Studies in Learning, Evaluation Innovation and Development
http://sleid.cqu.edu.au
5(1), pp. 81–98. April 2008

The Perceived Ease of Use of iBrainz Technology in Property Law and Taxation Law

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Abstract

This project focused upon the perceived ease of use of iBrainz technology by students in two law subjects delivered at Central Queensland University. The two subjects being Property Law and Taxation Law. The use of iBrainz technology in these two subjects was a novel way to provide audio lecture material to students via the course website. The project utilised the Unified Theory of Acceptance and Use of Technology (UTAUT) model as the basis for a student survey to analyse students' perceived ease of use of the iBrainz technology. This paper reports the results of the surveys conducted in both subjects.

This article has been peer-reviewed and accepted for publication in *SLEID*, an international journal of scholarship and research that supports emerging scholars and the development of evidence-based practice in education.

ISSN 1832-2050

Introduction

The project focused upon the use of iBrainz technology to provide audio lecture material to students via the course website. The technology is such that full length lectures together with visual aids (i.e. PowerPoint and/or lecturer cam) can be placed upon the course website for access by students. The technology allows the lecture material to be bookmarked so that students need not listen to a whole lecture but can access topics as required. The two subjects which were the focus of the research were Property Law and Taxation Law. The Property Law course is a course offered in the Bachelor of Property whilst the Taxation Law subject forms part of the Bachelor of Accounting degree offered by Central Queensland University. As part of the instructional design of both courses twelve (12) iBrainz lectures were developed and placed on the course website in Blackboard for use by students. At the time the research was conducted the Property Law subject was in its first offering whilst the Taxation Law subject is an established subject. Notwithstanding, the use of the iBrainz technology was a novel way by which to deliver web-based lecture material to students. To evaluate the use and effectiveness of the iBrainz lecture it was decided to ask students to participate in a survey specifically seeking feedback on the use of the iBrainz technology.[1] The methodology behind the development of the survey questions was that of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. This paper reports upon the results of the surveys conducted in both subjects.

The Utaut Model

This is a model which unifies various theories that exist in the area of technology acceptance (Davis, 1989) into one single theory. The UTAUT model was utilised in this research because of its unifying and holistic quality. The UTAUT model has been subjected to rigorous testing (Venkatesh, Morris, Davis, & Davis, 2003) and is the appropriate model in the context of this research as the model enables correlations to be made between acceptance and use. The questions used in the survey instrument reflected those recommended by researchers who have subjected the model to testing (Venkatesh et al.). The model has been used by the authors in other projects assessing the perceived ease and use of technology in tertiary law educational settings (Butler & Richardson, 2006). The connection between acceptance and use as also been used by others in an educational context (Cheung & Huang, 2005; Gong, Xu, & Yu, 2005; Lewis, Agarwal, & Sambamurthy, 2003; and Adams, Nelson, & Todd, 1992; Drennan, Kennedy, & Pisarski, 2005).

The data collected

The response to the survey in LAWS19035, Property Law, was disappointing with only three (3) of the thirty (33) students participating. Given this response rate no statistical tests could be conducted. No follow-up was conducted to ascertain why students may not have participated. In the LAWS19033 Taxation Law Survey forty-four (44) responses were received.[2] There were approximately 400 students enrolled in LAWS19033. Given that the surveys were the same the data from both LAWS19035 and LAWS19033 was combined so as to give a more accurate presentation of how students perceived and used the iBrainz technology. Whilst the data are combined, the presentation of results is separated, dividing the responses received from the LAWS19033 and LAWS19035 students. Given the data, the only statistical test to be conducted will be Cronbach's alpha to test the internal consistency of the data against the UTAUT model. Frequency and distribution data will be presented and relied upon to reach conclusions.

Background information

In both courses, there were more female respondents to the survey than male respondents. The disparity is presented in Figure 1. Further, as represented in Figure 2, younger, rather than older, students chose to respond.

