

## **Study of Internet Visitors on College Educational Websites**

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### **Abstract**

*This study examines usage patterns of educational websites that employ databases, wikis, and general resources for information sharing and dissemination. To gather data about website usage, a quantitative survey was sent out to students and to the users of an existing educational website. Additionally, participants provided data on learning preferences and practices. Findings from the survey show that users visit an education website for finding information and getting connected to a community. The survey results also show that while communicating information should remain a top priority, educational web sites will need to adapt to an increasing desire for interpersonal communication within their own online communities.*

**Keywords:** uses and gratification, online courses, online education, educational websites, social media, and social networking

### **Introduction**

Over the past two decades, the Internet has transformed into one of society's major media outlets. According to the Sloan Consortium Study, which has been tracking online education trends in the U.S. by surveying all higher education institutions, over 6.1 million students were taking at least one online course in 2010 [1]. Because much of the higher education learning landscape has turned to asynchronous "any-time any-place" learning, more research is necessary to know what educational learners need from the websites they utilize. This study looks at group dynamics and interpersonal communication in this new educational context. What has often been disregarded in both educational research and general website research is the website itself. This study, which mainly focused on the audience of a university educational website, hopes to help bridge that gap.

For the purpose of this study educational websites will be defined as: a site whose main purpose is not to entertain, to sell something, or in order to facilitate personal communication, but rather to inform. All universities now utilize various links and forms of communication on their websites. Generally these websites devote themselves to communicating all they can about a various topics [2]. However, in this study a singular topic website to collect data about website usage.

## **Rationale**

As noted, there has been a lack of research done on what brings people to educational websites. There have been extensive studies on commercial, social networking, and fan websites. However, the development of educational websites remains relatively unexamined by scholars. Through surveying the audience of an existing educational website, this study hopes to determine what learners need and whether their gratifications differ from those in an online course or other online communities.

This study was conducted based on a current educational website with both a long history and established online presence. The selected website has been online since 1992. The West Texas A&M University's Alternative Energy Institute ([www.windenergy.org](http://www.windenergy.org)) website currently acts as a repository for information on renewable energy with an emphasis on wind energy. As will be detailed in latter sections, the site has established a social media presence on Facebook and Twitter. The site includes a thorough database of wind data going back as far as the 1990s into present day. Maps, multimedia, and even detailed articles covering renewable energy issues are posted to the website.

As for the study, questions were developed based on Palmgreen [3] and McQuail's typologies of gratifications and uses [4]. Applying those frameworks, the study hopes to answer the question of uses or why audiences visit educational websites and the gratifications or what they get out of their visits.

## **Online Education**

### **Virtual classrooms**

Much of the existing research on online education has focused on the virtual classroom [5]. Many of these virtual classrooms are asynchronous in content delivery. That is, the content is on demand and does not have extensive real-time interaction. The authors of this study have primarily deployed asynchronous content delivery within a closed content delivery platform such as those from Blackboard™ and Angel Learning™. While this study chose instead to look at educational websites, several common themes have emerged in these studies that anyone aiming to develop an educational website should take into consideration. No longer a far-fetched thing from the future, virtual classrooms have become ubiquitous in today's schools, especially at the university level [6].

As far back as Moore's theory on distance education [7], scholars have observed that the virtual classroom is an excellent medium for fostering and generating discussion. As Merkel [8] put it in her summary of the existing research, the discussion form environment evens the playing field of opportunity and accessibility. From a student's perspective, these classes are often less stressful because they are free of real-time, face-to-face demands, and are able to respond to professors and classmates at their leisure. Also, when they are online a student will find they can always scroll back, reabsorb the material, and reply at their pace [6]. Perhaps more importantly is the interpersonal communication that virtual classrooms foster. In fact, research shows that most of the interaction in this environment is between students. Merkel [8] observes communications with peers helps students maintain regular participation, free from on-time in-person *attendance* in a traditional lecture setting. Moreover, educational website developers should take note that active *off-topic* threads or posts are a good indicator of an engaged class. This dynamic, however, may be a challenge for educators as it flips the traditional student-teacher one-way method of communication on its head. Instead, in this context, educators should be prepared to lead discussions. Activities that encourage group development should be woven into the design of the course, Merkel [8] advised. Or, in other words, group development should be fostered in all online learning environments.

