A Sudden Screen Learning Student Acceptance Model (SSL)

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ABSTRACT

COVID-19 pandemic has forced schools and academic institutions all over the world to shift to remote online learning overnight. This is the longest disruption to the traditional face-to-face (physical) classroom learning ever. As the shift was unexpected, many stakeholders including teachers, administrators, parents and the students themselves have to embrace the Sudden Screen Learning (SSL) with or without sufficient resources, strategy and plans. As a result of social distancing in order to curb the spread of the pandemic, some students struggled to catch up with online learning challenges as family incomes deteriorated. This research intended to investigate the factors that push private university students to accept and adopt the sudden, remote online learning by applying the UTAUT constructs namely Performance Expectancy (PE), Effort Expectancy (EE), Subjective Norms (SN) and Facilitating Conditions (FC), taking into account the students' Learning Styles as well as the moderating effect of Trusting Beliefs. The expected outcomes of the research will provide useful insights to the school administrators and regulators in understanding students' SSL actual usage behaviour, thus, devising effective e-curriculums that will adhere to the same or even better quality of education as an assurance to the future of the younger generations.

Keywords-- Online Learning, E-Learning Acceptance Model, Trusting Beliefs, Student Acceptance, Student Learning Style

I. INTRODUCTION

A novel corona virus, known as the COVID-19, was discovered in a seafood market in Wuhan, China in the late 2019 (Adedoyin & Soykan, 2020)[1].No one could have imagined that this incident changed the whole world a year later. In March 2020, World Health Organisation (WHO) declared COVID-19 as a pandemic after assessment of its ability to spread rapidly, causing millions of deaths and the need to practice social distancing in order to curb the spread of the pandemic worldwide. As a result, schools and universities have been closed immediately and children and students have been sent home for safety reasons. In Malaysia, the Movement Control Order started on 18 March 2020. The situations forced workers and students to rush home as they have been instructed to work from home or study at home. Some even stuck at rented homes or hostels for weeks or months following the instruction. The remote emergency learning then suddenly became a viable option for teachers and students, as well as schools and universities. Since then, academics have been experimenting with various online platforms in order to approach students and to continue to deliver academic contents as it was supposed to be the beginning of a good year. Since various stakeholders are involved in the Malaysian education sector and dealing with the uncertainty of the current economic and social conditions, this raises many questions and doubts on thefuture education outlook, looking for answers, feedback and strategy.

In this paper, the problem statement is presented next together with the research objectives and questions. Then, the review of literature will be presented leading to the conceptual framework. After that, the contributions of the study will be discussed, ending with its conclusion.

1.1 Problem Statement

In the Malaysian private universities, just like any other institutions in the country, students and academics received instructions to stay at home starting 18 March 2020 and to continue working or learning at home. Some academics rushed to bring materials and textbooks home, including borrowing devices later from their institutions. Students returned to their hometowns in phases according to plans laid down by the governments. Since then, the online academic process took place, leaving students and teachers no option, but to embrace the transition.

Online learning is a learning methodology that allows students to learn in a virtual environment using Information Communication Technology (ICT) tools. This method allows students to access their learning materials remotely anywhere, anytime (Alkhalil, Manasrah, Dabbour, Bashayreh, Abdelhafez & Rababa, 2021)[2].The online learning is composed of

synchronous and asynchronous modes in which the synchronous mode provides direct interactions between teachers and students while the asynchronous mode allows students to interact with their teachers before or after the online class through emails, messages and thread discussions (Selvanathan, Hussin & Azazi, 2020[3]; Zainol, Hussin, Othman & Zahari, 2021[4]).Here, online learning or e-learning will be referred to as Sudden Screen Learning (SSL) as it involved sudden transitions in the learning process from the traditional face-to-face learning into an emergency online learning.

