

Penang Community College Academic Employee Job Satisfaction and PdPDT Usability Evaluation in Post COVID-19 Pandemic MCO

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Abstract

During post MCO by the COVID-19 pandemic, interchangeable between face-to-face working and work from home is directed suddenly. Consequently, employees needed job's re-working to work with online system. Hence, these two issues defining the research design in two dimensions, aiming to examine the parameters that influence job satisfaction, and online system usability for teaching and learning. This research survey focuses on Penang Community College academic employees and measures by Andrew & Whitney Satisfactory Scale and System Usability Scale questionnaire templates. Then, the responded questionnaires are analysed by preliminary analysis, EFA, Regression Analysis, and Post Hoc test. The findings are feeling: 'about job', 'work for the job', and 'what available for doing the job' are significantly affected JS. Besides, co-worker and 'where is the work' relation with JS is in a positive direction. Moreover, questions regarding: 'frequent use of PdPDT', 'inconsistency in PdPDT', and 'many need to learn before starting using PdPDT' are the most effective in predicting SUS score.

Keywords: job satisfaction, online working, system usability scale

1.0 Introduction

Movement Control Order (MCO) by the government in many countries is to prevent the spread of a deadly Corona Virus Disease (COVID-19). Malaysian government MCO is in three series, the first MCO 1.0 began with 18 March 2020; MCO 2.0 by 13 January 2021, and MCO 3.0 around April and May 2021. By MCO, government and private buildings are closed, suddenly enforced to employees to work from home using the online system (Baruch, 2001). Penang community colleges (CC) follow the order, hence this catalyst online teaching and learning system (PdPDT) usage by academic employees (AE). These colleges include Kolej Komuniti Kepala Batas (KKKB), Kolej Komuniti Seberang Jaya (KKSJ), Kolej Komuniti Bayan Baru (KKBB), Kolej Komuniti Bukit Mertajam (KKBM), Kolej Komuniti Tasek Gelugor (KKTG), and Kolej Komuniti Nibong Tebal (KKNT).

The Information Technology (IT) advancement is believed, creates much productive PdPDT classroom than face-to-face classroom. Moreover, during MCO, IT advancement has fastened the transition from face-to-face teaching into PdPDT. PdPDT is delivered through synchronous platforms such as Zoom, Microsoft Teams, and Google Meet; and asynchronous platforms, e.g. Telegram and WhatsApp, which are popular platform during MCO (Prasetyo et al., 2021). Through PdPDT, AE will upload learning material, then the students and AE used this material while meeting online with student (Al-Fraihat, Joy, & Sinclair, 2020).

PdPDT usage may result negative and positive effects on job satisfaction (JS). Mahmood et al. (2021) suggest that to this date JS through working online creates a significant research area. Many studies suggest that online approach has a positive correlation with JS (Bae & Kim, 2016; Fonner & Roloff, 2010; Gajendran & Harisson, 2007; Felstead & Henseke, 2017). This is due to employees' initial work through the online mind is ready. However, this is not the case during COVID-19 pandemic, where the employee is directed to adopt online working suddenly. Accordingly, the employee has to work from home that turned them to face more stresses and work struggle. Consequently, work from home does not provide space, quality, and design needed (Rymaniak et al., 2021). Furthermore, the use of personal internet facilities up to mass usage will slow down the internet line and burden them with extra cost for using personal internet. Besides, they must self-thought working with new internet-based system mainly use for teaching and learning. By the self-thought proses, they are faced with such as the system's: unnecessarily complex, uneasy of use, function integration, inconsistency, many to learn, and low confident of handling (Pal & Vanija, 2020; Lewis, 2018). Moreover, the employees' psychological health is deteriorating, such as the increase of anxiety and stress (Rossi et al., 2020; Sahni, 2020); feeling of isolation, stigma, and discrimination (Baldassarre et al., 2020). In addition, low intensification of work, difficulties in detaching from problems at home, extending work task beyond normal working hours, and exhaustion (Petcu et al., 2021) are among work from home physiological problems.

Many JS researches conducted during MCO in multi-dimensional fields, and become the pattern of research in this line. Thus, this paper is conducted in two dimensions of study – JS Survey and PdPDT Usability Evaluation Survey. For instance, Petcu et al. (2021) multi-dimensional fields combining JS and exhaustion; Mahmood et al. (2021) study JS with Job Demand-Resource; JS and Family-Balance by Rai, Ratu, and Savitri (2021); Marič, Todorović, & Žnidaršič, (2021) multi-dimensional fields include Work-life Conflict, Life Satisfaction, and JS; Task and JS by Jiang et al. (2020); and Organizational Culture and JS by Serinkan & Kiziloglu (2021). However, this line literature study has no research record conducted during post MCO.

During post MCO, interchangeable between face-to-face working and work from home is based on the rise of COVID-19 infected cases regulated by management, and directed suddenly. For CC, this decision is made by the college management based on local health authority and ministry of health advice. Thus, the preparation for face-to-face classes

and managerial work may suddenly be changed into the online system, which required the employee to re-prepare and revise the plan he prepared earlier. Consequently, employee attitude changed by this working mode during post MCO e.g. small meeting member resulted no unification in certain decision, afraid of attending face-to-face meetings, and prefer to work individually. These distractions lead to job dissatisfaction.

These reviews exposed the facts that the AE has issues with JS during work at home such as deteriorating psychology health and work struggle, e.g. low internet line, non-conducive workspace, and exhaustion. Moreover, the review discloses the AE facing difficulties with the system usage includes the system's: function integration, inconsistency, and unnecessary complex. Based on these findings, this paper attempts to conduct two dimensions' study – JS and PdPDT Usability Evaluation surveys. The study focuses on CC AE and during post MCO. Thus, this paper aims are to examine the effect and relationship between the independent parameters and JS score, and to investigate which AE characteristics the most effective in predicting the PdPDT Usability Evaluation score.

