UNIVERSITY STUDENTS' ATTITUDE TOWARDS WEBQUEST: AN EMPIRICAL CORRELATIONAL STUDY

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Purpose – University students, especially at the freshman level, oftentimes experience challenging difficulties while accessing, analyzing, and evaluating internet information for research purposes. WebQuest provides students with an organized digital tool that allows them to develop a goal-oriented process of online search. Yet, empirical research on this subject is absent from the educational literature of the Kingdom of Saudi Arabia (KSA). This study addresses this gap in the literature towards the goal of enriching the discourse of WebQuest value on advancing university students' higher-order critical thinking skills within the context of the KSA. The overall aim of the study is twofold: First, it examines the impact of an interdisciplinary WebQuest, as an inquiry-based activity in a social constructivist and scafolded learning environment, on advancing students' lifelong learning competences and their affiliated skills while developing their business plans and projects. Second, the study uses the Technology Acceptance Model (TAM) as a conceptual guide to explore the relationship between the perceived usefulness and perceived ease of use of the tool on the one hand and students' attitude towards WebQuest on the other hand.

Design/methodology/approach – Two guiding principles derive the overall design of the study: (1) The implementation of a social-constructivist teaching and assessment approach to learning; (2) Exploring the validity of the Technology Acceptance Model within the context of Saudi Arabia. Towards this goal, a mixed methods case study approach is used with a Likert scale questionnaire that ends with three open-ended questions to collect qualitative data for validating findings from the survey.

Findings - The findings suggest that (1) students perceived WebQuest as a well-organized digital tool that facilitates the process of collecting reliable information and sources for their research projects, and (2) there is a statistically significant impact of integrating WebQuest on advancing students' teamwork, research, and technology and leadership skills. The findings also indicate that the correlation is statistically significant. In addition, it is evident that there are other factors such as faculty feedback, technical support, and providing exemplary models and templates of Web Quest that maximized the successful implementation of the tool in an engaging, active and constructivist-oriented learning environment.

Keywords: WebQuest, Technology Acceptance Model, Constructivist approach, competency-based learning

1. INTRODUCTION AND BACKGROUND

Bernie Dodge's WebQuest (1997), a digital tool that facilitates goal-oriented research on the web, is a time-

honored, inquiry-based activity that advances students' development of higher-order thinking skills and employability competencies such as the ability to (1) communicate on the sentence and discourse level, (2) use technology, (3) work in teams, (4) collect, analyze and interpret reliable secondary and primary data and (5) implement ethical decision at the personal, social and professional levels. The design of WebQuest includes structured, procedural components such as an introduction, a task, online sources, a process, an evaluation, and a conclusion. The purpose of an *introduction* is to give a brief background about the subject under investigation and make available primary related and reliable resources on the object under analysis. A *task* segment specifies who will do what, when, why, and how. It requires collaborative and guided activities that have the potential to meet the requirements of the project under inquiry and the expectations of the targeted audience. The third component, *information sources*, presents a collection of reliable and searchable links and Web materials that practically address the targeted project. The *process* unit defines the procedures that students need to experience to complete the assignment in the designated time. The *evaluation* section formulates a reliable assessment strategy, a rubric or a checklist for what is expected of the members of the task to accomplish successfully. The last section, *conclusion*, sums up the main findings of the project under inquiry (Dodge 1997).

Since 1995 when Bernie Dodge developed WebQuest, there has been a significant amount of research on its pedagogical effectiveness in higher education curriculum. In this regards, research, predominantly in the West, relates the implementation of WebQuest as a concept and practice to constructivist-oriented learning that promotes learner-centered approaches to teaching, learning and assessment. According to social constructivism, knowledge is socially constructed and learners learn best when they are engaged in goal-oriented social interactions that meet their needs and expectations (Fosnot, 1996). The logic that stands behind the integration of WebQuest in higher education is to make effective integration of the power of the Web in a constructivist learning environment (Blummer, 2007). According to Dodge (1997), WebQuest has the potential to motivate students across disciplines to collaboratively collect well-organized, applicable, and reliable online resources that can assist them in addressing and assessing a problem under inquiry. In a constructivist learning environment, students are guided to construct and reconstruct their own knowledge.

