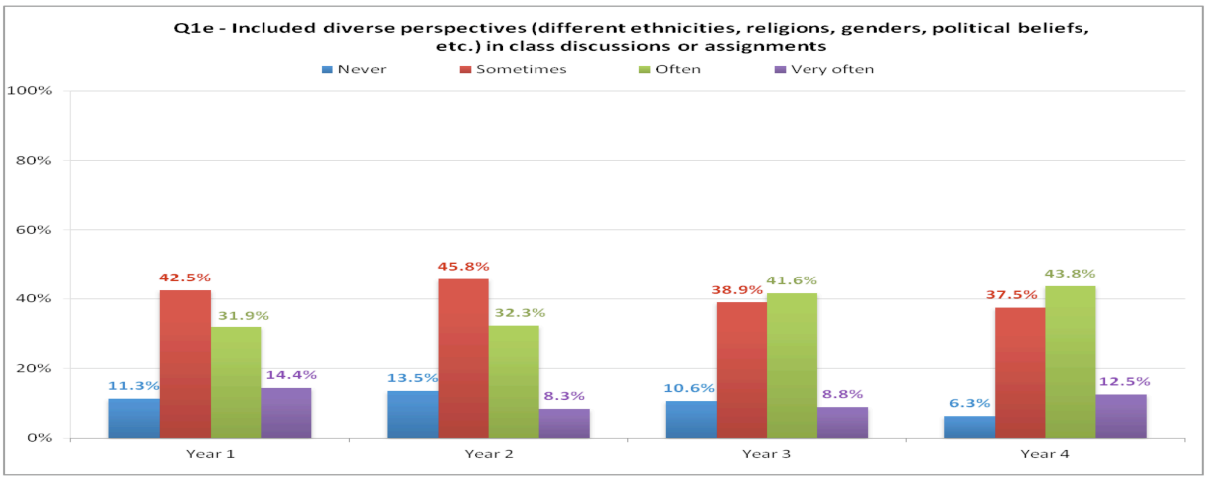
Integrative learning involves students incorporating ideas from various courses or learning environments (Nelson Laird *et al*, 2008b).

There was no discernible pattern in the results for this subscale; hence the results for each question will be discussed individually.

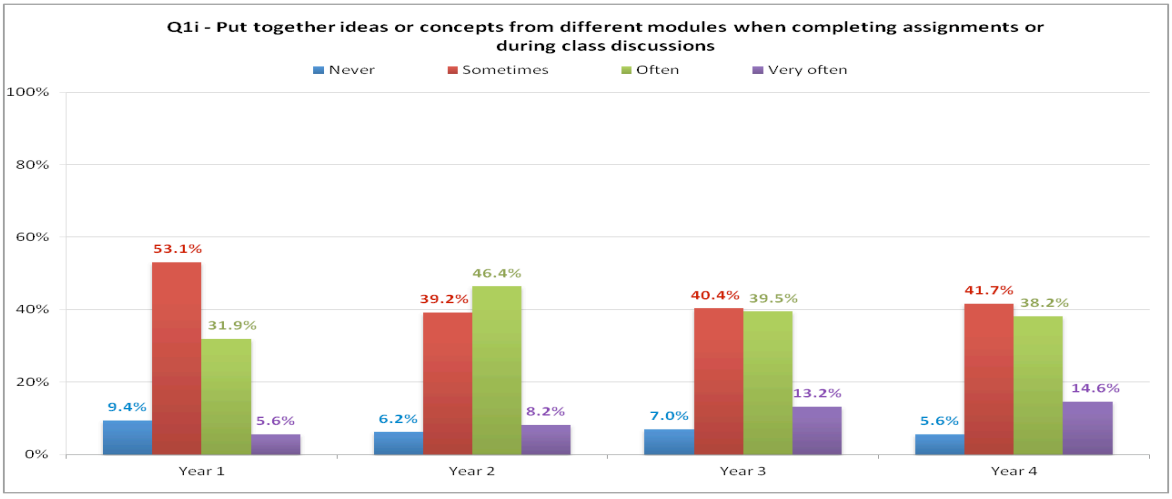
Results for question 1d below indicate that the great majority of students across all years are regularly integrating ideas or information from various sources into their assignments with Year 2 students doing this slightly more often than students in other years.



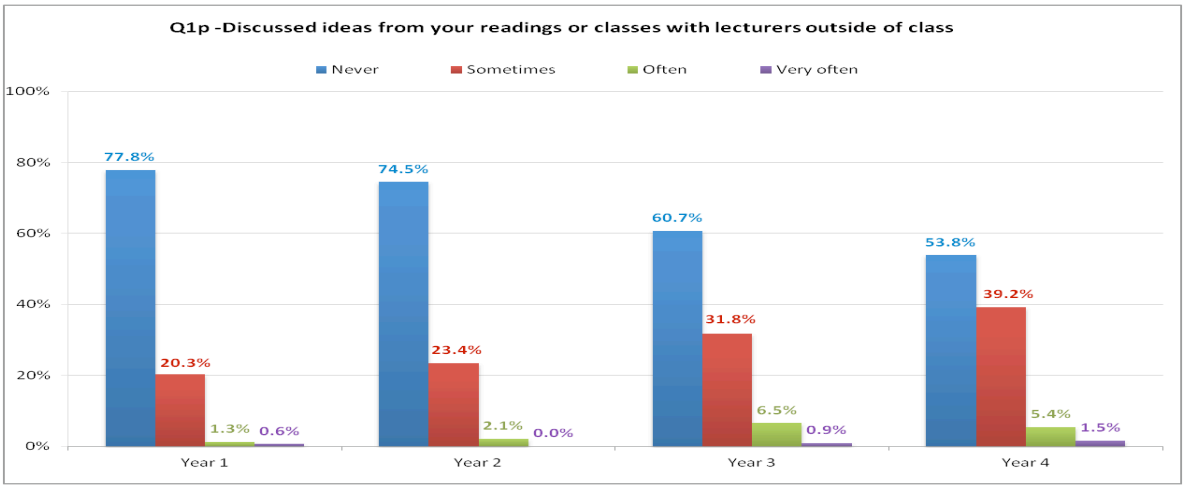
Results for question 1e below show a steady increase in the percentage of students from Year 2 onwards who regularly include diverse perspectives in discussions or assignments. However the number of students who regularly engage in these activities is lower in Year 2 than Year 1.



