

7-2014

Students' willingness to use response and engagement technology in the classroom

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Abstract

Increased use of student response and engagement systems in the collegiate classroom environment is a growing trend in hospitality education. However, faculties have expressed hesitance in adopting this technology due to apprehension of students. This purpose of this paper is to share the results of a survey given to undergraduate hospitality students at Iowa State University about their willingness and ability to use these systems. When analyzing the data from the 413 respondents, the results show students are in fact able and willing to use a classroom response and engagement system in order to increase engagement. In addition, students have an overall desire to use technology in the classroom. These results can be useful for faculty considering implementation of these systems in their courses. Of those surveyed, 100% have a cell phone, tablet, or laptop, indicating a system which requires a student to bring their own device is feasible.

Keywords

Technology, Education, Engagement, Hospitality, Smart device

Disciplines

Educational Methods | Hospitality Administration and Management

Comments

This is a manuscript of an article in *Journal of Hospitality, Leisure, Sport & Tourism Education* 15 (2014): 80, doi:[10.1016/j.jhlste.2014.06.002](https://doi.org/10.1016/j.jhlste.2014.06.002). Posted with permission.

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Purpose

Increased use of student response and engagement systems in the collegiate classroom environment is a growing trend in hospitality education. However, faculties have expressed hesitance in adopting this technology due to apprehension of students. This purpose of this paper is to share the results of a survey given to undergraduate hospitality students at Iowa State University about their willingness and ability to use these systems.

Principle Results

When analyzing the data from the 413 respondents, the results show students are in fact able and willing to use a classroom response and engagement system in order to increase engagement. In addition, students have an overall desire to use technology in the classroom.

Conclusions

These results can be useful for faculty considering implementation of these systems in their courses. Of those surveyed, 100% have a cell phone, tablet, or laptop, indicating a system which requires a student to bring their own device is feasible.

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1. Introduction

The researchers in this study believe collegiate academic faculties should make an assertive effort to adapt to the changing expectations of students in the classroom-learning environment. Technology is increasingly being brought into the classroom, primarily via student-driven behaviors, typically via smartphones (Woodcock, Middleton, & Nortcliffe, 2012). In addition, Liburd and Christensen (2013) argued technology, particularly web 2.0, can help increase the depth of learning by increasing interaction, critical thinking, and collaboration. With this in mind, the researchers wanted to gain more insight into the use of technology, and more specifically, the use of student response and engagement systems in the collegiate hospitality and tourism classroom environment.

Student response and engagement systems are by no means new in the academic environment, and faculties can choose from a growing number of system providers; systems such as Top Hat, i>clicker, and Poll Everywhere are becoming regular fixtures on college campuses globally, and the researchers have used these various platforms in their own courses. Response and engagement systems have led to increased student engagement and participation (Jones, Antonenkot, & Greenwood, 2012), better developed advanced reasoning skills (DeBourgh, 2008), and a more effective and efficient classroom (De Gagne, 2011).

Student response and engagement systems have been used in a variety of disciplines; examples include nursing (De Gagne, 2011; DeBourgh, 2008), organic chemistry (Lyubartseva, 2013), and other science courses (Jones, Antonenkot, & Greenwood, 2012). However, universal adoption or the study of such technology in collegiate hospitality education appears to be limited. The results of this study will provide educators with a snapshot of student perceptions of technology usage in the classroom, while simultaneously providing some ideas for how a given

faculty may choose to utilize student response and engagement systems in their own courses.

The researchers in this study created and administered a questionnaire that contained both qualitative and quantitative questions to undergraduate hospitality students at Iowa State University. Copies of the quantitative questions are found in Appendix A-D. The researchers collected data utilizing a web-based questionnaire hosted by Qualtrics. The questionnaire was emailed to students currently enrolled in four courses not presently using student response and engagement systems. However, some students may have used the technology in one of their other courses, which was accounted for in the questionnaire. The researchers developed the questionnaire and administered it to students as a test of their willingness and capability to use classroom response and engagement systems. Demographic information was collected in addition to questions related to the use of response and engagement systems.

Students were invited to participate via an email sent by their individual instructor. All students were ensured of anonymity and participated without coercion. Some students were asked additional questions as a follow-up to how they answered certain questions. For example, a student who responded indicating they had the ability to send a text message was then asked if they had a restriction to the number of text messages they could send.

2. Results and Discussion

The questionnaire was distributed to students of four different undergraduate courses at Iowa State University. The sample included students from courses in management, events, introduction to hospitality, and human resources. The researchers emailed the questionnaire to 501 students and there were 413 fully completed surveys (82.4% response rate). Demographics of respondents can be found in Table 1. It should be noted the disparity between male and female respondents is due to the high number of female Event Management majors. Non-hospitality or

event majors are typical in the management and human resources courses; these could include business, journalism, apparel merchandising, or any other major on campus.

Table 1. Demographics of undergraduate respondents (*n* = 413).

