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## University Website Information Quality and Its Effect on Student Interest in Enrollment

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### **Abstract:**

*A university's website is often the first point of entry for a potential student to explore information about an academic program. If information quality (IQ) problems are encountered, that student may lose interest and apply to a different school. The purpose of this study is to investigate if a relationship exists between the IQ of an academic department's website and student interest in enrollment. To pursue this research, we used a survey to gauge student reactions to an academic program's websites by using the IQ dimensions Accuracy, Consistency, Completeness, and Timeliness. The survey was administered through an online game called Travian. Travian has over ten-million players where the vast majority is between 18 and 22 years old with most residing in the USA. Surveys were administered over a 30-day period through the game's forums. The results of this study showed there is a strong relationship between the information quality dimensions, an academic department's website and student interest in enrollment.*

**Keywords:** Information quality, website quality

### 1. Introduction

In today's highly connected society, potential college students are often technology savvy. Although many students enroll in a university that is convenient for them to attend, there are also a large number that search online for a program they like. For those students, they typically have a list of universities they are interested in attending. Potential students often scour each university webpage for information about an academic program of interest to determine which interests them the most. Academic departments work to ensure information provided on their websites provide as much information as possible while also making their program enticing. However, when those sites are outdated, inaccurate, inconsistent, or do not provide enough information those potential students may lose interest and move onto the next university on their list. Although universities want their academic program websites to be high in quality, resources are often scarce. This can contribute to the decline of a program's website in multiple ways. For this research, we look at the decline in information quality (IQ) and how it affects potential student interest in an academic program is the topic for this research.

No universally accepted definition of IQ currently exists (Strimling, 2019; Wang, et. al., 1998; Wang & Strong, 1996). This is partly due to IQ professionals having varied opinions on what quality truly means. With all of the IQ verbiage in this field regarding IQ definitions and quality in general, one of the most widely accepted, and simplest, IQ definitions comes from the popular work of IQ pioneers Wang and Strong. According to Wang and Strong (1996), information quality can be defined as information that is fit for use. For university websites, information needs to be fit for use in order to gain the most student interest in enrolling into a program. Along with this pioneering work, the Wang and Strong research also produced a generally accepted framework for IQ research which provides 16 dimensions of IQ. In these 16 dimensions, the IQ field of study was given a set of standards by which future research could build upon.

For this research, utilizing all 16 dimensions would not be necessary as some dimensions would not apply. With this in mind, additional research on the Wang and Strong framework has shown that four dimensions: Accuracy, Consistency, Completeness, and Timeliness are the most objective within the Wang and Strong framework (Strimling, 2019; Wang & Strong, 1996) and have a strong significance with information consumers. In the next section, the background of this study is discussed.

### 2. Background

For potential students, many aspects of a degree program are typically important to make their decision to enroll (Kiili, et. al., 2019; Andrews, 2018; Athiyaman, 1997). An academic program may list resources for students, such as computers, special equipment, and even lab space as benefits of being in that program. In the related literature, the information quality (IQ) of a website has been shown to have an effect on user satisfaction (Strimling, 2019). In another study, users that encountered outdated information typically moved on to a more recent website instead (Park, 2020; Braddy, et. al., 2008). It is often an easy decision for users to make in regard to which website they visit when they see one has old information versus another that is recent. Additional related literature shows how the perception of low IQ can affect user satisfaction of a website (Maor, 2020; Thongsri, et. al., 2019). This perception is often difficult to overcome by a

website administrator after an IQ problem has been resolved (Maor, 2020; Thongsri, et. al., 2019; Perez, et. al., 2018). Perception has been shown to influence a person's view of nearly everything they encounter for the good or bad (Maor, 2020; Thongsri, et. al., 2019). Studies have shown that potential students look at a wide variety of information before making a decision to attend a university (Yang, et. al., 2020; Ramirez-Correa and Rondan-Cataluna, 2018). In addition to academics, students often look for information ranging from on-campus housing options to athletics. All of this varied information comes together within a student's mind to form an opinion of a university, but also of the particular academic program in which they want to enroll. With the quality of the information being presented to these students needing to be high, the need to better understand IQ dimensions is important. A full description of each IQ dimension and its applicability to this research is discussed below.

With this research, the IQ dimensions are used to illustrate the IQ problems on university websites. First, we discuss the IQ dimension of Accuracy. Accuracy has been defined as the extent to which data is correct and reliable (Strimling, 2019; Olson, 2003; Wang & Strong, 1996). Of all the IQ dimensions, accuracy of a website has the highest importance (Strimling, 2019; Olson, 2003; Wang & Strong, 1996). Inaccurate websites nearly always have a detrimental effect on the user's opinion of that site. Improving the accuracy of website can be accomplished by keeping it updated with the latest information as well as using automated systems that rely heavily on uniform IQ standards.