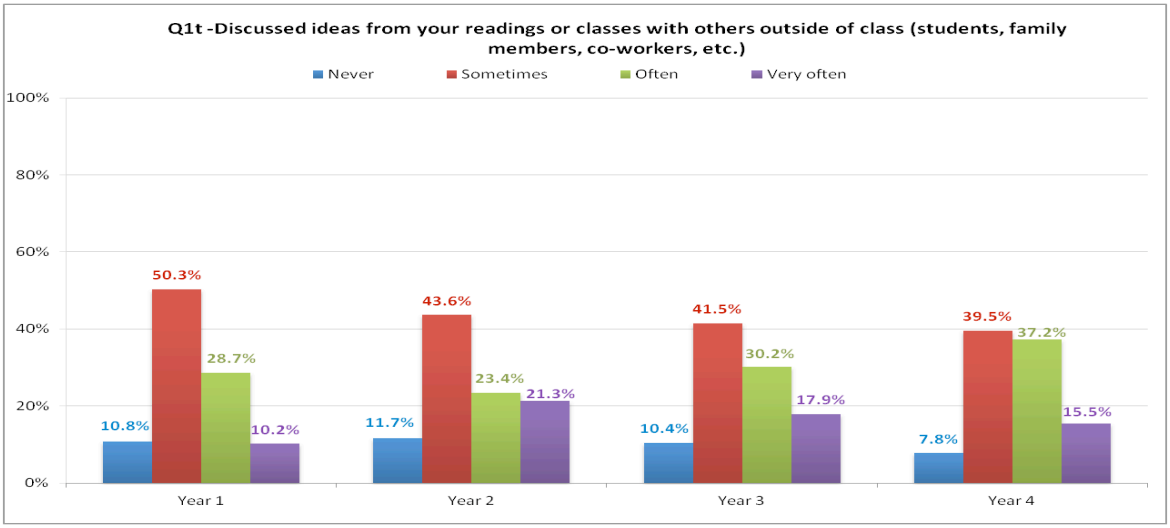
Results for question1i below are largely consistent from Year 2 onwards with more than 50% of students in years 2, 3 and 4 regularly putting together ideas and concepts from different modules. The percentage of students, who do this very often, gradually increases from Years 1 to 4 however even in Year 4 the figure stands at only 15%.



The most noticeable feature of the response to question 1p below is the high percentage of students across all years who never discuss ideas or readings with lecturers outside of class. Although this percent declines steadily from Year 1 it still stands at over 50% in Year 4. Conversely less than 10% of students are regularly engaged in such discussions with staff outside of class.



Results for question 1t below reveal Year 1 students as the group least likely to discuss ideas outside of class with other students, family members or co-workers. The percentage of students regularly engaged in such conversations gradually increases from Year 1 onwards.

