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**ADMINISTERING ONLINE EXAMS
FROM HESITANTLY TO INNOVATIVELY -
A PERSONAL PERSPECTIVE THROUGH AN ACTION RESEARCH**

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Keywords: *COVID-19, online exam, UTAUT, Web App, Participant-observer*

ABSTRACT

In the midst of COVID-19, university campuses were shut down and faculty had to move their classes online. The abrupt change opened up many challenges. One of them was how to handle online exams. This paper recounted how one instructor had managed the exams online. The paper presents this experience from an action research perspective. At the core is the narrative that captures the exam design process, the tools used, and the proctoring setup. The results are based on the interpretation of the phenomenon through a lens of the unified theory of acceptance and use of technology (UTAUT). The insights reveal some qualitative evidence to support relevant factors in UTAUT.

INTRODUCTION

"The sudden and unprecedented shuttering of our nation's school buildings due to the COVID-19 pandemic forced educators to face the most jarring and rapid change of perhaps any profession in history." wrote Heubeck (2020) in an online article on EducationWeek. On short notice, university campuses were shut down, and faculty had to move their classes online. The abrupt transition caused many to scramble to recreate a learning environment that was entirely online.

In this paper, I want to address one of the challenges of teaching online classes. Specifically, I want to focus on the difficulties in administering online exams and share my approach to manage this process. This paper describes what I did to create my exams and how I handled the online exam process. The first section deals with a unified theory of acceptance and use of technology (UTAUT) framework. It helps guide me in the process of choosing and using technology to administer online exams. The next section describes my research approach, including motivation, the setting, and the method of data collection and interpretation. It is followed by the narrative of different tools that I used and the novel approach that I followed to administer online exams in my classes. The final section consists of the discussion and conclusion.

CONCEPTUAL FRAMEWORK

Although there are many conceptual frameworks to guide the implementation of instructional technologies, I chose the UTAUT model in this study. The UTAUT framework has been used extensively in information systems (IS) and other fields. It is evident in the existence of a large number of citations to the original paper. For a complete review of UTAUT, readers can refer to this excellent article "Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead" by Venkatesh et al., 2016, published in the Journal of the Association for Information Systems. In this article, the authors reviewed and synthesized the UTAUT research in IT literature for

the period from 2003 to 2014. The theoretical analysis was based on Weber's (2012) framework of theory evaluation by examining the parts of a theory and the theory as a whole. The analysis showed that UTAUT performs well in defining and articulating its parts and its whole, but it also has two limitations: its relatively low parsimony due to the complex interactions among the attributes and the lack of a multi-level formulation of the model. The result led to the need for an enhanced framework that can (1) synthesize the existing UTAUT extensions across both the dimensions and the levels of the research context. The article concludes with 5 recommendations for the future UTAUT-related research directions.

A complete review of the UTAUT model is not the main focus of this section. However, it is essential to be familiar with the model to make sense of the narrative as reported in the subsequent sections. Hence, in this section, I provide the highlight of the UTAUT model by focusing on its origin, strengths, and key constructs.

For years, the concept of user acceptance is recognized as one of the essential factors in effective technology implementation, especially in information technology/information systems (IT/IS). (Davis et al., 1989) In the past three decades, many conceptual models have been developed to predict and explain user acceptance of IT/IS. Among them, the best known is perhaps the technology acceptance model (TAM). (Chao, 2019) According to TAM (Davis, 1989), two primary factors influencing an individual's intention to use new technology are perceived ease of use and perceived usefulness. Over the years, many studies have been conducted using TAM as a framework. New insights led to further modifications and extensions of the original model. TAM eventually evolved into a unified model called the UTAUT model. The UTAUT model is proposed as a complete model with more variables in order to address the weaknesses in TAM. (Venkatesh et al., 2003; Chauhan et al., 2016; Šumak et al., 2017)

The strengths of the UTAUT model (Venkatesh et al., 2003) are its breadth and depth through its incorporation of eight different models including: Theory of Reasoned Action (Fishbein et al., 1975), Technology Acceptance Model (Davis, 1989), Motivational Model (Davis et al., 1992), Theory of Planned Behavior (Ajzen, 1991), Combined TAM and TPB (Taylor et al., 1995), Model of PC Utilization (MPCU) (Thompson et al., 1991), Innovation Diffusion Theory (Moore et al., 2001), and Social Cognitive Theory (Compeau et al., 1999). (Chang, 2012)

Going into the details of these eight models is beyond the scope of this section. However, it is useful to know what each of the model represents. Below lists a brief description of all eight models that were integrated into UTAUT for background understanding.

