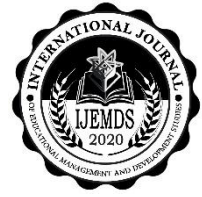


# Online Learning Expectations among Engineering Students: Analyzing Pre-Determined Factors in the Implementation of Flexible Learning



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## Abstract

Academic institutions shifted to a new model of teaching and learning due to the COVID-19 pandemic. To study the gradual implementation of synchronous and asynchronous learning considering its flexible schedule to engineering students in one state university in Laguna, this research paper determined the students' expectations on the pre-determined factors in online learning. The descriptive research design used a standardized instrument answered by 30 computer engineering and 55 electronics and communication engineering students of the academic year 2020-2021. The study revealed that both groups of engineering students have a high level of online learning expectations as to proficiency with technology, the capability of the course instructor, delivery of the course content, setting social interaction, ensuring course organization, and realizing time management and convenience. This supports that there is no significant difference between the expectation levels of engineering students to study online. Further, there is a significant positive relationship between and among the pre-determined factors in implementing flexible learning. However, no significant relationship is depicted on proficiency with technology to the capability of the course instructor, delivery of the course content, and course organization. The result served as a guide to the institution to ensure an organized policy designed toward smooth implementation of flexible learning and examine pre-determined expectations that can be satisfied.

## Keywords:

flexible learning, synchronous learning, asynchronous learning, online learning

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## 1. Introduction

Teaching and learning processes in a different educational institution in the country were affected by the conditions brought by the coronavirus pandemic. Every institution was challenged to implement a flexible scheme for their academic program offerings and services to ensure that the students will realize the same quality of education (Coman et al., 2020; Tarayo et al., 2021). To control the situation, there were policies developed on flexible learning modalities, adoption of synchronous and asynchronous online learning, blended learning, and other learning modes to replace the conduct of face-to-face sessions following the strict health protocols. As an alternative, most institutions in the Philippines adapted internet-based learning to reach their student-clienteles who are willing to continue their course journey despite the challenges brought by the coronavirus pandemic.

In one state university in Laguna, a flexible learning scheme of using one-time synchronous and twice asynchronous online learning for every course subject was institutionalized during the imposed community quarantine. However, it challenged the university at first on how teachers and students will accommodate the idea and the underlying processes that need to be established to meet success on its implementation. Some believed that there were problems that might be encountered on its implementation, like the knowledge and skills of the teachers in handling online learning, the material preparation that needs to be uploaded for the students, low or no internet connectivity of both students and teachers and other expectations arising from the clientele (Martin, 2019; Mahyoob, 2020; Cicha, 2021). If these were not addressed at first, a poor learning experience might be expected as a result. As an initiative of the College of Engineering, the faculty members were tasked to work on research as to the expectations of the students on online learning delivery. It could be studied at first to anticipate the problems arising as the college will transition to flexible learning modes. The college should prepare and effectively implement a potential policy for the smooth imposition of flexible learning.

Several challenges may need to be faced in implementing flexible learning in an online scheme, but there are also advantages than can be realized later on. Students will be more focused on learning the lessons as they have comfortable work conditions (Bhamani et al., 2020). More and more educational resources can be accessed by the students in just one

click using their internet connectivity that would broaden the concept they are learning (Lebenicnik et al., 2015). Students can learn at their own pace following the lesson guides prepared by the teachers (Kochar et al., 2018). Being in a flexible learning mode, students managed the time allocation in learning each topic for each course subject well. They are given the privilege to accomplish only what they can for a specific period for as long as they can achieve everything before the deadline (Miertschin, 2015). It is expected that students will be more confident this time to communicate and collaborate with their teacher and classmates since they are more prepared and have resources to study other concepts for them to participate in online learning discourse.

With all the benefits that the students can realize once subjected to online learning or through the flexible learning scheme of the institution, the institution needs to analyze several factors before the implementation of flexible learning carefully. Expectations of the students as to how the institution can serve them should be examined to be the basis of several internal policies to be implemented. The study explored some pre-determined factors in implementing flexible learning through the student's expectation of online learning survey developed by Harris et al. (2011). It is anchored in the expectancy theory that describes the framework for future actions that might be experienced, which are the preliminary criteria for meeting the outcomes. To the context of the study, pre-determined factors are those examined parameters that may affect the future development as to the success of flexible learning in the institution. It supposes the pre-determined factors are aligned and consistent with the experiences of the engineering students. In that case, it is more likely to be controlled in the future for more achievable objectives in the academic discourse.