Next, the completeness dimension is defined as the extent to which data is not missing and is of sufficient breadth and depth for the task at hand (Strimling, 2019; Ballou, 2003; Wang & Strong, 1996; Redman, 1996). Completeness focuses on whether all values for all database variables are recorded, retained, and presented (Strimling, 2019; Ballou, 2003; Wang & Strong, 1996; Redman, 1996). Applying the completeness dimension to CS program websites, the data presented must be complete for a potential student to fully appreciate a degree program. Without complete information, potential students may misunderstand a program's benefits and/or requirements entirely. In such a case, a potential student may discount an academic program and move on to a different university's webpage. This dimension closely relates to the timeliness dimension which is discussed next.

Timeliness is defined as the extent to which the data is sufficiently up-to-date for the task at hand (Strimling, 2019; Ballou, 2003; Wang & Strong, 1996). Regardless of the industry, when consumers find outdated information on a company's, they will typically take their business elsewhere (Strimling, 2019). For potential students, this problem translates into lost enrollment. As was mentioned above, incomplete website data can make a difference on a potential student's interest in a program. If that student sees that information is out-of-date, such as news blurbs discussing events that happened years ago, students may think the department has not done anything of consequence in some time. Again, this can lead to a potential student looking at a different school's website instead. In the next section, we discuss the consistency dimension.

The consistency dimension is defined as the extent to which data is presented in the same format (Strimling, 2019; Ballou, 2003; Wang & Strong, 1996). This is perhaps one of the most critical IQ problems on a department's website. Without consistent information being displayed across all of the university's websites, potential students may become confused and lost which may result in lower student interest in enrollment. Standards are important and need to be implemented on webpages within a university. If an academic department states information that is in conflict with itself or the university, problems are likely to ensue. In the next section, we discuss the project goals.

### 3. Project Goals

With the current pandemic, more people than ever are staying at home (Brammer, 2020). People may be at home, but with high-speed internet in many homes across the country, they can still be active in finding information about a topic they want to research. For potential college students, that research is now typically done online as well. Where they used to visit campuses in-person, potential students are skipping the traditional tours and sales pitches from university representatives and instead using the internet to view university websites for any pertinent information regarding academic programs or any other relevant details they are interested in reading. Being a first point-of-entry for many potential students, an academic program's website needs to have a high degree of information quality (IQ) to facilitate interest which leads to enrollment (Strimling, 2019). In fact, research has shown that websites with poor IQ tend to reduce consumer interest and drive down sales (Strimling, 2019). With ever-increasing competition to recruit students between universities, academic program websites with IQ issues may reduce student interest and could then result in lower enrollment (Strimling, 2019). This research explores the possible relationship between the information quality of an academic program's website and student interest in enrollment. Using the most applicable IQ dimensions, we break this research goal into four categories for study. This relationship for each is stated formally below as both a null and alternate hypothesis:

- H1<sub>0</sub>: There is no relationship between the accuracy of information on an academic program's website and student interest in enrolment.
- H1<sub>A</sub>: There is a relationship between the accuracy of information on an academic program's website and student interest in enrolment.
- H2<sub>0</sub>: There is no relationship between the consistency of information on an academic program's website and student interest in enrolment.
- H2<sub>A</sub>: There is a relationship between the consistency of information on an academic program's website and student interest in enrolment.
- H3<sub>0</sub>: There is no relationship between the completeness of information on an academic program's website and student interest in enrolment.

- H3<sub>A</sub>: There is a relationship between the completeness of information on an academic program's website and student interest in enrolment.
- H4<sub>0</sub>: There is no relationship between the timeliness of information on an academic program's website and student interest in enrolment.
- H4<sub>A</sub>: There is a relationship between the timeliness of information on an academic program's website and student interest in enrolment.

#### 4. Methodology

To pursue this research, a survey was developed which used the IQ dimensions of Accuracy, Completeness, Timeliness, and Consistency to gauge potential student interest in enrolling in an academic program based on information found on the university's website. The dimensions were grouped into four categories with a survey question for listed for each. A link to that survey was placed within the online game Travian's American forums. Travian is an online strategy game where over 10 million players worldwide compete within groups of virtual teams to win. Travian was chosen for this study because the vast majority of players in the USA are between 18 and 22 years old. This age group is the prime demographic target of universities for recruitment. Therefore, on the survey, players were asked about their interest levels in researching information on an academic program's website of their choice. The link to the survey remained on the Travian forums for a 30-day period.

