Modeling Creativity and Enjoyment in Learning Statistics Online in the New Normal

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ABSTRACT. In any school, creative learning as an enjoyable experience for students signals effective cognitive thinking in the teaching-learning environment. This study targets to explain the level of how creative and enjoyable learning statistics and determine its cognitive factors among students amid the COVID-19 pandemic. The study exploited secondary data from an existing study and analyzed it using descriptive statistics and regression modeling. Results showed that learning statistics during the pandemic is "moderately" creative (M=6.07, SD=1.86) and "moderately" enjoyable (M=5.78, SD=1.98). Based on Pearson correlation and simple regression, if the level of creativity increases, it is more enjoyable to learn statistics online. The regression model reveals that internet signal, students using cell phones, and how rewarding learning statistics is as significant predictors of creativity. Additionally, for older students, how rewarding learning statistics, physical health, and lower statistics anxiety are the significant determinants of enjoyment level in learning statistics online. In that case, to maintain creativity and enjoyment in learning statistics amid the pandemic, it is suggested that teachers must encourage and show a positive attitude to the students to lower their anxiety levels. Furthermore, teachers must consider interesting and healthy learning activities to step up the creative ideas of students and enjoy learning despite the adverse effect of the pandemic.

1.0. Introduction

The COVID-19 pandemic has disrupted the face-to-face setup of the educational system and abruptly shifted to online learning (Cassibba et al., 2020; Casinillo, 2022a; Salta et al., 2022). However, teachers and students are experiencing different challenges and limitations in online learning that negatively affects the quality of the teaching-learning process (Irfan et al., 2020; Casinillo et al., 2022). Especially in statistics, concepts are quite difficult to teach since they involve complex technicality and logical problems. Apparently, limited interaction between teachers and students makes it difficult to monitor the learning progress of students. Distance education does not take a closer look at students' academic progress as the lesson takes place. This is because of barriers and challenges in regard to technology resources and internet connections, especially for poor students and students living in remote areas (Agustina & Cheng, 2020; Dubey & Pandey, 2020). On the face of it, learning statistics online is less likely to be creative than face-to-face classes. It is worth noting that creativity generates new ideas and thinking, which is vital to students' cognitive learning attitude (Beghetto, 2017; Casinillo, 2022b). Moreover, due to the obstacles and challenges brought by the health and economic crises, students are less likely to enjoy their lessons in statistics (Casinillo, 2022a). Henceforth, studying students' experiences (creativity and enjoyment) in learning amid the crisis is crucial in modifying educational policies that favor teachers' and students' well-being.

Many studies in the literature say that studying during the new normal is not an easy task to accomplish because of difficulties, distractions, and lack of available resources and opportunities (Hebebci et al., 2020; Kanneganti et al., 2020; Dontre, 2021; Fruehwirth et al., 2021). So, most students are not enjoying their online education because, most of the time, they are experiencing anxiety and depression amid the health crisis (Islam et al., 2020). Another reason is that educators are not prepared enough to teach creatively because of a lack of training due to the abrupt shift in the new normal, especially in statistics which involves a statistical software program that is tedious to teach and more

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tedious during the new normal (Casinillo, 2022b). In that case, achieving a creative class discussion and monitoring the students' thinking ability is difficult. Plus, the interaction between teachers and students is hard to accomplish because of technical problems with the technology and internet connectivity, especially in remote areas and with poor students (Kanneganti et al., 2020; Fruehwirth et al., 2021). Another thing is that some students are shy and anxious to ask questions to their teachers and peers during online classes. Hence, participation that leads to creativity is not realized (Derling et al., 2021). Because of that, students cannot enjoy their learning journey because of this scenario and distractions during the online discussion (Dontre, 2021). Perhaps, statistics are difficult to learn without the presence of creative thinking and enjoyment in the classroom environment. According to Casinillo (2022a), investigating the factors of creativity and enjoyment level in learning will give a piece of the necessary information to improve students' well-being and coping mechanisms during unprecedented times. Hence, this study evaluated the students' perception level of how creative and enjoyable learning statistics during the new normal and elucidated the causal determinants that govern them.