Although online learning is considered a good alternative to both teachers and students, there are several issues needed further assessment such as inadequate access to Internet connections. Students in the rural areas did not have access to the Internet due to inadequate infrastructure (Selvanathan, Hussin & Azazi, 2020[3]). Some faced financial difficulties to purchase e-learning devices such as laptops and tablets (Sharin, 2021[5]). The governments have gone further to assist the B40 familiesby providing the Internet allowance for them to access the Internet for free (Selvanathan, Hussin & Azazi, 2020)[3]. However, online learning does not only require access to Internet but access to a high-speed Internet level (Zainol, Hussin, Othman &Zahari, 2021[4]; Sharin, 2021[5]).

In addition, having a two-way communication is very difficult in online learning. Students have not been equipped with the e-learning skill sets; they seemed not ready to deal with online learning. Students are found struggling to align online learning with family, job and social engagements. They were stressed out with exam concerns, overload of assignments and poor management skills (Sharin, 2021[5]). This contributed to the psychological impacts such as mental health and well-being of the students. In addition, it seems that students with high self-efficacy could better handle the online learning challenges. Moreover, dealing with a range of different education technologies can pose a challenge to students in terms of downloading problems, login errors, audio and video issues, etc. To attend the live classroom component, reliance on stable Internet connections is a must. A poor link can lead to learning disturbances including a total miss of the learning opportunity altogether. All the challenges faced by the students set them to loneliness, isolation, lack of motivation, poor concentration and a decline in wellbeing (Sharin, 2021[5]).

Up to date, quite a number of studies involving e-learning during the COVID-19 pandemic have been conducted worldwide. Recent studies identified its benefits as well as challenges (Adedoyin & Soykan, 2020[1]; Pham & Ho, 2020[6]), student satisfaction with online learning (Alkhalilet. al., 2021)[2], the role of technology (Starkey, Shonfeld, Prestridge & Cervera, 2021)[7], e-learning review of literature (Sharin, 2021[5]), etc. Among theories adopted in the past studies

are DeLone and McLean's Information Systems Success Model (Lin 2007)[8], Theory of Planned Behaviour (Lim, Seow& Lam, 2020)[9] and the Unified Theory of Acceptance and Use of Technology (UTAUT), combining both student-teacher in a single framework (Umrani-Khan & Iyer, 2009)[10]. This research adopted the UTAUT model, concentrating only on the students' perceptions of SSL from the Malaysian private university context.

It is the situation of the pandemic that is faced by the public and the sudden, emergency shift to virtual learning that created the need to conduct more studies on the students experience to ensure the quality of teaching and learning delivered by academic institutions is not compromised (Ansari, Farooqi, Khan, Alhareky, Trinidad & Abidi,2021)[11]. This is also supported by Alkhalilet. al. (2021)[2] where there is a need to study how students perceived the sudden changes in the learning process in academic institutions.Hence, this research is conducted to investigate how students in private universities perceived Sudden Screen Learningby deploying the UTAUT model, taking into consideration their Learning Styles and Trusting Beliefs as the moderator.

The study aims to investigate the push factors for theprivate university students to adopt SSL, thus, leading to the following research question: What are the factors influencing Sudden Screen Learning Acceptance among undergraduate students in Malaysian private universities?

II. LITERAURE REVIEW

2.1 Sudden Screen Learning Student Acceptance Model (SSL)

This research proposed the Sudden Screen Learning Student Acceptance Model (SSL) which has been adapted from Umrani-Khan and Iyer's (2009)[10] study. In this model, the Unified Theory of Acceptance and Use of Technology (UTAUT) will be used. The four selected UTAUT constructs are Performance Expectancy (PE), Effort Expectancy (EE), Subjective Norms and Facilitating Conditions. Here, Subjective Norms represents Social Influence or Social Norms (Venkatesh, Morris, Davis & Davis, 2003)[12]. This model also adopted the Grasha-Reichmann Learning Styles Scale as its fifth independent variables while Trusting Beliefs (Ability, Benevolence and Integrity) has been adopted as the moderator. The researchers are interested to investigate whether Trusting Beliefs enable to strengthen or weaken the relationship between behavioural intention to adopt SSL and the actual adoption of SSL.

