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Study on students' experiences about online teaching during COVID-19 Outbreak

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Abstract. The online teaching in colleges and universities during the COVID-19 outbreak is one of the challenges faced by faculty and students during this period especially for colleges and universities that meet the quality assurance standards and under the accreditation process. One of the main requirements of quality standards is to carry out a variety of opinion surveys at different stages among different levels of study, analyze, and then provide recommended solutions based on survey findings. Although many researchers have been carried out online teaching, there is no consensus on the impact of a sudden transition from face-to-face learning to online learning especially in community colleges in Saudi Arabia. The purpose of this paper is to present the outcomes of the study on students' experiences about online teaching during COVID-19 Outbreak. Smart PLS program is used for testing the model and to make sure that the variables are appropriate and the outcomes are valid.

Keywords. Student satisfaction, online teaching, online teaching experiences, E-Learning.

1. Introduction

The advancement of technology and globalization has enabled many innovations in the educational environment that led to introducing new technologies into the classroom to enhance the learning experience as well as to enrich the educational content classes (Palloff and Pratt 2007). Online learning is one of the products of the flourishing of technology in education that has grown over the last decade where universities gradually replaced the traditional in-person or face to face lectures in favor of electronically content delivery. Thus, on-line teaching is simply transferring those face to face traditional contents into online or web-based ones (Fry, Ketteridge, & Marshall, 2009).

Ilsley (2009) recommended that an optimal fashion with diverse and rich content of collaborative methodologies to be considered when designing an on-line course to enable more engagement of users. Positive and supportive on-line learning environment is to be considered when designing such courses and communities to encourage and promote collaboration, engagement and to seek satisfaction of students (Lucero, 2006; Rovai, 2002). Moreover, motivation and participation of students are factors to be considered to keep students actively and effectively engaged in the learning process (Bloom, 1956), which is not an easy task to maintain during on-line education.

More academic institutes started to offer online course in the past years (Van Rooij & Zirkle, 2016; Shelton & Pedersen, 2017; Allen, Seaman, Poulin, & Straut, 2016), which require consideration of faculty to the modification and changing of the traditional learning environments to cope with the on-line setting like the structure of courses, interaction of learners, and presence of instructors (Allen & Seaman, 2015). Eom et al. (2006) mentioned that feedback of instructor, the structure of the course, motivation and international, learning style, are key factors towards student satisfaction. However, they concluded that the significance of the feedback from instructor feedback and the style of learning is noticeable on the learning outcomes, which in turn was a significant predictor of the outcomes of learning. Likewise, Richardson and Swan (2003) concluded that students' social presence related positively to learning perception and perceived satisfaction with the instructor. They recommended that the interaction between students and their instructors is to be focused on. Thus, active learning and engagement of students are crucial for increased student learning and retention. Moreover, clarity of course design, instructors' interaction with students, and active discussion have significantly affected students' satisfaction (Swan, 2001).

It was found that student satisfaction and learning correlates to the perceptions of students towards the overall usability of the course. In other words, the student level of satisfaction is significantly affected by the organization and the logical layout of the course (Eom et al., 2006). Students satisfaction is a cornerstone and plays a crucial role in the success of online programs (Ku et al., 2014), representing students' cognitive achievement in the on-line learning (Eom, et al., 2006), and the success of the implementation of the on-line program (DeLone & McLean, 1992). Conversely, it was found that student satisfaction is negatively correlated with drop-out rates, while it is positively correlated with commitment levels to the program (Kuo et al., 2014; Eom et al., 2006).

The literature has listed several studies that assess the satisfaction level of students in face-to-face and online environments. In courses where instructors facilitated or encouraged students learning, showed interest in students' learning and progress, organized the course effectively, communicated effectively, demonstrated respect for students, and evaluated students' work accurately have likely been evaluated satisfactory ratings (Dziuban et al., 2004). Marsh and Roche (1997) developed a sophisticated model to define the perceptions of students' satisfaction considering many factors such as value of learning, enthusiasm, and rapport of instructor, organization, assessment, interaction, and coverage. Another study reported that students' satisfaction with their learning experience was associated with the detailed feedback received from their instructors when participated in a partnership with other colleagues (Shea, Fredericksen, Pickett, & Pelz, 2003).