In the survey, Travian's players were asked demographic information first and then if they were a college student or interested in becoming one. Players that answer no were excluded from the survey results. Remaining questions revolved around the IQ dimension categories and student interest in enrollment, such as 'The accuracy of information on an academic program's website did not influence my decision to enroll.' The survey questions utilized a five-point Likert Scale style answer format to record responses on a scale from (1) 'Strongly Disagree' to (5) 'Strongly Agree.' In the next section, we provide the results of this research.

#### 5. Results

The survey was placed on the Travian forums where an average of 2,150 players visited the forums each week while the survey link was active. The link to the survey remained active for 30 days and garnered 1,327 total views during that period. When the survey period ended, there were 722 attempted surveys with 591 usable. The majority of rejected surveys was from drop outs due to age restrictions (below 18) as well as not being a college student or interested in becoming one. The survey had 374 male participants (63.29%) and 217 females (36.71%). As expected, the younger generation was predominant in participating in the survey since it was an online game commonly played by college age students. In fact, the median age of the participants was 19.4 years old. The predominant country in which players reside was in the USA with 412 (69.71%). The rest were primarily in European countries. The data was compiled into an Excel Spreadsheet, cleaned, and then imported into R for statistical analysis. In addition to descriptive statistics, Fisher's Exact Test was used to test for significance of the survey results. In tables 1 and 2 below, the results are shown.

Survey Results							
IQ Dimension	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
Accuracy	258	145	85	62	41	2.13	1.61
	44%	25%	14%	10%	7%		
Completeness	271	189	77	25	29	1.90	1.19
	46%	32%	13%	4%	5%		
Consistency	109	111	145	175	51	2.91	1.56
	18%	19%	25%	30%	9%		
Timeliness	292	198	68	17	16	1.76	0.91
	49%	34%	12%	3%	3%		

Table 1: Survey Questions on Website Information Quality Usage and Student Interest in Enrollment

Hypothesis Testing Results		
IQ Dimension Hypothesis Question	P-Value	Result
H1 - Accuracy	0.012	P < 0.05, Reject Null Hypothesis
H2 - Consistency	0.031	P < 0.05, Reject Null Hypothesis
H3 - Completeness	0.001	P < 0.05, Reject Null Hypothesis
H4 - Timeliness	0.000	P < 0.05, Reject Null Hypothesis

Table 2: Results from Hypothesis Testing

#### 6. Conclusions

In the literature, it was shown users viewing a website low in information quality (IQ) were less satisfied with their experience (Strimling, 2019; Ho, et. al., 2019). Not surprisingly, the results of this student survey show website IQ does indeed influence enrollment interest for an academic program. As such, in each IQ category, the null hypothesis was rejected. Therefore, there is a relationship between each of the four IQ dimensions and student interest in enrollment in an academic program when viewing a university's website. Each IQ dimension's results are described below.

With accuracy often being the rated the most important IQ dimension, it is no surprise that potential students held a negative viewpoint of inaccurate information on an academic program's website. Overwhelmingly, student responses indicated lack of interest in enrolling in a program where inaccurate information was found. For this IQ category, the null hypothesis,  $H1_0$ , is rejected.

Completeness of information on an academic program's website was also rated highly important for potential students. They indicated a lack of interest in enrolling if they could not find enough information about an academic program. This result is supported by previous research where completeness dimension was shown to be invaluable in decision making (Ballou, 2003). This suggests that when website administrators do not provide enough information for an academic program, such as degree requirements, potential students view this negatively and seek out other information from other universities instead. For this IQ category, the null hypothesis,  $H2_0$ , is rejected.

Consistency was the only IQ category to have mixed responses from potential students. It would suggest students did not have as much of an issue with this IQ dimension on an academic program's website. For a university, it may be easier to ensure consistent information exists across their website domain as opposed the other IQ dimensions. This result would suggest website administrators are more effective and providing consistent information for potential students. For this IQ category, the null hypothesis,  $H3_0$ , is rejected.

From the literature, outdated information on a website had a negative impact on user satisfaction (Al-Samarraie, 2018; Kaplan, et al., 2018). So, this research is supported by that literature in that the timeliness of information found on an academic program's website showed the strongest reactions from students. The survey's most popular response is for timeliness of information. This suggests that students need to see the most current information available when reviewing a program's website before enrolling. Administrators need to update their websites as often as possible to provide the latest information to potential students. For this IQ category, the null hypothesis,  $H4_0$ , is rejected. In the next section, the limitations and future research is discussed.

## 7. Limitations and Future Research

This study was limited in that it is unknown if students enrolled in an academic program after they indicated they were less interested due to poor information quality on a website. It is also unknown which universities students were reviewing. It is possible that some universities are better at minimizing their IQ issues than others. As such, those universities would be an interesting follow-up study for future research. A paper digging deeper into how a website is maintained at those universities could be very useful.

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