- The Theory of Reasoned Action (TRA) suggests that a person's behavior is determined by their intention to perform the behavior and that this intention is, in turn, a function of their attitude toward the behavior and subjective norms (Fishbein et al., 1975).
- The technology acceptance model (TAM) is an information systems theory that models how users come to accept and use a technology based on factors such as perceived usefulness, perceived ease of use, social influence. (Davis, 1989)
- The motivation model looks at intrinsic and extrinsic motivation as a basis of individual behavior specifically in the context of acceptance and use of technology. (Davis et al., 1992)

- Theory of Planned Behavior describes that attitude, subjective norms, and perceived behavioral control together shape an individual behavioral intention. In the context of user's acceptance and use of technology, behavior intention can improve the predictive power of users' actions (Ajzen, 1991)
- Combined TAM and TPB (Taylor et al., 1995) is basically the integration of both TAM and TPB by studying how behavioral intention is affected by perceived usefulness, perceived ease of use (TAM), attitude, subjective norm, and perceived behavior control (TPB).
- According to the Model of PC Utilization (MPCU), behavior is determined by what people would like to do (attitudes), what they think they should do (social norms), what they have usually done (habits), and by the expected consequences of their behavior. (Thompson et al., 1991, p. 126)
- Extending Rogers' Diffusion of innovations (DOI) Theory for use in the context of IT adoption, Moore & Benbasat proposed eight factors including: voluntariness, relative advantage, compatibility, image, ease of use, result demonstrability, visibility, and trialability. According to DOI theory, these constructs can impact the adoption of IT. (Moore et al., 2001)
- In a longitudinal study of users, Compeau et al., 1999 created a model based on Bandura's Social Cognitive Theory. The model was developed to test the influence of computer self-efficacy, outcome expectations, affect, and anxiety on computer usage.

Initially, the UTAUT model consisted mainly of four factors: performance expectancy, effort expectancy, social influence, and facilitating conditions. Over the years, more constructs were incorporated, including gender, age, experience, and voluntariness of use. In 2012, Venkatesh et al. (2012) extended the UTAUT model to formulate the UTAUT2 model by adding hedonic motivation, price value, and habit factors to the model. As of 2020, UTAUT2 has already garnered more than 5000 citations in Google Scholar alone, it has been frequently cited in IS and other fields, thus emphasizing its impact on IS and beyond. (Tamilmani et al., 2020) With additional construct, the UTAUT2 model performs much better than the UTAUT model. The comparison between UTAUT2 and UTAUT showed a substantial improvement in the variance explained in behavioral intention (56 percent to 74 percent) and technology use (40 percent to 52 percent). (Chang, 2012) The UTAUT2 model is presented as a unified model with many different constructs for use in various research contexts. (Tamilmani et al., 2020; Nordhoff et al., 2020)

There are many constructs reported in the literature related to the UTAUT and UTAUT2 model. Among them are these key constructs: Performance expectancy, effort expectancy, Social influence, facilitating conditions, hedonic motivation, behavior intention (Nordhoff et al., 2020), price value, habit, experience, use behavior (Chang, 2012), attitude, trust, self-efficacy, perceived risk, personal innovativeness, (Tamilmani et al., 2020). In addition, constructs such as perceived interaction, perceived ease of use, perceived usefulness, user-interface design, quality of life are commonly used in literature related specifically to IT/IS acceptance and use. (Venkatesh et al., 2012) Finally, the relationships among those constructors above are often studied along with moderators such as age, gender, experience. (Nordhoff et al., 2020)

As I developed my narrative and reflected on my notes, these constructs from the UTAUT and UTAUT2 model help guide me in making sense of what I observed and experienced. The established framework provides me a theoretical lens to understand what I did with the technology and how it affected the process.

RESEARCH APPROACH

With a number of years teaching MIS and working in IT/IS, I have much experience with the changes in technologies. I am also quite familiar with the instructional capabilities of IT/IS. My programming background and experience enables me to work with others to develop my tools, especially the web apps for use in classes. In this section, I constructed the narrative to describe what I had done in my classes from the action researcher's perspective. The narrative includes the description of the study's background, the research setting and methods, and the recount of the technology being used to support my teaching. After the narrative is the discussion section, where I present my interpretation of what I had done and what they meant.

RESEARCH SETTING

The research setting was my own classes. My teaching area is in Information Systems. In Spring 2020, I taught two sections of OMIS 350 - Introduction to Management of Information Systems. This course is required for all business students in their third and fourth year in the program. I had about 40 students in each of my OMIS 350 sections. In the Fall, I taught two different courses. The first one was OMIS 350 with 40 students, and the second OMIS 360 - Web Design with 11 students. This OMIS 360 was an elective course for business students. When Spring 2020 began, both of my OMIS 350 sections were taught as a regular face-to-face class. After March 19, 2020, both of my classes became online. In Fall 2020, although both of my classes were scheduled as 50% online and 50% face-to-face, students indicated that they wanted to attend classes online. Therefore, I taught them online as well.

Initially, I felt that the transition to online teaching was such a disruption. My traditional face-to-face classes went on smoothly at the beginning of the Spring 2020 semester. On such short notice, I had to move everything online. I was quite hesitant and even resistant to the change. However, since there was no other option, I had to adjust my classes with the new change. The university offered training on Google Meet. I learned to use it. Then, I also realized that my web apps, as well as my course websites, were quite useful in supporting the online teaching transition. My attitude shifted. I saw that this change indeed opened up an opportunity for me to learn new technologies and to teach my classes 100% online. More importantly, I also realize a unique opportunity to engage myself as a participant-observer to study this transition from teaching in a face-to-face classroom to online teaching.