It was suggested in many studies that students satisfaction on on-line learning could be predicted by many variables including motivation (Eom et al., 2006), self-efficacy (Shen et al., 2013), learning strategies (Kuo et al., 2014; Lin et al., 2017), interaction (Eom et al., 2006; Croxton, 2014; Lin et al., 2017), and instructors facilitation, knowledge, and feedback (Eom et al., 2006). Thus, what and how students learn in an online education is an important variable to understand in terms of their satisfaction which in turn would be of great help to course instructors and designers when creating a learning environment that fits students' needs. This could be obtained by proper methods of instructions and well course design (Kaufman, 2015), and by meeting the needs of students (Bolliger & Erichsen, 2013). Course design should be well defined and user friendly (Wang et al., 2013), easy-navigate (AlHamad et al., 2014), and have clear and well-defined guidance, assessment rules, and subjective feedback (Lee, 2014). Students also expressed their preference for an interactive course where students are allowed

to interact with their instructors (Kuo et al., 2014), includes efficient visual communication content (Calli et al., 2013), contains different material of instructions (Ilgaz & Gülbahar, 2015), and has relevant and credible framework (Sawang et al., 2013).

Therefore, understanding the point of view of students and how they would evaluate on-line courses is crucial. It will assist the administration of academic institutes in making pedagogical decisions when designing, delivering, and assessing their on-line content, which will lead to achieving good outcomes with respect to learning objectives. Contrariwise, the unpopularity of on-line education or dissatisfaction of students on its contents or way of delivery will definitely lead to universities to retain their traditional and face-to-face teaching styles.

2. Methodology

The main objectives of this study are:

1. To evaluate the quality of online teaching.
2. To measure the quality of student learning
3. To measure the quality of facilities used in online teaching
4. To evaluate the quality of instructors
5. To develop a recommended model based on the study findings

Summary of the factors used in this study shows in the following figure



Figure 1. Study factors summary

2.1 Sample

Out of the 62 students who took courses this semester as online teaching, forty-seven students have participated in the study i.e. 76% of students responded to this study studied approximately six hours daily from Sunday to Thursday for ten weeks.

2.2 Data Collection

All Students at the college especially Computer and Information Technology students, since the use of technology facilities is a part of this study were contacted via email, blackboard, and whats-app messages to participate in this study. All students provided with full information about the study and how to access the online link, which is created using google forms tool.

2.3 Instrument

Student responses are mostly based on 5-point Likert Scale ranging from strongly agree to strongly disagree.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Collected responses were counted and then converted in terms of percentages. In addition, to have a better understanding of student's responses, strongly agree and agree responses were merged to "agreed", strongly disagree and disagree were merged to "Disagreed" .:

- Strongly Agree + Agree (or good & satisfactory) = **Agreed**
- Strongly Disagree +Disagree = **Disagreed**
- Neutral

2.4 Study Questions

The study designed to cover three categories: 1. Students' satisfaction about online teaching. 2. Students' satisfaction with facilities and 3. Students' satisfaction with instructor performance in online teaching

Questions from 1 to 7 used to cover category 1, Questions from 8 to 13 used to cover category 2 , and the rest of the questions used to cover the third category. Questions of the study are as follows

Table 1. Study Questions

No	Item
1.	My attendance in the online classes is better than normal classes
2.	The flexibility provided by the online classes is better for me than the traditional one.
3.	I have overload assignments in online teaching as compared to the traditional one.

