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How Effective Are Asynchronous Online Discussions in Teaching Legal, Ethical, Professional and Social Issues?

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Abstract

A survey was carried out among mature adult students and their instructors involved in a British university's online Master's degrees in Computing/IT. All were experienced in engaging in asynchronous online discussions. They were asked about the effectiveness of online discussions (the debating of discussion questions) in teaching legal, ethical, professional and social issues (LEPSI). Both students and instructors agreed that the discussions had been helpful in making students aware of the culture and legal systems of people from other countries; had made students more aware of the legal, ethical, professional and social (LEPS) framework within which they operate; had contributed to making students more confident about working on their own to find out more about the LEPS issues that affect their work; had made students more likely to take LEPS issues into account in their workplace; had made students more likely to think about LEPSI than their previous degree; had been seen as important in encouraging students to sometimes change their opinion in the light of evidence or a strongly reasoned argument; had been seen as important in helping students construct a reasoned case for some action; and had been seen as important in helping students identify the LEPS implications of things they do in the workplace.

Keywords

Ethics, social issues, online discussions, survey, Bloom, accreditation, practical reason.

1. INTRODUCTION

1.1 The Importance of LEPSI

Professional, accreditation and regulatory bodies in the UK are very keen that Computing and IT students should have some appreciation of legal, ethical, professional and social issues (LEPSI). This mirrors concerns in the United States and elsewhere. The terminology that is used sometimes varies, and the ordering of the elements in the LEPSI acronym is not consistent. Sometimes it is referred to as LESPI or LSEPI. However a consistent theme is that Computing and IT students should be aware of the ethical implications of their decisions in the workplace. A broader view also seeks to take account of the legal and social implications as well.

There is a significant amount of literature on the teaching of LEPSI, particularly relating to ethics. Some of this has only indirect relevance to the main topic of this paper, but it will be useful to set out where we stand in relation to some of the major issues under discussion by others. This will help readers understand why this paper places so much importance on the study of asynchronous online discussions.

1.2 The Sophist or Socratic Approach

In Greek philosophy, the Sophists claimed that they were teaching virtue. Socrates, as portrayed in Plato's Socratic Dialogues, adopted a more subtle approach, encouraging his students to engage in ethical reasoning in order to draw their own conclusions. Part of the LEPSI literature favours the approach of the Sophists, particularly in relation to undergraduate education (Hilton and Mowry, 2012, Huff and Bernard, 2009, Von Konsky et al, 2007, Goold and Coldwell, 2005). Examples of this would involve testing students' ability to memorize and understand the codes of conduct of professional bodies. Another would involve trying to make students better (more ethical) than they were at the beginning of their class.

Partly because we deal exclusively with mature postgraduate students, or graduate students as Americans would describe them, memorizing and understanding simply would not rate highly enough on Bloom's Taxonomy (Bloom et al, 1956). We should expect our mature adult students to be able to critique codes of conduct and discuss to what extent they are inadequate or unrealistic. By the time our students graduate we should hope that they would be able to reason sufficiently well about ethical issues to write their own codes of conduct.

Many of the studies upon which the literature is based are conducted with undergraduates in the United States. All the students are operating under similar legal and social systems with a large measure of shared values. Our students are recruited from all over the world. They live in very different societies, and often have very different religious and social values. Although the price of enrolling in a British university is to abide by certain British rules on academic integrity and plagiarism, it would be at the least problematical, and probably presumptuous, to claim that we were trying to make our mature students better or more ethical.

Our more modest Socratic objective in asynchronous online discussions is to make our students more ethically aware and capable of engaging in ethical reasoning (Dark and Winstead, 2005). The problem we seek to address is that of Computing students seeing only the technical implications of problems (Gotterbarn, 2010, Martin and Martin, 1990, Johnson, 2008). Asynchronous online discussions help encourage students to think of the legal, ethical, and social implications of Computing issues they encounter, hopefully long after they have finished their formal studies. Online discussions tend to give students a great deal of practice of presenting, defending, and amending a proposed course of action in response to such problems.

Of course this has implications for assessment. Whereas some universities' LEPSI class assessments may seek to elicit the correct answer (e.g. about what some code of practice says) or identify measurable improvements in behaviour (e.g. using Kohlberg's Cognitive Moral Development model), our discussions could more accurately be described as assessing students' ability to engage in practical reasoning (Chang, 2011, Staehr and Byrne, 2003). This is not a deductive process leading to the right answer, but a process of providing reasons for some practical judgement or course of action. This could involve the student producing evidence from reputable published sources, and it certainly would involve going beyond mere description to use comparison, contrast, criticism, analysis and reasoned comment. In this respect, LEPSI-focused discussions are, in our university, assessed in the same way as any other asynchronous debate.