Figure 1: Gender

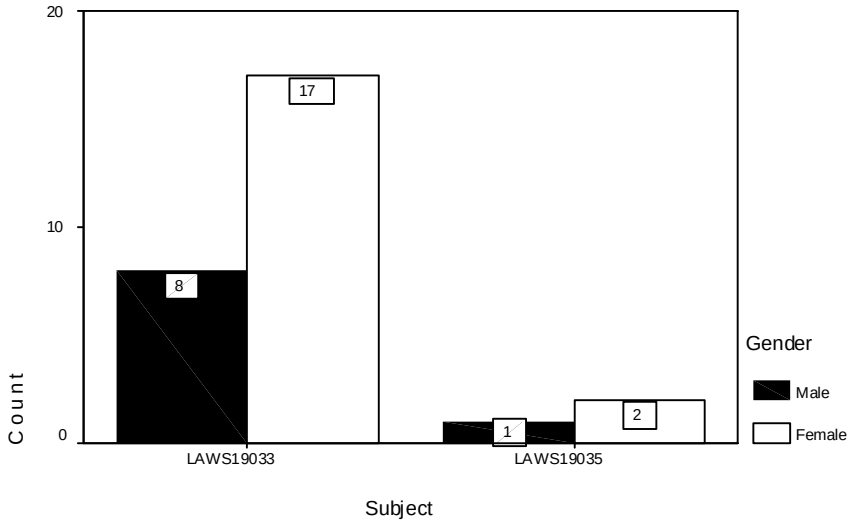
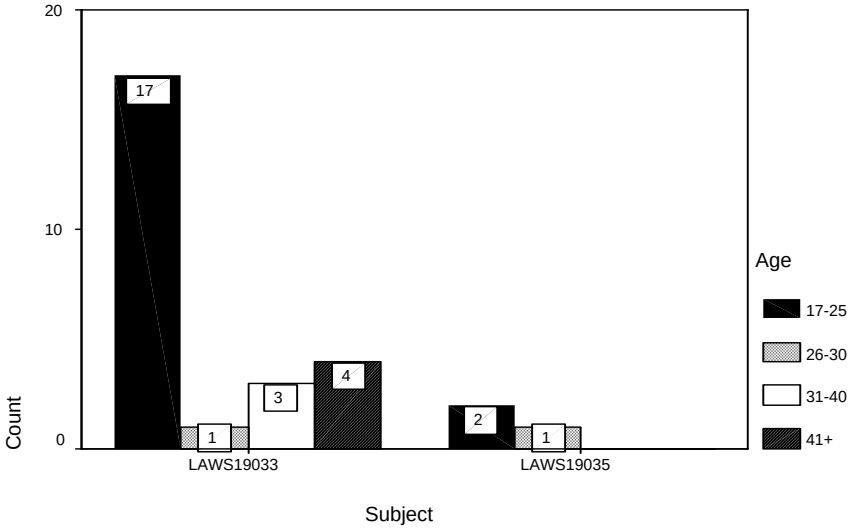


Figure 2: Age



Two questions also asked participants about their use of the Internet for study purposes and other purposes. There was a seemingly equal distribution of responses. The responses, combining the student data from both LAWS19033 and LAWS19035, are graphically represented in the pie charts in Figures 3 and 4.