4.	After the situation of COVID-19 finish, I look forward to having some online classes.
5.	The things I had to do in online classes (activities, assignments, quizzes) were helpful for developing the knowledge and skills the course was intended to teach.
6.	Online classes during the COVID-19 outbreak were an excellent experience for me.
7.	Overall, I was satisfied with the quality of online teaching.
8.	My laptop/desktop PC is good enough to use for online teaching
9.	The internet speed in my house is excellent
10.	The environment in my house is suitable for online teaching.
11.	I am satisfied with the technology I use for online teaching.
12.	I am satisfied with the use of communication tools in online teaching.
13.	Technical problems do not discourage me from online classes.
14.	Instructors use different media for online teaching
15.	Instructors give different assignments that suitable for the online environment.
16.	Assignments given by instructor were fair and clear.
17.	Instructors did their best to deliver the information using online teaching
18.	Instructors are actively involved in their learning teaching.
19.	Instructors have full control of students in the online environment.
20.	Instructors are very active in communicating with me regarding online teaching stuff.
21.	Instructors used a wider range of resources in online teaching than in the traditional one
22.	I am planning to give my instructor higher course evaluations in the online classes as compared to the traditional one.
23.	Instructors had the skills of delivering online classes.
24.	Overall, I was satisfied with the quality of instructors in online teaching.

2.5 *Creating a Model*

In this paper, the smart pls software used to study and analyze the proposed model. Measurement fit for reflective models. In a reflective model, arrows go from the factor to the indicator variables, signifying that a unidimensional underlying construct determines the values

of the measured and representative indicator variables(SmartPLS: Ringle et al, 2015). The following figure shows the model of the proposed study.