Demographic	n	%^a
Gender		
Male	43	10.4
Female	369	89.3
Age		
18 years	41	9.9
19 years	67	16.2
20 years	117	28.3
21 years	105	25.4
22 years or more	79	19.1
Academic rank		
Freshman	73	17.7
Sophomore	70	16.9
Junior	156	37.8
Senior	114	27.6
Major^b		
Hospitality Management	80	19.4
Event Management	276	66.8
Other	92	22.3

^aPercent may not total to 100 due to non-response

^bPercent total exceeds 100 due to double majors

Students were surveyed to determine how common it was for students to own, and bring to class, technology that could be used in a Bring Your Own Device (BYOD) student response format; results from these questions are found in Table 2. One of the concerns of the researchers was if a BYOD system (such as PollEverywhere or Top Hat) was required, students without a device capable of responding would either be at a disadvantage or be forced to purchase an expensive device. Based on the responses, it seems this concern could be eliminated. All 413 respondents had at least one device that would be capable of responding via text message or through a browser. The most commonly owned device was a laptop (97.3%). There were 9

respondents who had limited text messaging plans, from 10 to 500 texts per month, but all of these respondents had at least one other device that would allow them to respond via a web-based interface.

When asked to respond to whether or not they would bring each device to class if it was used in class for educational purposes, 99% of respondents stated they would bring at least one of the devices, with the most common devices being either a laptop (90.8%) or a cell phone with a mobile browser (89.3%).

Table 2. Devices owned, brought to class, and would be brought to class if integrated into curriculum by students (*n* = 413).

Device	Owned		Brings to class		Bring to class if used for class	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Cell phone without mobile browser	43	10.4	43	10.4	43	10.4
Cell phone with mobile browser	378	91.5	370	89.6	369	89.3
Tablet	138	33.4	63	15.3	109	26.4
Laptop	402	97.3	281	68.0	375	90.8
At least one device	413	100.0	401	97.1	409	99.0

The researchers have seen an increase in the number of devices being used in the classroom for note-taking and/or other purposes. A common concern of these devices being present, or even mandated, are that they may lead to an increase in non-course use, which may pose as a distraction for the student or students in the periphery of such a device. The respondents were asked for their opinions on how the use of one of these devices would have on their classroom experience; responses to these statements can be found in Table 3.

Overwhelmingly, students agreed they would be more likely to use their device in the classroom if it was integrated into the lecture. Interestingly enough, students responded almost a half point lower (on average) on whether or not it would increase their likelihood of using their devices for

non-class related activities. This may be because students who are going to use devices for non-class activities already bring, and use, their devices. Moreover, students may also have a desire to use their devices in class, which could have influenced their decision making in an effort to coax the faculty into believing they will not use the devices for non-class activities.

Every student responded that they had used a student response and engagement system in the past, with the majority having used an i>clicker (81.9%). When asked how the use of a student response and engagement system impacted their participation, 72.3% agreed or strongly agreed the systems led to an increase; whereas, only 6.3% disagreed on the notion that the systems increased their participation.

Table 3. Impact a cell phone, tablet or laptop would have on the classroom experience (*n* = 413).

Statement	Mean	SD
I would be more likely to use my phone/tablet/laptop in class for class-related activities if it was incorporated into the lecture.	4.16	0.76
I would be more likely use my phone/tablet/laptop more for non-class-related activities if I was also using it for class related activities.	3.67	0.94
I would be more likely to participate in class if I was able to respond more anonymously through my phone/tablet/laptop.	4.14	0.82
I would participate in class even if responses using my phone/tablet/laptop were non-graded.	3.67	0.99
I would be more likely to participate in class if my phone/tablet/laptop responses were anonymous and non-graded.	3.69	1.04

Note. Likert-type scale was used with 1 = Strongly Disagree to 5 = Strongly Agree

Faculties intending to introduce or continue use of this type of technology in the classroom may want to consider the last three statements in Table 3. It appears students would be more likely to respond to questions if they could do so anonymously. In contrast, there is not as large of an impact on their desire to respond if the questions were non-graded. Based on these statements, it appears students want their answers to be anonymous to other students while still receiving credit for participating.

At the end of the quantitative questions, the researchers requested any additional feedback the students may have in an open-ended format. Overwhelmingly, these responses indicated that students see a benefit in using technology in the classroom. Students indicated benefits would include increased participation, the “cool” factor, a fun way to involve more students, and a way to make a large classroom feel smaller.

However, students did have some concerns of note, which could be useful for faculty considering adoption of such technology, or those that have a desire to improve the usage experience of technology in the existing courses. Some students indicated a desire for one device, so usage of an individual device solely for response purposes was undesirable. They would prefer to use their cell phone, laptop or tablet, depending on which device they typically bring to class. This fact would point towards decreased adoption of the “clicker” technology commonly seen used today. One student even went so far to express their hatred for the inconvenience of carrying around an extra device.