2.1.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

Many theories have been used in Information Systems research or technology adoption studies. Among frequently applied theories are Theory of Planned Behaviour[TPB] (Ajzen, 1985[13]; Azjen,

1991[14]), Technology Acceptance Model [TAM] (Davis, 1986)[15], Unified Theory of Acceptance and Use of Technology [UTAUT] (Venkatesh*et al.*, 2003)[12] and Innovation Diffusion Theory (Rogers, 1995)[16]. In 2003, Venkatesh*et al.* formulated the UTAUT model by testing and integrating eight different models. The eight adopted models are Theory of Reasoned Action, Technology Acceptance Model, Motivational Model, Theory of Planned Behaviour, combined TAM and TPB, Model of PC Utilisation, Innovation Diffusion Theory and Social Cognitive Theory. UTAUT model is chosen because it is the best model to reflect on individual level for instance, firms' decision makers on technology adoption decisions (Rosli, Yeow & Siew, 2012)[17].

2.1.2 Performance Expectancy

Performance Expectancy (PE) is referred to individuals' expectations about how well a system would help them execute particular activities (Venkatesh*et al.,* 2003)[12]. Ventakesh, Thong and Xu (2012)[18] extended the definition further to include customers will profit from technology adoption and usage when they are doing particular tasks. PE has shown by many studies as one of the significant determinant to behavioral intention (BI) on the usage of e-learning system. Azizi, Roozbahani and Khatony (2020)[19]in their study on one of the universities in Iran found a positive significant relationship on PE and student's behavioral intention in adapting blended learning. Another study by Pullen, Swabey, Abadooz and Sing (2015)[20], also found a positive result when they conducted a study among pre-services teacher in Malaysia between PE and the use of mobile technology in teaching. Alshehri, Rutter and Smith (2019)[21] and Bellaaj, Zekri and Albugami (2015)[22] revealed in Saudi Higher Education, there were positive impacts between PE and student's intention to use Learning Management System (LMS). Thus, in this research, it is hypothesized that:

H1: Performance Expectancy has a positive relationship with BI to adopt SSL

2.1.3 Effort Expectancy

Effort Expectancy (EE) is considered as intrinsic value in most UTAUT model (Yoo, Han & Huang, 2012)[23]. EE is the amount of effort people put to use technology (Raza, Qazi, Khan, &Salam, 2020)[24], which is often low in nature because of the user-friendly of information technology (Dečman, 2015)[25]. Omar, Ismail and Kasim (2019) [26] in their study among secondary school teachers revealed that EE influenced the intention to use mobile banking. Another study by Raman and Don (2013)[27], found a positive significant relationship on EE and BI when they tested the acceptance of Learning Management System (LMS) on pre-school teachers. Regarding the students, the authors belief that, a higher BI was recorded because the low degree of efforts in using LMS. A positive

relationship between EE and acceptance of mobile banking has been found by Zainol, Yahaya, Yahaya, and Zain (2017)[28] when they investigated 150 accounting background students in higher learning institution in Malaysia. Additionally, Tarhini, Ali, Hone, Liu and Tarhini (2016)[29] stated that from the student's perspective, there will be the changes in cultural dimensions including individualism, masculinity and uncertainty avoidance. Hence, in this research, it is hypothesized that:

H2: Effort Expectancy has a positive relationship with BI to adopt SSL

2.1.4 Subjective Norms

Social Influence (SI) or Social Norms consist of subjective norms, social factors and image. Due to similarity in TRA, TAM2, TPB/Decomposed TPB and combined TAM-TPB, thus, the term Subjective Norms will be used here. Subjective Norms are one's perception that most people who are important to him or her think he/she should or should not perform the behaviour in question (Venkatesh*et al.*, 2003)[12].Azizi, Roozbahani and Khatony (2020)[19] in their study on blended learning in Iran found a positive relationship between SI and student's behavioral intention to take up blended learning. In a study of adoption of mobile learning in Malaysia, Pullen*et al.* (2015)[20] found that SI has a significant and positive relationship with acceptance to use mobile learning. Thus, this study hypothesized that:

H3: Subjective Norms has a positive relationship with BI to adopt SSL

2.1.5 Facilitating Conditions

Facilitating Conditions (FC) help to express the students' insights into the existence of technological and organizational infrastructure in supporting the use of a system (Azizi, Roozbahani & Khatony, 2020[19]; Venkatesh*et al.*, 2003[12]).It is found that FC has a positive relationship with Iranian students' intention to adopt blended learning in medical education. However, there is no significant effect of FC in the actual use of blended learning (Azizi, Roozbahani & Khatony, 2020)[19]. In the study of a Learning Management System (LMS) in Malaysia, Ain, Kaur and Waheed (2016)[30] found that FC had no significant relationship with the behavioural intention towards LMS, as they claimed that the FC effects were captured in EE. In another study, Pullen *et al.* (2015)[20] also did not find any significant relationship between FC and acceptance to use mobile learning.In this study, the researchers intended to re-investigate the relationship between FC and BI to adopt SSL, thus, it is hypothesized that:

H4: Facilitating Conditions has a positive relationship with BI to adopt SSL

2.2 Student Learning Style - Grasha-Reichmann Learning Styles Scale

Learning styles are related to the ability of an individual to learn. As generally accepted, learning styles vary among each student. Due to this reason, knowledge of student's learning style can assist teachers to use more appropriate teaching approach in improving the students' performance. Many authors defined learning styles in several ways. Grasha (1996) [31] described learning style as the way a person prefers to learn.

Besides, various model of learning styles exist in the literature as learning can be reached from different aspect. This study focused on the student learning style scale developed by Grasha and Riechmann in 1974. Grasha and Riechmann (Reichmann, 1974)[32] classify learning styles into six categories namely (1) avoidant (individual who is uninterested in learning and do not want to compete with others); (2) participative (individual who is responsible in their learning and enjoy going to and participating in the class so that they are eager to take part in activities); (3) collaborative (individual who feels that learning is possible through sharing ideas and opinions with others); (4) dependent (individual has little curiosity for new learning and considers teachers and classmates as resources for direction and support); (5) independent (individual who prefers to learn on their own, likes to think by themselves and they are confident that they have the ability to learn; (6) competitive (individual who learns the content with the aim of having better performance than the other students).

Research studies on learning styles revealed that students prefer different learning style in their learning process (Corbin, 2017[33];Steele, 2012[34]). Furthermore, study by Kiat-Hiong andYing-Leh(2020)[35] highlighted that students are made aware of their learning styles and become more versatile learners with usage towards learning platform. Thus, the following hypothesis is proposed in this study:

H5: Student's learning style has a positive relationship with BI to adopt SSL

2.3 Dependent Variable
2.3.1Behavioral Intention (BI) and Actual Usage of SSL

According to Venkatesh*et al.* (2003)[12], Behavioral Intention (BI) refers to the individual's decision regarding future system use. Ain, Kaur and Waheed (2016) [30] defined BI as an intention of a person to adopt the use of a specific technology in performing tasks, which in the context of this paper is the student's intention to adopt Sudden Screen Learning (SSL). On the other hand, Actual Usage is defined as 'the extent of an individual's actual use of technology to perform tasks' (Bagozzi, 1981) [36]. In this study, it refers to the Actual Usage of the SSL. Intention to use technology is one of the best predictors of actual usage

as shown in the results of prior researches which revealed that BI to adopt the technology has significant relationship with the actual usage of technology (Davis, 1989[37]; Nicholas-Omoregbe, Azeta, Chiazor & Omoregbe, 2017 [38]). To suit this research context in a developing country like Malaysia and its e-learning adoption pace, the researchers added the Actual Usage, following the Behavioural Intention to Adopt SSL. Therefore, aligned with the existing literature, the following hypothesis is proposed in this study:

H6: BI to adopt SSL is positively affecting the Actual Usage (Use Behaviour) of SSL

2.4Trusting Beliefs as Moderator from Behavioural Intention to Adopt SSL to Actual Usage (Use Behaviour) of SSL