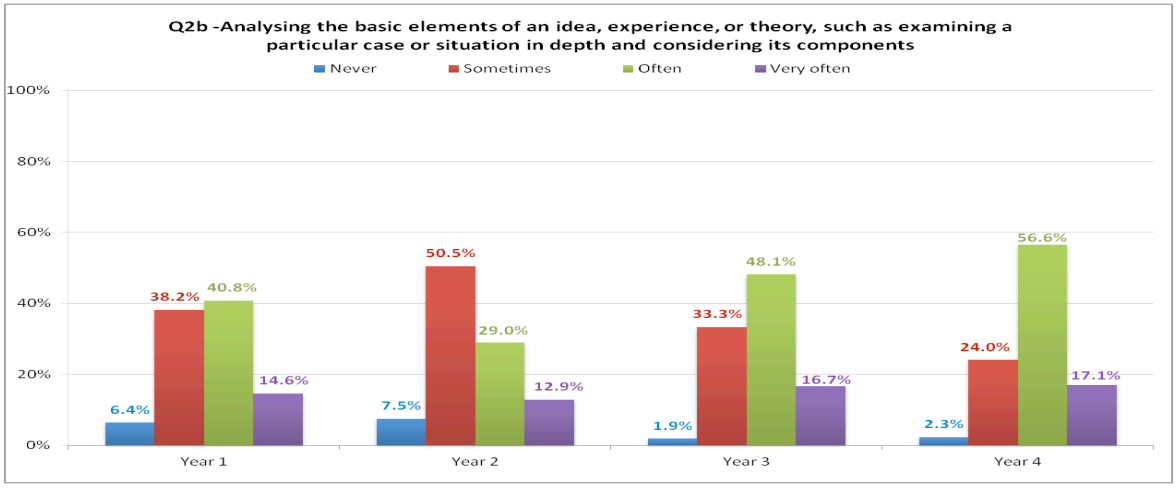


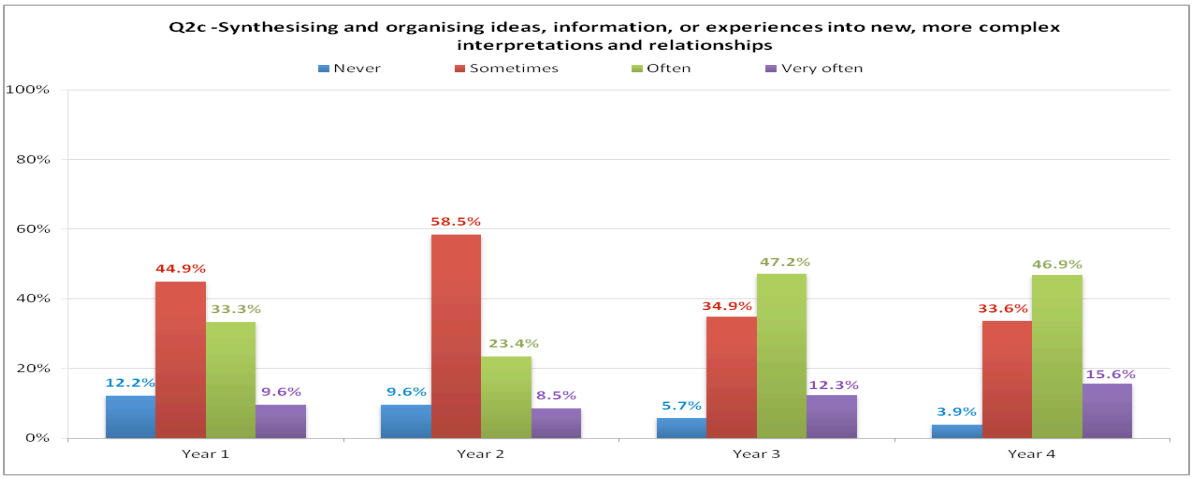
2.2.2 *Higher Order Learning*

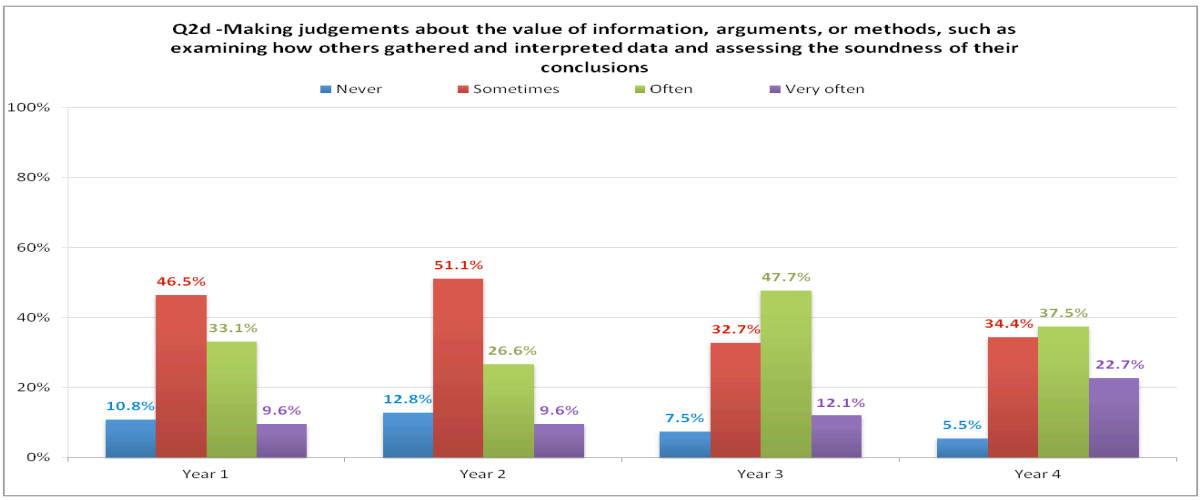
Higher order learning looks at how often students' are encouraged by their course to use higher order cognitive skills such as application, analysis, synthesis and judgement (Nelson Laird *et al*, 2008b).

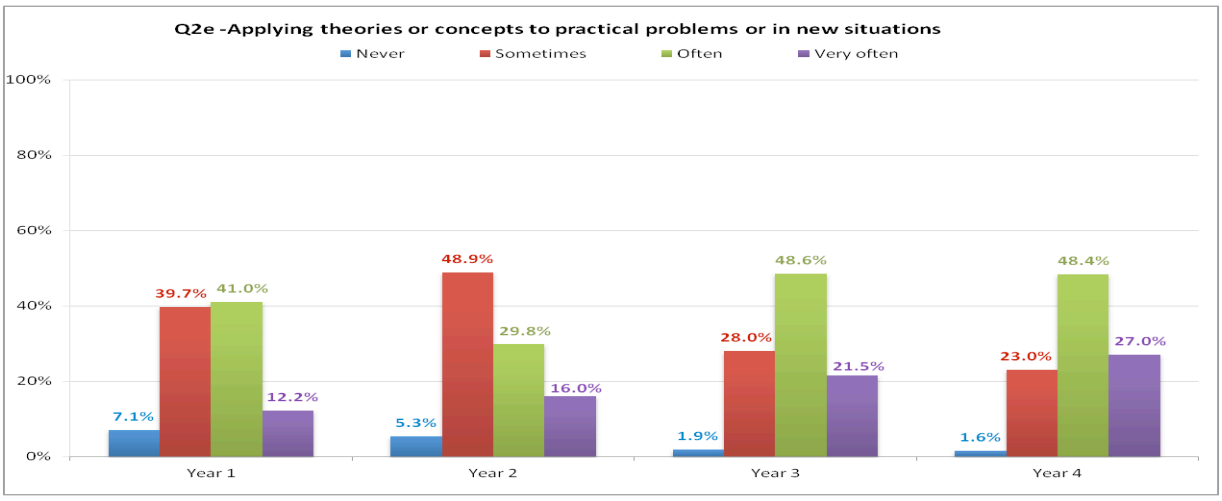
Responses to all four questions in this subscale indicate a steady increase in the percentage of students from Year 2 onwards regularly engaged in activities related to higher order learning.

Year 2 students however, are less likely than their first year counterparts to use skills of application, analysis and synthesis or to make judgements about information. The results for the higher order learning subscale are presented by question in the four charts below.


Q2b -Analysing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components
Never
Sometimes
Often
Very often
100%
80%
60%
40%
20%
0%
6.4%
38.2%
40.8%
14.6%
7.5%
50.5%
29.0%
12.9%
1.9%
33.3%
48.1%
16.7%
2.3%
24.0%
56.6%
17.1%
Year 1
Year 2
Year 3
Year 4


Q2c -Synthesising and organising ideas, information, or experiences into new, more complex interpretations and relationships
Never
Sometimes
Often
Very often
100%
80%
60%
40%
20%
0%
12.2%
44.9%
33.3%
9.6%
9.6%
58.5%
23.4%
8.5%
5.7%
34.9%
47.2%
12.3%
3.9%
33.6%
46.9%
15.6%
Year 1
Year 2
Year 3
Year 4

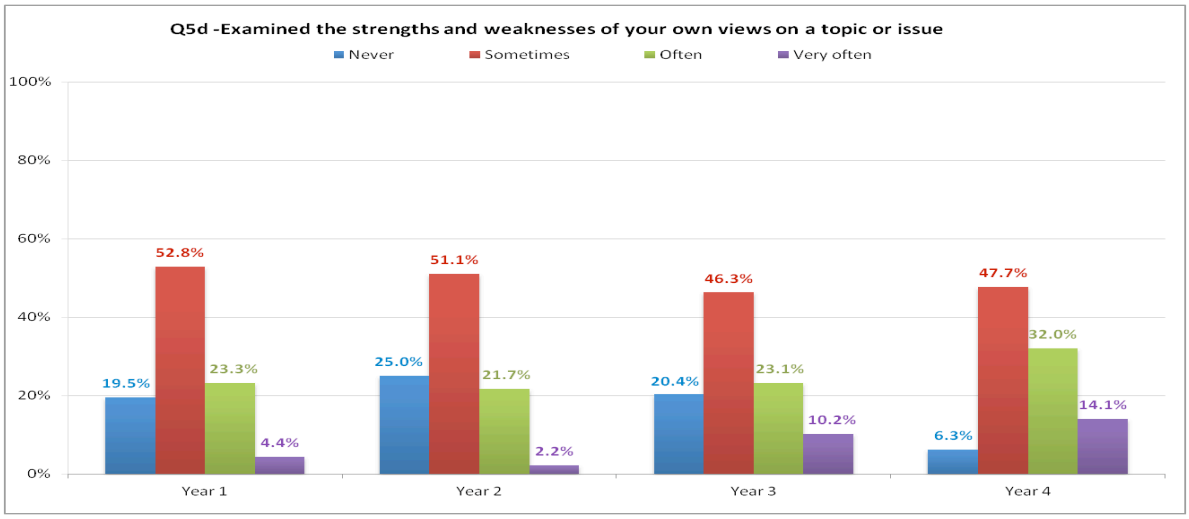

Q2d -Making judgements about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
Never
Sometimes
Often
Very often
100%
80%
60%
40%
20%
0%
10.8%
46.5%
33.1%
9.6%
12.8%
51.1%
26.6%
9.6%
7.5%
32.7%
47.7%
12.1%
5.5%
34.4%
37.5%
22.7%
Year 1
Year 2
Year 3
Year 4

