Student self-assessment in Information Systems
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Context:

Information systems for service industries is a large, first year, undergraduate course which contributes to a range of Bachelor degrees in tourism, events, hotel and sport management. It has over 400 enrolments per year, mostly school-leavers in their first ever semester at university, most of whom are aged 17-19yrs. University funding constraints have restricted the total amount of tutorial time available for the course, resulting in tutorial classes with staff student ratios of 1:20. This is a context which is, on the face of it, not well suited to peer or self-assessment.

The course focuses on the information systems that support the tourism, leisure, hotel and sport industries. It provides students with a theoretical knowledge of the ways in which information technology is transforming these industries and the likely impacts of technology growth in the future. This knowledge is a critical underpinning for a range of tasks performed by professionals in these industries as well as in marketing and management more generally. The course also includes activities designed to help students acquire and/or develop practical computing skills needed in their future careers.

The course relates explicitly to the tourism, leisure, hotel and sport industries. It aims to:

1. Explore the different applications of technology and information systems in these industries;
2. Introduce students to the principles of information systems and how they underpin major business activities in these industries;
3. Familiarize students with how information technology is changing these industries;
4. Develop some practical computing skills relevant to students future careers in these industries.

In achieving these course aims, students also develop a range of graduate skills including effective communication (written), information literacy, problem solving,
critical evaluation, the ability to work autonomously, creativity and innovation, and skills associated with responsible, effective citizenship.

Students who successfully complete the course should be able to demonstrate:

1. Familiarity with, and understanding of, the technologies used in the tourism, leisure, hotel and sport industries.
2. Understanding of the ways in which information systems work within and between organisations in the tourism, leisure, hotel and sport industries;
3. Awareness of technological issues for management within the tourism, leisure, hotel and sport industries;
4. An ability to apply computer literacy skills in website development.

**Assessment**

There are four components to the assessment of students’ learning in *Information systems for service industries*. These are: On-line quizzes (20%); a website plan (20%); a website project (20%), and a final examination (40%). Student self-assessment is embedded within the two website assignments.

**Website plan**

The website plan requires students to reflect on various management and design issues that need to be considered before developing a website. Requirements for the website plan are discussed in lectures in weeks four and five in a manner which promotes student self-assessment. This is the first component of student self-assessment, with students directly considering the components of a website plan that are needed to produce a high quality website. These components are reflected in the assessment criteria, which are then assessed based on accuracy, clarity, conciseness, completeness, and congruity. In addition, there are specific formatting requirements consistent with industry norms: the plan must be presented as a business report, with an appropriate title, introduction, and summary.

The website plan is the basis of the website project, thus providing continuity and interlinking though the two pieces of assessment. After grading, the website plans are returned to students with feedback. Students are advised to critically reflect upon the feedback they receive on the website plan, and consider this feedback to determine ways to improve the website projects they subsequently undertake. This critical reflection activity constitutes the second component of student self-assessment.

The website plan contributes to learning outcomes: an ability to (1) Understand and be familiar with the technologies used in the tourism, leisure, hotel and sport industries; and an ability to (3) Demonstrate an awareness of technological issues for management within the tourism, leisure, hotel and sport industries. The website plan is designed to contribute to graduate skills of effective communication (written), information literacy, problem solving, critical evaluation, working autonomously, creativity and innovation.
Website project

Students are required to develop a website, based on the previously submitted website plan. This task is intended to develop and assess student’s familiarity with, and application of, practical skills in information systems. Also, students to learn how to implement the management and design issues that were raised in their website plan. Students are also required to provide a report which details how the implementation of the website differed from the website plan and lists references to material used in the website. Any changes have to be detailed together with justification and reflections on why they have been made. This activity further encourages students to critically reflect on their own work, including where they may have done better in their plan, or where they fell down in delivering due to technical skills. In doing this, students also learn about integration between planning, technology and organisational matters.

The assessment criteria for the website project are based on website quality principles. Website quality criteria are developed from these principles through in-class discussion and collaboration with students, as part of the overall student-centered teaching and learning strategy. This is the third student self-assessment component of the course (detailed below).