RESEARCH METHOD

The research methodology that I used was qualitative action research. Action research, or participatory action research, is characterized as "a reflective process of progressive problem solving led by individuals working with others in teams or as part of a 'community of practice' to improve the way they address issues and solve problems." (Koch, 2006) This research methodology was the most feasible option for me to pursue, given the sudden campus shut down due to COVID-19. The data collection method was participant observation. I, as a researcher, was actively involved in the research process. My observation was recorded in my notes. The class sessions were in Google

Meet, so they were recorded on video. The insights were obtained from reviewing and reflecting on the actual occurrences and the notes. As a participant in the research, I was aware that my interpretation was not wholly objective. That is why the interpretation process was guided by the theoretical lens of the UTAUT model, my chosen conceptual model/framework for this research.

The research setting was the OMIS classes I was assigned to teach in Spring and Fall 2020 semesters. Because they were my classes, I had full access to all my students. I also had much control over the materials, activities, interactions, and technologies in use. All of these conditions lend themselves well to the research method that I chose. In the design of the research process, I went through the following four phases as suggested by Howell (1972): establishing the rapport, entering the field, recording observations and data, and analyzing data.

ADMINISTERING ONLINE EXAMS

This section describes a narrative of what I did in the process of choosing, designing, proctoring, and grading my online exams. This narrative was constructed based on my observation and reflection on my field notes. The narrative aims to provide a context for the process observed and a detailed description of the unfolding events.

One of the challenges in teaching online is how to administer exams with integrity, efficiency, and fairness. With the transition to online teaching, our university strongly discouraged any gathering on campus, including holding a face-to-face class meeting and giving exams in a classroom. This situation simply forced the faculty to find ways to handle exams online. I knew right away that many things in my classes had to be changed.

One of my biggest concerns with the transition to online teaching was how to handle the exams. All my exams were designed for in-class setting. Students would come to class and take the exams on-site under my proctor. I would be there to monitor them. There would be no notes or access to the internet. There would be no talking or sharing of information. It is a typical exam setting with maximum restrictions and close supervision. When switching to online exams, the exam setting is no longer the same. Even with the use of most sophisticated monitoring tools, I personally realized that it was not practical to follow the same practice of giving an exam online as that of a face-to-face setting. Therefore, I did explore a wide range of options and to pick the best option for use in my own classes. At one end is the practice based on an honor system. It is based on the premise that students are trustworthy and minimum supervision is needed. At the other end is the deployment of rigorous exam proctoring practices. This includes using all sort of monitoring techniques such as surveillance camera, live video streaming, respondus monitor, browser lockdown, etc.

In my case, I chose an open note/open-book approach. There are pros and cons to giving an open note/open book exam. Carefully comparing and analyzing the pros and cons led me to adopt this open note/open-book approach. At that particular time, it was the most practical and logical approach to use in my classes. I did review what constitutes an excellent open note/open book exam and assess what kind of cheating might occur with this type of exam. I learned that the most significant factor in the open note/open book exam is the type of questions that an instructor asks students. These questions should not be too simple that students could just copy out from the textbook. They should not be too general that students could just share. They should not be closely

similar to previous exams. The preferred design is to come up with questions that are challenging and individualized. The questions should require students to go deeper and think harder to derive the answers. The best questions are those that contain elements of uniqueness, creativity and individuality. These questions should demand from students a higher level of application and understanding of concepts learned. On my exams, I created questions with different parts. Then, students pick a part based on their last names. For instance, when we studied a case, I would ask them to analyze it based on management, organization, or technology factors. I would ask them to share their own perspective on an issue or an experience from their own workplace or context.

Since my online classes were synchronous, I did have class meetings. Although my exams were given online, I was still able to watch them over Google Meet. Since the exam time was limited to the duration of the class meeting time, I could impose the time constraint into the design of exams and thus challenge students' ability to manage their available time wisely. They needed to learn how not to entirely rely on the available resources and end up with not enough time to complete the exams. They had to learn how to balance the time to work on exams and how to strategically search and use resources such as textbooks, notes, and the web. Therefore, to do well on the exams, students had to be familiar with the materials and not just depend on looking up for every question. Therefore, it was not easy as many students expected. At the end, the grade distributions of my online classes were generally consistent with that of traditional classes.

All of the measures that I mentioned above seemed to work well. I gave students challenging questions. My expectations that I had were that students needed to attend the lecture, read the textbook, and think critically in order to do well on the exam. Furthermore, they had to know how to manage the time available for the exam. It was limited to the duration of class meeting time.

To make my exams comprehensive, I gave students an in-class part and a take-home part of the exams. This take-home part required individual thinking and web research and analysis without time constraints. The questions had different levels. One level was to encourage students to read the case and answer basic questions from the case. At the next level, students had to apply their understanding of the materials by responding to more challenging questions. The final level required students to research the web for the more recent development related to the case. Each student had to come up with their sources and address the questions posted based on these sources.