The study aimed to determine the expectation level of the engineering students on pre-determined factors in the implementation of flexible learning in terms of proficiency with technology, course instructor, course content, social interaction, course organization, and time management and convenience. The study also aimed to find-out whether there is a significant difference between the perceived expectations levels of the engineering students on pre-determined factors in the implementation of flexible learning when grouped according to student's course specialization. Lastly, it is the intention of the study to find-out whether there is a significant relationship between and among the perceived expectation level of the engineering students on pre-determined factors in the implementation of flexible learning.

## **2. Literature review**

### ***2.1.Implementation of Flexible Learning***

Flexible learning is a learning scheme for students with a unique set of philosophies and systems. It provides a learning arrangement that depends on the learner's choice, capability, comfortability to learning space, and the bulk of tasks to the students (Joan, 2013). The basic questions on how, when, and where the student will learn the concept depends on the flexible arrangement. When it comes to the capability of the learners, the level of difficulty of the materials to be given is also to be considered, which should fit the level of the learners (Huang et al., 2020). Learning styles of the students should be clustered and should be addressed by every teacher. The learning space has a significant contribution to the flexibility of learning. The infrastructure and devices available for the learners should be identified to enable the institution to effectively plan what online or offline learning mode or platform can be used (Kariippanon et al., 2018).

Several information and communication technologies were developed to satisfy the conditions of flexible learning modality for the institution. The widely used learning platform in the university is the Google classroom. It allows teachers to become facilitators of learning through asynchronous online learning activities (Azhar & Iqbal, 2018). It enables as well to realize a learner-centered standard that students were given flexible modes to respond to educational practices of their teachers (Shaharane, 2016). Some other benefits of using it are user-friendly features to the students and accessibility using any device (McGinnis, 2020). When it comes to unrestricted use of virtual platforms used for synchronous online learning, the institution utilizes Google meet. It has basic features that allow the active participation of students during the teacher's presentation of the lesson (Basilaia & Kvavadze, 2020).

### ***2.2. Expectations of Students toward Flexible Learning***

Determining the expectations of the students towards the implementation of flexible learning is a good indicator for the institution to improve their satisfaction with the services being offered. Through this, the institution would be able to prepare its capacity to serve its clientele. When there is a high level of expectations among the students, institutions need to work on necessary actions to lead them to successful outcomes. The pre-determined factors on proficiency with technology, course instructor, course content, social interaction, course

organization, and time management and convenience should be carefully examined as to the expectations of the students for the flexible learning implementation to be more effective (Harris et al., 2011).

It is expected among the students in the higher institution that they are more proficient in the use of technology as compared to lower levels. Most of their classwork requires basic computer application of word processing, making presentations and reports, basic computing applications, and web-based mailing, which requires their capacity to work proficiently (Batez, 2021). When flexible learning is implemented, there are many academic factors that the students expect to be worth satisfying. The instructor who will teach the course and manage the learning platforms is expected to be knowledgeable. They have a good level of classroom management, which is to be applied in a virtual setup. Expectations are also considered when it comes to the course content (Coman et al., 2021). Learning materials should be prepared with good quality adhering to the standards set by the higher institution. Standards on quality of content, learning approaches, reflective parameters, and active learning components are some of the key indicators that students expect to be included in the learning content of the materials to be given (Khan et al., 2021).

Despite some limitations of flexible learning, the students still expect that there would be social interactions in the learning process. Students would still be given opportunities to interact with their classmates and their teachers (Kokoç, 2019). The organization of the learning process is also one of the critical indicators that need to be satisfied. Students should feel the total quality of teaching and learning service rendered to them through logically organized content and easy-to-understand instructions in the learning activities (Ferri et al., 2020). Lastly, effective time management and convenience should be present in the flexible learning preparation. Proper scheduling of learning tasks and performances are considerably planned (Ahmad et al., 2020).