2.0 Material and methodology

2.1 Material

JS is a well-research concept, so there many definitions given to JS (Marič, Todorović, & Žnidaršič, 2021). Thus, there is no definition that fit into all aspects of JS research. In early the research years, JS is defined as a workers' job comfortable measure, which it can be the whole or individual aspects of the job (Lock, 1976). This is supported by Credé (2018) that expresses JS is a structure that forms and the aggregates the fulfilment of certain aspects of the work. These definitions expended by the previous research work to set the stand of this study in following lines. The form and work fulfilment are correlated to these two independent parameters – the job (PQ1) and the work an employee does for the job (PQ3), are the typical emotional attitude that caused a job delight and appreciate the feeling (Rai, Ratu, & Savitri, 2021). Furthermore, JS can positive emotional subsequently of professional experience (Loke, 1976). This positive emotional feeling PQ1 and PQ5 turn into high quality work he does and lead to high JS. Pillay & Abhayawansa (2014) and Ayuningtyas & Septarini (2013) have proven that the higher the level of JS, the more people commit to their task, and willing to work with multiple tasks. By these findings, following hypothesis is proposed. **Hypothesis 1 (H1):** Are PQ1 and PQ3 have a significantly effect on JS?

The feeling of satisfaction can be from the people you work with (PQ2) which enable interaction with others. Toscano & Zappalà (2020) study proved that lack of PQ2 during the MCO is negatively affected JS. Furthermore, this is supported by Dimotakis, Scott, & Koopman (2011) study, that social interaction has a JS important element. However, an employee who can interact with the people he works with and exchange conversation on work and non-work topics, builds a bond and trust within the employees and with supervision, this leads to the positive perception of work (Bulińska-Stangrecka & Bagieńska, 2021; De Massis et al., 2018).

Thus, this paper assumes that there is a relationship between PQ2 and JS, and proposes **Hypothesis 2 (H2)**: Is there a relationship between PQ2 and JS?

Before the pandemic, work through online was mostly done by highly skilled workers with a lot autonomy and work via computer (Bulińska-Stangrecka & Bagieńska, 2021). Suddenly, during the MCO, all employees have to work through online and paused them perform duties normally (Rai, Ratu, & Savitri, 2021). This pause created the feeling of isolation, disturbed work-home balance, lack of physical activities that lessen employee psychological, physiological, and environmental needs (Irigoyen-Camacho et al., 2020; Tanner, 2007). Furthermore, work through online change how individual cooperate, collaborate, access information and contribute to the creation of knowledge compare to work in the workplace (Eckhardt et al., 2019). Nonetheless, a research concluded that work from home temporarily can increase employee JS (Allen, Golden, & Shockley, 2015). These mixed positive and negative issues are summed 'where the work is' (PQ4) in relation to JS. Hence, this proposing **Hypothesis 3 (H3)**: Is PQ4 positively related to JS?

The MCO has significantly changed in how people communicate, do activities, and work in past time (Rai, Ratu, & Savitri, 2021). Though, this changed condition is adoptable easily in a fast pace of work and become very mobile because of IT advancement and well organised supervision (Serinkan & Kiziloglu, 2021), but the unintentional implementation turns reverse outcome. The sudden change from work in the workplace to work from home has negatively affected the JS (Mahmood et al., 2021) – lack of equipment, information, and supervision. For instance, King (2008) specifies that work through online, especially in education should well defined of the employee and employer responsibilities, lecturers' readiness, employee expenses, and the availability resources. Consequently, because of the MCO has forced employees to work online from home mandatory, the employees' priorities have taken for granted, this include lack of space (Kniffing et al., 2021a), lack of supervision and information (Mahmood et al., 2021; Kniffing et al., 2021b). Thus, these findings recommend following hypothesis. **Hypothesis 4 (H4)**: Is what available for doing your job (PQ5) positively effect JS?

2.2 Methodology

The Google Form questionnaire reached the whole CC AE population by the link blasting through each official CC social media and the retrieving responded questionnaire between 4th to 18th of April 2022. Though, the population CC AE participations from KKKB, KKSBB, KKBB, KKBM, KKTG, and KKNT is not compulsory. The population size is 159 persons, and the total in-time respond number is 58 with 15 delay respondents counted to the total 73 respondents.

2.2.1 Demographic survey

The questionnaire contains three sub-part questionnaires include Demographic, JS, and PdPDT usability evaluation survey. Besides, this quantitative questionnaire is a fully structured and a one-time cross-

sectional data using Google Form and all sub-parts circulated together. Respondents were CC AE from various fields of study have to answer the questions and submit the form through online. The responds must answer his work location, gender, age, years of teaching experience, online teaching approach, and teaching field, with all JS and PdPDT Usability Evaluation Survey.

2.2.2 Andrew & Whitney (1976) satisfactory scale

JS study has multitude reference questionnaires. Some researchers developed their own questionnaire derived from previous studies (Petcu et al., 2021; Țălnar-Naghi, 2021). Besides, many of the researchers (Bello, Adewole, & Afolabi, 2020; Lakatamitou et al., 2020; Lopes et al., 2015) referred previous researcher’s questionnaire such as Job Descriptive Index (Yeager, 1981), Minnesota Satisfaction Questionnaire (Weiss, Dawis, & England, 1967), and Andrew & Whitney Satisfactory Scale (Andrew & Whitney, 1976). However, the issue is the referred questionnaire is so lengthy and too many questions. Hence, the answered questionnaires are turned as an ineffective measurement since the respondents lost their focus. Besides, there are items in the referred questionnaire contained detail measurement of satisfactions that will not be used in the data analysis or irrelevant in certain contexts of study. Andrew & Whitney (1976) satisfactory scale as shown in Table 1, is used to examine the aforementioned issue, as it is a reasonable shorter questionnaire to measure generalised JS (Rentsch & Steel, 1992).