Students may not agree on what is right or what should be done, but they can agree that any course of action should be justified by the giving of reasons, and that any position may be open to criticism and possible amendment in the face of more compelling reasons being presented for some amended or alternative course of action.

1.3 LEPSI Throughout the Degree

Some universities seem to teach LEPSI in one specialist class or module and then do not revisit the subject (Quinn, 2006, Towell and Thompson, 2004). This would probably be incompatible with BCS accreditation, which expects students to see LEPSI as equally as important as technical issues (BCS, 2012). Others try to introduce LEPSI throughout the degree (Clements, 2006, Dexter et al, 2013, Greening et al, 2004, Hallinan et al, 2001, Kortsarts and Fischbach, 2014, O'Neill-Carillo et al, 2008, Goold and Coldwell, 2005). The University of Liverpool online degrees that we teach on try to do both. There is a Professional Issues module which all students traditionally take near the beginning of their degree, and then there are assignments and discussion questions sprinkled throughout the degree aimed at addressing legal, ethical and social issues.

There is also a third category of activities where learning takes place, which could be said to involve naturally occurring LEPSI. If we are moderating a discussion on the way Computing companies could use public relations, we are aware that such a discussion question was not placed there with the specific intention of meeting some LEPSI learning outcome. Nevertheless, we can be confident that legal, ethical and social issues are likely to be raised by students during that debate. It is hopefully a sign that once students are successfully encouraged to be ethically aware, they continue to look for the legal, ethical and social dimensions of the issues they are discussing.

1.4 Discussions

A number of writers have extolled the virtues of using discussions in the teaching of LEPSI (Clements, 2006, Kraft and Carlisle, 2010, Applin, 2006, Polack-Wahl, 2001). Some have advocated the discussion of key texts, codes of practice, and case studies as well as the discussion questions (DQs) that we use. Others favour role-play or simulation (Fleischmann et al, 2011, Towell and Thompson, 2004). A number of these discussions, like our own, have been conducted online (Ben-Jacob, 2005, Coldwell, 2000, Loncke et al, 2009, Schichtman and Wheeler, 2011).

Some of the benefits associated with discussions have included the fact that they use interactive questioning and answering (Beaton, 2009); that they allow students to engage in moral dialogues where they learn how to support their claims with reason and see how an issue can be viewed from different perspectives (DeWitt and Cicalese, 2006); and that students can be asked to justify their position and bring facts to bear on their arguments (Quinn, 2006).

2. THEORY

Our research sought to answer the question as to how effective asynchronous online discussions are in teaching LEPSI. It did so through the use of anonymous online surveys of students and instructors. Students were asked about their own learning while instructors were asked about their students' learning.

The theoretical underpinning for the questions came from a number of sources. The first source was that of the accreditation/regulatory bodies in the UK. For instance the BCS *Guidelines on Course Accreditation* state that "Students should not perceive legal, social, ethical and professional issues as peripheral to, or less significant than, technical skills detailed in the syllabus" (BCS, 2012, p.21). We felt that asking about student perceptions of this issue would, in part, be a rigorous test of the effect of our teaching.

Similarly, the Quality Assurance Agency's (QAA) *Subject Benchmark Statement: Master's Degrees in Computing* requires that students should be able to identify "significant applications" of LEPSI (QAA, 2011). This inspired us to ask about the relationship between LEPSI in online discussions and the student's workplace.

We also drew on the taxonomies for the Cognitive Domain (usually just referred to as Bloom's Taxonomy) and the Affective Domain. In the former case we looked at Level 6.0 Evaluation, specifically 6.10 Judgments in Terms of Internal Evidence, and 6.20 Judgments in Terms of External Criteria (Bloom et al, 1956).

In the Affective Domain, survey questions were influenced by Level 5.0 Characterization By a Value or Value Complex, and particularly 5.2 which suggests that learners should display a "Readiness to revise judgments and to change behavior in the light of evidence". At Level 4.2 we made use of the idea that the successful learner "Weighs alternative social policies and practices against the standards of the public welfare [*public interest*] rather than the advantage of specialized and narrow interest groups" (Krathwohl et al, 1964, p.159).

In many indirect ways we were influenced by thinking about practical reason in Philosophy (Edgley, 1969). This would include the providing of reasons for a course of action, distinguishing on logical grounds between good and bad reasons, and acknowledging that words and deeds can be contradictory.

We concluded that if student responses indicated that they had displayed ethical awareness and some skills in practical reason as a result of taking part in online discussions, then within our terms of reference, those discussions could be deemed effective in teaching LEPSI.

3. SURVEY IMPLEMENTATION

Some 269 students taking online Master's degrees in Computing/IT subjects responded to our online survey (response rate = 40%). They had been invited to take part by individual Blackboard emails. A Web address for the survey was provided, and then each individual was free to participate anonymously. The mean average age of participants was 36, and 19% of those who responded were female. This mirrored quite closely the composition of the population being sampled.