1.1 Problem Statement

Noticeably, by and large, research on Webquest is predominately Western-oriented. Despite its potential pedagogical effectiveness, the theoretical and empirical discourse of Webquest has no existence in the national literature of the Kingdom of Saudi Arabia (KSA). Yet the question that comes into being: will WebQuest fit any higher education learning environment in the KSA? The following section explores the implementability of WebQuest from a constructivist perspective within the context of Saudi Arabia. The truth of the matter is that the majority of Saudi students come from high schools with behaviorist schemas that focus on memorization. They believe that the textbook is the source of information and the instructor is the only trusted source of knowledge. They are not used to search for information on their own because they used to believe that it is always already there available in the textbook. They come from a teacher-centered learning environment where teachers transmit knowledge considering students as empty vessels waiting to be filled out with data from the only trusted source of knowledge: the teacher. In other words, they come with an epistemologically-oriented behaviorist mindset that expects to be shaped by the mindset of instructors. When they come to a higher education institution that values a constructivist, learner-centered teaching, learning and assessment learning environment, they face a challenging dilemma and feel as if they are strangers in a strange land, especially when they realize that they have to take the responsibility of their own learning. In fact, they are trapped between two voices and discourses: the first discourse is primary, epistemological in nature and values a behaviorist paradigm; the second discourse is constructivist in nature and values learner-centered paradigm where learners construct and reconstruct their own knowledge. This type of students requires a scaffolding learning environment that allows them to move in between the two discourses smoothly until they develop a belief in the value of the constructivist voice. Within this challenging learning environment, students need to collaboratively lean on each other to ontologically understand what it means to learn and be functional in globally-oriented labor market that is very competitive. They also need digital tools that are easy to use such as Webquest to assist them in their quest for information online. Webquest has the potential to assist Saudi students in understanding the discourse of learning by doing. As an inquiry-oriented activity, WebQuest facilitates the process of developing higher order thinking skills where students collaboratively and reflectively experience the mindset of a researcher who has to collect, analyze, interpret, cross check the reliability of data collected, and then interpret and solve problems.

1.2 Research Questions

Yet to what extent and in what way providing university students in the context of Saudi Arabia with WebQuest can enhance their employability competencies and skills. Towards this goal and based on the critical review of research on Webquest and personal experience, the study considered the following questions:

1. To what extent and in what way do university students perceive WebQuest as a useful digital tool?
2. To what extent and in what way do university students perceive WebQuest as an easy digital tool to use?
3. To what extent and in what way do university students have a positive attitude towards WebQuest?
4. What is the relationship, if any, between student's behavioral attitude toward WebQuest and the perceived usefulness and ease use of the tool?

2. LITERATURE REVIEW

Research on integrating Webquest in higher education pedagogy embraces a number of themes that emerged from a critical analysis of literature over the last twenty years, specifically:

- Webquest enhances learners' higher order critical thinking .
- Webquest is positively perceived by higher education students when implemented in a constructivist.
- Webquest advances learners' employability competencies and their affiliated skills.
- Webquest has the potential to be used effectively across disciplines.
- Webquest is conceptualized in the literature ontologically rather than epistemologically.
- Webquest is perceived as an easy tool to use in a motivational, supportive and collaborative learning environment.
- Webquest is perceived as a useful digital tool in an inquiry-based learning.

A considerable body of research indicates that as a digital tool, WebQuest has the potential to develop learners' critical thinking skills. In a constructivist-based learning environment, Webquest has the likelihood to provide students with ample opportunities to gather, critically analyze, evaluate and interpret significant and trustworthy online information and goal-oriented materials that assist in solving a problem under inquiry. The literature provides quantitative and qualitative evidences that WebQuest facilitates collaborative learning (Kachina, 2012; Kujawa, 2006) . Also, research indicates that WebQuest promotes constructivist-based pedagogical approaches that derive learning-by-doing and project-based learning that foster learners to critically access and analyze trustworthy online primary and secondary sources that help them to develop a resourceful WebQuest (Bummer, 2007). It is also evident from research that a well-planned WebQuest creates a learning environment that allows students to discover solutions, test concepts, and work together with others to address and assess an issue under inquiry. The constructivist-oriented teaching and learning paradigm that WeqbQuest embraces is consistent with the nature and expectations of university students who learn best when they are fully engaged in constructing and reconstructing their life-contextualized and problem-based activities. In this domain of influence, research indicates that adults learn best by doing, experimenting, self-managing, self-regulating, self-designing and self-directing their learning activities in such a way that generates productive and intellectually rewarding outcomes. They also learn best when they find that they have a voice to be honored and life experience to be validated in a collaborative, dialogic and dynamic learning environment. Further, a majority of the international research studies primarily conducted in the West indicates that WebQuest allows learners to demonstrate their creativity in analyzing online information that allows them to solve life related problems. These studies reveal that WebQuest is a dynamic online learning activity that puts into practice constructivism with its focus on advancing learners' academic performance through reflective, individualized and meaningful experiences.