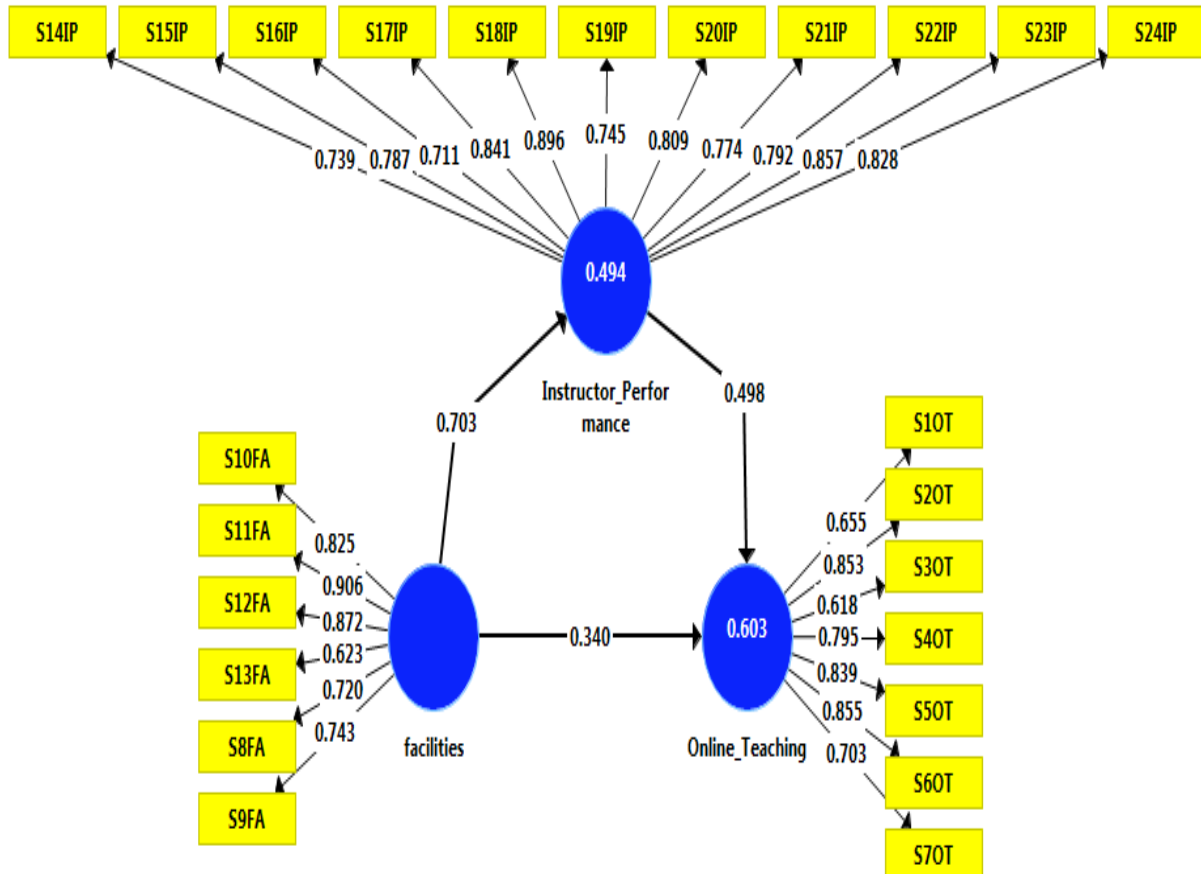


Figure 2. Variables and Measurement Model

3. Assessment of measurement model

Different measurements are used for the proposed model and will be discussed in the following section:

3.1 Average Variance extracted (AVE)

AVE is always computed to guarantee the validity of the structural model. AVE is a measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error. For the optimal model, the AVE value should be more than 0.50. The following figure shows the average of the study model and all variables are more than 0.50.

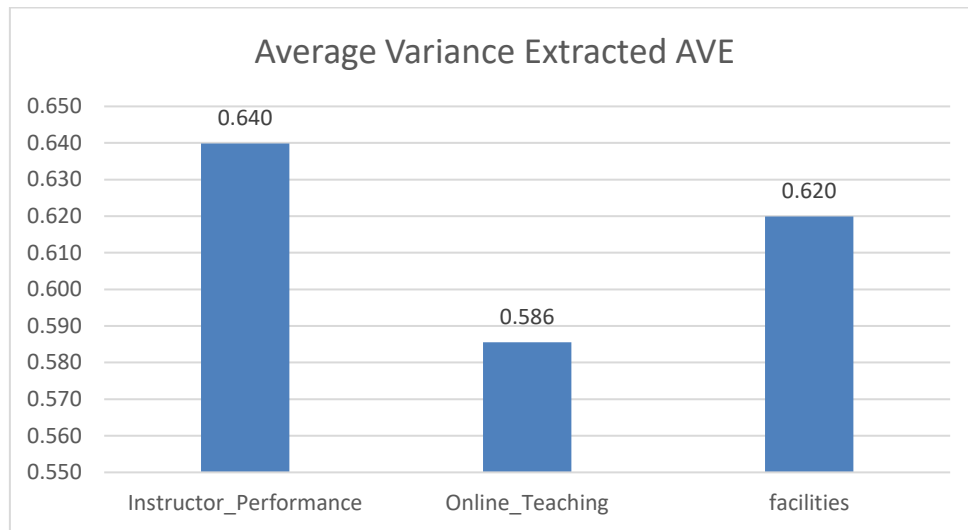


Figure 3. Average Variance Extracted

3.2 Composite reliability

Composite reliability is a preferred alternative to Cronbach's alpha. Composite reliability varies from 0 to 1, with 1 being perfect estimated reliability and for an acceptable model, the Composite reliability value should be more than 0.70. In a model adequate for exploratory purposes, composite reliabilities should be equal to or greater than .6 (Chin, 1998; Höck & Ringle, 2006: 15); equal to or greater than .70 for an adequate model for confirmatory purposes (Henseler, Ringle, & Sarstedt, 2012: 269). The following figure shows the composite reliability values of the proposed model and all variables are achieved more than 0.70.