Figure 3: Use of Internet for study purposes

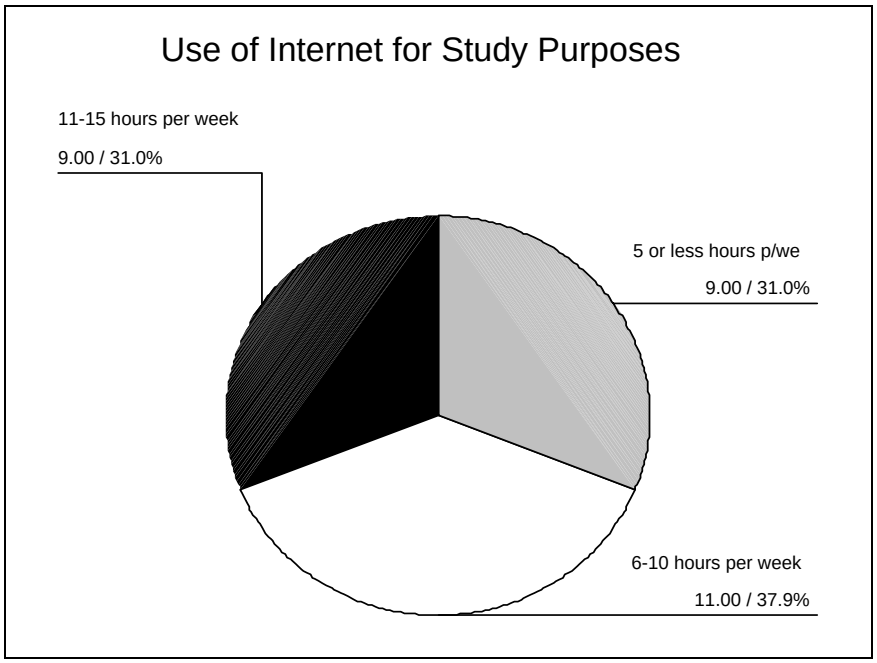
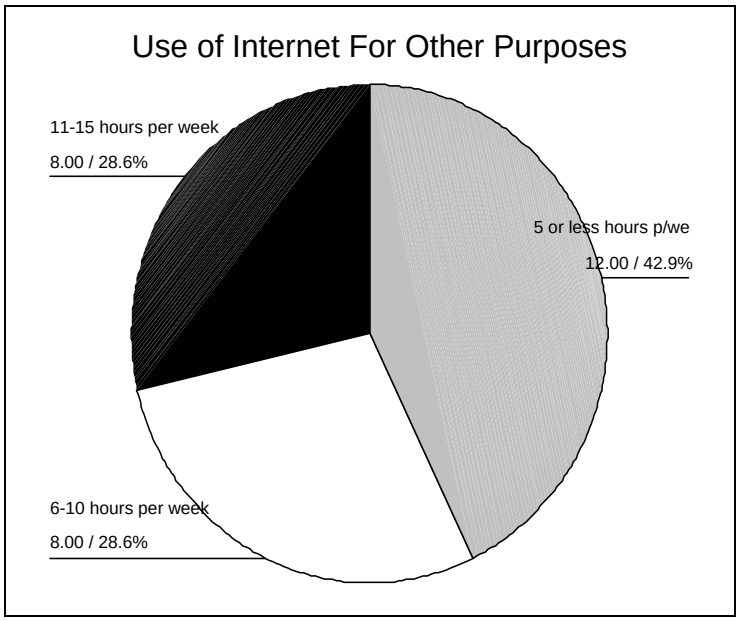


Figure 4: Use of Internet for other purposes



The survey questions related to the Utaut model

The questions of the survey were based upon those as recommended in the literature on the UTAUT model (Venkatesh et al., 2003). The grouping of the elements permits a Cronbach's alpha test to be conducted to test the internal coherence of the elements to each construct of the UTAUT model. The model involves the use of a number of constructs:

1. Performance Expectancy. Performance expectancy is defined as the degree to which an individual believes that using the system will help him or her attain gains in job [or in this case, study] performance.

2. Effort Expectancy. Effort expectancy is defined as the degree of ease associated with the use of the system.
3. Attitude toward using the technology and facilitating conditions. Attitude and facilitating conditions are defined as the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system.
4. Anxiety and behavioural intention to use the system as representing an individual's overall affective reaction to using a system.

The survey questions as they related to the constructs above are detailed in the sections that follow.

Performance expectancy

- I found iBrainz useful in my study of the course (Question 1)
- Using iBrainz assisted me with the objectives of each module (Question 2)
- Using iBrainz increased my knowledge of the subject (Question 3)

Effort expectancy

- My interaction with iBrainz was clear and understandable (Question 4)
- It was easy for me to become skilful at using iBrainz (Question 5)
- I found iBrainz easy to use (Question 6)
- Learning to operate iBrainz was easy for me (Question 7)

Attitude towards Using Technology

- Using iBrainz for the delivery of course material was a bad idea (Question 8)
- The iBrainz lectures made the study of the course more interesting (Question 9)
- Using iBrainz was fun (Question 10)
- I liked using iBrainz (Question 11)

Facilitating Conditions

- I had the technology resources necessary to use iBrainz (Question 12)
- I have the knowledge necessary to use iBrainz (Question 13)
- iBrainz was not compatible with other systems I use (Question 14)

Anxiety and Behavioural Intention to use the system

- I felt apprehensive about using iBrainz (Question 15)
- iBrainz was intimidating to me (Question 16)
- I predict I would use iBrainz if offered in another course (Question 17)

The Cronbach's alpha statistics demonstrating the internal reliability for each of these constructs appear in Figures 5, 6 and 7.