At the time of the survey, students would take a Professional Issues module (class) as the second module in their degree. This would have been taught by Computing instructors. Only students in their third or subsequent modules were surveyed and therefore all of them would have completed the Professional Issues class. On average, students had completed 4.5 modules. As every class contained asynchronous online discussions as a significant part of the assessed content, these

students were typically very experienced at taking part in such discussions. The average student would have participated in 60+ discussion question (DQ) debates at the time of the survey.

A DQ will involve a question without a clear-cut answer posted in Blackboard. Each student will be required to make an initial response to the question, without viewing any of the other students' replies, by the end of Day 4 of a week's activities, and then participate in a debate which ends at the close of Day 7. This debate would be moderated by an instructor. It has been quite usual to have two DQs running in parallel.

A total of 23 Computing instructors responded to a separate but similar survey (response rate = 50%). All of them would have been very experienced at moderating asynchronous online discussions.

4. RESULTS

4.1 Coding and Presentation of Data

Each survey question actually consisted of a statement. Participants were asked to respond to the statement by selecting a point on a semantic differential scale. The labels at each end of the scale were typically "Strongly Agree" and "Strongly Disagree". The points on the scale were labelled from 7 down to 1 to indicate that this was an interval scale. The label 7 was always at the "Strongly Agree" end of the scale. Some statements were negatively worded. In these cases the coding of the replies was different from that displayed by the labels underneath points on the scale. In coding terms, 7 was always associated with the most LEPSI-sympathetic answer regardless of the polarity of the question.

To give an idea of the subtle difference in the wording of the questions between the two surveys, we can look at the first question that we asked. This was a negatively worded question in that the most LEPSI-sympathetic answer would be to disagree. It certainly placed the hypothesis at risk. Students were asked whether they agreed or disagreed with the statement "Legal, ethical, social and professional issues are peripheral to my degree and less significant than the technical issues I am learning about." Instructors were asked about "the technical issues I am teaching".

To simplify the presentation of results, we have grouped replies so that in this case, those labelled 5-7 (but coded 1-3) are classed as "Agree", those labelled 1-3 are described as "Disagree" and the mid-point value of 4 is taken to be a Neutral stance.

4.2 LEPSI Peripherality and Applicability

In this first question, 57% of students and 54% of instructors disagreed that LEPSI was peripheral. In both cases the number who disagreed was around twice the number who agreed. There was therefore a generally sympathetic attitude towards LEPSI.

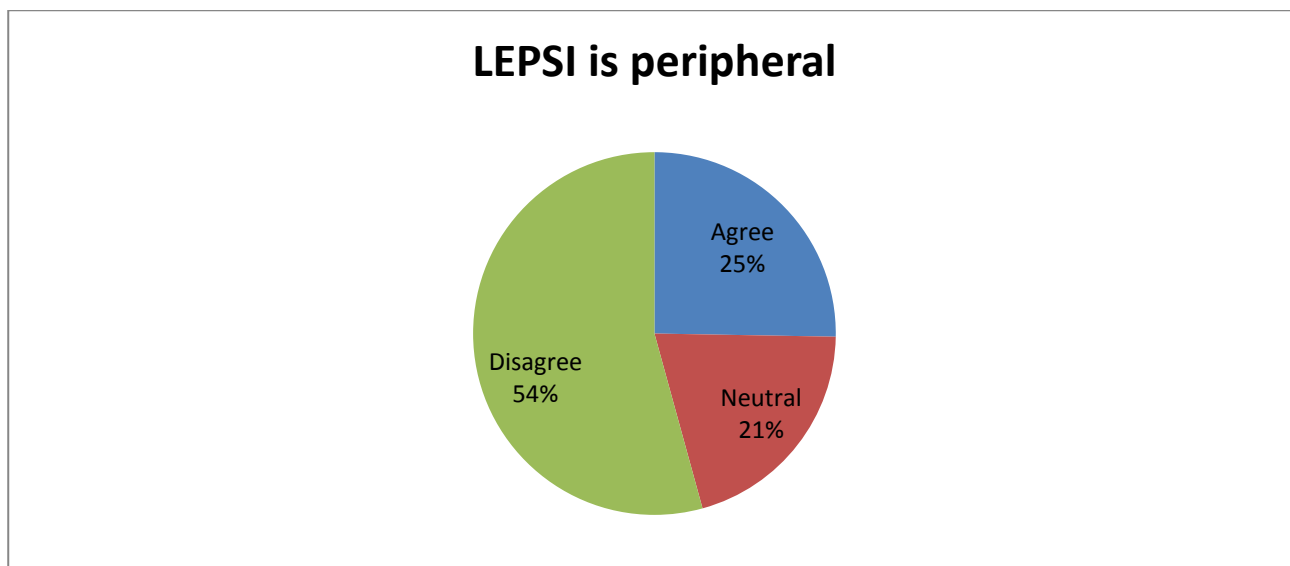


Figure 1. Student views on LEPSI as less important than the technical issues they are learning about.