EXAM DESIGN USING GOOGLE FORM

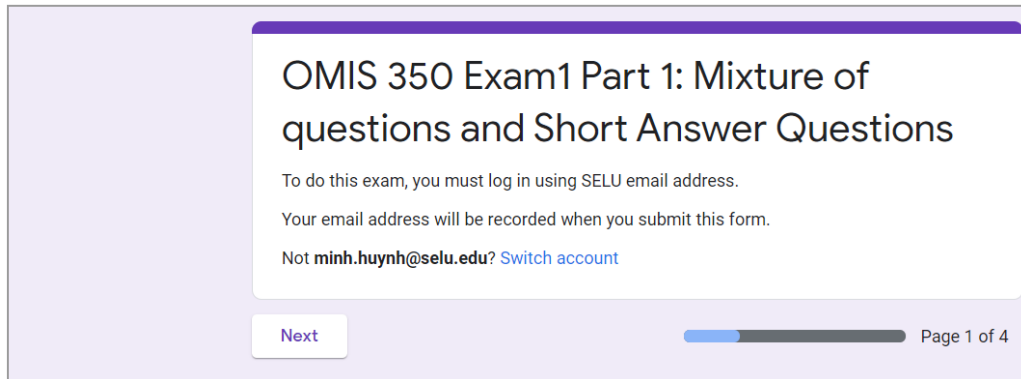
The platform that I used to create my exams was Google Form for the in-class parts. I am quite familiar with Google Form, so I was able to take advantage of it not only in the design of my exams but also in the process of giving the exams and grading them. Google Form has many good features to support online exams. One, Form offers various types of questions, including multiple-choice, short answer, and long answer. It also supports images. It is secure, reliable, and always available. Authentication such as email log in could be integrated. Exams could be divided into different sections. Within each of the sections, there is an option to shuffle questions. Hence, each of the students would have a unique exam with questions in a different order. This shuffling feature makes it a little bit harder for students to work together during the exam. After students' submission of the Form, the instructor can receive the answers that are rearranged in the original order in a spreadsheet. There is a feedback feature in the design mode to allow the entry of a correct answer and perform auto-grading and feedback. This feature is a time saver when it comes to grading and

providing feedback to students. Figures 1A, 1B, 1C illustrate the authentication and shuffling features in Google Form. These features are quite useful in the design of an online exam.

Figure 1A: Google Form setting allows log in for authentication with email account.

2213_OMIS350_05FV

Exam#1 Part 1 (T/F, Multiple-Choice, Short Answers)



OMIS 350 Exam1 Part 1: Mixture of questions and Short Answer Questions

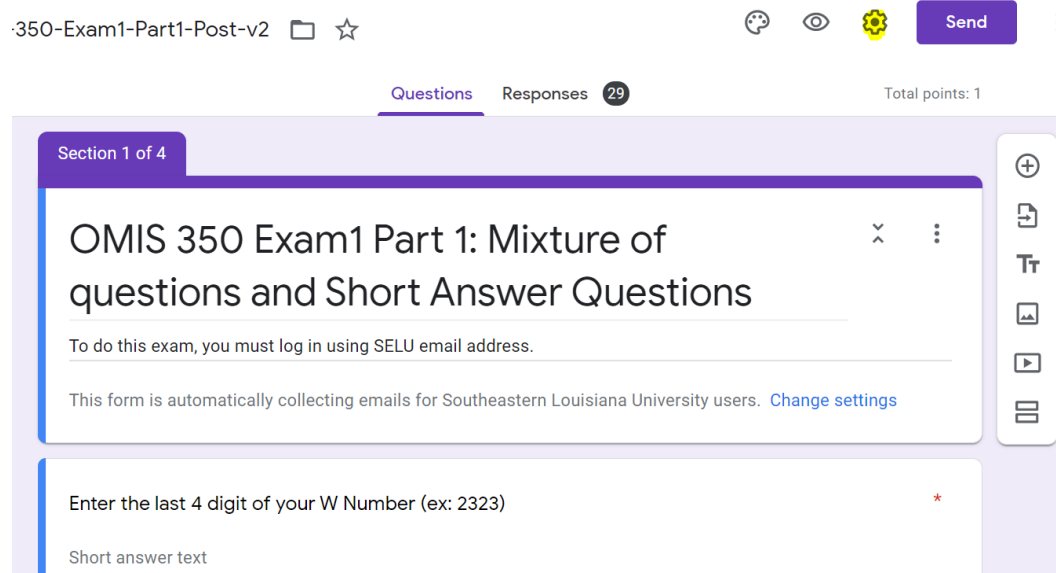
To do this exam, you must log in using SELU email address.

Your email address will be recorded when you submit this form.

Not minh.huynh@selu.edu? [Switch account](#)

[Next](#) Page 1 of 4

Figure 1B: Google Form setting is located at the top right as highlighted.



350-Exam1-Part1-Post-v2 Send

Questions Responses **29** Total points: 1

Section 1 of 4

OMIS 350 Exam1 Part 1: Mixture of questions and Short Answer Questions

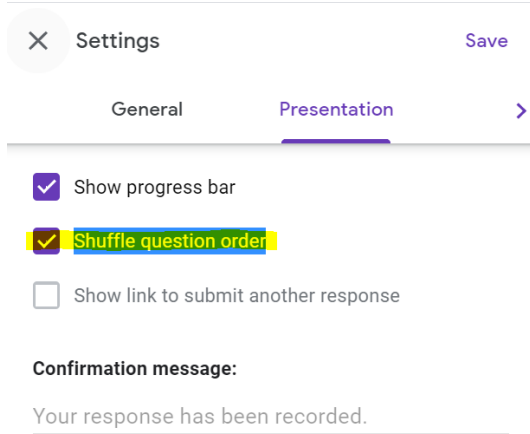
To do this exam, you must log in using SELU email address.