The website project contributes to learning outcomes: an ability to (1) Understand and be familiar with the technologies used in the tourism, leisure, hotel and sport industries; an ability to (3) Demonstrate an awareness of technological issues for management within the tourism, leisure, hotel and sport industries; and an ability to (4) Apply computer literacy skills in website development. The website project contributes to graduate skills of effective communication (written), information literacy, problem solving, critical evaluation, working autonomously, creativity and innovation, and responsible, effective citizenship.

Student self-assessment

Students are familiarised with the two website assignments through the semester. Shortly following the submission of the website plan, during lecture time, students are divided into groups of approximately 4 to 6, to discuss the elements which they consider to be characteristic of high quality websites. Starting with discussion within small groups is a relatively low-stress way for first year students to begin to explore and express their ideas, and also a good way to precipitate active student engagement. This discussion is allowed to continue for 10-15 minutes, during which time the lecturer roams around the lecture room to listen in and encourage the students to think critically about their own experiences when visiting websites, and to mentally note groups making particular points.

Following this, volunteer students from each group are asked to call out the characteristics which their group discussions have identified. The more confident students are more likely to volunteer first: less confident students can observe this and see that the process is non-judgemental, and thus relatively safe. Everyone’s confidence is increased by this. If and when required, the lecturer encourages representatives from particular groups to contribute points they have been observed discussing and which the lecturer noted. This encouragement is more likely to be
needed at the beginning when overall confidence levels are low. Once the conversation gets started the need for such intervention diminishes. The lecturer seeks to ensure that all groups make a contribution. This entails ensuring that each group is only allowed to make one contribution at a time. Making only one contribution also has the fringe benefit that it makes the threat of doing so much less. Each contribution is written down and displayed on an overhead projector screen. As much as possible, students’ own words are used.

The combined contributions of the groups generally ensures that no characteristics are missed. In the unlikely event that some are missed, the lecturer can ask probing questions of the class: “Do you think we’ve got everything?” or “What about issues which relate to …. Does anyone think there might be something of importance there?”

Conversation proceeds in this manner until all groups have contributed and no new ideas are being elicited. In general there is very little need for the lecturer (who really only acts as a facilitator of process) to contribute directly to the content that is written.

Once an exhaustive list of characteristics of high quality websites is obtained, the process moves to analysis and synthesis of these characteristics. The lecturer asks students about characteristics which appear to be similar to determine if they can be combined, linked, or fit within some kind of hierarchy or structure – or to clarify the nature of the differences. Again the lecturer primarily takes a role as a facilitator, with the contributors themselves agreeing on wording, clarifying the differences and making connections. Throughout this group reflective process all students are, at the minimum, participant-observers. Their attention and engagement is high. They can see the direct relevance of the discussion to assessment tasks they have to undertake. They develop, and internalise, a rich appreciation of the task and the criteria by which a good performance will be determined – and they go on to do better in the assignments they produce.

The exercise above is the foundation of the critical reflection (or self-assessment) skills which students acquire in this course. The rich, internalised appreciation of the criteria by which their work is to be judged allows students to exercise that judgement for themselves as they produce the work. They are also able to see the relevance of assessment criteria to industry practices. Students are required to practice that judgement by virtue of two intimately linked tasks being undertaken (the website plan and the website project), through consideration of feedback on their plan, and through the production of an implementation report.
Evidence of effectiveness and impact

Students provided positive feedback about holding the discussion in the lecture. One student commented that this enabled:

“… everyone to bounce ideas off EVERYONE… not just the limited number in the tute. I think it should be done in the lecture every year”

Other comments recognised that the learning and teaching in this course engaged the student’s experience and supported the development of critical thinking, for example:

“It did make me think about what made a good website…and if not teach me, then it reinforced what I already knew”

Various comments related to students’ intrinsic interest and enjoyment of the assignment:

“This was probably the most fun assignment I’ve done at uni”

Other comments reflected the perceived authenticity and professional relevance of the assignments:

“The web site assignment is a project which has the potential to benefit students in their uni life and when they enter the workforce or start a business.”, and:

“the website project is good because it is relevant to what we possible may have to do”.

