

ROLE OF AGE, GENDER AND SOCIAL STATUS ON STUDENTS IN HYBRID CLASSROOMS: A STUDY

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This paper aims to examine the impact of three human attributes (age, gender and social status) on students using online learning tools in a hybrid (face-to-face as well as online) courses in Al Ain University of Science and Technology in United Arab Emirates. To measure the impact of these attributes on student view and learning style on online learning tools, a sample from Al Ain University of Science and Technology was collected; the data then was analyzed to ensure its significance and reliability. The research finds a strong relationship between these attributes (age, gender and social status) and how online educational tools are perceived by students.

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1 Online Education: A Growing Market

Web-based education was seen as a chance to access and widen potential markets and reduce costs when preparing and running courses. Researchers foresaw it as a way to provide students with greater anonymity (Howe, 1998). Online education is gaining acceptance as an alternative to traditional teaching (Hoskins & van Hooff, 2005). Some benefits of online learning include enabling a more flexible pace of learning (Sherman, 1998; Ward & Newlands, 1998) as well as reaching and motivating a large and diverse audience (Plous, 2000). Furthermore, Web-based learning allows faculty the ability to provide feedback to students with relative ease (Collis *et al.*, 2001). Online education drew the attention of many researchers from different viewpoints from how to best design an online class using web resources (Hammond & Trapp, 2001), to how to measure students' perceptions of online learning (Owston, 2000), and different methods of delivery that affect achievement (Ross, 2000). Even in face-to-face courses, online tools are used to strengthen learning experience and ensure that the student is connected to the course material throughout the day. Discussions can help students better understand and learn the topics if they are linked to the course objectives (Ellis & Calvo, 2004; Ellis *et al.*, 2004; Ellis *et al.*, 2008).

2 Student Learning Styles

Better understanding of student learning styles enables schools to provide students with the correct tools to meet their expectations and adapt to their background. Researchers looked at different factors that might affect student achievement in online and on-site classes. Some factors and attributes found in the literature review include the following:

- Gender. A study carried out by Jackson, Ervin, Gardner, and Schmitt (2001) supported the finding that men are less inclined to enter into dialogue on the web. Internet use was separated into e-mail and web use to distinguish communication and information motives served by the Internet. Results showed that women used e-mail more than men (revealing a communication motive), and that men used the web more than women (indicating the motive to gain information without communication). Chmielewski (1998) found that men have significantly more knowledge of the web than women, yet Arbaugh (2000) showed that men reported more difficulty interacting in an asynchronous Internet-based course.
- Learning styles. Kucuk, Genc-Kumtepe, and Tasci (2010) researched the relationship between students' learning styles and factors influencing

students' participation in an asynchronous online course. Many researchers called for more empirical studies that included learning style as a factor in online discussions (e.g., Richardson & Newby, 2006; Wu & Hiltz, 2004). Shiue (2003) investigated the effects of students learning styles and computer literacy on computer self-efficacy. The author suggested that course design based on individual learning styles contributed to students' learning. Grasha and Yangerber-Hicks (2000) asserted it is important to take students' learning styles into account when teaching with technology.

- Age. Hoskins and van Hooff (2005) explored the relationship between age and Internet use. For the purpose of the present research, I will explore this attribute in further detail.

3 Study Objectives

The study objectives are as follows:

1. Explore the relationship between age and technology use in an online environment.
2. Shed light on difficulties students face in an online environment in Al Ain University of Science and Technology and how to overcome them.
3. Provide online material in a face-to-face class and explore its effect on student performance.
4. Provide recommendations on how students can perform better in online classes, based on their various attributes.

4 Study Approach

The study was a descriptive presentation of online education and its impact on adult learners, exploring the relationships between learner attributes (gender, online tools used, and perceptions of technology) and the chances of student success in a course.