2.1 Conceptual Framework

In an inquiry-based learning environment, implementing WebQuest has the potential to motivate learners to

creatively develop technological, communication, teamwork, leadership and professional skills which they need to be job ready. Consistent with this insight, to successfully integrate Webquest across various academic disciplines in higher education, studies have shown that it is necessary to develop in students an understanding of its usefulness and ease of use. In this regards, the Technology Acceptance Model (TAM) has been considered to be practical in establishing a correlation between the perceived ease of use and the perceived usefulness of a technological tool on the one hand and learners' behavioral attitudes toward its acceptance or rejection on the other hand (Davis,1989; Davis, Bagozzi, & Warshaw, 1989). This study perceives WebQuest as a digital tool that has the potential to promote constructivist learning where learners act as active constructors of their knowledge. The conceptual framework of the study is represented in terms of the relationship among three variables: the perceived usefulness, the perceived ease of use and learners' attitudes towards the tool.

3. METHODOLOGY

3.1 Research Context

The WebQuest is one a main assignment of the Learning Outcomes Assessment Capstone course in the general education core curriculum program of Prince Mohammad Bi Fahd University (PMU), located in the Eastern Province of the Kingdom of Saudi Arabia (KSA). The university students, regardless of their majors, have to take this course. The objectives of the WebQuest are to measure the extent to which students have developed the required employability skills that enable them to be job ready. Mainly the WebQuest measures students' ability to: communicate on the discourse level, work collaboratively in groups, use technology, and adopt the mindset of a researcher in collecting, analyzing, interpreting and communicating a goal-oriented message to a specified audience.

3.2 Research Design

The design used a mixed methods case study which has been developed during the pedagogical implementation of the WebQuest in the constructivist-oriented learning environment of the case institution. Students' experience framed the case. Both quantitative and qualitative data are collected to measure the extent to which students have developed the required competence level that qualifies them to be employable after graduation.

3.3 Participants

73 male and female junior students enrolled in Learning Outcomes Assessment Capstone II at the case institution participated voluntarily in the study. The sample was purposefully chosen. All the participants have already experienced the development of a Webquest.

3.4 Data Collection

The quantitative data of the study was collected through a 5-point Likert scale questionnaire which was developed based on a critical analysis of previous research on WebQuest and the practical experience of the researcher. The questionnaire was piloted and the refined version comprised of three sections representing the research three main variables: the perceived usefulness of WebQuest, the perceived ease of use of the WebQuest, and students' attitude toward learning with technology. The first section with its 5 items (1-5) aimed to measure the extent to which participants believe WebQuest is a useful digital tool. The second section includes 5 items and aimed to measure the extent participants believe WebQuest is an easy tool to use. The last section includes five items and deals with the attitudes of participants toward WebQuest as a technological tool. All the 15 items of the questionnaire utilized a five-point Likert scale (1= Not at all, 2 = To a very little extent, 3 = To a little extent , 4 = To a high extent and 5 = To a very high extent). The qualitative data of the study was collected from the 3 open-ended questions of the survey which represent the research three main variables: Perceived usefulness, perceived ease of use and students attitude towards the Webquest as a technological tool.

3.5 Data Analysis

The questionnaire was administered to 90 male and female students and 73 responded providing a response rate at 81% which is considered, according to Morgan table, an acceptable percentage to generate valid results. The reliability of the survey items has been checked out through Cronbach alpha of the Software Package for Social Sciences (SPSS). According to Sweet and Grace-Martin (2012), an alpha (α) score of 0.70 or higher on a survey with four items or more is presumed to be satisfactory. In this study, the overall alpha of the 15 items

scored .980, which is a strong scale reliability. Descriptive statistics were used to analyze data collected from the questionnaire of the study. The responses of the survey were subjected to frequency analysis, percentage (%), and average mean (M), standard Deviation (SD), and correlation analysis. Qualitative data collected from the open-ended questions of the survey were analyzed using Nvivo.

4 RESULTS

Overall, the respondents considered WebqQuest as an easy activity to develop and a useful digital tool for advancing their employability competencies and their affiliated skills. The answers of the survey were analyzed in relation to the research questions. Research question one asked, "To what extent do university students perceive WebQuest as a useful digital tool?". To measure respondents' perceptions in this regard, descriptive statistics of the five sub-variables (from 1-5) had been performed with an alpha at .962 indicating the reliability of the measuring tool. Table one presents the frequencies, the means and the standard deviations (SDs) of the five items.