One tutor noted a change in students, from (in previous years) ‘not caring about anything in the course’, to ‘taking pride in the development of their website’.

It is also noteworthy that some students enjoyed the assignment so much they spent more than the requisite amount of time completing it:

“I personally quite enjoy working on the website assignment, and often find myself losing time while working on this assessment”.

The assessments were found to be authentic, interesting and engaging for students. They were effective in getting students to think critically, and to engage in deep rather than surface learning behaviours. The use of conceptually-based website quality criteria placed the emphasis of assessment on the decision making of students, as they needed to make their own decisions about how, when and why to implement any particular technology features, in terms of its contribution to a higher quality website. Hence the assessment emphasis engaged students in high order cognitive tasks, and discouraged surface learning by imitation of practical skills.

Just through the in-class discussion, students' developed their knowledge, vocabulary and understanding of website quality issues which enabled them to
critically reflect on and assess websites. Not only was this important in assisting understanding of the assessment criteria, but it also informed their decision making, and gave them confidence in their ability to evaluate and make judgements about websites, a task which many of them will undertake as professionals in the service industries.

Finally, it is noteworthy that the approaches described above have been shown to be effective in a large, first semester, first year course. It has been shown that beginner students, in large numbers, can successfully engage in a constructive process to develop their own skills of critical reflection and informed judgement. Future development of the teaching and learning approach used in this course aims to utilise online tools such as discussion forums and Griffith University’s SAGE tool¹ to facilitate elongated discussion and reflection which is inclusive of people from different cultural backgrounds, and to reduce the administrative work associated with the approach.

¹ SAGE (which stands for Student and Group Evaluation) is an on-line tool developed at Griffith University by its Flexible Learning Access Service department in collaboration with a small number of academics. SAGE allows academics to easily set up and manage the process of obtaining, collating, and sharing self and peer feedback among peers and instructors – regardless of numbers. It effectively automates almost all the administration which would otherwise be associated with these processes. An introductory description of SAGE is available from the same web site as this case study http://www.griffith.edu.au/__data/assets/pdf_file/0004/134374/SAGE.pdf

**Principles of Good Practice**

The practices described in this case study, together with the overall curriculum design and other assessment items are the focus of a journal paper currently (January 2009) under review by *The Journal of Teaching in Travel and Tourism* (*Hornby, Jennings, & Nulty, Submitted*). That paper describes the process by which this course, it's curriculum design and the use of peer and self assessment were incrementally developed over a three year period. In particular, these developments are iteratively evaluated by reference to five principles of curriculum design articulated by Meyers and Nulty (2009 In press). Readers are directed to both these publications for a more in depth account of the ways in which the practices detailed in this case study illustrate good practice, and to get a broader view of good practice at the curriculum design level (rather than only the teaching level).

In summary however, Meyers and Nulty (2009 In press) argue that courses should be developed "... in ways that provide students with teaching and learning materials, tasks and experiences which:

1. are authentic, real-world and relevant;
2. are constructive, sequential and interlinked;
3. require students to use and engage with progressively higher order cognitive processes;
4. are all aligned with each other and the desired learning outcomes; and
In relation to this case study, authenticity and relevance (principle 1) is achieved because the students realise that developing web-site plans and web sites, or at the least making critical evaluation of web-sites, is something which they, as graduates, can reasonably expect to do. Furthermore, they will doubtless be required to work on such matters in collaborative, multicultural teams – exactly as they are required to do in this course.

Students have constructive, sequential and interlinked experiences in this course (principle 2) because care has been taken to ensure that the sequence and synergy between the lectures, tutorials and assessment activities is such that students progress from relatively simple to relatively difficult tasks, each of which are linked (moreover obviously linked). Thus, principle 4 (that experiences should be aligned with each other and the desired learning outcomes) is also covered.