Trust is the concept described by researchers which reflects the willingness of one party to be vulnerable to the actions of another, based on the expectation that this other party will perform a particular action, irrespective of monitoring or control structures (Mayer, Davis, Schoorman, 1995)[39]. According to Arpaci(2016) [40], trust can be defined as the students' perception about the reliability and trustworthiness of the system. Trust is crucial for the users of information technology in increasing their individual performance. Prior scholars proved that trust had positive effect on student's BI towards using m-learning (Arpaci, 2016 [40]; Alalwan, Dwivedi, Rana and Algharabat, 2018 [41]). The results are aligned with the findings of Akroush and Al-Debei(2015) [42] which indicated that trust plays an essential role to examine the actual behaviour of the consumers. However, in spite of the above positive relationship, Kabra, Ramesh, Akhtarand Dash(2017) [43]argued that no significant association between trust and BI was found.

Referring to the earlier research on the trust construct, the concept of trusting belief can be described by four elements including: (1) competence (the belief that the trustee has the ability or power to do what needs to be done; (2) benevolence (the belief that the trustee cares and is motivated by the others; (3) integrity (the belief that the trustee makes good faith agreements, tells the truth, acts ethically and keeps promises; and (4) predictability (the belief that the actions of the trustee are consistent over time and can be predicted in a certain situation)(Dimitriadis and Kyrezis, 2010) [44]. Many of the prior authors mapped out their studies with three of the factors cited above (Competence, Benevolence and Integrity) in the context of online shopping (Ho& Chen, 2014) [45], online vendor and m-banking (Mcknight, Choudhury & Kacmar, 2002) [46]. By acknowledging the above-mentioned studies, the following hypothesis is proposed:

H7: Trusting Beliefs moderates the relationship between BI to adopt SSL and Actual Usage (Use Behaviour) of SSL

The conceptual framework of this research is shown in Figure 1 and the sample of construct items is attached in the Appendix.
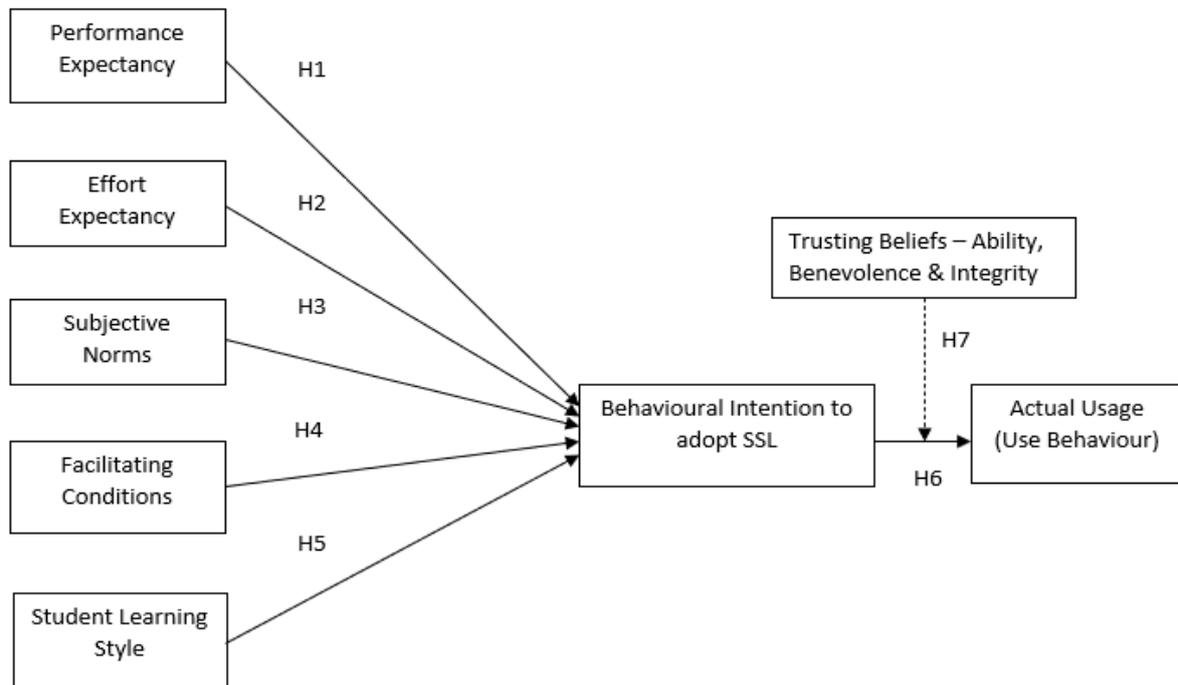
III. CONCEPTUAL FRAMEWORK OF SSL