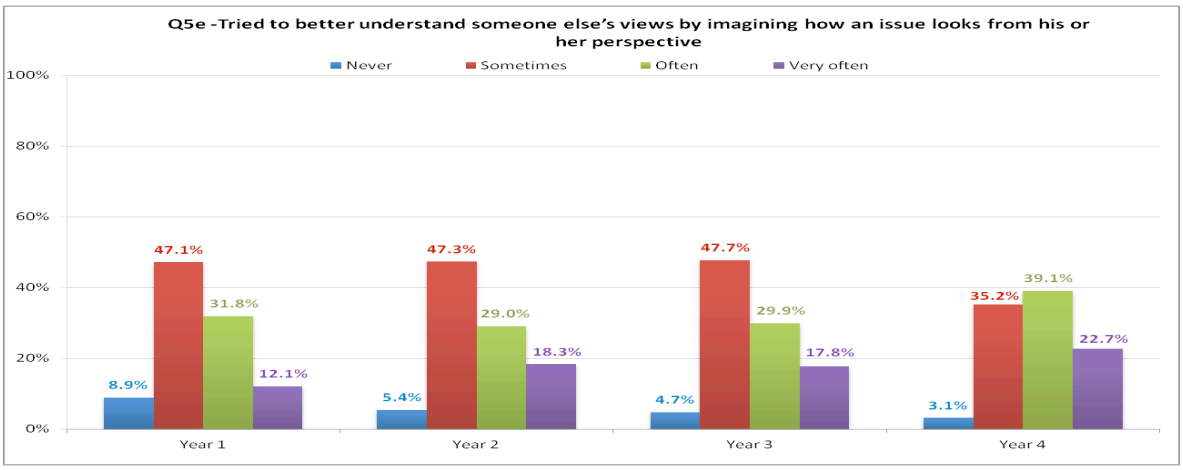


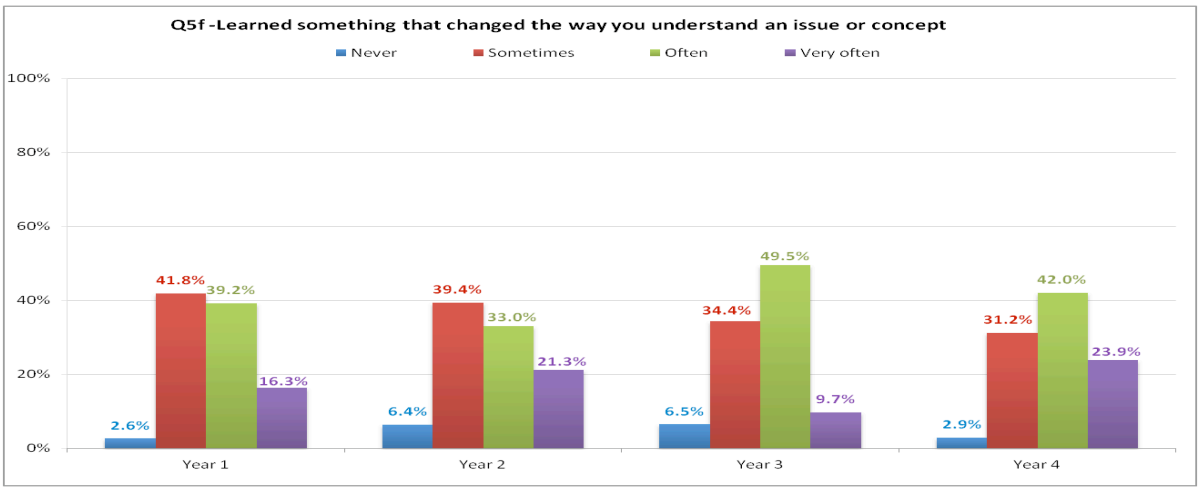
2.2.3 *Reflective Learning*

Reflective learning involves students' examining the strengths and weaknesses of their own views and those of others (Nelson Laird *et al*, 2008b).

There is a steady increase in the percentage of students engaged in reflective learning activities from Year 2 to Year 4. However Year 2 students are less likely than year 1 students to have learned something that changed the way they understand an issue or concept or to have examined the strengths and weaknesses of their own views or someone else's on a topic or issue. The results for the reflective learning subscale are presented by question in the three charts below.







Consideration of the results to all 12 questions relating students' approach to learning and year of study led us to the following conclusions:

1. More Year 4 students frequently take a deep approach to learning than students in other years.

2. On seven of the questions a smaller percentage of Year 2 students adopted a deep approach than did their Year 1 counterparts. This result was particularly notable in the higher order learning subscale.

3. Students in year 1 and 3 are more likely to take a deep approach than students in year 2.

4. There is a gradual progression of students taking a deep approach from year 2 onwards.

5. For the majority of students across all years educational interactions with staff are confined to the classroom.

The findings from the present study in relation to students' approach to learning and year of study are broadly comparable with findings of similar studies conducted in European and Asian nurse education settings over the past two decades.

In 1997, Eklund-Myrskog conducted a qualitative cross-sectional study of the learning approaches of 60 first and final year nursing students on one nurse education programme in Finland and found that 81% of final year students adopted a deep approach compared with 70% in their first year of their study. Similarly, in one college in Thailand, Pimparyon *et al*'s (2000) cross sectional study of 238 nursing students' approaches to learning found a greater number of year 4 students adopting a deep approach than in the earlier years of the course. Most recently, in a quasi-experimental study investigating the effects of problem-based learning on 187 nursing students' approaches to learning in one university in Hong Kong, Tiwari *et al.* (2006) found that a higher percentage of students in the final year of the course adopted a deep learning approach than in year 1. Conversely, Stiernborg *et al's* (1997) quantitative cross-sectional study of 316 nursing students at an Australian university found a slight increase in the percentage of students using a deep approach in year 2 compared with those in first and final years. This result contrasts with the present study in which year two students adopted a deep approach less often than those in years 1, 3 and 4. Only Pimparyon et al's (2000) study reported a similar finding with year 2 students more likely to take a surface approach to learning than first year students.

2.3 *Reported Academic Achievement and Deep Approach to Learning*

Application of Fisher's exact probability test revealed that five questions (1t, 2b, 2c, 2e and 5f) show a significant relationship between academic achievement and adoption of a deep approach to learning. The table below presents the percentage of students who rarely or often engage in a range of activities related to deep learning and their self- reported academic achievement by grade.

Table 5: Reported Academic Achievement and Deep Approach to Learning

Survey Questions	1st class honours grade		2nd class honours grade		Pass grade		Fail grade	
	Rarely%	Often%	Rarely%	Often%	Rarely%	Often%	Rarely%	Often%
1t: Discussed ideas from readings/classes with others outside class (students, family, co-workers) **Integrative Learning**	37.	63.	54.5	45.5	60.	40.	75	25.
2b; Analysed basic elements of idea, experience, theory e.g. examined a case or situation in depth, considered its components. **Higher Order Learning**	25.9	74.1	40.	59.6	47.5	52.5	100.	0.
2c: Synthesised/organised ideas, information, experiences into new more complex interpretations and relationships. **Higher Order Learning**	34.	65.5	48.4	51.6	58.8	41.2	75.	25.
2e: Applied theories, concepts to practical problems or new situations. **Higher Order Learning**	25.9	74.1	39.5	60.5	45.1	54.9	100.	0.
5f: Learned something that changed the way you understand an issue or concept. **Reflective Learning**	32.2	67.8	42.2	57.8	43.6	56.4	100.	0.