Students use and engage with progressively higher order cognitive processes (principle 3) in part because of the sequence of the tasks (from simple to harder), and in part because the peer and self assessment activities in this course directly engage students in generating the criteria which are used to judge their work, and subsequently in actually making such judgements. By its nature these forms of engagement are transactional and entail high level cognitive processes of reasoning, judgement and evaluation to be employed.

Finally, students in this course experience appropriate level of challenge, interest and motivation to learn by the selection of tasks which they see as relevant not only to the learning outcomes of this course and their subsequent careers, but at a more intrinsic level: students recognise the general benefit of working together, and of developing the skills which this course achieves.

**How to do it yourself**

The heart of this approach is relatively simple, it relies on:

1. Allowing students to familiarise themselves with a particular assessment task
2. Ideally establishing the task in a staged way so that participation in the first part is re-visited in a later part (or parts).
3. Facilitating a discussion about what would characterise a high quality performance on that task and utilising this process to allow the students themselves to formulate a set of criteria for judging performance. These criteria can be developed to the point of using them as the assessment criteria.

and optionally,

4. Discussion with students, which includes different levels of importance to be given to different criteria and even to the marks to be awarded. Such an activity engages students not simply in an instrumental, self-serving, consideration of “what it takes to get a good mark”, but rather a deep, rich and internalised understanding of the concepts, principles and content the course has for learning objectives. As such, the approach is a teaching and learning
strategy which does *not* interfere with teacher’s often expressed refrain that they “have to cover the content”.

This approach *can* be used with almost any piece of assessment to enhance students’ understanding of assessment criteria. However: when assessment tasks can be aligned with work practices, there is also the benefit of students’ developing better understanding of content.

**Handout/Teaching materials**

Appendix 1 provides the marking criteria used for the two Website Assignments. These are provided here as an illustration of the kind of criteria generated through the student discussion. These criteria can be used ‘as is’, but a more engaging strategy is to use each cohort of students each year to generate their own. The shape and form of the marking criteria may vary, but the coverage is not likely to.
Appendix 1 – Website Assignments – Marking Criteria

Website Plan

Overall /20
Background to the business and business goals /5
Goals of the website, how these fit into goals of the business /5
Analysis of competitor websites /5
Target audience/market for website and use environments /10
User tasks - specific breakdown /10
Information organisation and storyboard /10
Page templates /10
Website content owners and authors /5
Process analysis and update process and schedule /5
How you will get people to your website /10
References – Websites of: competitor website analysis, where you
Have/will use photographs and images from. /5

Total /100

Website Project (this is the version developed from the 2008 class
discussion)

Information content and quality /15

1. Relevant – useful according to goal of site and user tasks of target market
2. Accurate and congruent information
3. Complete information – meeting all needs of user tasks

Information format /15

1. Uses: images, text and links appropriately
2. Easily to read (text size, font, colour), including contrast
3. Appropriate headings, table layout and background images
4. Easily understandable (relevant language and format for the target market)
5. Match website theme/target market, consistent throughout site
6. Not to many links or images

Detail, presentation and format /10

1. Appropriate level of detail, not too much on each page
2. Minimise scrolling
3. Spelling and grammar correct
4. Audience relevant language (to target market)
5. Easy to access contact information

Ease of Navigation /25

1. Menu: Use menu to make easy to navigate (to find information quickly
   and easily)
2. Specific names on links and navigation items
4. Use web standards - menu on top or left
5. Menu always in view, and all menu items fit on screen
6. Not too many buttons in each menu, can use submenus
7. Little clutter in menu or screen

Details /10
1. Simple structure, with navigation consistent
2. Link colours kept to web standard
3. Internal page links all work

Visually attractive/Appearance /25
1. Theme, styles, colours, fonts to suit target market
2. Inline with logo and brands where appropriate
3. Looks professional
4. Layout is simple, not being overcrowded or have clutter
5. Limit colour to 2-3 main colours that work with theme (to suit target market)

/100
References