### ***2.3. Success Indicators of Flexible Learning***

In order to determine the successful implementation of the flexible learning, the institution need to efficiently monitor and analyze actions in the enrollment to online synchronous and asynchronous, options to take modular distance learning, use of appropriate evaluation, students grades and success tracking, and addressing arising conflicts once it

exists (Andrade & Alden-Rivers, 2019). It is not only the institution that should impart their efforts to attain success in the implementation of flexible learning, the persistence and positive outlook to the policy and programs of the student-clientele must also be present (Naidu, 2017).

### **3. Methodology**

#### ***Research Design***

The descriptive research design was used to effectively describe the pre-determined factors in the implementation of flexible learning. The pre-determined factors are based on the expectations of the engineering students when it comes to proficiency with technology, the capability of the course instructor, delivery of the course content, setting social interaction, ensuring course organization, and realizing time management and convenience.

#### ***Respondents of the Study***

The study participants were 30 computer engineering and 55 electronic and communication engineering students of the academic year 2020-2021. They were conveniently sampled from the different group of classes in the College of Engineering. Convenient sampling was used to effectively assess the expectations of the students enrolled. The College is relatively small with limited number of students considering only five (5) regular faculty members handling the program and provision of building or learning spaces for engineering students.

#### ***Research Instrument***

The study utilized an adapted instrument based on the developed student's expectation of online learning survey of Harris et al. (2011) noting 0.897 Cronbach's alpha signifying a good level of internal consistency. The parameters used in the study covers the pre-determined factors in terms of proficiency with technology, course instructor, course content, social interaction, course organization, and time management and convenience. The scales used were the four (4) levels of expectations, Very High, High, Low and Poor. The even numbered scales help eliminate safe responses in the middle scales.

### ***Data Gathering Procedure***

From the instrument adapted, the study created a Google form to conduct the survey due to the strict health protocols implemented during the data-gathering period. The link was disseminated to the engineering students through the help of the College secretary as approved by the College Dean. The data gathered in the study were treated with strict confidentiality and were only used as baseline for the expectations of the students toward flexible learning to be implemented.

### ***Statistical Treatment***

Several statistical treatments were used to satisfy the objectives of the study. To describe the expectations of the respondents, mean and standard deviations were used. When it comes to determining significant difference between the expectations of the two respondents, an independent t-test was used. Lastly, Pearson product-moment correlation was used following the parametric requirement of normally distributed data to find out whether there is a significant relationship between and among the study variables.

## **4. Findings and Discussion**

There are three parts of the discussion provided. Part I describes the expectation of the students on the indicators, part II and III tackle the results on inferential objectives of the study.

As can be seen from the values depicted in the table 1, both groups of engineering students have high level of expectations on proficiency with technology for them to be able to cope up with the implementation of flexible learning. As indicated, the respondents feel high capability in most of the indicators, with the indicator “*attaching files to email messages*” getting the highest mean value, and “*use of word processing software like Microsoft Word*” (for the Computer Engineering students). For indicators on software and hardware troubleshooting, low mean values were obtained indicating respondents’ confidence that areas such as troubleshooting, which requires practice and proper training, is not highly expected of them in the flexible learning.