Al-Omari's work [9] examining a half-virtual half-face-to-face course in Jordan provides researchers or educational website developers with the data that shows the importance of asynchronous learning. According to Al-Omari [9], the problem that plagues virtual classrooms is global, and it is the lack of communications, particularly between the teacher and the students. Al-Omari found that there was, at least, a chat room – but to the dismay of students, it was not utilized. Even the traditional portion of the course was found lacking. Students were unable to engage with the lecture, which merely recited the online course materials, reporting that they preferred to goof off on the Internet instead. One student stated, “Using the Internet makes me feel less motivated [9].” The isolating classroom environment caused this loss of motivation, according to the students.

The problem, one student explained, was that they felt no need to participate in a community where it seemed that everyone – including the professor – was left to fend for him or herself. Students have stated that they are more satisfied with their online educational experience when it is user-friendly [10]. One method deployed by the authors is to utilize graded discussion forums with a weekly topic to foster interactive discussion and a sense of community for students in the course.

### University Web Sites

Now that scholars are beginning to understand the virtues of the virtual classroom -- studies are starting to ask some important questions. The first being “Where do students get their information outside of the virtual classroom?” [10] One primary source, it seems, is university websites. Some sites serve as an excellent educational tool. Block [11], for example, sang the praises of the University of Michigan for developing three research resources for students: the Making of America Collection, the Internet Public Library, and Documents in News. However, it was stated that these sites are still not meeting the academic needs of their users. It should be noted that for many institutions a website is a marketing tool first and a scholarly resource second. Plus a few of the reoccurring problems observed by researchers [6, 9, 10], such as low usability and little to no accessibility, are common for all kinds of websites.

Nevertheless, there are ways schools can improve their websites. Researchers have observed some common traits shared by well-developed university web sites [12]. Interdisciplinary collaboration appears to be a big one. For example, librarians played a vital role in helping a university learn to develop as a resource. Block found it remarkable that at so many research universities, librarians were there first, in many cases as early as 1991, leading the charge to develop major digital projects [11]. Even in many public schools, the librarian is becoming the building expert in technology and website development. In their content analysis of university department websites, Ritter and colleagues came across a similar conundrum [12]. Through studying the websites of several entities, large, small, and of varying emphasis, they came to one conclusion: many sites failed to develop a coherent plan for releasing their research to the public. Perhaps the largest lesson that participants continue to emphasize is that the online world parallels the real world [12]. This is something universities should take into consideration as studies show that when done well, universities can use their content to attract users. As more departments provide more information, the more users can count on the Web for information.

### Uses and Gratifications

In recent years, research has moved away from explaining the operations of virtual classrooms to determine the personal motivation to find and gain information. [9, 10] Already, some interesting themes are beginning to emerge from these studies. Perhaps one of the most intriguing is a study by Stafford and Schkade [13] which examined the impact a student's technology skills had on two different factors. One factor the researchers examined was a student's ability to satisfy their needs in an online context and get gratification. The second was how being tech-savvy shapes a student's needs. They found that while both high- and low- level students seek information, high-level students are more likely to get what they wanted and feel they have gotten gratification. Low-level students were more likely to seek out information from disparate sources and report dissatisfaction. Furthermore, high-level students were also more likely to use the Internet in multiple ways and to satisfy multiple needs [13]. They also argued that there may be an emerging third Internet gratification need -- meeting social needs. Researchers might well expect to discover emergent social gratifications for consumer Internet use.

In a similar vein, Hargittai and Hsesi [14] found that being tech-savvy had an impact on how students used social networking sites and what they got out of it. By breaking down students into typology of social networking site users, they were able to deduce why students use certain social networks. Uses were categorized as Dabblers, Samplers, Devotees and Omnivores depending upon the frequency with which they used social media and the number of ways they used it.

*Dabblers are the least engaged group. Samplers are not active on any particular SNS [Social Networking Service] but spend time on more than one, so their engagement may be higher than that of Dabblers. Devotees only engage with one service, but do so often. Omnivores have embraced SNS the most by using a diversity of them and spending considerable time on at least one such service [14].*

Likewise, Sangwan's research is enlightening [15]. She took a slightly different approach. She aimed to see why people would join a knowledge-based community for a fee. What she found was that knowledge-based communities differed from others we may see on the Internet. Content is not the driving factor for many users. She found that their focus is not in transaction or social interest thus functional need fulfilment is the major motivation for members to stay in a virtual community [15].