5 Study Environment

The study was conducted with a group of students in three separate classes. Two classes attended lectures (face-to-face learning) 3 times a week, 1 hour per session, and one class attended twice a week, 1.5 hours per session. Students were introduced to Moodle¹, an open source course-management system (CMS). It provides faculty and students with the proper tools to conduct virtual or online classes. It allows faculty to create online classes providing faculty with course material, quizzes, and grading tools to provide students with grades

¹ Moodle can be downloaded from <https://moodle.org>

and feedback. A free version of an online class system is used by the university to facilitate online learning. The online class was divided into 11 sections, one section per week. Each section included the following:

1. Reading material
2. Extra-credit assignments. Each assignment reinforced the information covered in the classroom (face-to-face) discussions.
3. Quiz. Each quiz tested students on material from the previous week.
4. Multimedia material like videos and tutorials.

No textbook was used for the course, thus, all students had to access the online course to get the reading material, which was collected from several online sources. The online classes also included one ungraded discussion thread that played a role as a “student lounge,” allowing students to discuss their problems, post interesting materials and thoughts, ask questions, and communicate.

6 Research

6.1 Research Sample

I studied 115 students taking a face-to-face e-Management course at Al Ain University. The sample consisted of students in a morning program and those in an evening program. Both programs were given the same material, online as well as onsite. A total of 115 questionnaires were filled out by students. The survey yielded 12 unusable responses, indicating a response rate of 89.6%, which can be considered a good response rate. The questionnaire focused on the two main research aims of the study:

6.2 Research Tools

To achieve the objectives of the study, I designed a questionnaire. To ensure the questionnaire met the research requirements and focused on study objectives, it was evaluated by five experienced faculty members at the university. Their recommendations to modify certain aspects of the questionnaire were followed and implemented. The questionnaire was divided into two parts. The first focused on the demographics of the sample; the second part was divided into four sections: electronic tools, course content, evaluation process, difficulties, classroom discussion, and materials.

6.3 Research Hypotheses

To explore the effect of Age, gender, and social status on students in using e-learning tools in an online environment, the following three hypotheses were

formulated:

H₀₁: There is a statistically significant difference between age and e-learning tools used in the class.

H₀₂: There is a statistically significant difference between gender and e-learning tools used in the class.

H₀₃: There is a statistically significant difference between social status and e-learning tools used in the class.

6.4 Research Methodology

The data used in this research were gathered from students attending business courses in Al Ain University of Science and Technology in the United Arab Emirates. To measure the internal consistency (“reliability”), Cronbach’s alpha was used, which is the most common measure when using multiple choice Likert-type questions in a survey questionnaire that forms a scale. The tool used to perform the analysis was SPSS 18. Tables 1, 2, and 3 show the results obtained from the analysis.

Table 1
ITEM-TOTAL STATISTICS

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
Social status	9.05	13.164	-.275	.146	.882
Work position	7.68	8.514	.851	.800	.620
Work status	7.12	5.594	.890	.831	.461
Work experience	6.62	3.532	.865	.757	.537

The Cronbach’s alpha indicates that the all demographical variables except gender and age were .751, and that there is a high reliability of e-learning tools in the selected sample; specifically social status had the highest Cronbach’s alpha (.882) whereas work position had .620. The results are shown in table 1. The frequency percentage of demographical information, gender, age group and social status can be seen in Table 2.

Table 2
 DATA FREQUENCY DISTRIBUTION

		Frequency percentage
Gender	Male	56
	Female	44
Age group	less than 20	15
	21-29	77
	30-39	8
Social status	Single	89
	Married	11

7 Statistical Analysis

7.1 Analysis of Variance

Simple analysis of variance (ANOVA) was used to determine whether there is a significant difference between two or more means at a selected probability level. This technique, one-way ANOVA or simple linear ANOVA. The concept underlying ANOVA is that the total variation or variance, of scores can be attributed to two sources: variance between groups (variance caused by the treatment) and variance within groups (error variance). As with the t test, a ratio is formed (the *F* ratio) with group differences as the numerator (variance difference groups) and an error term as the denominator (variance within groups).

7.2 Hypothesis 1 (H_{01})

Table 3 shows the ANOVA used to measure if there was any statistically significant difference between age and e-learning tools.