The other general question we asked (not DQ related) invited a response to the statement “I can often identify practical applications in my working life of what I have been taught about legal, ethical, social and professional issues”. Some 81% of students agreed, and 61% of instructors confirmed that their students could identify such applications.

We drew two conclusions from this. Firstly, that students may sometimes identify practical LEPSI applications in their working life which they do not necessarily write about in discussions or other assessed work. This would explain the difference between student and instructor perceptions. More importantly, there was positive confirmation from both groups that practical applications were being identified and we were therefore confident that we were meeting a key QAA requirement with regard to LEPSI.

4.3 Other People’s Culture

Having established some general attitudes towards LEPSI on the part of students and instructors, we were able to turn to more DQ-related questions to identify their specific contribution.

Not only are our students distributed around the world, but they are increasingly called upon to carry out business internationally. Sometimes they have moved to another country to take up work. This often requires them to gain an understanding of very different cultures. We were therefore interested in the effect of online discussions with a diverse student body in bringing about such an understanding.

Faced with the statement that “Participating in DQs has **not** been helpful in making me aware of the culture and legal systems of people from other countries”, 73% of students disagreed, and 78% of instructors also denied that DQs had not been helpful to their students.

4.4 LEPSI Frameworks

We then asked two questions inspired by QAA benchmark requirements. They were not necessarily specific to LEPSI, but rather specified what any successful programme of learning should achieve. The statement, “What I have read in DQ debates has made me more aware of the legal, social and

ethical framework within which I have to operate” was endorsed by 72% of students, and 78% of instructors felt that DQs helped their students in this way.

Similarly, the proposition that “The DQ debates I have participated in have **not** really contributed to making me confident about working on my own to find out more about the legal, social and ethical issues that affect my work” was rejected by 67% of students, and 57% of instructors disagreed that DQs had not made a contribution. An important part of Master’s degree study is the student’s journey to becoming a self-directed learner. It was pleasing that our own students felt that DQs encouraged this process of working on their own.

4.5 Ethical Awareness

There were three questions which might be said to be testing ethical awareness. Almost all of our students would have studied for a previous degree, which would either not have used DQs or not used them as intensively as we would.. We wanted to know if we were raising ethical awareness better than that other course of study. Respondents were asked to “Think about a previous degree you have taken that did not use DQs. Now consider this statement: ‘My Liverpool degree has **not** made me more likely to think about legal, ethical and social issues than my previous degree’”. Some 75% of students disagreed. There was no corresponding instructors’ question as they could not be expected to know about their students’ previous degrees. We concluded that our own degree had raised ethical awareness to some degree as compared with previous study and that DQs may well have made a contribution.

The second of this set of three questions asked respondents to consider whether “Having participated in DQ debates about legal, ethical and social issues, I am more likely to take such issues into account in my workplace”. A total of 81% of students thought that they were, and 69% of their instructors agreed. This provided a little more evidence that we were perhaps raising ethical awareness.