**Table 1**  
*Expectation Level on Pre-Determined Factors in the Implementation of Flexible Learning*

Statements	CE			ECE		
	Mean	SD	VI	Mean	SD	VI
1. Use of Computers and Gadgets	2.70	0.65	H	2.67	0.61	H
2. Word processing software program like Microsoft Word	2.80	0.76	H	2.75	0.70	H
3. Use of emails	2.73	0.64	H	2.82	0.58	H
4. Attaching files to email messages	2.80	0.66	H	2.85	0.68	H
5. Use of Internet and search engines.	2.67	0.66	H	2.60	0.63	H
6. Internet searches for personal reasons	2.70	0.60	H	2.67	0.64	H
7. Internet searches for school work	2.70	0.60	H	2.75	0.67	H
8. Google classroom utilization	2.70	0.53	H	2.78	0.66	H
9. Computer software troubleshooting	1.97	0.76	L	2.02	0.65	L
10. Basic technical problems (hardware) troubleshooting	2.10	0.88	L	2.07	0.74	L
<b>Overall (Proficiency with Technology)</b>	<b>2.59</b>	<b>0.49</b>	<b>H</b>	<b>2.60</b>	<b>0.44</b>	<b>H</b>
I expect the course instructor...						
1. clearly communicate the course objectives.	3.40	0.72	H	3.31	0.60	H
2. clearly communicates what they expect from students.	3.17	0.75	H	3.11	0.53	H
3. posts requirements of the course within an agreed upon time.	3.07	0.69	H	3.36	0.59	H
4. delivered assignment feedback in a constructive manner.	3.07	0.83	H	3.20	0.59	H
5. consistently attends discussion sessions.	3.00	0.69	H	3.13	0.55	H
6. is supportive in the promotion of online learning sessions.	3.30	0.70	H	3.29	0.57	H
7. to have an appropriate online tone.	3.17	0.87	H	3.22	0.57	H
8. to be responsive to students' online concerns.	3.20	0.76	H	3.24	0.58	H
9. to provide contact information to students.	3.10	0.66	H	3.00	0.51	H
<b>Overall (Expectations of the Course Instructor)</b>	<b>3.16</b>	<b>0.59</b>	<b>H</b>	<b>3.21</b>	<b>0.45</b>	<b>H</b>
I expect this online course to...						
1. be productive and attentive like face-to-face set-up.	2.90	0.84	H	2.78	0.60	H
2. establish active learning.	3.07	0.64	H	3.02	0.65	H
3. set activities considering large class discussions.	2.77	0.77	H	2.76	0.72	H
4. provide activities for small group discussions.	2.70	0.70	H	2.69	0.66	H
5. allows learner for self-reflection of what they learned.	2.87	0.68	H	3.00	0.61	H
6. relate theory to real life application of concepts taught.	2.93	0.69	H	3.04	0.69	H
7. provide meaningful postings and discussions.	2.87	0.78	H	2.93	0.57	H
<b>Overall (Expectations of the Course Content)</b>	<b>2.87</b>	<b>0.62</b>	<b>H</b>	<b>2.89</b>	<b>0.44</b>	<b>H</b>
I expect...						
1. the course session allows students to meet new people.	2.63	0.93	H	2.69	0.77	H
2. a respectful academic community with my classmates.	3.37	0.56	H	3.38	0.62	H
3. a frequent online learning sessions like face-to-face scheme.	2.67	0.84	H	2.65	0.95	H
4. to have as many opportunities to get to know my classmates.	2.57	0.86	H	2.60	0.85	H
5. to be optimistic in dealing and learning online.	2.97	0.76	H	3.16	0.66	H
<b>Overall (Expectations for Social Interaction)</b>	<b>2.84</b>	<b>0.65</b>	<b>H</b>	<b>2.90</b>	<b>0.57</b>	<b>H</b>
I expect...						
1. Oncourse CL was user friendly.	2.63	0.67	H	2.69	0.60	H
2. The forum names and topic titles are unambiguous.	2.70	0.65	H	2.55	0.74	H
3. The course materials were easy to locate.	2.83	0.65	H	2.84	0.57	H
4. The course instructions were clear and unambiguous.	2.80	0.61	H	2.75	0.64	H
<b>Overall (Expectations toward Course Organization)</b>	<b>2.74</b>	<b>0.54</b>	<b>H</b>	<b>2.70</b>	<b>0.49</b>	<b>H</b>
I expect...						
1. I feel concerned that I may not manage my time well.	3.27	0.83	H	3.13	0.64	H
2. I am an independent learner.	2.03	0.81	L	2.09	0.75	L
3. This online course provides has flexible scheme on requirements.	2.47	0.86	L	2.45	0.79	L
4. I am confident that my family members and friends are supportive.	2.77	0.82	H	2.84	0.86	H
5. My home environment is conducive in learning.	2.27	0.83	L	2.36	0.80	L
<b>Overall (Expectations towards Time Mgt. and Convenience)</b>	<b>2.56</b>	<b>0.51</b>	<b>H</b>	<b>2.57</b>	<b>0.41</b>	<b>H</b>

Legend: 3.50-4.00 Very High (VH), 2.50-3.49 High (H), 1.50-2.49 Low (L), 1.00-1.49 Poor (P)