To summarise the findings above, the more frequently students use a deep approach to learning the more likely they are to achieve higher grades than students who rarely use this approach. This phenomenon applies across the three learning subscales however it is particularly pronounced in the results for questions 2b and 2e which focus on students' use of analysis and application, where over 70% of first class honours students frequently use these skills compared to 60% of second class honours students, 50% of pass grade students and 0% of failing students.

The results from the present study lend further weight to the growing body of evidence pointing to a relation between nursing students' approach to learning and their academic achievement. In 1997, Stiernborg *et al.* noted that students who used a deep approach to learning demonstrated higher levels of academic achievement although the association was weak. Nelson Laird *et al* (2008) used the National Survey of Student Engagement in a study of final year students in 517 American universities

and concluded that across all disciplinary fields (including nursing) a deep approach to learning can provide students with higher educational achievement and greater personal fulfilment. Snelgrove and Slater (2003) studied three cohorts of first year nursing students at a Welsh university and Mansouri et al (2006) studied one cohort of nursing and midwifery students at an Iranian university. Both studies noted a relationship between attainment of high grade point average and adoption of a deep approach to learning. Conversely, Pimparyon *et al* (2000) and Carrick (2010) in their respective studies of Thai and US nursing students both found a relationship between low academic achievement and surface approach to learning while Tiwari *et al* (2005) identified the same phenomenon in the clinical environment.

2.4 *Relationship between Students' Age and Deep Approach to Learning*

Application of Fisher's exact probability test revealed that questions 1i, 2b, 2c, 2e, 5d and 5e show a significant relationship between age and use of a deep approach to learning. The table below presents the percentage of students who rarely or often use a deep approach to learning by age group for each of the six questions.

Table 6: How Often Students Adopted a Deep Approach to Learning by Age

Survey Questions	17-22 years		23 years & over	
	Rarely%	Often%	Rarely%	Often%
1i: Put together ideas or concepts from different modules when completing assignments or in class discussions. **Integrative Learning**	57.	43.	43.4	56.6
2b; Analysed basic elements of idea, experience, theory e.g. examined a case or situation in depth, considered its components. **Higher Order Learning**	44.8	55.2	32.7	67.3
2c: Synthesised/organised ideas, information, experiences into new more complex interpretations and relationships. **Higher Order Learning**	55.6	44.4	41.1	58.9
2e: Applied theories, concepts to practical problems or new situations. **Higher Order Learning**	43.6	56.4	31.2	68.8
5d: examined strengths and weaknesses of own views on topic / issue. **Reflective Learning**	74.7	25.3	51.2	48.8
5e: Tried to better understand someone else's views by imagining how an issue looks from their perspective. **Reflective Learning**	55.2	44.8	38.5	61.5

On all six questions, students aged 23 years or over (defined by the university as 'mature') adopt a deep learning approach more often than students aged 17-22 years. The younger group is less likely than their older peers to integrate, analyse or synthesise ideas and concepts, to use theories in problem solving or to attempt to understand or empathise with the views of others. The largest gap between the two age groups relates to personal reflexivity with approximately 50% of the mature group often examining their own views as opposed to 25% of the younger group.

These results are generally supported by similar studies some of which involved students from health science disciplines other than nursing. Richardson's (1994) review of the literature on mature students' approaches to learning (across a range of disciplines) found this group more likely to take a deep approach than younger students and consequently less likely than their younger peers to take a surface approach. Zeeger (2001) and Salamonson *et al* (2013) both found older students more likely to take a deep approach than younger ones. Conversely, Pimparyon *et al* (2000) found no statistical significance in the effect of age on learning approach however this may have been due to the small age range of participants in this study.

2.5 Relationship between Students Using a Deep Approach to Learning and their Gender

Application of Fisher's exact probability test revealed that only Questions 1p showed a significant relationship between gender and the use of a deep approach to learning. The table below presents the percentage of students by gender who rarely or often adopted a deep approach.

Table 7: How often the student adopted a deep learning approach by gender and the significance of the relationship

	Male		Female	
Survey Questions	Rarely%	Often%	Rarely%	Often%
1p: Discussed ideas from readings or classes with lecturers outside of class. **Integrative Learning**	84.6	15.4	96.6	3.4

Male students communicate with lecturers about academic matters outside of class more often than females. However the percentage of both males and females who rarely have such conversations is particularly high. Given the gender imbalance among nursing students at this university, and the fact that only one question in the survey provided statistically significant results, our result is not definitive.

Stiernborg *et al* (1997) was the only study found which examined the relationship between nursing students' gender and learning approach. As their results were not statistically significant the literature search was widened to include studies from other academic disciplines. Unfortunately, this approach did not yield a clear picture. Studies by Sadler-Smith (1996) and Berberoglu *et al* (2003) supported the finding from the present study while other studies found females more likely to take a deep approach than males (Cantwell and Grayson 2002; Tetik *et al* 2009). The relationship between gender and surface approach to learning was equally inconclusive with studies by De Lange and Mavonde (2004); Gijbels *et al* (2005) and Tarabashkina and Leitz (2010) finding males more likely than females to take a surface approach and studies by Duff (2002); Duff *et al* (2004) and Furnham *et al* (2007) finding the opposite. The situation is even further exacerbated by studies, which like Stiernborg et al (1997) found no significant relationship between gender and learning approach (Richardson, 1993; Hayes and Richardson 1995; Zeegers, 2001).

2.6 Summary

The NSSE has proved a useful source of information for determining the gap between the ideal and the reality in relation to nursing students' use of deep approaches to learning across one undergraduate programme. Issues arising from the NSSE data requiring further deliberation by our curriculum design team are as follows:

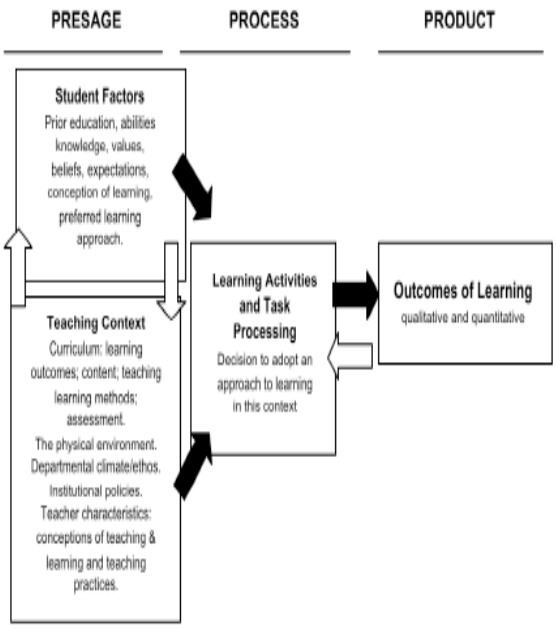
1. Although there is a steady increase in the proportion of students adopting a deep approach from Year 2 , too many Year 4 students rarely or never do so which is unsatisfactory in the final year of a professional programme;

2. For some indicators, especially those relating to the use of higher order cognitive strategies, Year 2 students are less likely to adopt a deep approach than Year 1 students;
3. Students who rarely take a deep approach to learning report lower levels of academic achievement than those taking a deep approach more frequently;
4. Younger students are less likely to take a deep approach than older students;
5. The impact on student learning of staff-student interaction outside the classroom.