This form is automatically collecting emails for Southeastern Louisiana University users. [Change settings](#)

Enter the last 4 digit of your W Number (ex: 2323) *

Short answer text

Figure 1C: Google Form setting allows shuffling questions as highlighted.



PROCTORING ONLINE EXAMS

Giving an exam online was an unrehearsed experiment for me during the COVID-19 lock-down. My exams were given synchronously during a scheduled class meeting time. Students logged in when class was scheduled to meet. However, I asked them to turn on their video so I could see them. I ran into an issue with this requirement when some of students informed me that they could not display their video on their computers. My solution was to ask them to use their mobile device to show their video instead. This resolved this issue. Being able to view them and their environment allowed me to monitor their behaviors during the exam. From my experience, I did not have any student who refused to show their video due to privacy concern.

Another requirement that I ask students to do is to turn off their mic. Everyone would mute their mic to keep the room quiet during the duration of the exam. Instead of speaking, I encouraged students to use Chat. The Chat function in Google Meet was on. When students had general questions, they could post them on the Chat. I would address them. For more specific questions, I would ask them to call me via phone for a private conversation. I gave out my office phone number so they could reach me for questions. A number of them did call me during the exam. This phone communication channel turned out to be a value-added feature for an online exam. One surprising occurrence was that students responded to other students on Chat if they could help. I encouraged this type of interaction via Chat.

Other useful features that I used during an exam were to record and capture the screen. In Google Meet, I recorded the entire session for reference if needed. On my laptop, I could capture the screen at any time. Screen capture helped me to track who was in the room at the time.

From all of my online exam experiences, I encountered one glitch that made me re-examine the entire process. One student contacted me because he was logged out from the Google Form. When he reopened the link to the Google Form, all the answers were lost. I ended up giving him extra time to redo and complete the exam. This glitch shows a vulnerability of an online exam. If the power outage occurs, then the whole process can get disrupted. I do need to come up with a contingency plan in case of power disruption. Regarding the Google Form, I learned that it now has a feature to save and continue option. This feature is going to be quite helpful because students can save their work along the way. They can recover their work in the event of power disruption.

EFFICIENT WAY TO GRADE EXAMS AND TO PROVIDE FEEDBACK

Since the exams were designed in Google Form, students took the exams online, and their answers were recorded in Form. From Form, I could download all the content in Form as a CSV file. Then, I used Excel to open and work with the CSV file. In Excel, I was able to carry out the grading process quite efficiently. Having the exam answers from students in a spreadsheet was another unique feature in Google Form. It allows efficient grading because I could insert formulas for grading various questions, including True/False, Multiple-choice, matching, short answers, and even essay answers. For instance, the score of True/False or Multiple Choice questions could be tabulated quickly with formulas. It was simple for other types of questions to determine the right or wrong answers when the answers were all in one place.

Furthermore, it also allows quick comparisons among students' answers to effectively give individual feedback, whether it is a True/False, Multiple-choice, matching, short answer, and even

essay question. For longer written answers, I manually look at each answer, assign points, and provide comments. Since all the answers for a question were all in one column, I could go through the grading very efficiently and thoroughly. Every question had three columns associated with it. The first was for holding the answer, the second for points deducted, and the last for comments. Hence, I could indicate the points that I took off and explain why I took these points off or what the right answers were. Once the spreadsheet was graded, I could upload and run a script to transfer everything to an online database. Figure 2A shows the spreadsheet with exam questions, students' answers, and columns for a point off and remark. The data were obtained from Google Form as shown in Figure 1A, 1B, 1C. After grading, they were transferred over to the online database as shown in Figure 2B, 2C, and 2D. The process involved running the pre-written script from Script Editor as shown in Figure 2B. Figure 2C shows the code that takes the data from the sheet and write them in the Firebase realtime database. Once the data are stored in the database, Web apps can retrieve the data and display the content to the users as illustrated in Figure 3.

Figure 2A: The spreadsheet contained exam questions, students' answers, and columns for point off and remark.

FJ	FK	FL	FM	FN	FO
item403	item404	item405	item406	item407	item408
___ computing r	Point Off	Remark	_ Refer to Figure	Point Off	Remark
Q40	Q40	Q40	S1	S1	S1
ac ___ computing n	___ computing n	___ computing n	_ Refer to Figure	Point Off	Remark
Hybrid cloud	0		(a) Platform serv	-3.5	Need to elaborat b)Application se c) Infrastructure
Hybrid cloud	0		(a) Platform serv	-3.5	Need to elaborat b)Application se c) Infrastructure
Hybrid cloud	0				
Hybrid cloud	0		0	-5	

Figure 2B: Google Sheet Tools provides Script Editor where code could be written to execute predefined tasks.