Figure 5: Performance expectancy

Reliability Analysis – Scale (Alpha)				
Question	Mean	Standard Deviation	Cases	
1	1.3929	.6289	28	
2	1.4643	.6929	28	
3	1.3571	.6215	28	
Item-total Statistics				
Scale	Scale Mean if Item Deleted	Corrected Variance if Item Deleted	Item-Total Correlation	Alpha if Item Deleted
1	2.8214	1.5595	.9415	.8889
2	2.7500	1.4237	.8977	.9245
3	2.8571	1.6825	.8467	.9591
Reliability Coefficients Number of Cases = 28.0 Number of Items = 3 Alpha = .9488				

For the construct of performance expectancy Cronbach's alpha is .9488. This indicates a high internal consistency amongst the variables. Given this Cronbach's alpha no variables will be deleted, notwithstanding that the Cronbach's alpha would be higher by virtue of deleting the results for Question 3.

Figure 6: Effort expectancy

Reliability Analysis – Scale (Alpha)				
Question	Mean	Standard Deviation	Cases	
4	1.4286	.6341	28	
5	1.3571	.6215	28	
6	1.2857	.5345	28	
7	1.2143	.4987	28	
Item-total Statistics				
Scale	Scale Mean if Item Deleted	Corrected Variance if Item Deleted	Item-Total Correlation	Alpha if Item Deleted
4	3.8571	2.4974	.8395	.9470
5	3.9286	2.4392	.9049	.9241
6	4.0000	2.6667	.9335	.9167
7	4.0714	2.8836	.8560	.9413
Reliability Coefficients Number of Cases = 28.0 Number of Items = 4 Alpha = .9484				

For the construct of effort expectancy Cronbach's alpha is .9484. This indicates high internal consistency amongst the variables. Given this Cronbach's alpha no variables will be deleted.

Figure 7: Attitude towards using technology

Reliability Analysis – Scale (Alpha)				
Question	Mean	Standard Deviation	Cases	
8	1.5714	.8789	28.0	
9	1.4643	.6372	28.0	
10	1.5714	.6341	28.0	
11	1.4286	.6341	28.0	
Item-total Statistics				
Scale	Scale Mean if Item Deleted	Corrected Variance if Item Deleted	Item-Total Correlation	Alpha if Item Deleted
8	4.4643	2.7765	.2421	.8461
9	4.5714	2.6243	.5945	.5988
10	4.4643	2.6283	.5970	.5979
11	4.6071	2.4696	.6955	.5399
Reliability Coefficients Number of Cases = 28.0 Number of Items = 4 Alpha = .7124				

Question 8 of the survey was the question "Using iBrainz for the delivery of course material was a bad idea." Removal of this question from the Cronbach's alpha would strengthen the internal reliability of the construct. However, in saying that, Cronbach's alpha of .7124 shows some internal reliability between the variables.

The reason for this result may lie in the fact that mid-way during the term the system failed and a "patch" was applied. From that point onwards some students had trouble accessing the iBrainz lectures. This difficulty was reflected in the comments provided by students, for example:

One LAWS19035 student commented that:

- I found it extremely frustrating and ended up giving up using it due to access problems, I find that online lectures are a key tool for external students such as myself and it was very disappointing that this system became unusable …

One LAWS19033 student commented that:

- I found the videostreamed lectures extremely helpful until the MS changes made them unaccessable. Although I spoke with Uni IT staff we were unable to locate the problem. This issue needs to be resolved before future lectures are delivered this way.

Such technological difficulties are an issue that is beyond the control of the course coordinator for the subject but obviously will reflect in the feedback students provide about the course. To make the contrast between "the system" itself and student access to the Internet it is interesting to note that one of the questions in the survey asked students about their Internet access. Twenty-three students reported as having generally reliable Internet access, four students reported having minor problems with access and one student reported having major problems with Internet access. In others words, it should not be presumed by the institution that problems accessing Internet based material lies with the student and/or their Internet access. "The system" needs to be such that students have confidence in it and that it will work when required (Cheung & Huang, 2005). There was not sufficient data to conduct a Cronbach's alpha with respect to the two constructs Facilitating Conditions and Anxiety and Behavioural Intention to use the system.

Responses to the survey questions

In terms of then considering the responses to the specific questions the survey contained closed-ended questions. A three-point Likert scale was used. The scale ranged from “agree” (1) to “disagree” (3). A mid-point response was adopted allowing for a response of “neutral” (2). The “undecided” category is not treated as a missing response, but as a response in itself. The analysis of each of the questions follows below.

The construct of performance expectancy

Venkatesh et al. suggest that the “performance expectancy construct … is the strongest predictor of intention and remains significant at all points of measurement” (Venkatesh et al., 2003). Given that performance expectancy is the strongest predictor the results gathered from the questions related to this construct will give a clear indication of whether students considered iBrainz useful to them as a means by which to deliver course content.