3. Discussion

Biggs's 3P model of teaching and learning (1993) presented in Figure 1. below is a useful device for structuring deliberations about curriculum design and teaching and learning as it categorises variables in the learning environment in such a way as to show those which we can influence by the way we design and teach courses and programmes as well as those variables over which we have less influence. It also situates students' adoption of either deep or surface approaches to learning in a particular context as the central decision in determining the outcomes of their learning.

Figure 1: Model of Teaching and Learning (1993). Source adapted from Biggs J. B. (1993) *Student Approaches to Learning and Studying*. Australian Council for Educational Research, Melbourne.



The model has three main sections: presage; process and product. The presage section describes the context before students commence learning in a new situation, the process variables describe what happens as students engage in learning activities and the product variables relate to the outcomes of that learning. Hence, students' decision to use a particular learning approach in their current situation is influenced by the interaction of factors such as their previous educational experience and their perception of the new teaching context which together influence their achievement of the learning outcomes (August-Brady, 2005).

According to the model, students arrive in our courses in possession of a range of characteristics and predispositions determined by their life and educational experiences to date which will influence their perception of the new learning environment. Clearly we cannot change our students' prior experience or their age. We should however acknowledge these factors and by focusing our attention on the design of curriculum variables (learning outcomes, content, teaching and learning methods, assessment) we can encourage students to take a deep approach in our courses.

The teaching context as defined in Biggs's model also includes the physical environment in which teaching and learning occur, the climate and ethos of the academic department that provides teaching and institutional policies, all of which may directly or indirectly promote or discourage deep approaches to learning.

Biggs's model is also a useful starting point for teachers to consider their own teaching characteristics and preferences, in particular their conceptions of teaching and learning and how these influence their curriculum decisions and classroom practice.

On professional courses such as nursing the discretion to determine elements of the teaching context such as learning outcomes, content and contact hours is circumscribed to various degrees by the requirements of professional bodies. Nevertheless curriculum design teams should be aware of research into the influence of a wide range of curriculum factors in fostering deep approaches to learning. Some of these findings are summarized below.

A deep approach to learning is encouraged by curriculum which is perceived by students as embodying:

1. Clear learning outcomes pitched at appropriate levels of increasing difficulty and challenge
2. Relatively low classroom contact hours
3. A range of student focused teaching and learning methods
4. Teaching and learning methods that motivate and encourage students
5. Constructive sequential learning experiences with linkages within and between modules
6. Authentic real world relevant course material
7. Opportunities for students to pursue subjects in depth
8. Some choice over content and method of learning
9. A manageable workload
10. Authentic, real world, relevant assessment
11. Allowances for students to make mistakes without penalty
12. Assessments that require students to use higher order cognitive skills
13.
14. Prompt and useful feedback on learning
15. Clear alignment between learning outcomes, teaching and learning methods and assessment.

(Entwistle 2000; Biggs and Tang, 2007; Ramsden, 1992; Meyers and Nulty, 2009).

Used in conjunction with Biggs's model, the list of curriculum factors above proved to be a useful point of departure for exploring the relationship between the curriculum and our students' learning approaches as described by the NSSE results. Teaching and learning methods, student workload and

assessment and staff-student interaction outside the classroom were identified as key issues for further deliberations.

Teaching and Learning Methods

Specification of learning outcomes and contact hours are largely determined by the nursing professional body however the curriculum team has considerable discretion over teaching and learning methods. To date we have adopted an essentially conservative teaching strategy with most contact hours given to lectures which are supported by tutorials and clinical skills laboratories. Classes are supplemented by occasional e-learning activities and students' self-directed learning. Since the programme's inception, course surveys have consistently highlighted students' preference for tutorials and clinical skills laboratories over lectures. Their views are supported by a body of research which suggests that students are motivated to learn deeply by activities which are student centred and involve reciprocal interaction between students and between teacher and students (Biggs and Tang, 2007). According to Lizzio *et al (*2002) such interactions have greater influence on students' learning outcomes than any other factors in the learning environment.

In reviewing our current curriculum we noted that lectures are the least likely of our teaching methods to promote this type of interaction (Bligh, 1998), so why do we continue to rely on them so heavily? Using Biggs's model as a guide, it could be argued that the prevailing institutional ethos privileges the lecture as the highest form of teaching while institutional policies ensure retention of existing theatres and inclusion of increasingly large ones in new building plans. From an administrative perspective, lectures are an efficient way to manage large numbers of students in a limited physical space.

Aside from such external pressures, Biggs also identifies teachers' own values, beliefs and theories about teaching and learning as influential factors in the selection of teaching methods. Prosser, Trigwell and Waterhouse were the first to provide empirical evidence of a relationship between teachers' conceptions of and approaches to teaching and students' approaches to learning (1997). They found that teachers who conceptualise their role as transmission of expert knowledge and skills will tend to prefer the lecture method and set assessments emphasizing reproduction of knowledge. This conception of teaching and related methods is associated with surface approaches to learning.

Prior to the implementation of a more student focused, interactive teaching and learning strategy as part of our new curriculum we will invite teaching staff to engage in a process of reflection to assess the congruence between their conceptions of and approaches to teaching and deep approaches to learning. It is envisaged that this process will form the basis for a school-wide development initiative to introduce new methods such as problem-based learning, enquiry-based learning, blended-learning and the flipped classroom as alternatives to or enhancements of the lecture method. Successful implementation of such fundamental change to teaching practices will require an extended personal commitment from teachers and significant curriculum redesign and is therefore unlikely to be achieved in the short term.

Student Workload and Assessment

Workload and assessment have been identified as second only to teaching practices in their influence on students' approach to learning and ultimately their academic achievement (Lizzio *et al*, 2002). In light of this, it is no surprise that on our programme, Year 2 students have the highest failure rate. At the point in their studies where our students are least likely to take a deep approach to learning, approximately twenty percent of them fail one or more modules every year. In addition, student surveys consistently rate workload in Year 2 as much higher than in Year 1. Although Years 1 and 2 are almost identical in numbers of contact hours, modules and assessments, Year 2 students spend more weeks on clinical placement, hence their classes are concentrated into fewer weeks with less time to engage in activities which promote a deep approach to learning such as pursuing subjects in depth and analyzing, synthesizing and making judgments about ideas and information.

With reference to Biggs's model, there appear to be two key stumbling blocks to reforming the assessment workload. The first is the institutional policy which requires each module to have its own summative assessment. Over assessment is one of the most commonly laid charges against modularized systems. In the case of nurse education which incorporates a range of subject areas including biological sciences, social sciences, management and leadership, specialist nursing knowledge, clinical skills and research, modularization encourages a silo approach in which each subject is taught and assessed in isolation thereby discouraging students from making links between modules.