Table 1: The Prime Questions (PQ), Number of Sub-Question (AQ), and the Scale in the JS Survey

The Five Items in the Questionnaire (Code) and [AQ Number]	Scale
The feeling about the job. (PQ1) [4]	1 = very dissatisfied
The feeling about the people you work with or co-worker. (PQ2) [4]	2 = dissatisfied
The feeling about the work doing on the job. (PQ3) [3]	3 = neutral
The feeling about where is the work. (PQ4) [9]	4 = satisfied
The feeling about what is available for doing your job. (PQ5) [10]	5 = very satisfied

Though, these questions are referred, PQ sub-questions (AQ) are included in the questionnaire to get specific information that cannot be obtained by PQs. These totals of 30 Aqs are much detail question within the PQ context. Besides, the questionnaire is designed with a 5-point Likert scale ranging from two extremes. Division of these 30 Aqs and the scale representation is shown in Table 1.

“The feeling about the job” (PQ1) represents what do the employees feel about his job includes the excitement, willingness to sharing the skills, and boost about the job. PQ2 involves the co-worker, is expected to give

and receive support and cooperation in achieving a common goal. Feeling of doing work (PQ3) is about daily tasks, resourcefulness, and self-sufficiency. Working condition and responsibility constitutes in PQ4. For PQ5, it refers the availability of equipment, information, supervision, and so on, in doing his work (Samancioglu, Baglibel, & Erwin, 2020).

2.2.3 System Usability Scale

Questionnaire for PdPDT Usability Evaluation survey is suitable to study human-computer interaction. Therefore, this paper interests in usability evaluation of various PdPDT applications using the System Usability Scale (SUS) with ten questions as shown in Table 2 (Pal & Vanijja, 2020). It is the widest used questionnaire template and will be a future important measurement tool (Lewis, 2018). Sus advantages are it provides a wide range of usable area, simplicity, and quickest way to a study to get a general overview of the usability evaluation (Kaya, Ozturk, & Altin Gumussoy, 2019). This questionnaire applied with five-point Likert's scale, that represent by Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). SUS score calculation is as follow. The positive answer, i.e. point of 4 or 5, the score is the value point plus with one. However, for the negative answer, i.e. point of 1, 2, or 3, the score is five minus the value point. All scores sums multiplied by 2.5 is the total score between zero to 100 (Lewis & Sauro, 2017).

Table 2: The Ten Questions in the System Usability Questionnaire

No.	The Ten Items in the Questionnaire
1	I think that I would like to use this system frequently.
2	I found the system unnecessarily complex.
3	I thought the system was easy to use.
4	I think that I would need the support of a technical person to be able to use this system.
5	I found various functions in this system were well integrated.
6	I thought there were too much inconsistency in this system.
7	I would imagine the most people would learn to use this system very quickly.
8	I found the system very cumbersome to use.
9	I felt very confident using the system.
10	I needed to learn a lot of things before I could get going with this system.

3. Result analysis

3.1 Demographic survey

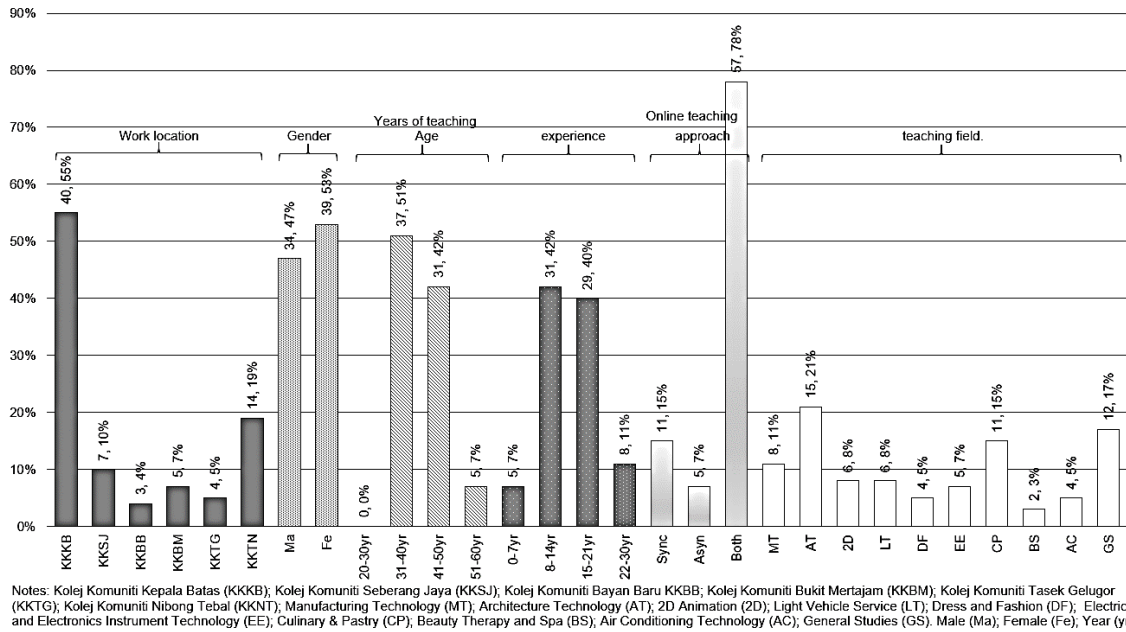


Figure 1: Respondent Socio-Demographic (N=73)

Based on 73 respondents out of 159 populations of CC AE, the response rate is 46%. Figure 1 shows the respondent characteristics. Approximately male (Ma) and female (Fe) AE composition is very close, exactly 47%: 53%. Interestingly, above 50% of the respondents are between 31 to 40 years old, with 8 to 21 years of experience at 82%. Besides, almost 80% of the respondents preferred of using both platforms in PdPDT, i.e. synchronous and asynchronous. Moreover, the teaching fields are simplified into three categories, namely Technology Based (MT, AT, LT, EE, AC) at 52%; Technical Based (2D, DF, CP, BS) at 31%; and General Studies at 17%; to observe the pattern better.