Figure 1: The Conceptual Framework

IV. CONTRIBUTION OF THE STUDY/ EXPECTED OUTCOMES

This study intends to examine the factors that influence the private university students to adopt Sudden Screen Learning (SSL) in the Malaysian education sector. The findings from this study will redound to stakeholders' benefits, considering that online teaching and learning plays a vital role during the pandemic, and this justifies the need for more effective teaching and learning approaches. Hence, this study will serve as a source of knowledge to regulators and policy makers in understanding the factors that influence the acceptance of SSL and to suggest solutions and recommendations in developing a better outlook for the education sector future.

Furthermore, the findings derived from this study may give more insights to private universities as well as other educational institutions in Malaysia in understanding the factors that influence the SSL usage behavior among students. This will serve as a guideline to the administrators on what should be emphasized in the curriculum to improve students' academic performance. Institutions may have carefully examined on the adoption of Information Communication Technology (ICT) in education to ensure none of the students are left behind.

In addition, this research adopted the UTAUT model with students' Learning Styles as an additional instrument and Trusting Beliefs as the moderator. UTAUT model contains generic instruments to investigate the factors affecting the e-teaching/e-learning adoption. The additional elements in this empirical study can be a reference and initial ground for future studies by other researchers. The conceptual framework can be further verified to suit the various levels of teaching or learning conditions, crisis, technology involved and the actual usage among students. As this study concentrates only on the students' perceptions of SSL from the Malaysian private university context, this framework can be tested among other students at various institutions such as public universities and schools to investigate on their actual usage of the online learning.

V. CONCLUSION

In conclusion, even though online learning and teaching is considered as a good alternative in the education sector during the COVID-19 pandemic, there are still many issues and challenges that need critical examination. The influential factors on the students' behavioral intention and the actual usage of Sudden Screen Learning (SSL) need to be assessed to ensure the success of online teaching and learning. In this research, the researchers intended to investigate the influential

factors that lead to the students' intention and use of SSL in private universities. The researchers discussed the problem statements, research questions, literature reviews on the theory and variables to be adopted, conceptual framework and ends with research contributions.

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APPENDIX

Construct	Dimensions	Items for Students
IV1 – Performance Expectancy	Perceived Usefulness	PU1 - Screen Learning helps me learn the specific topic or course.
		PU2 - Screen learning increases my chance of scoring higher marks.
		PU3 - Screen learning enables me to accomplish tasks (for example: learn the topic, complete assignment) more quickly.
		PU4 - I find screen learning useful in my studies.
		PU5 - Screen learning increases the number of topics I can study per day.
		PU6 - Screen learning enhances my efficiency as a student.
		PU7 - Screen learning reduces my study load considerably.
	Interactivity	IN1 - With screen learning, I can interact with my teacher and get answers to my questions in reasonable time duration.
		IN2 - Screen learning allows me to get information from online resources (for example: Wikipedia, Internet search engine)
		IN3 - Screen learning allows me to interact with friends and work together on assignments.
	Flexibility	FL1 - Using screen learning allows me to choose topics to learn in order of my preference.
		FL2 - Screen learning enables me to learn at my pace.
		FL3 - Screen learning provides me the flexibility of studying the topic anytime, at any place.
		FL4 - Screen learning enables me to learn lessons in the form that is adapted to my learning style.
I0V2 – Effort Expectancy	Ease of learning	EL1 - Learning to use screen learning tools is easy for me.
	Ease of use	EU1 - I find it easy to get screen learning to do what I want to do.
		EU2 - It is easy for me to become competent at using screen learning.
		EU3 - I find screen learning easy to use.
		EU4 - My interaction with screen learning is clear and understandable.
		EU5 - Using screen learning requires a lot of mental effort.
	Self-efficacy	SE1 - I possess the skills necessary to use screen learning tools.
		SE2 - Most of my teachers possess the skills to use screen learning.
IV3 – Subjective Norm	Subjective Norm	SN1 - Most people who influence my behaviour (teachers, colleagues, head of department/faculty) want me to use screen learning.
		SN2 - Most people who are important to me want me to use screen learning as much as possible.
	Image	IM1 - In my university, students who use screen learning have more prestige than those who do not.
		IM2 - Students in my university who use screen learning are considered to be smart.
		IM3 - Using screen learning adds to my status amongst my colleagues.
IV4 – Facilitating Conditions	ICT infrastructure	ICT1 - My university has provided me all the facilities I need for screen learning.
		ICT2 - The ICT infrastructure at my university is available when I need it.
	University policies	UP1 - My university provides me an opportunity for screen