The second stumbling block is based on the widely held view that the focus of student learning should be the acquisition of content and that as students only learn what is assessed, tasks must be designed to assess all content 'covered' in a module or at least to convince students that this is a real possibility. Assessment tasks based on this conception encourage surface approaches and reproductive learning (Biggs, 1993) .

Our goal for the new curriculum is to have fewer assessments all of which should encourage deep approaches to learning. Assessments tasks will be based as much as possible on authentic, real world, relevant problems and issues requiring application of higher order cognitive skills and integration of learning across modules.

We understand that the implementation of a new assessment strategy may depend on both our creativity in circumventing institutional assessment policy and the success of the proposed school-wide staff development initiative.

Staff-student Interaction outside the Classroom

Staff–student interactions outside the classroom are related to a range of positive outcomes for students including higher grades and better personal and cognitive development (Wilson and Gaff, 1975; Tinto, 1993; Anaya and Cole, 2001). In spite of this, low levels of interaction between staff and students outside the classroom are the norm across all types of higher education institutions with the lowest levels found in research intensive universities (Kuh, 2003).

While our misgivings about the relatively low level of such interactions with our own students were somewhat mollified by Kuh's findings we were nevertheless interested in determining the nature of the barriers to engagement in our school. With reference to the 'teaching context' component of Biggs's model, two factors in particular captured our attention: physical environment and departmental ethos.

There is increasing recognition in the higher education literature of the importance of physical spaces in promoting the social processes and interactions that build and sustain learning communities (Rullman *et al*, 2012). Our classrooms and offices are housed in one building in a city centre location adjacent to the main campus. Due to security concerns the staff lunch room and offices are separated from common areas by an electronic swipe card system. This precludes students from making speculative visits to our offices. They must either email or phone ahead to make an appointment and be ushered through the security door at the appointed time. Students have access to one area of comfortable seating adjacent to a coffee shop in the building foyer. Interestingly, while the coffee shop is regularly patronised by staff and students they sit in separate groups in what Cox and Orehovec (2007:351) refer to as a 'subtle form of disengagement … when faculty and students though physically proximate choose not to directly interact with one another.'

The issue of staff-student engagement has led to discussions about our school ethos and values; in particular the relationship of teaching and research. There have been calls to remove the electronic swipe system from office corridors which have been countered by claims that most of us already spend more time on teaching and related work than is required by the university and could not cope with unscheduled intrusions. In particular, staff point to the fact that students already receive high quality, comprehensive and prompt written feedback on completion of every assessment task; a feature of our teaching which is regularly commended by external examiners. Although no agreement was reached about the security system it has been agreed to establish a working group of staff and student representatives to further explore issues around engagement and community.

Conclusion

This project set out to investigate the frequency with which undergraduate nursing students adopt a deep approach to learning and to explore the potential of NSSE data to provide useful feedback for curriculum development. The NSSE has proved to be a useful tool for this purpose. Overall, results from the NSSE are positive with more students taking a deep approach to learning in the final year of the programme than the first and those taking a deep approach more likely to have attained high levels of academic achievement.

Redesign of our undergraduate nursing curriculum is still in the early stages; however we are confident in recommending the examination of students' learning approaches as a useful contribution to the curriculum development process.

Further research

The outstanding issue from this study requiring further research is the relation between students' gender and their learning approach.

More broadly, the recent Report of the Review of Undergraduate Nursing and Midwifery Degree Programmes (Dept of Health, 2012: 35) has called for development of "a national, cross institutional prospective programme of research" (Dept of Health, 2012: 35).

The Irish National Student Survey would provide a rich and readily available source of data for this programme. We would like to propose as an initial cross institutional project, a longitudinal study of undergraduate nursing students' approaches to learning by nursing discipline to update Cowman's 1998 study and to evaluate the effectiveness of the new national curriculum.

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Appendix 1: National Survey of Student Engagement 2009

National Survey of Student Engagement 2009

The College Student Report

1. **In your experience at your institution during the current academic year, about how often have you done each of the following? Mark your answers in the boxes.**
   Examples: ☒ ☑ ■

		Very often	Often	Some times	Never
a.	Asked questions in class or contributed to class discussions.	☐	☐	☐	☐
b.	Made a class presentation.	☐	☐	☐	☐
c.	Prepared two or more drafts of an assignment before turning it in.	☐	☐	☐	☐
d.	Worked on an assignment that required integrating ideas or information from various sources/readings.	☐	☐	☐	☐
e.	Included diverse perspectives (different ethnicities, religions, genders, political beliefs, etc.) in class discussions or assignments.	☐	☐	☐	☐
f.	Come to class without completing readings or assignments.	☐	☐	☐	☐

g.	Worked with other students during class.	☐	☐	☐	☐
h.	Worked with other students outside of class.	☐	☐	☐	☐
i.	Put together ideas or concepts from different modules when completing assignments or during class discussions.	☐	☐	☐	☐
j.	Tutored or taught other students (paid or voluntary).	☐	☐	☐	☐
k.	Participated in a community based project (e.g. service learning) as part of a regular course.	☐	☐	☐	☐
l.	Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment.	☐	☐	☐	☐
m.	Used e-mail to communicate with lecturer.	☐	☐	☐	☐
n.	Discussed grades or assignments with lecturer.	☐	☐	☐	☐
o.	Talked about career plans with a lecturer or careers advisor.	☐	☐	☐	☐
p.	Discussed ideas from your readings or classes with lecturers outside of class.	☐	☐	☐	☐
q.	Received prompt written or oral feedback from lecturers on your academic performance.	☐	☐	☐	☐
r.	Worked harder than you thought you could to meet a lecturer's standards or expectations.	☐	☐	☐	☐
s.	Worked with lecturers on activities other than coursework (committees, orientation, student life activities, etc.).	☐	☐	☐	☐
t.	Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.).	☐	☐	☐	☐
u.	Had serious conversations with students of different ethnicity than your own.	☐	☐	☐	☐
v.	Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values.	☐	☐	☐	☐

2. During the current academic year, how much has your coursework emphasised the following mental activities?

	Very often	Often	Some-times	Never
a. **Memorising** facts, ideas, or methods from your modules and readings so you can repeat them in pretty much the same form.	☐	☐	☐	☐
b. **Analysing** the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components.	☐	☐	☐	☐
c. **Synthesising** and organising ideas, information, or experiences into new, more complex interpretations and relationships.	☐	☐	☐	☐
d. **Making judgements** about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions.	☐	☐	☐	☐
e. **Applying** theories or concepts to practical problems or in new situations.	☐	☐	☐	☐

3. During the current academic year, about how much reading and writing have you done?

		None	1-4	5-10	11-20	More than 20
a.	Number of assigned textbooks, books, or book-length packs of course readings.	☐	☐	☐	☐	☐
b.	Number of books read on your own (not assigned) for personal enjoyment or academic enrichment.	☐	☐	☐	☐	☐
c.	Number of written papers, report or articles.	☐	☐	☐	☐	☐

4. Mark the box that best represents the extent to which your examinations during the current academic year have challenged you to do your best work.