The current situation changed the landscape of learning to an online modality, which the results clearly emphasized the findings of Vargo, et al. (2021), Mpofu (2016) and Manu and Mensah (2015) that students are becoming proficient in the use of computers and even other gadgets such as cellphones, laptops and tablets to cope up with the demands of online education. In addition, the use of internet is another familiar and even an expertise of the students nowadays. As Liesa-Orús, et al. (2020) and Raja and Nagasubramani (2018) affirmed that survival in school has become very much dependent on technology hence almost all students were expected to become computer applications whiz in a blink of an eye. Even though applications are very familiar to them, troubleshooting is still not their expertise.

The results also showed that both groups of engineering students have high level of expectations from their course instructors. Computer Engineering students highly expect their instructor to be clear in communicating the goals of the course while Electronics and Communications Engineering students highly expect their instructors to post the course requirements within an agreed time. It is clear from the responses of the two groups that they want to prepare any course requirements in advance, which also affirm the findings of Aguilera-Hermida (2020), and (Blackmon & Major, 2012). The self-assessment of the students indicates self-discipline and responsibility that no student wishes to be caught off-guarded or unprepared on anything that is expected from them. This also shows the descriptions of Naji, et al. (2020) and Widodo, et al. (2020) that students in the online mode have keen sense of responsibility.

Since they have finished a school year without too much intervention from their instructors, they have low expectations that the teacher will be consistently with them in discussion forums or even provide contact information to students. This mentality of the students shows the observations of Gopal (2021) and Gillett-Swan (2017) that university students are getting fully aware of their responsibility and are independent in the performance of tasks with or without teachers' guidance. Interestingly, students form their own group chats, even teachers not included, where they freely discuss topics and exchange and share ideas regarding lessons (Broadbent & Lodge, 2021).

The results further showed that both the groups of engineering students have high level of expectations on the course content. The students expect that the course content will

provide them with opportunities for active learning and opportunities to relate theory to real life. Though the specializations differ in their perception of the course content, it is clear that the students expect their course to make them learn actively and relate what they have learned to real life. According to Rapanta (2020) and Coman (2020), learning is not within the confines of the topics but the ability to apply to real life situations and make them better individuals. Simply put it, learning is not just memorizing lines, theories and formulas, but rather it comes with an understanding on how these may be applied to real life situations.

Students do not highly expect that they will be provided with opportunities for small group discussion since they are now fully aware of the fact that due to the current situations outside of their homes, it is not possible for them to face one another and make discussions. There is also the issue of connectivity, which hinders them from creating group discussions for quite a long period of time (Apuke & Iyendo, 2018; Jibrin, et al., 2017). Similarly, both groups of engineering students have high level of expectations in terms of social interactions even during the implementation of flexible learning. They highly expect that their classmates will be respectful even in an online learning situation. Rules of conduct would still govern the students' behavior. Guidelines set by the instructors on the conduct of classes would still be followed to the letter. Yet they have accepted the fact and does not expect much that they will get many opportunities to get to know their classmates online as they would face to face. They have accepted the reality that conduct of classes and opportunity to meet face to face is hindered by many reasons (Sarmiento, 2021; Raitzer, et al., 2020). IATF protocols, safety measures implemented by institutions and even internet connectivity become reasons to limit such interactions.

In addition, both groups of engineering students have high level of expectations on course organizations for them to be able to cope up with the implementation of flexible learning. As indicated, they feel that for them to successfully cope with flexible learning, course materials indicated in the outlines/syllabi would be easy to locate as provided by their instructors. Since their access to materials is very much limited, them being confined to the comfort of their own homes, deem it necessary that the materials indicated in the materials provided by their instructors would be very much accessible for them (Armstrong-Mensah, 2020; Chen, 2018). They do not expect much that the materials be user-friendly and the

names or topics be unambiguous, yet what they want is for them to have something to consult or look into when they are in the process of learning by themselves.