Question 1

Question 1 (N=28) was “I found iBrainz useful in my study of the course”. A breakdown of the responses is represented in Figure 8 below. In summary, 71.4 per cent of students (or twenty students) agreed that iBrainz was useful to them in their study of the course. Whilst 7.1 per cent of respondents (or 2 students) disagreed that iBrainz was useful to them. Arguably, this is a positive result in favour of iBrainz being of assistance to students with respect to their study.

Figure 8: Question 1 Crosstabulation

I found iBrainz useful in my study of the course in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I found iBrainz useful in my study of the course	Agree	Count	18	2	20
		% of Total	64.3%	7.1%	71.4%
	Neutral	Count	6		6
		% of Total	21.4%		21.4%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 2

Question 2 (N=27) was “using iBrainz assisted me with the objectives of each module”. In summary, 66.7 per cent of students (or eighteen students) agreed that iBrainz assisted them with the objectives of each module. Whilst 11.1 per cent of respondents (or 3 students) disagreed that iBrainz was useful to them. Again, this is arguably a positive result in favour of iBrainz being of assistance to students with respect to their study. It may be that more emphasis needs to be placed upon the objectives within the audio lecture and making connections with the objectives for students during the lecture. A breakdown of the responses is represented in Figure 9.

Figure 9: Question 2 Crosstabulation

Using iBrainz assisted me with the objectives of each module in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
Using iBrainz assisted me with the objectives of each module	Agree	Count	16	2	18
		% of Total	59.3%	7.4%	66.7%
	Neutral	Count	6		6
		% of Total	22.2%		22.2%
	Disagree	Count	2	1	3
		% of Total	7.4%	3.7%	11.1%
Total		Count	24	3	27
		% of Total	88.9%	11.1%	100.0%

Question 3

Question 3 (N=28) was "Using iBrainz increased my knowledge of the subject." In summary, 75 per cent of students (or twenty-one students) agreed that iBrainz increased their knowledge of the subject. Whilst 7.1 per cent of respondents (or 2 students) disagreed that iBrainz was useful to them. This is a positive result in favour of iBrainz being of assistance to students with respect to their study. The results are presented in Figure 10.

Figure 10: Question 3 Crosstabulation

Using iBrainz increased my knowledge of the subject in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
Using iBrainz increased my knowledge of the subject	Agree	Count	19	2	21
		% of Total	67.9%	7.1%	75.0%
	Neutral	Count	5		5
		% of Total	17.9%		17.9%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Summary

The responses to these questions arguably support the hypothesis that iBrainz and the use of iBrainz as a way by which to deliver course content to students was received favourably. Given that performance expectancy is the strongest predictor of intention the responses received to these questions are even more pleasing.

The construct of effort expectancy

Venkatesh et al. (2003) suggest that:

> [t]he effort expectancy construct … is significant … however, each one is significant only during the first time period … becoming non-significant over periods of extended and sustained usage. … Effort-orientated constructs are expected to be more salient in the early stages of a new behaviour, when process issues represent hurdles to be overcome and later become overshadowed by instrumentality concerns.

Given this understanding of the construct, the responses received to the questions will be interesting. Particularly so, in the sense that students do not receive any "training" as how to operate and navigate through an iBrainz presentation and the duration of the course is only twelve weeks. There are, at this stage, no plans to provide any specific training with respect to using iBrainz in either course.

Question 4

Question 4 (n=28) was "my interaction with iBrainz was clear and understandable." In summary, 64.3 per cent of students (or eighteen students) agreed that their interaction with iBrainz was clear and understandable. Whilst 7.1 per cent of respondents (or 2 students) disagreed with that proposition (see Figure 11). This is still a positive result in favour of iBrainz being of assistance to students with respect to their study and that the technology is "user friendly."

Figure 11: Question 4 Crosstabulation

My interaction with iBrainz was clear and understandable in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
My interaction with iBrainz was clear and understandable	Agree	Count	16	2	18
		% of Total	57.1%	7.1%	64.3%
	Neutral	Count	8		8
		% of Total	28.6%		28.6%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 5

Question 5 (n = 28) was 'it was easy for me to become skilful at using the system". In summary, 71.4 per cent of students (or twenty students) agreed that it was easy for them to use the iBrainz system. Whilst 7.1 per cent of respondents (or 2 students) disagreed with that proposition (see Figure 12 below). This is still a positive result in favour of iBrainz being of assistance to students with respect to their study and that the technology is "user friendly."