### **Methods**

With all of that being stated on what gratifications and uses website users seek, this study hopes to add to the discussion. The primary method used for this paper pursues to answer the research question of what do students need out of educational websites. A quantitative survey was administered to Facebook Fans of the West Texas A&M University's Alternative Energy Institute, Twitter followers of the same department and engineering students. The combined Facebook and Twitter populations total 161 people (79 on Facebook and 82 on Twitter). The survey was also distributed to all engineering students at WTAMU via e-mail. A minimum of 40 responses were sought, but participation actually resulted in 60 usable responses.

Surveys were disseminated via Facebook Wall Posts, updates through the Facebook Fan Page, tweets and direct messaging via the department's Twitter account and finally through pop-up ads located on frequently visited areas of the site. Specifically, pop ups were displayed on the front page of the site, the front page of the news and site blogs, and the front page of the site's multimedia section. The survey remained voluntary in all mediums and participants always had the option to decline the survey or exit at any time.

The research tool was an online survey created through Survey Monkey. The tool was split into five sections. The first collected demographic information on the participants. The second asked participants about their browsing habits. Sections Three through Five consisted of Likert-Type scales which inquired participants about: (1) their interest about the topic and existing content on the site, (2) their preferences and habits in online learning environments, (3) their social network usage. The data was then put into SPSS for analysis.

### **Results**

#### **Factors affecting uses and gratifications**

The results did not verify previous studies theorizing that socioeconomic status affects ability to get gratifications sought [3, 4, 8, 15]. The first sign of this was that there was no correlation between Socio Economic Status (SES) and time spent online (a good indicator of digital literacy skills). Table 1 describes, the amount of time that participants spent online and indicated that most of them possessed median skills with an equal number demonstrating either highly tech-savvy or very little-tech savvy.

**Table 1: Self-reporting of time spent online**

<b>How much time do you spend online daily?</b>	
<b>Answer Options</b>	<b>Response (% , N)</b>
Less than 2 hours	27.4% (17)
Between 2 and 4 hours	45.2% (28)
More than 4 hours	27.4% (17)

Socioeconomic status, again, was not entirely representative. As shown in Table 2, there were no upper class participants. Middle class and lower class participants were represented in almost even numbers. This fact was originally thought to have led to a higher percentage of participants reporting less time spent online, but it did not.

**Table 2: Self-reporting of socioeconomic status**

<b>How would you define your socioeconomic status?</b>	
<b>Answer Options</b>	<b>Response (% , N)</b>
Upper class	0.0% (0)
Middle class	63.1% (39)
Lower class/Working class	34.4% (21)

The second indicator was usage patterns between different SES levels. Going by the previous research, there should have been a pattern showing that participants with a lower SES ranking would prefer less reliable news sources, such as blogs. See Table 3 for more information.

**Table 3: Case processing summary of the relationship**

Cases	Included(%, N)	Excluded (%, N)
SES * SN News	98.4% (60)	1.6% (1)
SES * Blog News	98.4% (60)	1.6% (1)

The Paired Sample T-Test, as shown in Table 4, yielded similar results in showing that there was no statistically significant difference between those who reported often using Social Networking Sites to get news and those who used News Sites and Blogs to do so.

**Table 4: Paired Sample T-Test of the relationship**

Pair	Mean	Standard Deviation
Pair 1: Time – SN News	0	1.54
Pair 2: Time – Blog News	0.017	1.432

To be accurate, as shown earlier the data is not entirely representative of the external population. No participants self-ranked as upper class (0/60 – 0%). Furthermore, while the numbers were comparable between middle and lower class: Middle class (39/60 – 65%) respondents did represent a larger portion of the population than the lower class respondents (21/60 – 35%). Therefore, it is possible that the data is skewed. This section – clarity and utility are questionable.

### Learning types and gratifications sought

The number of Active and Passive Learners were almost equal. In total, 71.6% ranked themselves as either Very Active Learners (Strongly Agree, 20/60 – 33.3%) or Active Learners (Agree, 23/60 – 38.3%). Similarly, 78.7% ranked themselves as either Very Passive (Strongly Agree, 20/60 -33.3%) or Passive (Agree, 28/60 – 46.7%). While there are some differences found between Active and Passive users, slightly more women were passive learners and passive learners were slightly older. Consequently, comparative measures showed they were not significant. There are two possible reasons for this overrepresentation. It is possible participants did not understand the questions or the participants do not peg into either category. There were also some differences found between the Active and Passive populations. Across the board, however, respondents sought educational experiences of all types even if they favored different subtypes of each category.

As seen in Table 5, a vast majority of respondents reported that they preferred interactive learning experiences. At first glance this would indicate that the survey population happened to be made up of people who were mostly interactive learners (51/60 – 86.4%).