3.2 Preliminary data analysis for both surveys

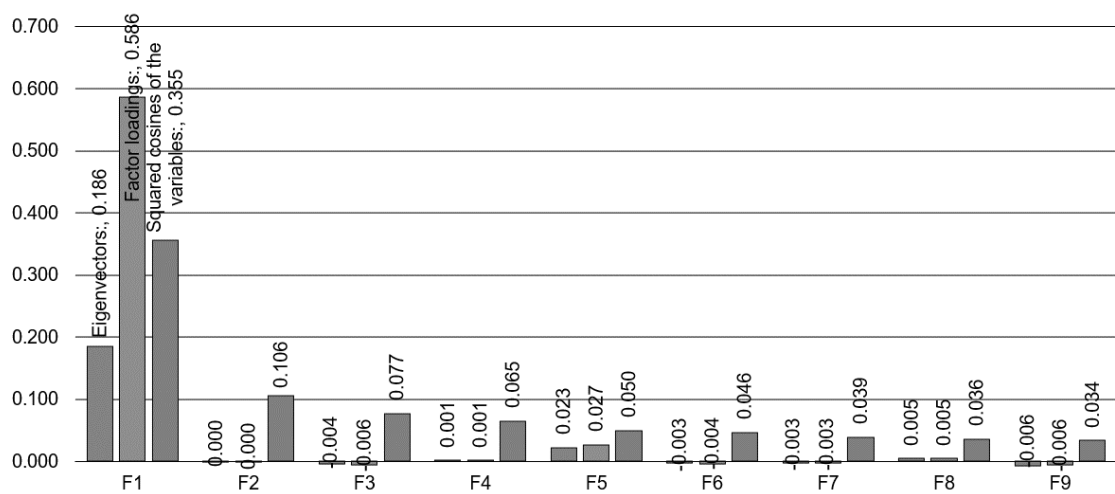


Figure 2: Result from Explanatory Factor Analysis

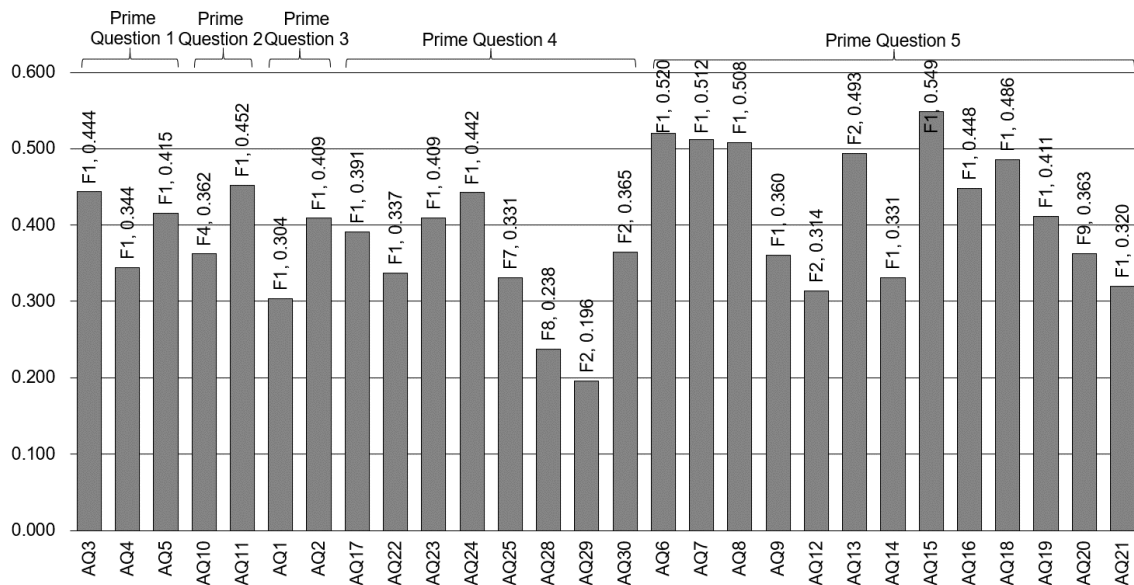


Figure 3: Squared Cosines of the Variable Value

Normality check by Indexing Rank for JS Survey counts the all correlation percentages between parameters are found above 90%. Correlation Coefficient Test uses 5% (0.514) with correlation significant from R Table (rTable) selected value. rTable is a standard table, contains critical values for a two-tail test that can be referred from statistical textbook and is used test the mentioned hypothesis by comparing with rCount value. The lowest rCount value is +0.7564 and the highest value is +0.7999. For JS survey, the rCount value is still valid at +0.6378. By the test, all data α value was found below 0.05. Furthermore, the data Cronbach's Alpha is 0.9331, based on all data without clustering by each parameter.

JS survey data Explanatory Factor Analysis (EFA) reduces 30 AQs into smaller parameter numbers, i.e. nine Factors (F). Figure 2 shows the nine Fs, with each factor represents by three features, namely Eigenvectors, Factor Loading, and Squared Cosines of the Variables or Question, that arranged as in Factor 1 (F1). Besides, the F is arranged in sequence from the highest to the lowest value effectiveness of predicting JS score. This squared cosine of F, AQ, and PQ values as in Figure 3. The highest squared cosine is 0.549 for Q16, and the lowest is 0.196 for Q29.

Similarly, in the PdPDT Usability Evaluation Survey, by Indexing Rank the data is confirmed normal distribution with 98.4% correlation. Besides, the data reliable based on calculated Cronbach's Alpha of 0.9610. Moreover, the data is valid checks by the two approaches aforementioned – rCount value is +0.7983 and Pearson's Chi Square Test value is lower than 0.05.

3.3 Analysis on hypothesis of JS survey

Regression Analysis is conducted for testing H1, H3, and H4, and the result is shown in Table 3. It consists empirical value of coefficient, standards of deviation, t-stat, and p-value. Pearson's Correlation Analysis

measures the relationship degree between variables (Kurtulus, 2004). Table 4 shows the result of Pearson's Correlation to test H2.