Table 3
 ANOVA AGE ANALYSIS RESULTS

	Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
Between groups	4.623	18	.257	1.041	.425
Within groups	20.717	84	.247		
Total	25.340	102			

The value of $F = 1.041$ required for significance (0.425) if $\alpha = .5$ with 18 and 84 (*df*) degrees of freedom means there is a significant difference between and within the age group and e-learning group. Therefore, I accept the hypothesis H_{01} .

7.3 Hypothesis 2 (H_{02})

Table 4 shows the ANOVA used to measure if there was any statistically significant difference between gender and e-learning tools. The table also shows the mean square for each group (MS).

Table 4
ANOVA GENDER ANALYSIS RESULTS

	Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
Between groups	2.895	18	.161	.660	.840
Within groups	20.484	84	.244		
Total	23.379	102			

The value of $F = 0.660$ required for significance (0.840) if $\alpha = .5$ with 18 and 84 (*df*) degrees of freedom means there was a statistically significant difference between and among men and women and the E-learning group. Therefore, I accept the hypothesis H_{02} .

7.4 Hypothesis 3 (H_{03})

Table 5 shows the ANOVA used to measure if there was any statistically significant difference between social status and e-learning tools. The table also shows the MS.

Table 5
ANOVA SOCIAL ANALYSIS RESULTS

	Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
Between groups	1.622	18	.090	.923	.554
Within groups	8.204	84	.098		
Total	9.825	102			

The value of $F = 0.923$ required for significance (0.554) if $\alpha = .5$ with 18 and 84 (*df*) degrees of freedom means there was a significant difference between and among the social-status group and e-learning group. Therefore, I accept hypothesis H_{03} .

8 Discussion

In a market where almost everything is becoming computerized, age, gender and social status seem to play a very important role in using technology in

education. From a gender perspective, looking at Figure 1, when asked about use of external tools like iPhone or iPad to access school work, 64% of women surveyed agreed, compared to 60% of men. Female students also seemed to use the Internet (outside their course) more than men (73% to 69%). When asked whether the surveyed person would like to use the same tool in future courses, women were more enthusiastic about using these tools than their male counterparts (73% compared to 64%). Throughout the results, female students seem to prefer online technology more than their male counterparts, except when asked whether course tests were easy to complete; both answered with low scores: only 12% of men agreed compared to only 4% of women. This result is mostly because students tied the difficulty of the examination to the tool. The question should have focused on the tool used on the tests rather than asking about the course test in a general manner.

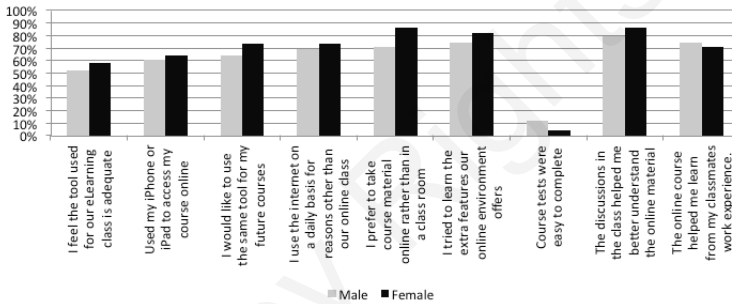


Fig. 1 - Responses based on gender.

As can be seen in Figure 2, from an age perspective, older students (those older than 30) seemed to find online tools much easier to use than their younger counterparts. When asked about use of external tools like iPhone or iPad to access school work, 38% of older students agreed, compared to 32% of younger students. Furthermore, when asked whether the class discussion helped students perform better in the online environment, 100% of students above the age of 30 agreed, compared to only 81% of younger students. This is mostly due to the experience older students gained throughout their educational and work careers; especially, 75% of them use the Internet on a daily basis (compared to only 69% of younger students).