**Table 5: Self-reporting of interactive learning experience preference (Active Learners)**

<b>When online, I prefer an interactive learning experience.</b>	
<b>Answer Options</b>	<b>Response (%, N)</b>
Strongly Agree	33.9% (20)
Agree	52.5% (31)
Disagree	11.9% (7)
Strongly Disagree	1.7% (1)

As further analysis of the data showed, however, respondents could not be categorized into interactive and passive learners so easily. Table 6 shows that people enjoy both types of learning experiences, rather than reporting a marked preference for one over the other. While the preference for passive experiences is not quite as strong (47.5% - 28/60) there is clearly some overlap with those who also reported enjoying active experiences.

**Table 6: Self-reporting of passive learning experience preference (Passive Learners)**

<b>When online, I prefer a passive learning experience.</b>	
<b>Answer Options</b>	<b>Response (% , N)</b>
Strongly Agree	8.5% (5)
Agree	39.0% (23)
Disagree	45.8% (27)
Strongly Disagree	6.8% (4)

In analysing open-ended responses to questions on educational experience preferences, however, some interesting results were found. Now, it should be noted that these were optional questions, which were only answered by about a quarter of the respondents. Nevertheless, the trends they revealed are valuable to this study.

After codifying the open-ended questions and creating a separate IBM SPSS Statistics workbook for them, some statistical analysis was done. As shown in the data from Tables 5 and 6, Active Learners had varied tastes but seemed to like experiences that allowed for interpersonal interaction most of all. Additionally, Table 6 data shows that Passive Learners tend to enjoy more solitary experiences. Those who gave examples of Active Learning Experiences seemed to have similar tastes. On that note, another prevalent theme was in discussion boards. An amount of the optional question respondents claimed to prefer this discussion environment (9/20 – 22.2%). This correlates with the previous research on online courses [7, 16]. An equal amount were interested in Virtual Tours (9/20 – 22.2%) and Games (9/20 – 22.2%). Some also stated they were interested in Chat (6/20 – 12.2%). The optional questions on Passive Learning Experiences yielded similar results. Over half of the respondents cited reading articles as either their preferred experience or one of their preferred experiences (5/8 – 62.5%). The same number cited lectures as one of their preferences or a sole preference (5/8 – 62.5%), with much less saying they would prefer to listen to a lecture (2/8 – 25%) rather than watch one. Likewise, a small number claimed to prefer visuals such as info graphics, video, charts, etc. (2/8 – 25%).

### **Social Networking Usage**

The third section of the survey was designed to query participants on their social networking usage. The results of this portion revealed some interesting discoveries. The most notable result found was why participants used social networking in an educational setting. The main reason reported by participants is to connect with professors and classmates (63.3%). Networking for news was the second most common reason conveyed. These both meet the current measures for an increasing use of networking for educational and informational uses. Next, Table 7 looks at using social networking to gratify educational needs in more detail. Using a frequency analysis, it can be seen that more people agree to use Social Networking Sites (SNS) to connect with professors and classmates than do not.

**Table 7: Frequency analysis of usage of Social Networking for educational purposes**

<b>SN Edu</b>	<b>Scale</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	0	6	9.8	10	10
	1	18	29.5	30	40
	2	20	32.8	33.3	73.3
	3	10	16.4	16.7	90
	4	6	9.8	10	100
	<b>Total</b>	<b>60</b>	<b>98.4</b>	<b>100</b>	
Missing	System	1	1.6		
<b>Total</b>		<b>61</b>	<b>100</b>		

Note that the table is ranked by Likert-Type Scale. (1 = Strongly Agree, 2 = Agree, 3 = Disagree, 4 = Strongly Disagree).

The data in Table 8, conversely, shows that respondents were less likely to use SNS in order to make and maintain business contacts. When looking at the responses as ranked by the Likert-Type Scale it becomes clear that most people agree they rarely use social networking sites for business.

**Table 8: Frequency analysis of usage of Social Networking for business purposes**

SNBEiz	Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	9.8	10	10
	1	11	18	18.3	28.3
	2	14	23	23.3	51.7
	3	20	32.8	33.3	85
	4	9	14.8	15	100
<b>Total</b>		<b>60</b>	<b>98.4</b>	<b>100</b>	
Missing	System	1	1.6		
<b>Total</b>		<b>61</b>	<b>100</b>		

Note that the table is ranked by Likert-Type Scale. (1 = Strongly Agree, 2 = Agree, 3 = Disagree, 4 = Strongly Disagree).