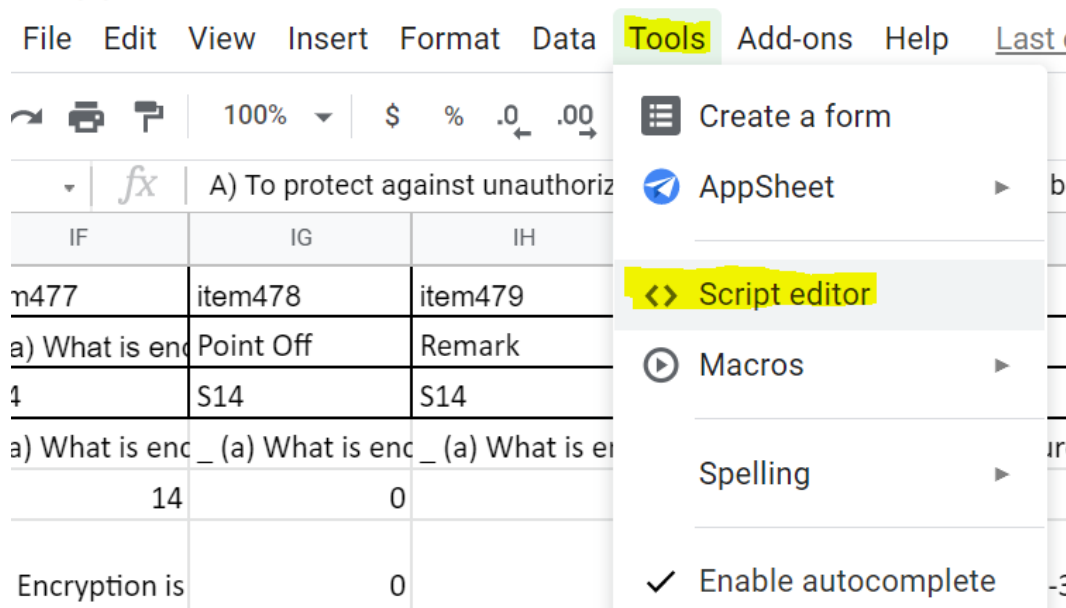


Figure 2C: This script from Google Sheet was responsible for taking the data from this specific sheet and writing to a Firebase database.

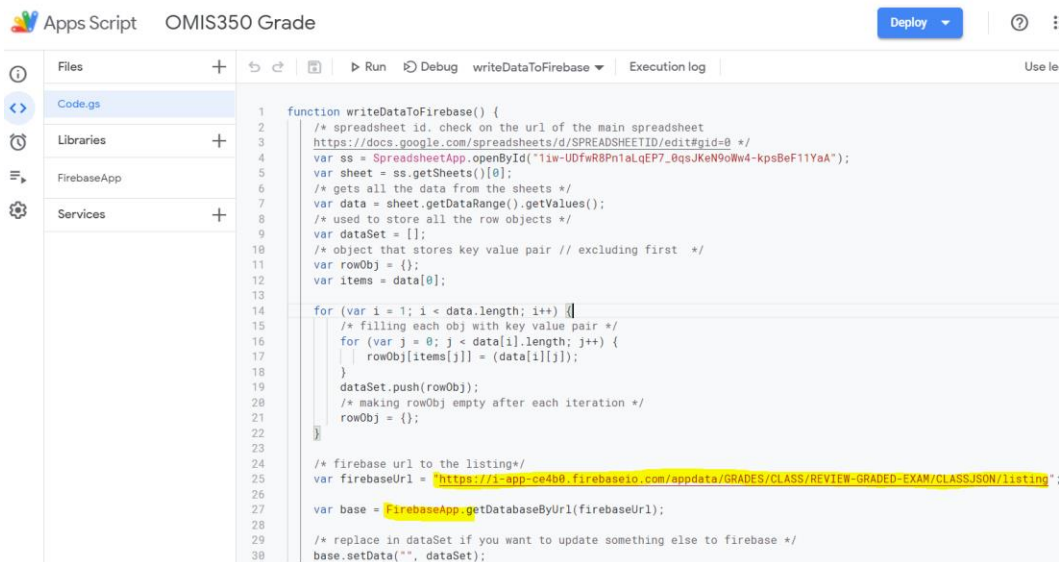
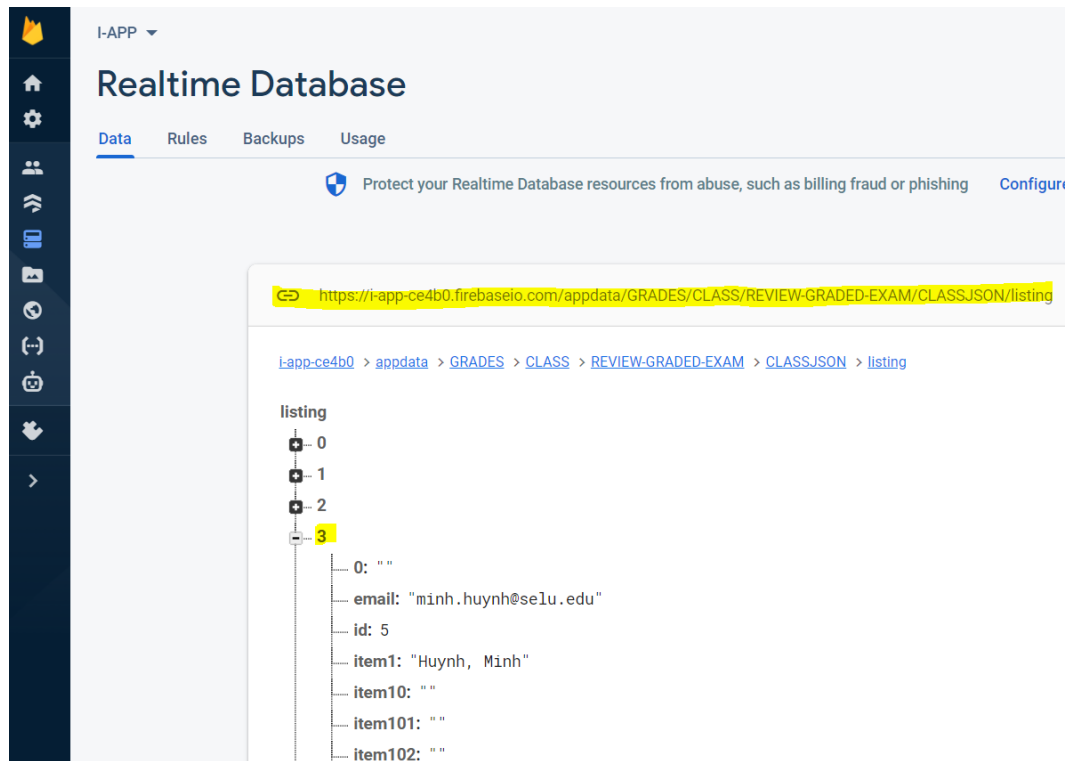