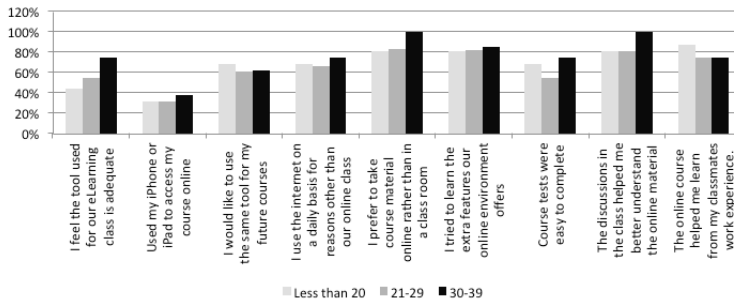


Fig. 2 - Responses based on age.

When looking at the results from the social-status perspective, the results were mixed but much easier to distinguish (see Figure 3). Married students seem to use more various devices (like the iPhone or iPad) to access course materials (27% compared to 2%). This difference may be because married students are most likely have a career, enabling them to purchase these devices, whereas single students might not be working while attending the school to get a degree to start a work career. Of married students, 73% found the online course quite adequate compared to only 10% of single students. This outcome may be because married students are better able to adapt to new variables in class because they have more life experience. Furthermore, 45% of married students recommended using the tool for future courses, whereas only 8% of single students did so. In contrast, 71% of single students found online courses beneficial in learning from their classmates' experiences, whereas only 64% of married students thought so. This result may be because married students are older and have more knowledge to give but less to learn, whereas single students found the environment rich with their colleagues' experiences, which helped them learn more. Furthermore, 60% of single students found the online tests easy compared to only 45% of married students. This outcome may be because single students have more focus in class to learn and more time to prepare than married students, in that married students have more variables to address in life, including work, spouse, children, etc.).

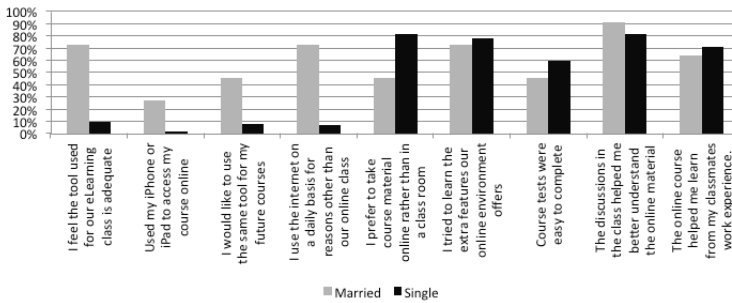


Fig. 3 - Responses based on social status (married vs. single).

9 Recommendations

Using the results obtained from this study, the following recommendations are presented:

- Increase the use of online tools in face-to-face courses to allow less experienced students to learn from their more experienced (often older) classmates.
- Make courses available with various tools, such as mobile, laptop, and desktop computers. Although few students noted they use tools other than computers to access course materials, not all students have access to smart phones. They may use these devices to access online course content, if given the chance.
- Encourage collaborative work. Research showed that female students are more engaged in the online environment than male students. Creating a collaborative environment will help men and women learn from each other, perhaps leveling the gender results.

Conclusion

Online education is on the rise, as market competition, diffusion of Internet use, globalization, and the need to prepare students to deal with the world pushed universities to use online tools to prepare students for the outside world. The use of online tools pushed more students toward online learning, creating virtual universities that flourish, as well as forcing existing universities to either offer online courses or offer hybrid courses (half online, half face to face). To try to understand the behavior of students in an online environment, researchers looked at different attributes such as age (Jackson et al., 2001), gender, social status, and learning style (Kucuk *et al.*, 2010). This research explored the rela-

tionship between three attributes—age, gender and social status—and the use of online tools in a hybrid environment (mixed, online and onsite courses). The study revealed a strong relationship between these attributes and showed some interesting results: female students seem to find online tools easier to use than their male counterparts. Furthermore, older students (students older than 30 years of age) seem to have more trust and use of online tools in advancing their educational and work careers. Furthermore, students who are married seem to take better advantage of online learning tools and find these tools much easier to use than their single-student counterparts.

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