Table 9 shows that slightly more people use SNS to get their news than do not. Interestingly enough this proves that SNS is becoming a tremendous resource for current events.

**Table 9: Frequency analysis of usage of Social Networking for gathering news**

SNNNews	Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	9.8	10.0	10.0
	1	16	26.2	26.7	36.7
	2	16	26.2	26.7	63.3
	3	14	23.0	23.3	86.7
	4	8	13.1	13.3	100.0
<b>Total</b>		<b>60</b>	<b>98.4</b>	<b>100.0</b>	
Missing	System	1	1.6		
<b>Total</b>		<b>61</b>	<b>100</b>		

When looking at responses to these optional survey questions, some interesting data was revealed. Facebook was the most used social network for various purposes, particularly when it came to communicating with friends and family, where 91.3% reported using it (21 of 23). It was also the most commonly used network for getting news (50% - 7/14). Though there was some overlap with Twitter. The results on using Facebook for educational purposes (to keep in touch with classmates and teachers) were similar, though this area saw much more diversity in networking choices. Also, Twitter and LinkedIn were less popular choices earning 10% of usage (2/19). It was much more difficult to determine a primary social network for business purposes. Twitter was the most popular at 36% (4/11) but it was by a slim margin, only a few points ahead of Facebook and LinkedIn, which both earned 27% (3/11). In the end, this study was developed to discover the importance of a local scientific educational website and evolved into a study on what students seek from their educational website experiences.

## Discussion

### Limitations of the survey

There were some interesting findings and ideas for further research that were discovered after the research was complete. First, participants could have been asked to rate their enjoyment of specific activities, such as watching educational videos or reading articles rather than asking for general self-evaluations. Second, there could have been more inquiry on how people prefer to post on message boards whether at a leisurely pace or in real-time chat. This way questions would have yielded better data about what educational website users were looking for.

Next, the survey did not draw enough upon previous uses and gratifications research. Rather than using the limited Active/Passive user model to formulate survey questions and categorize the responses, a more reliable framework could have been used. Perhaps additional study could employ McQuail's classifications of uses [4]: information, entertainment, integration, and personal identity. It would have better matched the results and, in addition, been easier to replicate. Additionally, it would be easier to adapt that framework into a future study on educational website gratifications.

Some holes were discovered about the framework of the questions in the survey. Specifically in the way that respondents reported confusion and discomfort over the questioning. Notably when it came to learning practices and demographic inquiries participants exhibited some discomfort. For practical and ethical reasons these sorts of questions would need to be re-worked or avoided altogether.

### **Limitations of the population**

Additionally, the results of the survey were not fully representative of educational website users to the external population. Survey respondents were overwhelmingly Caucasian and male. They made up 65% (39/60) of those surveyed versus women 35% (21/60). Additionally, their ages ranged from early to mid-20s and 40 or older. While it is best to have a random sampling to promote validity and use representation across various age groups, the sample was a convenient one and could have skewed the results. Age most likely also had an impact on using social networking for business. The fact that survey participants were both younger and in school, and those already established in business skewed the data. While many participants matched the target demographic of the case study site, it is hard to say if the population matched the average website user. The majority of respondents were students. Naturally they would be more interested in educational opportunities online. Another noteworthy point is that engineering students made up more than half the response population.

Their responses would presumably be very different from other majors and further solidifies the point that this research could have different results if applied to a more university wide sample versus the convenient sample used in this study.

### **Conclusions**

In the end, the purpose of this study is to examine the reasons why people use educational websites and to make websites like the WTAMU alternative energy website more userfriendly and effective. The goal was to find out what drove visitors and potential visitors to these sites by looking at what gratifications they sought. This was ultimately accomplished by the inquiry about the background, interest in the site content, online learning habits and preferences, and social media network usage. In total, 60 responses were collected from a convenient sample representing various age groups, ethnic backgrounds, and professional levels.

It can be determined from previous research and this study that the reasons why people use educational websites, and what they get out of those sites, are vastly different from their reason they access other websites and virtual communities. Unlike other online experiences, the users of educational websites are not as driven by a desire for entertainment and community. However, it was found that users still had a strong desire for community in this context, either through the use of social networking, discussion forums and/or chat rooms. This may indicate a developing desire (and emerging gratification to be met) for educational website users in the future [17]. Thus further research into this topic should continue to try and identify for the website designers of educational sites the needs of their users and how they are gratified [18].

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