Figure 12: Question 5 Crosstabulation

It was easy for me to become skillful at using the system in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
It was easy for me to become skillful at using the system	Agree	Count	18	2	20
		% of Total	64.3%	7.1%	71.4%
	Neutral	Count	6		6
		% of Total	21.4%		21.4%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 6

Question 6 (n=28) was "I found iBrainz easy to use." In summary, 75 per cent of students (or twenty-one students) agreed that it was easy for them to use iBrainz. Whilst only one student disagreed that iBrainz was easy to use. This is again a positive result in favour of iBrainz being of assistance to students with respect to their study and that the technology is "user friendly." The response to Question 6 can be represented graphically as in Figure 13.

Figure 13: Question 6 Crosstabulation

I found iBrainz easy to use in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I found iBrainz easy to use	Agree	Count	19	2	21
		% of Total	67.9%	7.1%	75.0%
	Neutral	Count	5	1	6
		% of Total	17.9%	3.6%	21.4%
	Disagree	Count	1		1
		% of Total	3.6%		3.6%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 7

Question 7 (N=28) was "learning to use iBrainz was easy for me." In summary, 82.1 per cent of students (or twenty-three students) agreed that it was easy for them to learn how to use the iBrainz system. Only one student disagreed with that proposition (see Figure 14). This is a very positive result in favour of iBrainz being of assistance to students with respect to their study and that the technology is "user friendly."

Figure 14: Question 7 Crosstabulation

Learning to use iBrainz was easy for me in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
Learning to use iBrainz was easy for me	Agree	Count	21	2	23
		% of Total	75.0%	7.1%	82.1%
	Neutral	Count	3	1	4
		% of Total	10.7%	3.6%	14.3%
	Disagree	Count	1		1
		% of Total	3.6%		3.6%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Summary

Given that this construct is aimed at evaluating the degree to which students believe that using the iBrainz system is easy to use and understand these results are very pleasing. The results support the hypothesis that iBrainz is user friendly and little if no training is required to be provided to students to ensure that they are comfortable and at ease in navigating the system. This lends support to the notion that ease of use and ease of learning are related (Roberts & Moran, 1983).

The constructs of attitude towards using technology and facilitating conditions

As stated above this construct is defined as the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). The first four results (Questions 8–11) deal with student attitudes towards using technology. The results will highlight the attitude of students towards using iBrainz as the technology by which to deliver lectured course material. The second three results (Questions 12–14) deal with student perceptions of the conditions which existed technologically to use the iBrainz lectures. The results from this construct will highlight the degree to which students perceive the institution's system as being able to deliver as and when the students need to use to the iBrainz system.

Question 8

Question 8 (N=28) was "using iBrainz for the delivery of course material was a bad idea." In summary, 71.4 per cent of students (or twenty students) disagreed with this proposition. In other words, those participants thought that using iBrainz to deliver course material was a good idea. Six students (21.4 per cent) of respondents thought that the use of iBrainz was a bad idea (see Figure 15). There was no follow up question on the survey to further examine the reasons behind the giving of the responses, which would have been of some interest. It is open to speculation, given the open-ended responses reported above, that it may have been a "bad idea" to deliver the course material in this way given the failure of the system during the term. Notwithstanding, this is still a positive result in favour of iBrainz being used to deliver course material.

Figure 15: Question 8 Crosstabulation

Using iBrainz for the delivery of course material was a bad idea in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
Using iBrainz for the delivery of course material was a bad idea	Agree	Count	6		6
		% of Total	21.4%		21.4%
	Neutral	Count	2		2
		% of Total	7.1%		7.1%
	Disagree	Count	17	3	20
		% of Total	60.7%	10.7%	71.4%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 9

Question 9 (N=28) was that "the iBrainz lectures made the study of the course more interesting." In summary, 60.7 per cent of students (or seventeen students) agreed that the iBrainz lectures made the study of the course more interesting. Two students disagreed with this proposition. This is a positive result in favour of iBrainz being used to deliver course material. The response to Question 9 can be represented graphically as in Figure 16 below.