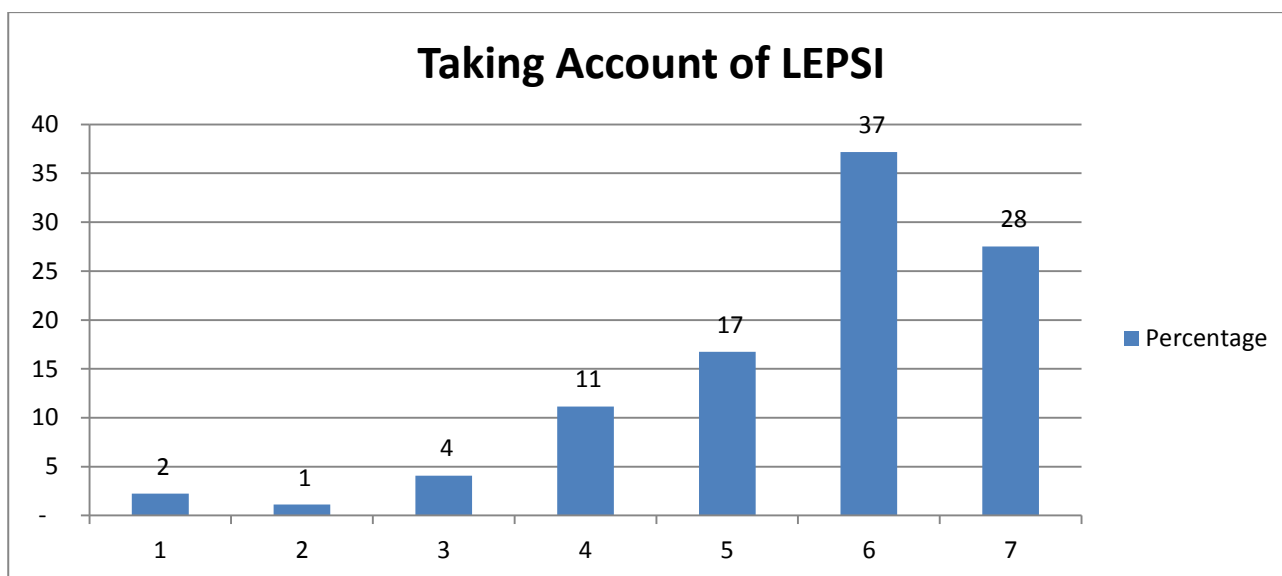


Figure 2. Percentage of students who were more likely to take LEPSI into account in their workplace having participated in DQ debates (7 = Strongly Agree).

The last of the three questions was inspired by the Taxonomy for the Affective Domain as well as the BCS Code of Conduct and the ACM Code of Ethics. “I believe that decisions in IT should take account of the public interest, including the health, privacy and security of others, and not just the interests of my organisation”. Happily, 94% of students felt able to endorse this statement, as could

91% of instructors. We believe that an acknowledgement that decisions should take into account these wider issues is an important step in raising LEPSI awareness. While this particular question did not mention DQs, if the response is taken in conjunction with the answers to the previous two questions, it is reasonable to argue that DQs have made a contribution in encouraging LEPSI awareness.

4.6 Practical Reason

We followed this up with three questions which asked how important certain things were. They still used the basic semantic differential scale, but the labels at each end of the scale were “Important” and “Unimportant”. The questions were broadly related to the use of practical reason.

“How important have DQ debates been in encouraging you to sometimes change your opinion in the light of evidence or a strongly reasoned argument?”

“How important has participation in DQ debates been in helping you construct a reasoned case for some action?”

“How important has participation in DQ debates been in helping you identify the legal, ethical and social implications of things you do in your workplace?”

The percentages of students who felt these things were important were 83%, 82% and 78% respectively. The corresponding instructor responses about these matters’ importance to their students were 74%, 91% and 87%.

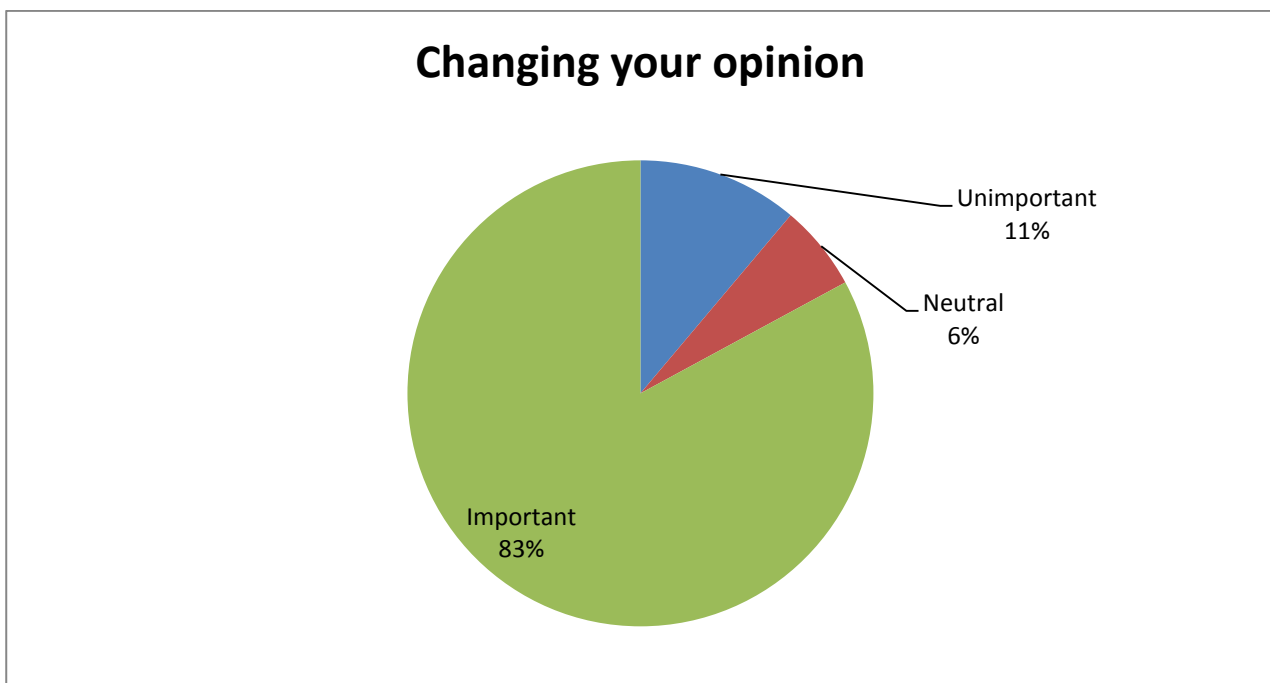


Figure 3. Percentage of students who said DQ debates were important in encouraging them to sometimes change their opinion.