Table 3: Regression Analysis Result

	<i>Coefficients</i>	<i>Standard of Deviation</i>	<i>t-Stat</i>	<i>p-value</i>
The feeling about job (H1, PQ1)	Close to +1	0.474	2.11	Below 0.05
The feeling about the work doing on the job (H1, PQ3)	Close to +1	0.429	2.33	Below 0.05
The feeling about where is the work (H3, PQ4)	Close to +1	0.495	2.02	Below 0.05
The feeling about what is available for doing your job (H4, PQ4)	Close to +1	0.485	2.06	Below 0.05

Table 4: The Result of Pearson Correlation

Pearson correlation between people your work (PQ2) with and JS	Sig. (2 tailed)	N
0.7564 (The correlation is significant at 0.01 level (2-way))	0.000	73

3.4 Multiple Regression Analysis of PdPDT Usability Evaluation Survey

This analysis involves multiple independent parameters, i.e. BQ1 to BQ10. In each of the analysis, only two parameters are concerned. Thus, it required a series of 45 multiple set of analyses, which produce 45 values for each the concerned output. By the analysis on the collected data, for all done analyses the p value is $p < 0.05$ at 95% confidence intervals.

Table 5: Value for Variance

Question	BQ2	BQ3	BQ4	BQ5	BQ6	BQ7	BQ8	BQ9	BQ10
BQ1	0.4077	0.3957	0.4141	0.3343	0.4618	0.4316	0.5019	0.4215	0.2767
BQ2	-	0.5281	0.4437	0.3702	0.4612	0.4919	0.4370	0.4906	0.4643
BQ3	-	-	0.4907	0.3803	0.4959	0.4836	0.5245	0.5274	0.5331
BQ4	-	-	-	0.3734	0.8230	0.4958	0.8609	0.5245	0.7603
BQ5	-	-	-	-	0.3601	0.4020	0.3862	0.3563	0.4165
BQ6	-	-	-	-	-	0.4745	0.8747	0.4849	0.7597
BQ7	-	-	-	-	-	-	0.5381	0.5004	0.5046

BQ8	-	-	-	-	-	-	-	0.5276	0.7590
BQ9	-	-	-	-	-	-	-	-	0.4578

Table 6: Value for Coefficient 1 (β_1)

Question	β_1 for								
	BQ2	BQ3	BQ4	BQ5	BQ6	BQ7	BQ8	BQ9	BQ10
BQ1	3.4434	3.5752	5.0448	2.9019	4.8224	3.6280	4.8086	3.6073	5.3950
BQ2	-	4.5191	7.2810	3.5725	7.2308	4.6222	8.1565	4.5271	6.3149
BQ3	-	-	7.8023	3.6673	7.9079	4.9763	8.1733	4.3282	6.4379
BQ4	-	-	-	2.2855	2.0262	2.9442	2.0663	2.3981	1.4223
BQ5	-	-	-	-	7.4107	5.7132	7.5543	5.6779	6.5913
BQ6	-	-	-	-	-	3.2112	1.8137	2.9494	1.3945
BQ7	-	-	-	-	-	-	6.7860	3.9894	5.7315
BQ8	-	-	-	-	-	-	-	2.5258	1.4732
BQ9	-	-	-	-	-	-	-	-	6.7603

Table 7: Value for Coefficient 2 (β_2)

	Question	BQ2	BQ3	BQ4	BQ5	BQ6	BQ7	BQ8	BQ9	BQ10
		β_2 for	BQ1	4.1760	4.5722	2.7376	5.1087	1.9575	3.5596	1.0394
BQ2	-		3.5315	3.0614	5.4077	2.8004	3.5882	3.4608	4.0211	3.2710
BQ3	-		-	3.0377	5.6991	2.9467	4.2816	2.7761	4.3383	2.9055
BQ4	-		-	-	7.2063	1.7705	6.6057	0.6754	6.9047	3.4136
BQ5	-		-	-	-	2.4651	2.6955	2.1902	3.9075	1.7814
BQ6	-		-	-	-	-	7.0045	0.5627	7.5221	3.5422
BQ7	-		-	-	-	-	-	2.4965	4.5661	3.3142
BQ8	-		-	-	-	-	-	-	7.5575	4.0026
BQ9	-		-	-	-	-	-	-	-	3.8376

The result shows that the two concerned independent parameters variance result shown in Table 5, in predicting SUS score with 95% confidence intervals. Besides, β_1 and β_2 coefficients are generated to multiply with the independent parameters in order to predict the SUS score, shown in Table 6 and Table 7.

3.5 Post Hoc Test for PdPDT Usability Evaluation Survey

Table 8: Mean and Standard of Deviation (SD) for the Questions

Question	BQ1	BQ2	BQ3	BQ4	BQ5	BQ6	BQ7	BQ8	BQ9	BQ10
mean	3.260	4.00	4.121	3.360	3.830	2.910	3.840	2.380	3.860	3.900
SD	0.9923	0.6695	0.5895	0.8650	0.7225	0.8766	0.6898	0.8268	0.6283	0.7355

Table 9: The Significance of Question Comparison

Question	BQ2	BQ3	BQ4	BQ5	BQ6	BQ7	BQ8	BQ9	BQ10
BQ1	•	•	×	•	×	•	•	•	•
BQ2	-	×	•	×	•	×	•	×	×
BQ3	-	-	•	×	•	×	•	×	×
BQ4	-	-	-	•	×	•	•	•	•
BQ5	-	-	-	-	•	×	•	×	×
BQ6	-	-	-	-	-	•	×	•	•
BQ7	-	-	-	-	-	-	•	×	×
BQ8	-	-	-	-	-	-	-	•	•
BQ9	-	-	-	-	-	-	-	-	×

Note: • – Significant; × - Not Significant

The Post Hoc test is a posteriori test that analyses ‘were seen’ data, thus it reserved for the last test. This test required a sequent of three tests – Levene’s test, Analysis of Variance (ANOVA), and Tukey’s test. Levene’s test generates an overall result, and the ANOVA result shown in Table 8. This Levene’s test result comes with a SUS error variance of $\alpha = 0.872 > 0.05$. Determination of the significant question comparison based on p value through Tukey’s Test is tabled in Table 9.