Figure 16: Question 9 Crosstabulation

The iBrainz lectures made the study of the course more interesting in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
The iBrainz lectures made the study of the course more interesting	Agree	Count	16	1	17
		% of Total	57.1%	3.6%	60.7%
	Neutral	Count	8	1	9
		% of Total	28.6%	3.6%	32.1%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 10

Question 10 (N=28) was "using iBrainz was fun." In summary, 50 per cent of students (or fourteen students) agreed that the using iBrainz was fun. Two students disagreed with this proposition and twelve students (or 42.9 per cent) expressed a neutral opinion (see Figure 17).

Figure 17: Question 10 Crosstabulation

Using iBrainz was fun in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
Using iBrainz was fun	Agree	Count	13	1	14
		% of Total	46.4%	3.6%	50.0%
	Neutral	Count	11	1	12
		% of Total	39.3%	3.6%	42.9%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 11

Question 11 (N=28) was "I liked using iBrainz." In summary, 64.3 per cent of students (or eighteen students) liked using iBrainz. Two students disagreed with this proposition. This result indicates that students had a positive attitude towards iBrainz as a means by which to deliver course material. The response to Question 11 can be represented graphically as in Figure 18.

Figure 18: Question 11 Crosstabulation

I liked using iBrainz in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I liked using iBrainz	Agree	Count	16	2	18
		% of Total	57.1%	7.1%	64.3%
	Neutral	Count	8		8
		% of Total	28.6%		28.6%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 12

Question 12 (N=28) was "I had the technological resources necessary to use iBrainz." No responses were received disagreeing with this statement (see Figure 19). The responses were distributed between those students who agreed that they had the technological resources (78.6 per cent or 22 respondents) and those who expressed a neutral opinion (21.4 per cent or 6 students). This is a favourable response given that the iBrainz technology is reliant upon students having the technological resources available to view and listen to the iBrainz lectures.

Figure 19: Question 12 Crosstabulation

I had the technological resources necessary to use iBrainz in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I had the technological resources necessary to use iBrainz	Agree	Count	19	3	22
		% of Total	67.9%	10.7%	78.6%
	Neutral	Count	6		6
		% of Total	21.4%		21.4%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 13

Question 13 (N=28) was "I had the knowledge necessary to use iBrainz." In summary, 67.9 per cent of students (or nineteen students) regarded themselves as having the knowledge necessary to use iBrainz. One student disagreed with this proposition whilst 8 students (or 28.6 per cent) expressed a neutral opinion. This result indicates that students had sufficient technological knowledge of their own to navigate and use the iBrainz lectures. The response to Question 13 can be represented graphically as in Figure 20.

Figure 20: Question 13 Crosstabulation

I had the knowledge necessary to use iBrainz in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I had the knowledge necessary to use iBrainz	Agree	Count	16	3	19
		% of Total	57.1%	10.7%	67.9%
	Neutral	Count	8		8
		% of Total	28.6%		28.6%
	Disagree	Count	1		1
		% of Total	3.6%		3.6%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 14

Question 14 (N=28) was "iBrainz was not compatible with other systems I use." As regards this question there were more agree and neutral responses than responses disagreeing with this proposition. Eleven participants (or 39.3 per cent) responded that iBrainz was compatible with other systems they used. Whilst 17 respondents (7 or 25% agreed and 10 or 35.7 per cent) considered that iBrainz was not compatible (see Figure 21). This response is of obvious concern however, it may be explained by the patch which was placed on the system mid-term and which resulted in some students not being able to access the lectures.

Figure 21: Question 14 Crosstabulation

iBrainz was not compatible with other systems I use in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
iBrainz was not compatible with other systems I use	Agree	Count	7		7
		% of Total	25.0%		25.0%
	Neutral	Count	9	1	10
		% of Total	32.1%	3.6%	35.7%
	Disagree	Count	9	2	11
		% of Total	32.1%	7.1%	39.3%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Summary

Whilst facilitating conditions are important it is necessary to note that Venkatesh et al. (2003) note that "when both performance expectancy constructs and effort expectancy constructs are present, facilitating conditions become non-significant." Arguably, the results from this survey bear this point out. The responses regarding effort expectancy and performance expectancy were strongly in favour of the benefit of iBrainz. When considering the results from the facilitating conditions questions the responses were not as positive. However, the fact that the facilitating conditions responses were not as strong did not detract from the responses to the effort and performance expectancy questions.

Whilst they may not detract from the strong results in the first two constructs, that is not to say that the issue of facilitating conditions or attitudes towards the technology should be dismissed. Given that the iBrainz lectures are provided as a

way of enhancing the learning experience provided to students it remains necessary that the system which supports the iBrainz technology can deliver.