Table 1: Perceived Usefulness

Variables	Participant	not at all		to a very little		to a little extent		to a high extent		to a very high extent		Mean	Std. Dev.
	Students number	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
1. To what extent does WebQuest enhance your technology skills?	73							35	47.9	38	52.1	4.52	0.5
2. To what extent does WebQuest improve your critical thinking skills?	73					10	13.7	47	64.4	16	21.9	4.1	0.6
3. To what extent does WebQuest develop your research skills online?	73					4	5.5	46	63	23	31.5	4.26	0.6
4. To what extent does WebQuest advance your teamwork skills?	73					7	9.6	46	63	20	27.4	4.17	0.6
5. To what extent does WebQuest increase your academic performance?	73					13	17,8	41	56.2	19	26	4.1	0.7
							Average mean and std.dev.					4.23	0.6

The analyzed data of table one showed that the grand mean of the main variable, perceived usefulness, scored 4.23. That is, 84.6 % of respondents perceived WebQuest as a useful digital tool. The mean score for sub-variable one, enhancing technology skills through WebQuest, was the highest (M = 4.52, SD = 0.5, n for all means = 73). This is followed in order by sub-variable three – enhancing research skills through WebqQuest – (M = 4.26, SD = 0.6); then sub-variable four – advancing teamwork skills through WebQuest (M =4.17, SD = 0.6); and the lowest mean was for sub-variable two and five - improving critical thinking and academic performance through WebQuest (M = 4.2, SD = 0.6). Results of question one indicate that the highest means belong to respondents' perceptions of WebQuest as a digital tool for enhancing technology and online research skills. The lowest means are related to respondents' perceptions of WebQuest as a tool for enhancing teamwork, critical thinking and academic performance. This finding indicates that respondents perceived WebQuest as a valuable technological tool for online research more than a tool for enhancing critical thinking or teamwork skills. This finding is expected as using the internet for research purposes is overwhelming and time consuming. WebQuest facilitates this process through a scaffolded and structured framework that allows students to easily collect reliable online resources. The second lowest mean was related to the usage of WebQuest to enhance teamwork (M = 4.17, SD =0.58). This could be due to the fact that students, oftentimes, experience challenging problems (such as cultural diversity) while working collaboratively in groups. This implies that it is advisable for

students to discuss and develop teamwork skills (such as conflict management, appreciation for diversity, cross cultural communication and time management) before starting the WebQuest task. The lowest mean was for critical thinking and academic performance. This could be related to respondents' lack of understanding critical thinking as a concept and practice. As such, students need to be aware of the technique of critical thinking and its value for solving the object under inquiry. Also, students need to be scaffolded to develop a desired link between critical thinking as a research-based strategy and WebqQest as a digital tool for facilitating this process.

Research question two, "To what extent and in what way do university students perceive WebQuest as an easy digital tool to use?" measured participants' perceptions of the extent to which it was easy for them to develop WeQuest. Descriptive statistics of five survey items (from 6 – 10) showed that 84% of respondents considered WebQuest as an easy tool to develop given the availability of some supporting factors such as models of WebQuest, online tutorials, templates, instructor's support and feedback. Table two showed that the mean scores of the sub-variables related to providing models of WebQuest and instructor' feedback were the highest (M = 4.19, SD = 0.6) whereas factors related to online tutorials and lab support scored the lowest mean (M = 4.19, SD = 0.6). This finding supports the literature in this regard which considers modeling as an effective teaching and learning strategy for tasks that do not need a lot of intellectual effort such as WebQuest. In fact, students' development of WebQuest does not require too much of an intellectual effort which makes it appealing for students. In addition, exploring models of WebQuests provide students with ample opportunities to identify best practices through comparing various models.

Factors related to faculty feedback and the availability of templates scored the highest means (M = 4.19). This finding can accounts for students' awareness that providing templates has the potential to reduce the time spent on developing WebQuest. Research supports this finding and indicates that providing students with a template makes them focus more on the content rather than on the form. The factor related to providing instructor's feedback also scored a high mean (M = 4.19, SD = 0.6). This finding can account for the importance of faculty guidance and motivation for developing effective learning environment that inspires students to generate well-thought out WebQuests. The lowest means were for factors related to impact of online tutorials and lab support on easing the process of developing Webquest (M = 4.16, SD = 0.6). This finding indicates that students learn better through modeling than through online tutorial or technical support from a lab instructor.

Table 2: Perceived Ease of Use

RQ 2 : To what extent do student perceive WebQuest as an easy digital tool ?