The ability to construct a reasoned case for some action, and the willingness to change your opinion in the light of evidence or a strongly reasoned argument are practical reasoning skills which are essential to any LEPSI-informed recommendation. That DQs were seen as important in the development of practical reason and in identifying the LEPSI implications of workplace issues is, we should argue, an important point in their favour.

4.7 The Mistakes of Others

One other thing we attempted was to ascertain whether students learned from the mistakes or bad practice of others during DQ debates. Students were told that the following statements were about what they had learned during DQ debates. They were largely inspired by the Taxonomy for the Cognitive Domain, and are included because of the important part played by practical reason in DQs which debate LEPSI.

- a. I have learned from situations where the arguments of contributors have **not** been logically consistent.
- b. I have learned from situations where contributors did **not** apply criteria accurately in evaluating some action.
- c. I have learned from situations where contributors provided poor reasons for their proposed actions.

Table 1. Learning from the mistakes of others

Question	% Agree	% Neutral	% Disagree
a (Students)	41	25	34
a (Instructors)	61	39	0
b (Students)	43	25	32
b (Instructors)	44	39	17
c (Students)	39	22	39
c (Instructors)	43	39	18

As previously, instructors were asked about what their students had learned. In an anonymous survey it is not possible to go back and check on the reasons why people answered in a particular way. We must therefore take the results at face value. On reflection, we would see the fact that around 40% of our students seem to have learned from the mistakes of others as quite positive. The fact that instructors are a little less negative than their students could mean that they can sometimes see learning taking place that students are not necessarily aware of, particularly in situations where there are logically inconsistent arguments. Students will inevitably learn from their own mistakes, but if some of them can learn from the mistakes of others as well, that will help with the development of practical reasoning in discussions about LEPSI.

4.8 The Relative Importance of DQs

All survey designers must make a decision about the maximum number of questions that can be asked before response rates drop off. In making tough choices about what to include, we decided we could include only one question about the relative importance of DQs. This read: "What I have read in books and articles during my degree has made me more aware of ethical, legal and social questions than the DQ debates in which I have taken part."

Some 66% of students agreed, as did 61% of instructors. It certainly underlined the importance of having a specialist Professional Issues module, which all of the students had completed before the survey was taken. However, a significant amount of the reading students would have done would have been in support of DQ responses. The question was about awareness, and having been made

aware of LEPSI during Professional Issues, students seemed to be more than willing to identify the LEPSI implications of policies long after that class was complete.

What we were able to reasonably conclude was that DQs were important in perpetuating and nurturing LEPSI awareness. What we were not able to fully explore was the relative value of DQs in developing LEPSI skills, the practical reasoning skills that are honed during debate. Students told us that DQs were important, but a full assessment of their relative importance is for another day.

4.9 Awareness of LEPSI

Students were asked “Before starting this degree, how aware would you say you were about the legal, ethical and social implications of working in IT?” They were asked to use a semantic differential scale with labels marked “High Awareness” and “Low Awareness”. A brutally honest 44% thought that they had a low awareness. The responses to other questions have led us to believe that the use of DQs has played an important role in raising that awareness and in developing the practical reasoning skills necessary to make judgments about LEPSI.