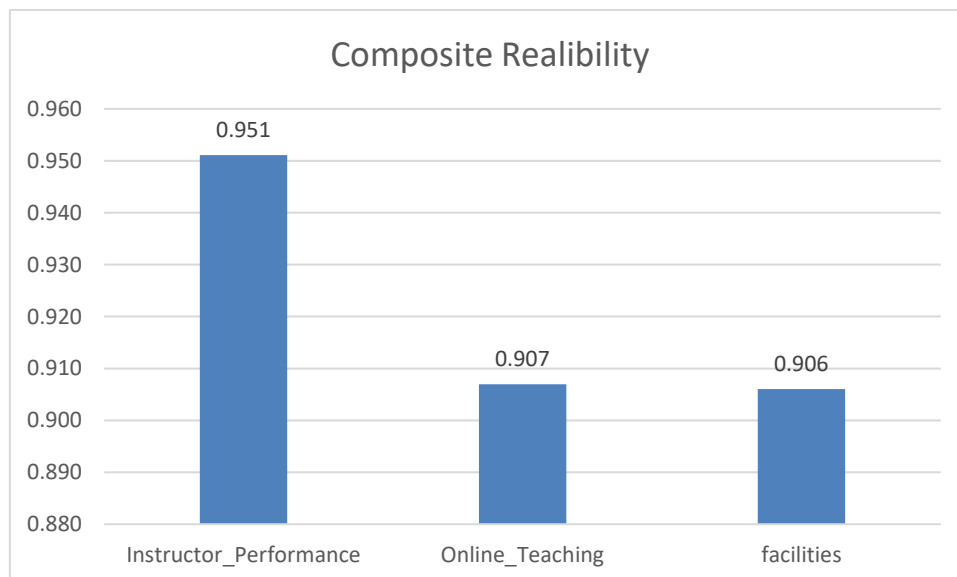


Figure 4. Composite Reliability

3.3 Cronbach's alpha

Cronbach's alpha also addresses the question of whether the indicators for variables display convergent validity and hence display reliability. In this measurement, the greater or equal to .80 is an indication for a good scale as achieved by the study model as the following figure:

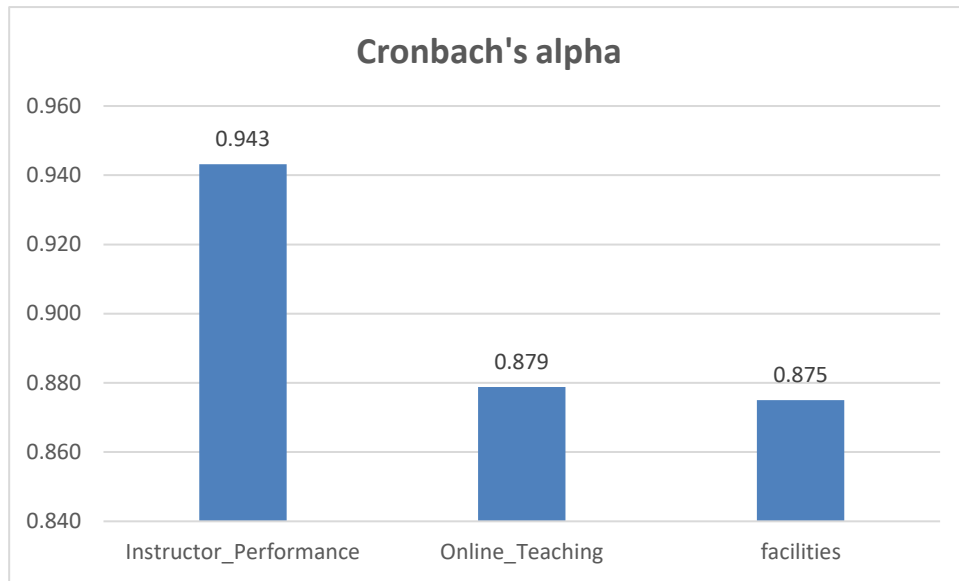


Figure 5. Cronbach's alpha

3.4 Discriminate Validity

The discriminant validity assessment has the goal to ensure that a reflective construct has the strongest relationships with its own indicators. Heterotrait-onotrait Ratio (HTMT) is used to measure this type of validity. The optimal value should be less than 0.80. From the following table, it is obvious that there are nice values below 0.85, which is the most conservative critical HTMT value, therefore, the discriminate validity has been established.

Table 2. Discriminate Validity

	Instructor_Performance	Online_Teaching
Online_Teaching	0.795	
facilities	0.746	0.748

As a conclusion of the previous section, it is clear that the proposed model has a normal distribution and the stability is very high. In other words, validity and reliability are acceptable. Moreover, this step is very important before the study of the model results.