Furthermore, both groups of engineering students have high level of expectations when it comes to time management and convenience for them to be able to cope up with the implementation of flexible learning. As indicated, both groups have shown high concerns that they may not be able to manage their time well considering the activities they are to be given in every subject. The fact that they are at-home, it is a common knowledge that their parents also expect them to at least contribute in some of the household chores, thereby dividing their focus and attention to their studies and home life (Baticulon, 2021; Chandra, 2020). There is also that fact that not every student has the privilege of obtaining unlimited internet connection for online learning thereby limiting their access to classes and discussions (Dhawan, 2020; Francisco, 2020). Yet, the respondents have quite low expectation that they will become real independent learners since it would still require synchronous sessions to be facilitated by their professors, and in the current situation, it seems not possible yet.

Overall, it can be seen that engineering students have high expectations for them to be able to cope with the implementation of flexible learning, yet all indicators lead to the fact that these expectations will leave them to become learners who were able to overcome the hindrances brought about by the new normal (Callo & Yazon, 2020).

It is revealed in table 2 that there is no significant difference between the expectation levels of the two groups of respondents on the pre-determined factors in the implementation of flexible learning. It only means that both groups of engineering students have high level of expectations with regard to proficiency with technology, expectations with the course instructor, course content, social interaction, course organization, and time management and convenience. Both groups of respondents understood that in order to accomplish all the necessary tasks or activities to be given by their instructors it is important that they highly expect to be proficient in attaching files through sending emails to their professors and that the use of word processing applications is beneficial to formally present their output as affirmed by Batez (2021) and Oguguo (2020).

**Table 2**

*Test of Significant Difference between the Expectation Levels on Pre-determined Factors in the Implementation of Flexible Learning when Grouped According to Course Major*

Variables	Groups	Mean	SD	T	Sig.	Mean Diff.	95% CI of the Diff.	
							Lower	Upper
Proficiency with Technology	CE	2.59	0.49	-.111	.912	-.012	-.218	.195
	ECE	2.60	0.44					
Course Instructor	CE	3.16	0.59	-.378	.707	-.043	-.270	.184
	ECE	3.21	0.45					
Course Content	CE	2.87	0.62	-.147	.884	-.017	-.246	.212
	ECE	2.89	0.44					
Social Interaction	CE	2.84	0.65	-.426	.671	-.058	-.330	.214
	ECE	2.90	0.57					
Course Organization	CE	2.74	0.54	.323	.748	.037	-.192	.266
	ECE	2.70	0.49					
Time Management and Convenience	CE	2.56	0.51	-.143	.887	-.015	-.217	.188
	ECE	2.57	0.41					

It is expected among the students in both groups that they highly viewed that their instructors will share clearly the objectives of the course, which implies the same level of expectations. They both believe that the instructors already prepared the material beforehand and the expected objectives of the course are identified already for the success of the flexible learning implementation (Naidu, 2017). They highly expect as well that their instructors will promote surely online learning sessions like synchronous and asynchronous online since these are the two modalities allowed by the institution written in their policy (Callo & Yazon, 2020).

Similarly, both groups highly expect that their instructors will deliver the course content setting active learning effectively. Despite the challenges brought by the current flexible learning, students are optimistic that their instructors still have best practices to be imposed that would capture their learning interest (El Firdoussi, 2020; Coman, et al., 2020). They both agreed that the expectation for social interaction is on high level considering that the academic community that they are in are truly respectful. Even though students have different ways of learning the lesson and have different levels of understanding it, they still expect that their schoolmates and instructors would respect the phasing duration that they have (Cortes, 2020; UNICEF, 2020).

When it comes to course organization, both groups have the same level of expectations that it is highly expected that the materials and resources included by their professors are easy to locate. The reference list given to them are updated and potential links to locate are included in the material (Ferri, et al., 2020; Schaffhauser, 2020). However, both groups are afraid that they may not be able to manage effectively their time to accomplish all the tasks given by their instructors. The deadlines set by their instructors might be a factor that may indicate pressure between the two groups of respondents. It might also be the number of activities when all instructors in all courses that is projected to be one of the reasons why they are worried that the time may not be able to manage effectively (Santelli, et al., 2020).