A larger number of students were also concerned with the grading aspect; they indicated they would prefer to receive points for participating, rather than receive points only if their response was correct. A couple students indicated this would make it a more fun and engaging experience over a tedious requirement. One student did indicate they prefer these types of systems in larger classes but not in a smaller class, stating that it makes the (smaller) class feel less personal. Lastly, some students believed they, and their peers, would be less likely to use their devices for non-class-related activities, such as social media or online games, if they were being engaged in class-related activities. This idea could counteract the worries most instructors have about allowing technology in the classroom.

The final issue goes back to the researchers' initial concern of requiring participation using these devices when not all students may have access to said device. If you use a system like i>clicker, the students are responsible for purchasing the devices for around \$40, which is an acceptable expense compared to a student being required to buy a tablet or laptop in order to use a BYOD system. A couple of students had concerns about battery life issues; for instance, if they came to class and could not participate because their laptop or phone battery had died. In addition, 1% of respondents stated they would be unwilling to bring one of their devices to class even if it was integrated into the coursework. A method of overcoming this issue would be for departments or the faculty to have a few devices that could be checked out when students arrive and returned at the end of class. For a course with 100 students, it would be reasonable to expect 1-3 devices would be sufficient. However, there are concerns with this approach as it adds another layer of complexity for the instructor to manage and a cost to their department.

3. Implications

Previous research has focused on using student response system to increase engagement; moving from 3 to 4 in Figure 1 (De Gagne, 2011; DeBourgh, 2008; Jones, Antonenkot, & Greenwood, 2012; Lyubartseva, 2013). In addition, research indicates students learn more when they are more engaged in the classroom (Ahlfeldt, Mehta, & Sellnow, 2005; Alavi, 1994, O'Loughlin, 1992). This research adds to the literature by showing students are (1) capable and (2) willing to use the student response systems, reassuring faculty who are concerned about adapting in their classroom.

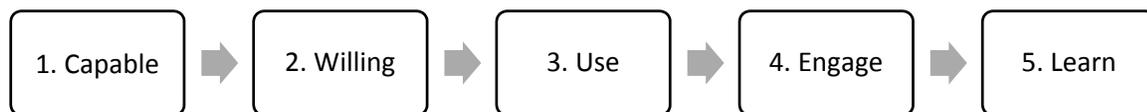


Figure 1. The process of using technology and classroom response systems as a tool to increase student learning.

Overall, students indicate a desire to bring technology into the classroom (Woodcock, Middleton, & Nortcliffe, 2012). Because students want technology in the classroom, faculty should take advantage of the opportunity to increase student learning. Some students may be shy, unwilling, or unable to answer openly, but they are more willing to respond anonymously via student response systems, which will increase the overall engagement and learning of students.

4. Conclusions

There are many benefits and concerns for instructors to consider when introducing technology in the classroom. Using a response and engagement system causes students to engage even more with their devices, which according to some students, may be good because at least they are engaging with the class material instead of playing an online game or checking their social media. There are a number of takeaways from this research, but the major conclusions are:

1. Students have a desire to use technology in the classroom.
2. 100% of students surveyed had a device capable of using a BYOD response system.
3. If a response and engagement system is used, students prefer their responses to remain anonymous to other students, but they still desire a grade.
4. Although a cutoff point is unknown, students indicated response and engagement systems are more effective in larger class settings and should be avoided in smaller, personable courses.
5. Students who are shy, or unsure of the perceived correctness of their answers, would be more likely to respond when using a response and engagement system.

Overall, it appears students are able and willing to use a classroom response and engagement system in order to increase engagement. Through this survey, the researchers were able to get a

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better understanding of what students want as far as technology in the classroom, while also determining their perceptions on the benefits and problems with requiring a device for classroom response purposes.

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Appendix A: Survey Questionnaire – Demographic Questions

What is your current Class Year?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student

What is your gender?

- Male
- Female

What is your current or intended major?

What is your age?

Appendix B – Device Questions

	Which of the following do you own? Select all that apply	Do you bring it to class?		Would you bring it to class if using it was integrated in to the classroom experience?	
		Yes	No	Yes	No
Cell phone without a mobile browser	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cell phone with a mobile browser (Smartphone)	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tablet (iPad, Nexus 7, etc.)	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laptop	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have the capability of using SMS (texting)?

- Yes
- No

Do you have a restricted number of text messages you can send?*Only asked if Yes to above question

- Yes
- No

How many text messages can you send in a month?*Only asked if Yes to above question

Appendix C – Previous System Usage

Which of the following classroom response systems have you used in the past?

- Clicker
- PollEverywhere
- Top Hat
- Other - please specify _____
- None

Classroom response systems lead me to participate more in class.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Appendix D –Usage Preferences Questions

Please rate each of the following statements

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I would be more likely to use my phone/tablet/laptop in class for class-related activities if it was incorporated into the lecture.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely use my phone/tablet/laptop more for non-class related activities if I was also using it for class related activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely to participate in class if I was able to respond more anonymously through my phone/tablet/laptop.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would participate in class even if responses using my phone/tablet/laptop were non-graded.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely to participate in class if my phone/tablet/laptop responses were anonymous and non-graded.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>