4. Results

All Questions are interpreted as the following table to find the total number of agree, disagree, and neutral responses. In this study, we focused only on agreed and disagreed categories. Also, the chart for every question is created to get a clear visual of data as figure 6.

Table 3. Sample of responses details

Strongly agree	14	Agreed	20	43%
Agree	6	Neutral	13	28%
Neutral	13	Disagreed	14	30%
Disagree	6			
Strongly disagree	8			

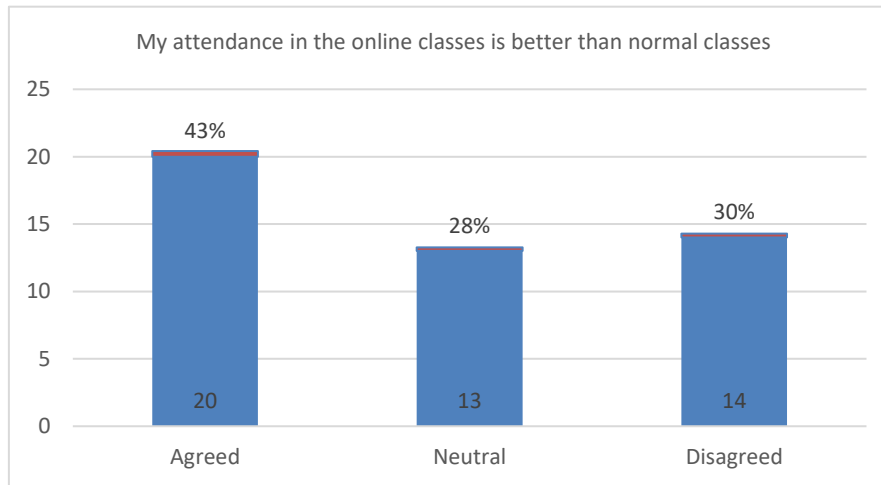


Figure 6. Sample of chart data for questions

To know the number of responses for each category and to analyze the feedback from students, the following table is created.

Table 4. Total responses for each category

Item	Agreed	Neutral	Disagreed
1	20	13	14
2	17	10	20
3	26	4	17
4	20	6	21
5	17	10	20
6	17	8	22
7	14	7	26
8	34	3	10
9	30	4	13
10	23	9	15
11	25	9	13
12	19	13	15
13	14	12	21
14	28	12	7
15	24	14	9
16	16	14	17
17	30	10	7
18	35	9	3
19	25	10	12
20	33	7	7
21	20	18	9
22	16	13	18
23	25	14	8
24	24	9	14

Mean	23	10	14
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The mean value is calculated to decide the items considered for analyzing the students' satisfaction. Items will be selected if their values are more than the mean value. The following figure shows the items selected:

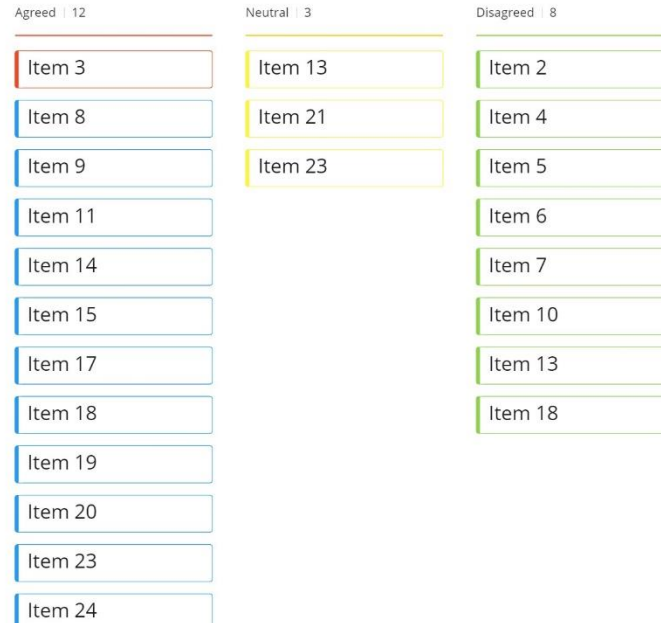


Figure 7. Items selected for the analysis

To get more accurate analysis some rules are followed: If the values in the neutral and disagreed categories are equal or close to each other, the disagreed item will be neglected. Also if the disagreed item value is more than the mean value and less than the agreed value, this item will be ignored. As a result of these rules the following items are selected for analysis:

Table 5. Items selected for analysis

Agreed		Disagreed	
Item 3	55%	Item 2	43%
Item 8	72%	Item 4	45%
Item 9	64%	Item 5	43%
Item 11	53%	Item 6	47%
Item 14	60%	Item 7	55%
Item 15	51%	Item 13	45%
Item 17	64%		
Item 18	74%		
Item 19	53%		
Item 20	70%		

Item 23	53%
Item 24	51%

If we look at the items in figure 8, it is clear that student's satisfaction is high with items in categories 2 and 3, which are the student's satisfaction with the facilities and instructors. The highest three items in the below figure are 18, 20 and 8, which are: "Instructors are actively involved in their learning teaching", "Instructors are very active in communicating with me regarding online teaching stuff", these two items from category 3, and "My laptop/desktop PC is good enough to use for online teaching", this item existed in category two, which is the satisfaction of facilities. The second patch of highest items includes items 9, 14, and 17, which are: "The internet speed in my house is excellent", "Instructors use different media for online teaching", and "Instructors did their best to deliver the information using online teaching". Also, this second patch is a part of categories 2 and 3.

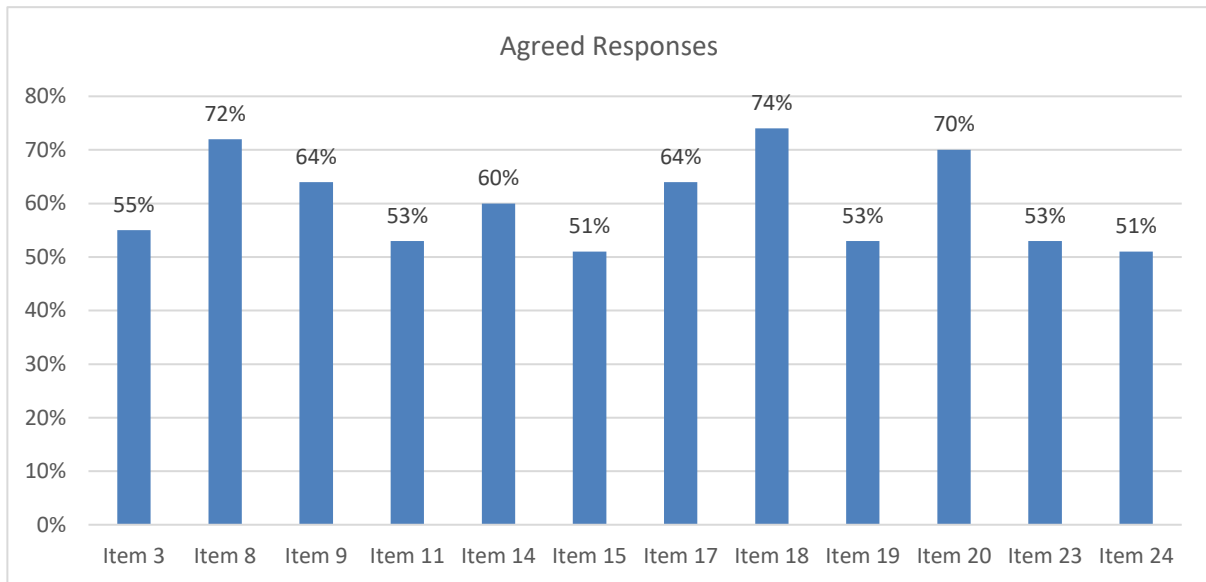


Figure 8. Agreed responses with satisfaction percentage

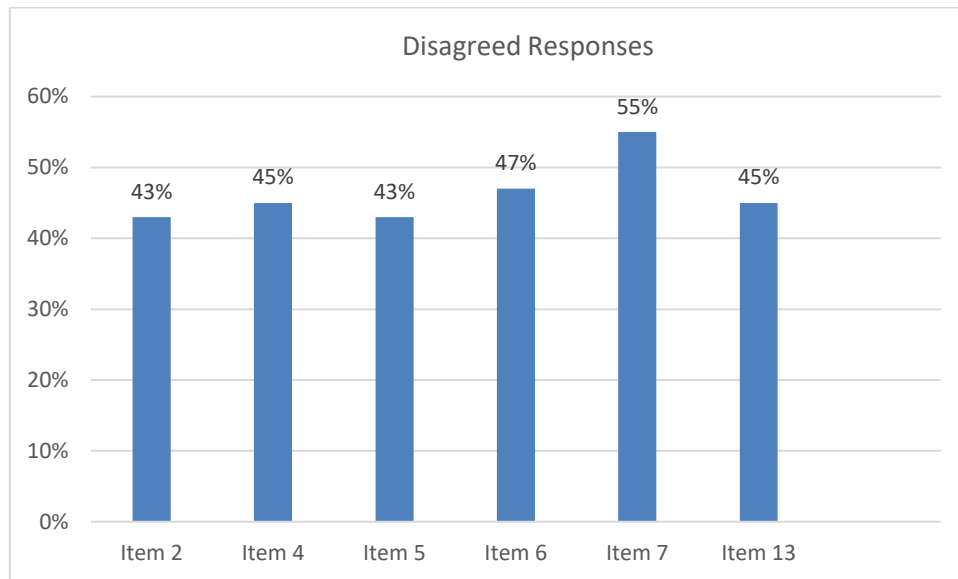


Figure 9. Disagreed responses with dissatisfaction percentage

Conclusion

All students believe that they are satisfied with the facilities used in online teaching, also they have highly appreciated the work of instructors, and they are satisfied with the instructor's performance. The existing facilities such as laptops and Internet speed are more than enough to tackle online teaching, also the instructors are well prepared, and they have enough skills to deliver online lectures. On the other hand, most of the students are not satisfied with their experiences with online teaching for different reasons such as they have overload assignments, they have to do the work on time, Students need to have more experience in online teaching, which will be beneficial for their future. The following figure shows the recommended model to enhance the online teaching experience with the students.

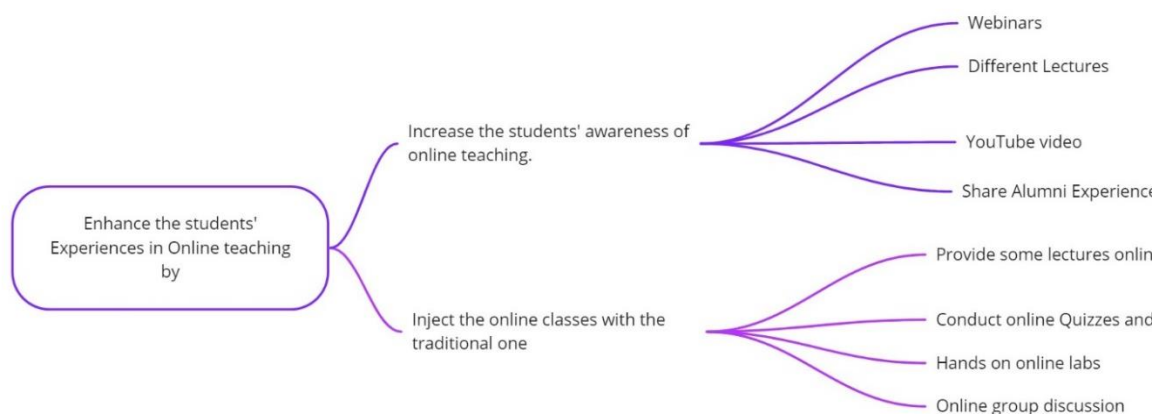


Figure 10. A recommended model to enhance the students' experiences with online teaching

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