Very Little						Very Much
☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7

5. During the current academic year, about how often have you done each of the following?

		Very often	Often	Some-times	Never
a.	Attended an art exhibit, play, dance, music, theatre or other performance.	☐	☐	☐	☐
b.	Exercised or participated in physical fitness activities.	☐	☐	☐	☐
c.	Participated in activities to enhance your spirituality (worship, meditation, prayer, etc.).	☐	☐	☐	☐
d.	Examined the strengths and weaknesses of your own views on a topic or issue.	☐	☐	☐	☐
e.	Tried to better understand someone else's views by imagining how an issue looks from his or her perspective.	☐	☐	☐	☐
f.	Learned something that changed the way you understand an issue or concept.	☐	☐	☐	☐

6. Which of the following have you done or do you plan to do before you graduate from your institution?

		Done	Plan to do	Do not plan to do	Have not decided
		✓	✓	✓	✓
a.	Clinical placement.	☐	☐	☐	☐
b.	Community service or volunteer work.	☐	☐	☐	☐
c.	Participate in a learning community or some other formal program where groups of students meet.	☐	☐	☐	☐
d.	Work on a research project with a lecturer outside of module or program requirements.	☐	☐	☐	☐
e.	Foreign language coursework.	☐	☐	☐	☐
f.	Study abroad.	☐	☐	☐	☐
g.	Independent study.	☐	☐	☐	☐

Mark the box that best represents the quality of your relationships with people at your institution.

a. Relationships with other students.

Unfriendly, Unsupportive, Sense of alienation						Friendly, Supportive, Sense of belonging
☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7

b. Relationships with lecturers.

Unavailable, Unhelpful, Unsympathetic						Available, Helpful, Sympathetic
☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7

c. Relationships with administrative personnel and offices.

Unhelpful, Inconsiderate, Rigid						Helpful, Considerate Flexible
☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7

7. About how many hours do you spend in a typical 7-day week doing each of the following?

a. Preparing for class (studying, reading, writing, doing homework or lab work, analysing data, rehearsing, and other academic activities).

☐	☐	☐	☐	☐	☐	☐	☐
0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

Hours per week

b. Working for pay.

☐	☐	☐	☐	☐	☐	☐	☐
0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

Hours per week

c. Participating in extra curricular activities (organisations, campus publications, student union, societies, intercollegiate or intramural sports, etc.).

☐	☐	☐	☐	☐	☐	☐	☐
0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

Hours per week

d. Relaxing and socialising (watching TV, partying, etc.).

☐	☐	☐	☐	☐	☐	☐	☐
0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

Hours per week

e. Providing care for dependents living with you (parents, children, spouse, etc.).

☐	☐	☐	☐	☐	☐	☐	☐
0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

Hours per week

f. Commuting to class (driving, walking, etc.).

☐	☐	☐	☐	☐	☐	☐	☐
0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

Hours per week

8. To what extent does your institution emphasise each of the following?

		Very much	Quite a bit	Some		Very little
a.	Spending significant amount of time studying and on academic work.	☐	☐	☐	☐	
b.	Providing the support you need to help you succeed academically.	☐	☐	☐	☐	
c.	Encouraging contact among students from different economic, social and ethnic backgrounds.	☐	☐	☐	☐	
d.	Helping you copy with your non-academic responsibilities (work, family, etc.).	☐	☐	☐	☐	
e.	Providing the support you need to thrive socially.	☐	☐	☐	☐	
f.	Attending campus events and activities (special speakers, cultural performances, athletic events, etc.	☐	☐	☐	☐	
g.	Using computers in academic work.	☐	☐	☐	☐	

9. To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?

		Very much	Quite a bit	Some	Very little
a.	Acquiring a broad general education.	☐	☐	☐	☐
b.	Acquiring job or work-related knowledge and skills.	☐	☐	☐	☐
c.	Writing clearly and effectively.	☐	☐	☐	☐
d.	Speaking clearly and effectively.	☐	☐	☐	☐
e.	Thinking critically and analytically.	☐	☐	☐	☐
f.	Analysing quantitative problems.	☐	☐	☐	☐
g.	Using computing and information technology.	☐	☐	☐	☐
h.	Working effectively with others.	☐	☐	☐	☐
i.	Voting in local or national elections.	☐	☐	☐	☐
j.	Learning effectively on your own.	☐	☐	☐	☐
k.	Understanding yourself.	☐	☐	☐	☐
l.	Understanding people of other ethnic and religious backgrounds.	☐	☐	☐	☐
m.	Solving complex real-world problems.	☐	☐	☐	☐

n.	Developing a personal code of values and ethics.	☐	☐	☐	☐
o.	Contributing to the welfare or your community.	☐	☐	☐	☐
p.	Development a deepened sense of spirituality.	☐	☐	☐	☐

10. Overall how would you evaluate the quality of instruction you have received at your institution?

11. How would you evaluate your entire educational experience at this institution?

Excellent	Good	Fair	Poor
☐	☐	☐	☐

12. If you could start over again, would you go to the same institution you are now attending?

Definitely Yes	Probably Yes	Probably No	Definitely No
☐	☐	☐	☐

13. Write in year of birth:

1	9		

14. Your sex:

☐	Male	☐	Female

15. Are you an international student, foreign national:

☐	Yes	☐	No

16. What is your nationality?

☐	EU	☐	Non-EU	☐	Irish

17. What is your current classification in college?

☐	Year 1
☐	Year 2

☐	Year 3
☐	Year 4
☐	Year 5

18. Did you begin college at your current institution or elsewhere?

☐	Started here	☐	Started elsewhere

19. Since graduating from school, have you attended courses other than the one you are attending now? (Mark all that apply)

☐	Attended college but did not complete degree
☐	Completed a bachelor degree
☐	Completed a masters degree
☐	Completed a doctoral degree

20. Thinking about this current academic term, how would you characterise your enrolment?

☐	Full-time	☐	Part-time

21. Are you a member of a TCD society?

☐	Yes	☐	No

22. Are you a student-athlete on a team sponsored by your institution's athletics department?

☐	Yes	☐	No (Go to question 23)

On what team(s) are you an athlete (e.g., football, swimming)? Please answer below:

23. What have most of your grades been up to now at this institution?

☐	IH
☐	IIH
☐	Pass
☐	Fail
☐	Other

24. Which of the following best describes where you are living now while attending college?

☐	Campus housing
☐	Residence (house, apartment, etc.) within **walking distance** of the institution
☐	Residence (house, apartment, etc.) within **driving distance** of the institution
☐	Family home
☐	None of the above

25. What is the highest level of education that your parent(s) completed? (Mark one box per column.)

Father	Mother	
➘	➘	
☐	☐	Did not finish secondary school
☐	☐	Leaving certificate
☐	☐	BA, BSc (bachelors)
☐	☐	MA, M.Sc (masters)
☐	☐	PhD, M.D, etc. (doctoral)