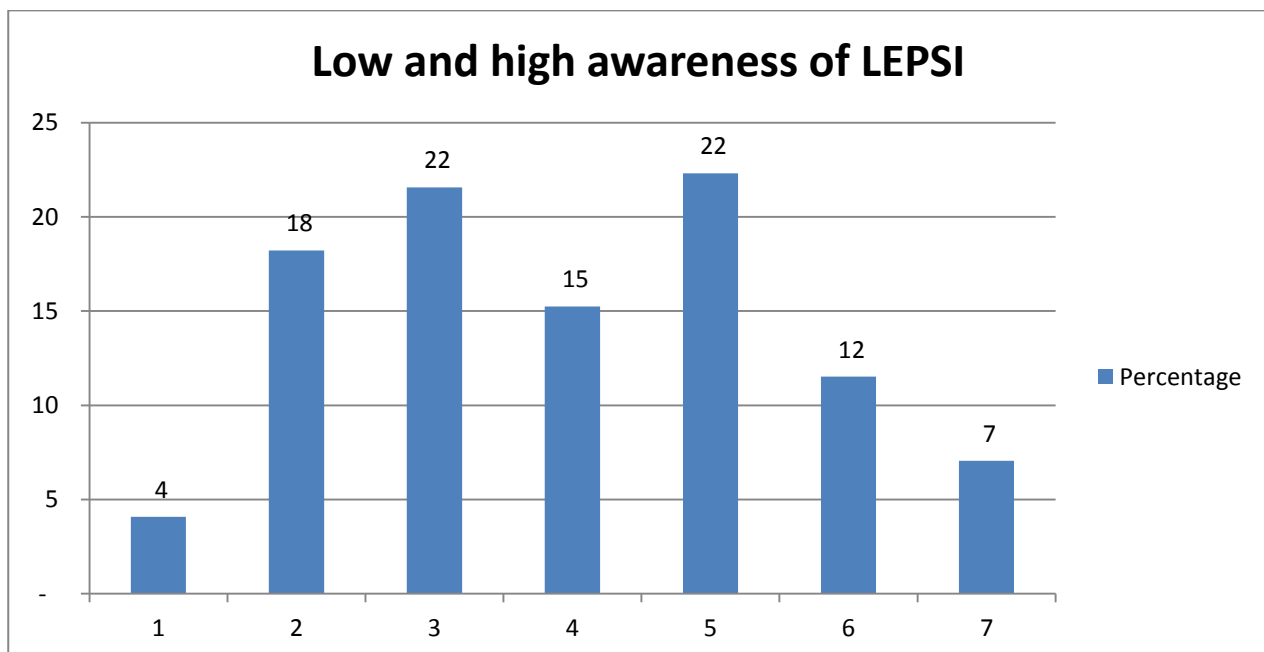


Figure 4. Percentage of students who had a low awareness (1) or high awareness (7) of LEPSI before starting their degree.

5. CONCLUSIONS

5.1 The Effectiveness of Online Discussions

An examination of Figure 5 provides a general impression of the trend of results from our survey. Any mean score on our scale of 1-7 that is in excess of 4 suggests, with some exceptions, either a positive attitude towards LEPSI or a belief that the DQs we have used have made a positive contribution towards learning LEPSI.

Q6 to Q8 were those which related to learning from the mistakes of others in DQ debates. The scores, which hover around the mean, indicate that a significant number of students did learn from others' bad practice. Q19 related to students' knowledge of LEPSI on entering the degree, and thus did not conform to the usual interpretation. Q12 was about the relative importance of DQs in

creating LEPSI awareness. In hindsight we should have liked to also ask about their relative importance in developing the practical reasoning skills needed to discuss LEPSI. Other answers suggest that would have been more significant. The question scores not shown (Q16-Q18) relate to the collection of demographic information

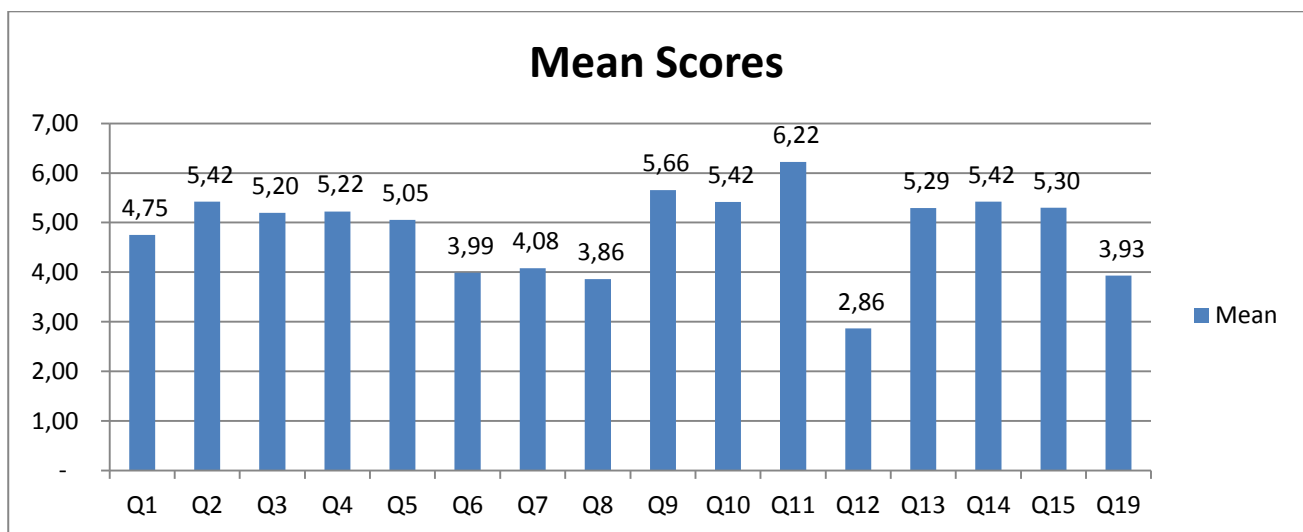


Figure 5. Mean semantic differential scale scores for each question asked

Having drawn attention to these caveats, we are left with the results to 11 questions where the mean was well in excess of 4, and hence positive. The nature of this positivity can be considered in the light of our original research question, which asked how effective asynchronous online discussions (DQs) are in the teaching of LEPSI. We can conclude that DQs have