Constructs of anxiety and behavioural intention to use the system

The constructs of anxiety and behavioural are interesting constructs in that Venkatesh et al. (2003) note that the constructs are not direct determinants of intention with respect to the use of technology or a system. Rather, they regard the constructs of effort expectancy and performance expectancy to be the strongest determinants of intention.

Question 15

Question 15 (N=28) was "I felt apprehensive about using iBrainz." This question yielded some interesting results. Half of the respondents (i.e., 14 respondents) disagreed with the statement whilst the other half either agreed the statement or expressed a neutral result (6 agree and 8 neutral) (see Figure 22). It is difficult to find an explanation for this result given the answers provided by participants in other questions to the survey. Perhaps this indicates the initial apprehension that is experienced when faced with new technology that is unfamiliar (Drennan, Kennedy, & Pisarski, 2005).

Figure 22: Question 15 Crosstabulation

I felt apprehensive about using iBrainz in LAWS19033 or LAWS19035

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I felt apprehensive about using iBrainz	Agree	Count	6		6
		% of Total	21.4%		21.4%
	Neutral	Count	7	1	8
		% of Total	25.0%	3.6%	28.6%
	Disagree	Count	12	2	14
		% of Total	42.9%	7.1%	50.0%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Question 16

Question 16 (N=27) was "iBrainz was intimidating to me." Again, this question yielded an interesting result. In summary, 59.3 per cent of respondents (or 16 respondents) disagreed with this statement. Conversely, 5 respondents nominated "agree" and 6 expressed a neutral opinion. Again, it is difficult to find an explanation for this result given the answers provided by participants in other questions to the survey. However, it may indicate that some training would be beneficial to ease the initial resistance to the unfamiliar technology. The response to Question 16 can be represented graphically as in Figure 23.

Figure 23: Question 16 Crosstabulation

iBrainz was intimidating to me in LAWS19033 or LAWS19035

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
iBrainz was intimidating to me	Agree	Count	5		5
		% of Total	18.5%		18.5%
	Neutral	Count	6		6
		% of Total	22.2%		22.2%
	Disagree	Count	13	3	16
		% of Total	48.1%	11.1%	59.3%
Total		Count	24	3	27
		% of Total	88.9%	11.1%	100.0%

Question 17

Question 17 (N=28) was "I predict I would use iBrainz if offered in another course." This question also provided an interesting response. If just the LAWS19035 responses are considered the three participants either were neutral (2 participants) on the issue or disagreed (1 participant) that they would use iBrainz if offered in another course (see Figure 24). Once again this result is difficult to explain given the responses to the other questions in the survey. In particular, the response is difficult to reconcile with the UTAUT model which suggests that these factors are not necessarily direct determinants of intention.

Figure 24: Question 17 Crosstabulation

I predict I would use iBrainz if offered in another course in LAWS19033 or LAWS19035 Crosstabulation

			LAWS19033 or LAWS19035		
			LAWS19033	LAWS19035	Total
I predict I would use iBrainz if offered in another course	Agree	Count	17		17
		% of Total	60.7%		60.7%
	Neutral	Count	7	2	9
		% of Total	25.0%	7.1%	32.1%
	Disagree	Count	1	1	2
		% of Total	3.6%	3.6%	7.1%
Total		Count	25	3	28
		% of Total	89.3%	10.7%	100.0%

Conclusions and recommendations

The UTAUT model suggests that performance expectancy and effort expectancy are the strongest indicators of an intention to use a system and/or technology. Based upon these two constructs the results from the survey support the continued use of the iBrainz technology as a way by which to deliver course content to students. Whilst the remaining constructs are held out by the model not to be direct determinants of intention that does not mean that they should be dismissed. The results from the indirect determinant constructs yielded interesting results which are difficult to explain and reconcile with the results obtained with respect to the constructs of performance expectancy and effort expectancy. There is obvious room within these results to ask "why"? One assumption may be that the technological difficulties during the term not relating to the iBrainz technology but a larger scale system problem impacted adversely upon the feedback received. However, based upon the model and the results for the constructs of performance

expectancy and effort expectancy it could be argued that there is support for the iBrainz lectures to remain part of the instructional design of both courses.

Footnotes

1. Approval from Central Queensland University's Human Ethics Research Committee was obtained to conduct the research: H06/03-20 and H06/04-36.
2. There were some incomplete survey responses. These responses have been removed from the frequency and distribution data used in the remainder of this discussion.

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