4.0 Discussion

4.1 Demographic survey

Based on the response rate, the non-participation at 54% is very high value. On account the population composition, females are much higher number than male AE, by comparable this female AE should respond much more. Remarkably, male group response rate is considerably good, due to their number is much less, compared to female in the whole population. Based on the age, it shows that the young and older AE groups are the least response in the study. Above 50% from the group between 31 to 40 years old, is the year actively involved in teaching due to at this stage they found their work field of interest. The older age group mainly involves in managerial works, so it is understandable that their teaching work is much lesser. This response can be correlated with the respondent’s teaching experience, which 82% of the respondent come from 8 to 21 years of experience. This group mainly falls in 31 to 40 years old of age group, that is also high in responding the questionnaire. As most

of the respondent (80%) prefer to use a combination of synchronous and asynchronous platforms in teaching, this shows meeting student through online is not sufficient, hence the electronic note and academic evaluation made accessible to student through asynchronous platform. Based on categories of teaching field, respondent from Technology Based are positively responding the questionnaire at 52%.

4.2 Preliminary analysis

The prerequisite for following analysis, required for preliminary data analysis to check the data in a normal distribution, valid, and reliable. By Index Rank on JS Survey data, the percentage for all parameters PQ1-PQ5 and JS score are above 90% is considered significant normal distribution. For validation, the calculated correlation (rCount) is greater than rTable, which indicates that the data valid data. This test result shows PQ1-PQ5 and JS score data validity at excellent rCount. Statistically, rCount value +0.7 and above is representing a strong uphill linear relationship. Pearson's Chi Square Test validates by significant (2 tailed) value which must be lower than the alpha value ($\alpha = 0.05$). Due to all data value were found below 0.05, hence the data is confirmed as valid. For reliability, Cronbach's Alpha tells how close of a tested collected data as a group with the 0.00 and +1.00 scale value. The JS survey data Cronbach's Alpha value of 0.9331 is rated as excellent reliability.

EPA for JS Survey data is set to a minimum filter factor percentage of 80%, generates nine Fs to represent the whole data pattern. Figure 2 shows that Factor 1 is the most effective in predicting JS score. Since the AQs are clustered into Fs, thus this also means AQ is directly related to an F in predicting JS score. For instance, the top three AQs most effective in predicting JS score are AQ3, AQ4, and AQ5 in sequence. Furthermore, the reason the AQ value in Figure 3 is not arranged accordingly, due to Eigenvalue and Factor loading are also influencing the predicting effectiveness of JS score. High squared cosine can represent a good quality variable of F and AQ, hence low value can be ignored. For instance, AQ26, AQ27, F3, F5, and F6 are omitted from Figure 3 because of they have low squared cosine value and are not significant. On average squared cosine values for PQ5 is the highest at 0.432; following by PQ2 (0.407); PQ1 (0.401); PQ3 (0.356); and the lowest is PQ4 (0.331).

4.3 Analysis on Hypothesis for JS Survey

By Regression Analysis, all independent parameters' coefficient is shown an upward relation to JS. Besides, for data in H1, H3, and H4, the R Square value is one; p-value is below than 0.05; and the Standard of Deviation is very low that indicate these values are significantly effective on JS and the dispersion is data close to a population value. Hence, this supports H1, H3, and H4. By H2, PQ2 and JS score relationship strength is analysed by calculated correlation coefficients are varying between -1 and +1 values. The calculated coefficient is positive (+0.7564) or 75.64%, represents the relationship is a high correlation strength. The hypothesis H2 was accepted based on this result.

4.4 Multiple regression analysis for PdPDT usability evaluation survey

In Multiple Regression analysis, three values are preferred at low, i.e. variance, β_1 , and β_2 (Pal & Vanijja, 2020). The resulted $p < 0.05$, represents the collected data result is statistically significant. The variance result shown in Table 5, in predicting SUS score. Based on the result, BQ1–BQ10 account 27.67%, the lowest variance shown in Table 5, is the most effective in predicting SUS score. Other among the most effective comparing question combination values are BQ1-BQ5, BQ2-BQ5, BQ3-BQ5, BQ4-BQ5, BQ5-BQ8, and BQ5-BQ9, shown in bold and underline number in Table 5. Based on the point the lower β_1 and β_2 coefficient the more effective in predicting the SUS score, BQ6, BQ8, and BQ10 are the most effective for β_1 , likewise BQ1, BQ4, BQ5, and BQ6 for β_2 . The value for the mentioned coefficients as in Table 6 and Table 7 in bold and underline number.

4.5 Post hoc test for PdPDT usability evaluation survey

Post Hoc test investigates differences between multiple questions means while controlling the data error-rate (Kaya, Ozturk, & Altin Gumussoy, 2019). This means, the higher the differences, the higher the error rate, which lessen the predictive accuracy. In this paper, two independent parameters are compared. The first sequence for the test Levens's test to determine the homogeneity of the data. With the score of SUS error variance $\alpha = 0.872 > 0.05$, the data is rated as homogenous. Since the data is homogeneous, ANOVA is conducted. One-way ANOVA is conducted to determine the p-value. As $p < 0.05$ by the analysis, hence there was a significant difference in means between the 10 questions. Table 8 shows the mean and Standard of Deviation (SD) obtained from the ANOVA by each question, as a part of Post Hoc Test. Not like ANOVA that calculates the overall difference, Post Hoc Test is required because by the test the differences for each question can be obtained. Then Tukey's Test is applied after the ANOVA, the result determines whether the difference is significant or insignificant. The result of the determination is tabled in Table 9. Interestingly, shown in Table 9, the significant difference value is ($F(4,121)=30.0357$, $p<0.05$) for BQ3. Post Hoc test analyses revealed that the score for BQ8 (2.38 ± 0.8269 , $p<0.05$) were significantly lower compared with those BQ3 (4.12 ± 0.5895 , $p<0.05$) and BQ2 (4.00 ± 0.6695 , $p<0.05$). Determination of the significant difference between question is based on the value of $p \leq 0.05$, the test is significant, otherwise vice versa.