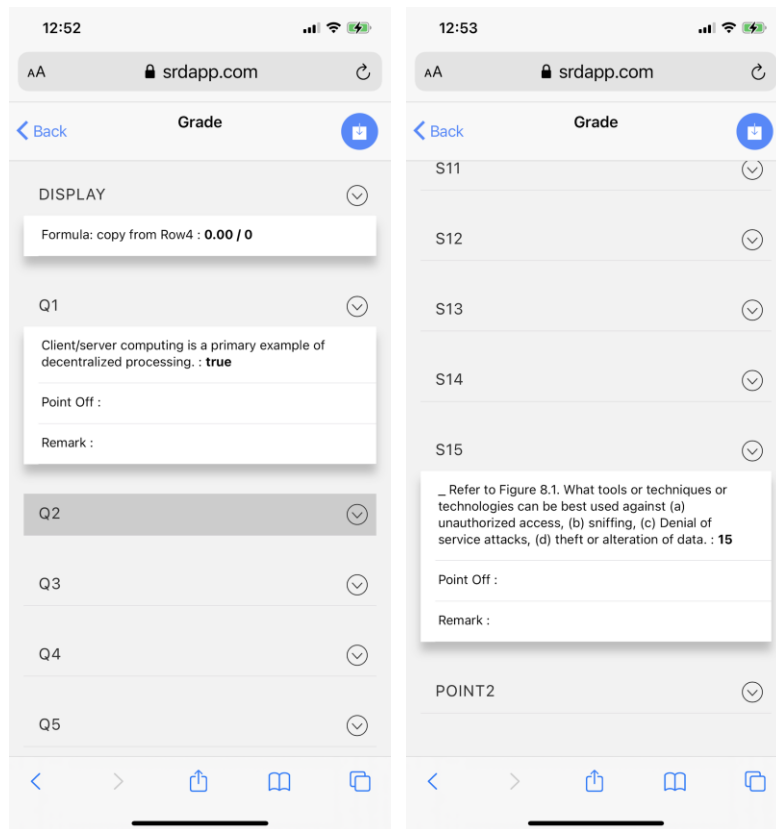
Figure 2D: The Firebase realtime database was used to store data for Web Apps. The illustration showed the data from the exam sheet.



Exam Review App

This exam review app, as it turned out, provides much value to students as well as to me. It allowed students to look at their exams, saw the questions from the exams and their answers, and feedback. Since students had a way to look at their exams, they did not have to contact me for their grade. I had fewer complaints from students. I also did not have to explain the points that I took off on their exam with the remark on their answers. Everything was quite transparent. Students seemed to like this feature. The way the exam review app works was similar to the grade app. Basically, after the exam, I just downloaded the answers and then graded them in Excel. After grading an exam, I uploaded and transferred all the questions, answers, comments, and points into the Google sheet similar to the Google sheet in the grade app. Then, I ran a script to transfer the data into an online database similar to the grade app. Students could then review the exam, their answers, and the correct answers or the remarks as shown in Figure 3.

Figure 3: Exam review app displays the questions, the correct answers, the point off, and the remark from the instructor.



This simple app allowed students to retrieve the exam questions and their answers for review. Each student could only see his/her exam but not others' at any time and in any place. This innovative feature from the app made individual feedback possible and, at the same time, also protected the confidentiality of the exam.

RESULTS/DISCUSSION

The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003; Venkatesh et al., 2012), were proposed to explain users' behavior in utilizing technologies. I have referred to it as a guide for interpreting and understanding my observation and my own experience in administering online exam processes.