**Table 3**

*Test of Significant Relationship between and among the Expectation Level on Pre-determined Factors in the Implementation of Flexible Learning*

Expectation to Online Learning	1	2	3	4	5	6
Proficiency with Technology	1					
Course Instructor	.158	1				
Course Content	.163	.503**	1			
Social Interaction	.233*	.503**	.688**	1		
Course Organization	.185	.358**	.401**	.324**	1	
Time Management and Convenience	.288**	.311**	.456**	.367**	.462**	1

\*. Correlation is significant at the 0.05 level (2-tailed).

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

It is reflected in table 3 that there is a positive significant relationship between and among the expectation level on pre-determined factors in the implementation of flexible learning. The expectations of the students with regard to their proficiency with technology considering that they will be subjected for a flexible learning mode of synchronous and asynchronous online significantly relates positively to their expectations on social interaction to be established and how they will be able to management time and convenience. On the other hand, no significant relationship is depicted with their expectations level on technological proficiency and their expectations with their course instructor, content and organization. It only implies that even though they highly expect high level of technological proficiencies in using word processing, and other computer applications to be used in an online set-up, it may not influence the way they view academic practices in learning the lesson. Students are used with these computer applications even without the implementation

of flexible learning. Ever since they were in a face-to-face learning modality, ICT skill should be developed among students in order for them to prepare and submit their best learning outputs (Heerwegh, 2016; Verhoeven, 2012).

The results further show that there is a moderate positive significant relationship between and among the pre-determined factors on expectations with the course instructor, course content, social interaction, course organization, and time management and convenience. All these factors contribute to one another in order for a university student to be more prepared in attending flexible learning set-up in the institution. When one factor increases its expectation level, there is a moderate evidence that the others will follow. There might be challenges being faced by several institutions in the implementation of flexible learning modalities considering the current situation brought by COVID-19, it is beneficial that the institution should study or plan effectively all aspects concerning students' success of being part of the learning modes (Ishmael, 2020). The instructors that are well-trained and well-informed of the educational policies, there would be a smooth implementation of the flexible learning. With these, the students may be able to realize the organization of every course and the established learning spaces for them (Joaquin, 2020; Benade, 2019; Müller, 2018).

## 5. Conclusion

The engineering students have a high level of expectations on proficiency with technology, the capability of the course instructor, delivery of the course content, setting social interaction, ensuring course organization, and realizing time management and convenience. Furthermore, there is no significant difference between the expectations of the computer engineering students and electronics and communication engineering students. When both of them are to be subjected to an online learning delivery, they expect to have a high level of proficiency in word processing and attaching files to emails but had low expectations on computer software troubleshooting. They expect their course instructors to communicate the learning goals and post the course requirements as agreed upon. When it comes to the course content, they expect that it would provide them with active learning conditions and can be applied appropriately to real-life implications. Though there may be

limitations of face-to-face interaction with their classmates, engineering students expect for an online collaboration where they can respect one another. Engineering students expect that their instructors' course materials are logically organized and can be easily located through the reference list to be provided. Lastly, they expect that they would be able to effectively manage their learning time, ensuring that there are enough and appropriate activities to be given by all instructors within the specified time agreed upon. It is depicted that there is a significant positive relationship between and among the pre-determined factors in the implementation of flexible learning. Each factor is essential and should be considered by the college administrators to efficiently and effectively implement the flexible learning mode. When one of the factors is addressed and considered its relevance, most likely it would bring a positive outcome to the total learning experience of the engineering students.

University officials and college heads may use the result in ensuring an organized policy toward smooth implementation of flexible learning and examining pre-determined expectations that can be satisfied. The instructors have to be considerate in giving flexible arrangements for the students in a gradual shift of making them independent learners, which revealed to have low expectations. If needed, virtual consultation is recommended to students who will need assistance to cope with challenges brought by educational reform in order for them to comply with different course requirements. On the other side of the spectrum, students may continue to develop proficiency in using the technology to achieve more in flexible learning conditions. Since there is a significant positive relationship between and among the pre-determined factors in the implementation of flexible learning, it is suggested that curriculum planners and developers may consider that proficiency with technology and the expectations to the course instructor, content, social interaction, course organization and time management and convenience work together. With these, greater accomplishments can be realized among engineering students. For future researchers, since the study only focused on perspectives on flexible learning among limited number of engineering students, the parameters can also be adopted to other courses with greater number of potential respondents that will serve as a guide for university-wide policy implications.

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