1. Been helpful in making students aware of the culture and legal systems of people from other countries.
2. Made students more aware of the LEPS framework within which they operate.
3. Contributed to making students confident about working on their own to find out more about LEPS issues that affect their work.
4. Made students more likely to take LEPS issues into account in their workplace.
5. Made students more likely to think about LEPSI than their previous degree.
6. Been seen as important in encouraging students to sometimes change their opinion in the light evidence or a strongly reasoned argument.
7. Been seen as important in helping students construct a reasoned case for some action.
8. Been seen as important in helping students identify the LEPS implications of things they do in the workplace.

Each statement has been confirmed independently by the students and their instructors. This introduces an element of triangulation, and hence a greater confidence in accepting the conclusions. These results lead us to conclude that asynchronous online discussions have been effective to a significant extent in teaching LEPSI, although we should welcome further research in this field.

We can also draw the following specific conclusions from the data.

1. That most students and instructors do not see LEPSI as peripheral to the degree or less significant than the technical issues.
2. Most students can identify applications in their working life of what they have been taught about LEPSI.

3. Most students and instructors believe that decisions in IT should take account of the public interest, including the health, privacy and security of others, and not just the interests of their organisation.

These positive attitudes towards LEPSI can, to some significant extent, be attributed to the full range of measures put in place to promote LEPSI awareness, including the use of a Professional Issues module. We should never claim that online discussions alone would be sufficient, but that they form an important part of any LEPSI strategy.

Our confidence that LEPSI awareness and practical reasoning skills have increased during the students' studies partly rests on the fact that 44% of learners indicated that they had a low awareness of LEPSI on starting their current degree.

5.2 Possible Limitations

Our experience as online teaching practitioners suggests that the effectiveness of online discussions is enhanced when mature adults with workplace experience bring forward practical examples from their employment that have a bearing on LEPSI. Other students learn from these examples. This learning is in turn enhanced if students have a workplace in which they can look for LEPS issues. They can, for instance, explore whether people react in the same way as those in the workplaces of their student colleagues.

If, therefore, we are discussing the possible scope of our findings, we should be the first to admit that online discussions are not likely to proceed in quite the same way with young undergraduates. We would expect discussions between mature working adults to be richer in practical examples. Undergraduate discussions may therefore not be quite as effective.

On the positive side, both our students and instructors were very experienced at taking part in asynchronous online discussions, and therefore any novelty value there may once have been in such discussions would have disappeared some time ago. This is quite important, because many studies are carried out where the students and/or the instructors are new to online discussions, and it is difficult to know whether such survey participants would feel the same when the novelty value has worn off.

The students and instructors participated in our survey anonymously. This significantly reduced the motivation to tell us what we wanted to hear. The range of replies, and the willingness to both agree and disagree with the statements put before them, gave us some confidence that participants were giving honest answers.

As a rough and ready tool of analysis, we interpreted the mid-point in the semantic differential scale as being equivalent to "Neutral". We acknowledge that a person selecting this option could, depending on the context, at times have in mind other words such as "Sometimes" or "Somewhat". The interpretation of the mid-point as "Neutral" effectively placed stringent restrictions on what we would accept as support for the LEPSI-sympathetic option. Someone who selected the mid-point was not regarded as providing support for the view e.g. that DQs were effective in teaching LEPSI, whereas in practice such a person could have been indicating partial support. We feel that it does no harm at all to impose these more rigorous conditions before claiming support for some proposition.

One of our questions elicited responses that indicated that books and articles students had read during their degree had made them more aware of LEPSI than the DQ debates. This raises questions about the relative importance of online discussions. This clearly requires further research.

What we can say is that much of the students' reading has been done with the specific purpose of supporting DQ responses. We would therefore question whether much of this reading would have been done if the DQs had not existed. Although reading during a Professional Issues module has, as we would have hoped, created an initial awareness of LEPSI, there remains the question of whether that awareness would have been maintained and reinforced as effectively if it were not for subsequent DQ debates.

What we are quite clear about is that DQs do help develop practical reasoning skills, the ability to present, defend, and amend arguments. It is unlikely that reading alone would have developed those skills. However, it remains an issue to be explored further.

6. ACKNOWLEDGMENTS

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