		learning.
		UP2 - My university provides incentives/ support to students who use screen learning.
		UP3 - My university provides incentives/ support to teachers who use screen learning.
	Training and technical support	TT1 - My university has provided training for me to use screen learning tools.
		TT2 - There is technical help available if required while using screen learning.
	Leadership	LD1 - The head of my department/ faculty uses screen learning.
		LD2 - The head of my department/ faculty supports students using screen learning.
IV5 – Student Learning Style	Grasha-Reichmann Learning Styles Scale	Are you: LS1: 1)Participant or 2)Avoidant? A participant style student is eager to learn course content, enjoys learning, and takes responsibility for his/her own learning. An avoidant style student does not want to learn the content, does not enjoy learning, and avoids taking part in course activities. LS2: 1)Collaborative or 2)Competitive? A collaborative learning style student works well with others and enjoys cooperative learning and working in groups. A competitive style student sees the classroom as a win-lose situation in which they must win and enjoy outperforming other students. LS3: 1)Independent or 2)Dependent An independent style student is a curious and confident learner. He or she prefers to work on his/her own in individual activities. This student type needs opportunities for independent study, self-paced work or projects based on his/her interest. A dependent style student sees the teacher as a source of information, wants to be told what to do, and will learn only what is required. This student type needs more guidance from the teacher.
Moderator – Trusting Beliefs	Ability	AB1 - My university/teacher has the necessary technology knowledge to conduct screen learning.
		AB2 - My university/teacher has the necessary skill and ability to conduct screen learning.
		AB3 - My university/teacher has sufficient resources to conduct screen learning.
		AB4 - The risk of having a technical failure at screen learning is very small.
		AB5 - Technology obstacles should not be a major concern when conducting screen learning.
		AB6 - My university/teacher has sufficient expertise to do screen learning.
	Benevolence	BE1 – My university/teacher is always concern with the student's needs.
		BE2 – My university/teacher always keep students' best

		interest in mind.
		BE3 – My university/teacher has never had unrighteous interest motivation.
		BE4 – My university/teacher will always do the job right even if not monitored.
		BE5 – My university/teacher always meet students' expectations and needs.
	Integrity	IG1 – My university/teacher always provide reliable information
		IG2 – My university/teacher always provides plausible commitments.
		IG3 – My university/teacher always keeps their promises and commitments.
		IG4 – I believe in my university's /teacher's advices and warnings.
		IG5 – I have no doubts on my university's / teacher's honesty.
Behavioural Intention to Adopt SSL		BI1 - I intend to use screen learning in the next trimester.
		BI2 - I predict I would use screen learning in the next trimester.
		BI3 - I plan to use screen learning in the next trimester.
Actual Usage (Use Behaviour)		AU1 - Which screen learning applications do you use? List at least three in the order of frequency of usage. (For example: Ms Teams, Zoom, Google Meet)
		AU2 - What are the different features of screen learning (across tools) you use? List three in the order of frequency of usage. (For example: Join Meeting, Share Screen, Use Microphone, Use Webcam for presentation, Chat, Start Recording, etc.)