Through the lens of UTAUT, the following insights were identified. The Google Form provides a versatile platform to accommodate different types of material, such as flexible text, images, animation, and video. It has built-in features to support online exams. For instance, the question shuffling was a good feature to provide students with individualized exams, but grading all of the questions was reassembled in the original order. These features show how technology, when deployed appropriately, can benefit users to perform tasks/activities. Such benefits are related to factors such as performance expectancy and effort expectancy in the UTAUT.

The process of proctoring online exams can be done even with readily available technologies such as Google Meet, Chat, and phone. In my case, seeing all students on my Google Meet was a very good feature. Chat was available for students to raise questions and get help from each other. Furthermore, I offered them a phone number for a private call. All of these supported me well with the process of giving exams online. Such benefits are an indicator of the performance expectancy factor in UTAUT.

The ability to output the exams from Google Form into a spreadsheet was another unique feature. Handling the grading part in a spreadsheet is easier and faster. More importantly, the spreadsheet made it feasible for an instructor to provide individual feedback on each answer. This experience makes me even more aware of the effort expectancy factor because using Google Form certainly made the grading better.

Lastly, one of the unique challenges is whether giving an exam on paper or online allows students to review their answers. With a paper-based exam, an instructor could pass the exam back to students. With an online exam, an instructor could email them their answers. However, this is not an efficient approach. My exam review app, as an improvement, offered a unique way to return students' online exams. As described, students had to provide their credentials to review their exams. Only they could see their exams. The development of the review exam app is an innovative step. The app allowed students to see their answers, how they did on the exams, and learned from the feedback/comments from an instructor. This observation reflects the following factors from the UTAUT model: online course design, user interface design, facilitating conditions, habit and experience and perceived usefulness. Online course design refers to the types and quality of online exams. User interface is an organization of the content and visual design. Facilitating conditions help students take and complete online exams. Habit and experience is the users' ability to take online exams without training. Finally, perceived usefulness is the belief that users have in the benefits of using technology.

The web apps such as grade and exam review apps mentioned earlier provide an easy way to view the grade and feedback. Given this capability, none of the students contacted me to ask about grades and argue about points. Although there was no survey from students, their responses, as I observed during and after the exams, were not negative but actually quite supportive. Students joined in Google Meet and logged on Moodle to access online exams. They opened Google Form to work on the exam. Once done, they submitted it. After the exam was graded, they used the review exam app to see their grade and their exam feedback. Thus, the process was mediated by many different technology tools, but the usefulness of these tools was evident from students' preferences. When I offered students to take the exam in a face-to-face setting, none chose to do so. Instead, they wanted to take exams online. It was more convenient for them. They were more comfortable and seemed to work well with using different technology tools that I offered. When I posted the exams for students to review, I received fewer questions and complaints from them. The remarks and feedback that I provided seemed to clear up many issues that I used to have after giving back exams to students and posting just their grades. These observations imply a certain level of impact that factors such as online course design, user interface design, facilitating conditions, habit and experience and perceived usefulness play in the online exam process.

CONCLUSION

The abrupt transition to online teaching is one of the challenges that is resulted from COVID-19. There are advantages as well as disadvantages to online teaching. One thing that we all can agree on is that online teaching and traditional face-to-face teaching are not the same. Recognizing the differences and making appropriate adjustments are the key to cope with this transition.

In this paper, I chose to examine the phenomenon involved administering online exams. This is an action research to explore how best to administer online exams from a participant observer's perspective. During the transition to online teaching, giving online exams was the only option available at me due to the lockdown. I was able to use my classes as a research site. As I made changes for the online transition, I had an opportunity to reflect and examine the processes that I went through. This paper is not intended to represent an in-depth or comprehensive study of the phenomenon involved in administering online exams. Rather, it is a preliminary research that focused exclusively on a specific setting and reflected a personal experience in this process.

As discussed in this paper, it was not practical for me to give a typical classroom exam in an online environment. I had to adjust my exams to fit with an online environment. In my case, I chose to use the open notes/open books format but with time constraints. This format seemed to work well in my classes, but it might not be applicable in other contexts. I picked Google Form and used my web app and spreadsheet as tools to design, deliver, and grade my online exams. These technologies helped make it possible for me to manage my online exams. I also have to set up a process to ensure that students had access to exams and could complete them successfully. In sharing my own experience in the process, my intention is to open up the issues involved in administering online exams and to offer my own approach to overcome these issues. My approach is basically having an open mind, being ready to make adjustments, learning appropriate tools and using them in an online teaching environment. Furthermore, while the results were limited to my own setting, some of the insights might be useful for applications of the process in other contexts. However, they should not be generalized without further research.

Most of my students were Generation Z. They grew up with technology, and they are undoubtedly familiar with various technologies accessing the internet. However, it is still essential to understand different factors that may affect their intention to use their technical knowledge in digital learning and their adoption of technologies (Persada et al., 2019). This is where a model such as UTAUT can help make sense of the field observation. However, a note of caution is when interpreting the qualitative results. It is crucial to keep in mind that the factors affecting the use of technology are often complicated and usually varied based on the environment (Al-Fraihat et al., 2020). Further studies, especially from a quantitative approach, should be conducted. Students' feedback and survey could provide data to verify and support these insights.

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