6. To what extent does providing models of WebQuest make it easy to develop yours?	73					8	11	43	58.9	22	30.1	4.19	0.6
7. To what extent does providing online tutorial ease the process of developing WebQuest?	73					6	8.2	49	67.1	18	24.7	4.16	0.6
8. To what extent does providing a WebQuest template ease the process of developing yours?	73					7	9.6	45	61.6	21	28.8	4.19	0.6
9. To what extent does the support you receive from the lab instructor ease the process of developing your WebQuest?	73					7	9.6	47	64.4	19	26	4.16	0.6

10. To what extent is faculty feedback essential in developing a well-organized WebQuest?	73					7	9.6	45	61.6	21	28.8	4.19	0.6
												4.178	0.6

Average mean and std.dev.

Question three measured participants' attitude toward the usage of WebQuest as a technological tool. Descriptive statistics of the items from 11-15 indicate that 85.2% of respondents have a positive attitude toward WebQuest as shown in table three. Factors related to enhancing students' education and increasing their confidence level in using technology scored the highest means (M = 4.3 for the positive impact of WebQuest on student education and M = 4.4 for the confidence level). Factors related to the impact of WebQuest on enhancing participants' self-esteem and self-efficacy scored the lowest mean. This finding indicates that students' experience with WebQuest increases their self-confidence more than their self-esteem. Engaging students in constructing their WebQuests allows them to develop intellectual self-confidence while using technology.

Table 3 : Students' Attitude towards Technology

RQ3 : To what extent do students have a positive attitude towards WebQuest?

11. To what extent do you believe that WebQuest provides a valuable way for online search?	73					6	8.2	46	63	21	28.8	4.2	0.6
12. To what extent do you believe that WebQuest is a useful digital tool of learning?	73					2	2.7	51	69.9	20	27.4	4.2	0.5
13. To what extent do you believe that WebQuest enhances your self-esteem and self-efficacy?	73					3	4.1	50	68.5	20	27.4	4.2	0.5
14. To what extent do you believe that WebQuest increases your confidence in using technology?	73					3	4.1	40	54.8	30	41.1	4.3	0.6
15. To what extent do you believe that WebQuest has a positive impact on your education?	73					4	5.5	38	52.1	31	42.5	4.4	0.6
												4.26	0.5

Research question four asked, "What is the relationship, if any, between student's behavioral attitude toward WebQuest and the perceived usefulness and ease use of the tool?" Pearson's correlation coefficient was used to measure if there is a relationship between the first main variable of the study (perceived usefulness of WebQuest) and the second main variable (perceived ease of use). The correlation coefficient was .963 (correlation is significant at 0.01) indicating a strong relationship as shown in table four.

Table 4: Correlation between Research Variables 1 and 2

		RQ1	RQ2
To what extent do students perceive WebQuest as a useful digital tool?	Pearson Correlation	1	.963**
	Sig. (2-tailed)		.000
	N	73	73
To what extent do student perceive WebQuest as an easy digital tool to use?	Pearson Correlation	.963**	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

The positive correlation between the two variables implies that easing the usage of WebQuest has a positive impact on students' perceptions of WebQuest as a useful digital tool and the vice-versa. Another correlation is performed between the first and second main research variables (perceived usefulness and perceived ease of use) on the one hand and the third main variable (students' attitude towards WebQuest as a technological tool of learning) on the other hand. Results indicate that correlation coefficient was .947 (correlation is significant at 0.01) indicating a strong positive relationship. That is, participants' perceived usefulness and perceived ease of use impact their attitude towards the WebQuest as a technological tool of learning as shown in table 5.

Table 5: Correlation among Main Research Variables

		RQ3	G.M.
To what extent do students have a positive attitude towards WebQuest?	Pearson Correlation	1	.947**
	Sig. (2-tailed)		.000
	N	73	73
Mean of RQ1 & RQ2(G.M.) Grand Mean	Pearson Correlation	.947**	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

Significantly, finding from the quantitative component of the research have been confirmed by results from the qualitative part. The first open-ended question asked participants whether it was easy to develop WebQuest and if so, how. Respondents reported that the providing models of WebQuests, templates and timely feedback and faculty support made it easy for them to develop WebQuests . One respondent stated "using WebQuest to develop a plan to open a business made it easy for the group to figure out what needs to be done and finish the task before the due date".

5 CONCLUSION

All in all, the findings of the study indicate that WebQuest has a great potential for advancing graduate employability. In a learner-centered and technology-based learning environment, WebQuest is perceived to put into practice constructivist-based pedagogical approaches such as learning-by-doing, inquiry-based learning and collaborative-based learning and assessment which are pedagogical approaches premised on the educational philosophy of constructivism. Driven by the pedagogical concepts of constructivism, WebQuest provides learners with ample opportunities to collaborate, negotiate, reflect on and co-develop assumptions that address an object under inquiry. It is evident that there is a statistically significant impact of integrating WebQuest on advancing students' self-confidence. The findings also indicate that the correlation is statistically significant.

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