5.0 Conclusion

In demographic survey, the outstanding response rate for the circulated questionnaire in this study is from the male group at age of 31 to 40 years old with 8 to 14 years of teaching experience plus a Technical Based background of teaching fields. Most of these AEs convenient to use both platforms, i.e. synchronous and asynchronous for online teaching.

Moreover, in preliminary data analysis for both data surveys are tested and resulted with high normal distribution, valid statistically and excellent reliability, hence no data modification is needed and fit for the following main analyses. Furthermore, through EPA on JS survey data,

sub-questions are clustered into factors, which is so useful and simplify in measuring the effectiveness of sub-question for predicting JS score. Variable Square Cosine, Eigenvalue, and Factor Loading are the EPA parameters suggest that AQ3 is the most effective sub-question in predicting JS score. Much in depth EPA analysis, using squared cosine value, suggests that the most effective prime questions are PQ5 and PQ2.

A series of JS Survey hypothesis analysis finding suggests that this research supports: (i) PQ1, PQ3, and PQ5 are significantly effected JS; (ii) there is a relation in a positive direction between PQ2 and PQ4 toward JS. In other words, these show that the job, work, and what's available for the job have meaningfully influence the JS. Besides, the co-worker and where the work is has direct relation to JS.

Three questions in PdPDT Usability Evaluation survey concerning system frequent use, system needed user to learn a lot of things, and system inconsistency are the most influential for rating the system usability. Furthermore, the Post Hoc Test result suggests that BQ10-BQ1, BQ6-BQ2, and BQ8-BQ4 are among the significant comparisons, i.e. the lowest differences between two question means. This is due to the lesser the differences, the higher the predictive SUS score accuracy. Similarly, by Multiple Regression Analysis, BQ1, BQ10, and BQ6 are found the most effective questions in predicting SUS score.

Reference

- Andrew, F. M. & Whitney, S. B. (1976). *Social Indicators of Well-being: American Perceptions of Life Quality*. Plenum, New York, in press.
- Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in human behavior, 102*, 67-86.
- Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological science in the public interest, 16*(2), 40-68.
- Ayuningtyas, L., & Septarini, B. G. (2013). Hubungan family supportive supervision behaviors dengan work family balance pada wanita yang bekerja. *Jurnal Psikologi Industri dan Organisasi, 2*(1), 50.
- Bae, K. B., & Kim, D. (2016). The impact of decoupling of telework on job satisfaction in US federal agencies: Does gender matter? *The American Review of Public Administration, 46*(3), 356-371.
- Baldassarre, A., Giorgi, G., Alessio, F., Lulli, L. G., Arcangeli, G., & Mucci, N. (2020). Stigma and Discrimination (SAD) at the Time of the SARS-CoV-2 Pandemic. *International Journal of Environmental Research and Public Health, 17*(17), 6341.

- Baruch, Y. (2001). The status of research on teleworking and an agenda for future research. *International journal of management reviews*, 3(2), 113-129.
- Bello, S., Adewole, D. A., & Afolabi, R. F. (2020). Work Facets Predicting Overall Job Satisfaction among Resident Doctors in Selected Teaching Hospitals in Southern Nigeria: A Minnesota Satisfaction Questionnaire Survey. *Journal of Occupational Health and Epidemiology*, 9(1), 52-60.
- Bulińska-Stangrecka, H., & Bagieńska, A. (2020). Intangible resources for an organization's sustainability potential. *Entrepreneurship and Sustainability Issues*, 8(1), 741.
- Credé, M. (2018). *Attitudes, Satisfaction, Commitment and Involvement*. SAGE Publication Pvt Ltd., London, UK.
- De Massis, A., Audretsch, D., Uhlaner, L., & Kammerlander, N. (2018). Innovation with Limited Resources: Management Lessons from the German Mittelstand. *Journal of Product Innovation Management*, 35(1), 125-146.
- Dimotakis, N., Scott, B. A., & Koopman, J. (2011). An experience sampling investigation of workplace interactions, affective states, and employee well-being. *Journal of Organizational Behavior*, 32(4), 572-588.
- Eckhardt, A., Endter, F., Giordano, A., & Somers, P. (2019). Three stages to a virtual workforce. *MIS Quarterly Executive*, 18(1), 5.
- Felstead, A., & Henseke, G. (2017). Assessing the growth of remote working and its consequences for effort, well-being and work-life balance. *New Technology, Work and Employment*, 32(3), 195-212.
- Fonner, K. L., & Roloff, M. E. (2010). Why teleworkers are more satisfied with their jobs than are office-based workers: When less contact is beneficial. *Journal of Applied Communication Research*, 38(4), 336-361.
- Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: meta-analysis of psychological mediators and individual consequences. *Journal of applied psychology*, 92(6), 1524.
- Irigoyen-Camacho, M. E., Velazquez-Alva, M. C., Zepeda-Zepeda, M. A., Cabrer-Rosales, M. F., Lazarevich, I., & Castaño-Seiquer, A. (2020). Effect of income level and perception of susceptibility and severity of COVID-19 on stay-at-home preventive behavior in a group of older adults in Mexico City. *International Journal of Environmental Research and Public Health*, 17(20), 7418.

- Jiang, Z., Di Milia, L., Jiang, Y., & Jiang, X. (2020). Thriving at work: A mentoring-moderated process linking task identity and autonomy to job satisfaction. *Journal of Vocational Behavior*, 118, 103373.
- Kaya, A., Ozturk, R., & Altin Gumussoy, C. (2019). Usability measurement of mobile applications with system usability scale (SUS). In *Industrial engineering in the big data era* (pp. 389-400). Springer, Cham.
- King, R. (2008). *Telework: A critical component of your total rewards strategy*. WorldatWork Press.
- Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., ... & Vugt, M. V. (2021a). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, 76(1), 63.
- Kniffin, K. M., Narayanan, J., & Van Vugt, M. (2021b). COVID-19 is a moderating variable with its own moderating factors. *Industrial and Organizational Psychology*, 14(1-2), 149-151.
- Kurtulus, K. (2004). Marketing Research. *Seventh Edition, Istanbul*.
- Lakatamitou, I., Lambrinou, E., Kyriakou, M., Paikousis, L., & Middleton, N. (2020). The Greek versions of the TeamSTEPPS teamwork perceptions questionnaire and Minnesota satisfaction questionnaire "short form". *BMC Health Services Research*, 20(1), 1-10.
- Lewis, J. R. (2018). The system usability scale: past, present, and future. *International Journal of Human-Computer Interaction*, 34(7), 577-590.
- Lewis, J. J. R., & Sauro, J. (2017). Revisiting the Factor Structure of the System Usability Scale. *Journal of Usability Studies*, 12(4).
- Loke, E. A. (1976). The nature and Causes of Job Satisfaction. In Dunnette ed. *Handbook of Industrial and Organization Psychology*. Chicago: McNally.
- Lopes, Silvia, Maria José Chambel, Filipa Castanheira, and Fernando Oliveira-Cruz. "Measuring job satisfaction in Portuguese military sergeants and officers: Validation of the job descriptive index and the job in general scale." *Military Psychology* 27, no. 1 (2015): 52-63.
- Mahmood, F., Ariza-Montes, A., Saleem, M., & Han, H. (2021). Teachers' teleworking job satisfaction during the COVID-19 pandemic in Europe. *Current Psychology*, 1-14.

- Marič, M., Todorović, I., & Žnidaršič, J. (2021). Relations between Work-life Conflict, Job Satisfaction and Life Satisfaction among Higher Education Lecturers. *Management: Journal of Sustainable Business & Management Solutions in Emerging Economies*, 26(1).
- Pal, D., & Vanijja, V. (2020). Perceived usability evaluation of Microsoft Teams as an online learning platform during COVID-19 using system usability scale and technology acceptance model in India. *Children and youth services review*, 119, 105535.
- Petcu, M. A., Sobolevschi-David, M. I., Anica-Popa, A., Curea, S. C., Motofei, C., & Popescu, A. M. (2021). Multidimensional assessment of job satisfaction in telework conditions. Case study: Romania in the covid-19 pandemic. *Sustainability*, 13(16), 8965.
- Pillay, S., & Abhayawansa, S. (2014). Work-family balance: perspectives from higher education. *Higher Education*, 68(5), 669-690.
- Prasetyo, Y. T., Ong, A. K. S., Concepcion, G. K. F., Navata, F. M. B., Robles, R. A. V., Tomagos, I. J. T., ... & Redi, A. A. N. P. (2021). Determining factors Affecting acceptance of e-learning platforms during the COVID-19 pandemic: Integrating Extended Technology Acceptance model and DeLone & Mclean is success model. *Sustainability*, 13(15), 8365.
- Rai, N. G. M., Ratu, A., & Savitri, E. D. (2021). Factors mediating work-family balance to job satisfaction in higher education during pandemic. *Indigenous: Jurnal Ilmiah Psikologi*, 6(3), 60-72.
- Rentsch, J. R., & Steel, R. P. (1992). Construct and concurrent validation of the Andrews and Withey job satisfaction questionnaire. *Educational and psychological measurement*, 52(2), 357-367.
- Rossi, R., Socci, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., ... & Di Lorenzo, G. (2020). COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. *Frontiers in psychiatry*, 11, 790.
- Rymaniak, J., Lis, K., Davidavičienė, V., Pérez-Pérez, M., & Martínez-Sánchez, Á. (2021). From Stationary to Remote: Employee Risks at Pandemic Migration of Workplaces. *Sustainability*, 13(13), 7180.
- Sahni, J. (2020). Impact of COVID-19 on employee behavior: Stress and coping mechanism during WFH (Work From Home) among service industry employees. *International Journal of Operations Management*, 1(1), 35-48.

- Samancioglu, M., Baglibel, M., & Erwin, B. J. (2020). Effects of Distributed Leadership on Teachers' Job Satisfaction, Organizational Commitment and Organizational Citizenship. *Pedagogical Research*, 5(2).
- Serinkan, C., & Kiziloglu, M. (2021). The relationship between organisational culture and job satisfaction in higher education institutions: The Bishkek case. *Periodica Polytechnica Social and Management Sciences*.
- Țălner-Naghi, D. I. (2021). Research Note: Job Satisfaction and Working from Home in Romania, before and during COVID-19. *Calitatea vieții*, 32(2), 1-22.
- Tanner Jr, B. M. (2007). *An analysis of the relationships among job satisfaction, organizational trust, and organizational commitment in an acute care hospital*. Saybrook University.
- Toscano, F., & Zappalà, S. (2020). Social isolation and stress as predictors of productivity perception and remote work satisfaction during the COVID-19 pandemic: The role of concern about the virus in a moderated double mediation. *Sustainability*, 12(23), 9804.
- Weiss, D. J., Dawis, R. V., & England, G. W. (1967). Manual for the Minnesota satisfaction questionnaire. *Minnesota studies in vocational rehabilitation*.
- Yeager, S. J. (1981). Dimensionality of the job descriptive index. *Academy of Management Journal*, 24(1), 205-212.