Although the investigation of statistics learning during the COVID-19 pandemic is well-studied, creativity and enjoyment are not focused on where these two parameters are vital in the student's cognitive attitude. In fact, modeling the level of creativity and enjoyment in statistics learning at a distance has never been done, particularly in rural areas in the Philippines. In light of it, this research study is immediately realized. Generally, the study aims to explain the creativity and enjoyment in learning statistics of engineering students during the new normal setup at Visayas State University. In specific, the purpose of this study is to answer the following objectives: (1) to describe the demographic profile of engineering students; (2) to estimate the level of creativity and enjoyment in statistics learning at a distance; (3) to determine the relationship of the level of creativity and enjoyment in statistics learning; and (4) to predict the causal factors of creativity and enjoyment in learning statistics using regression modeling.

This research study aims to create an argument that may improve the existing policy in statistics education in the Philippines amid the pandemic. In addition, results may help improve the student's ability to learn statistical concepts during the pandemic and serve as a basis for statistics teachers to improve their teaching strategies on online learning. Furthermore, as a global social value of the study, findings may contribute helpful information that may serve as a reference point for educators and researchers in improving teaching and learning statistics.

2.0. Framework of the Study

Creativity as an enjoyable experience in an educational activity is an indicator of effective thinking in the teaching-learning process (Leikin & Pitta-Pantazi, 2013; Beghetto, 2017). During the COVID-19 pandemic, it is very difficult to attain a creative way of learning and an enjoyable experience due to limitations and infirmities (Agustina & Cheng, 2020; Dubey & Pandey, 2020; Cassibba et al., 2020). In particular, Statistics is a tough course to be taught and learned during the new normal setup. This is due to its complexity, which is difficult to be addressed in distance education. In fact, studying statistics requires logical thinking skills, and students should possess good analytical thinking processes (Casinillo & Miñoza, 2020; Miñoza & Casinillo, 2022). However, students' learning ability is difficult to be managed by the teacher because of the limited interaction during the online class. In that case, this study attempts to measure and elucidate the level of creativity and enjoyment in learning statistics courses amid the new normal setup, that is, distance education. In the study of Casinillo (2022b), the creative learning experience is enjoyable. Hence, this study attempts to correlate the two variables and explain their trend relationship. Additionally, Casinillo (2022b) stated that several factors influence the creativity and enjoyment of learning during the pandemic.

Thus, the study intends to develop a model that will determine the socioeconomic profile of students (Francom et al., 2021), their learning experience amid the pandemic (Suprianto et al., 2020; Spitzer & Musslick, 2021), social relationships (Gardee, 2019; Thurston et al., 2020), and health (Zhai & Du, 2020; Ziols & Kirchgasler, 2021), among others, are influencing the students' creative thinking and enjoyment in learning statistics during the new normal.

3.0. Methodology

Research design. The study dealt with descriptive-correlational research design to elucidate the level of creativity and enjoyment in learning statistics online and determine the causal factors affecting it. In that case, the study

employed statistical measures to describe the different variables and used a regression analysis to determine the predictors of creativity and enjoyment in learning statistics online during the COVID-19 pandemic. Additionally, the design of this study was utilized to construct a policy that may be useful in improving the existing educational system amid the pandemic.

Data collection and the respondents. The study used secondary data from the current study entitled "Modeling Determinants of Challenge in Learning Statistics in Time of the COVID-19 Pandemic." It dealt with engineering students (n=129 respondents derived from availability sampling procedure) who took "Engineering Data Analysis" during the first semester (AY 2021-2022) at Visayas State University. Since the study was conducted during the pandemic when the teaching-learning process was conducted online, the data were collected through a Google form survey. This study focuses on determining the factors of challenging levels in learning statistics online amid the pandemic. However, the study does not concentrate on the level of creativity and enjoyment, which is vital in the cognitive behavior of students, especially in online education. Hence, the study had chosen the dependent variable as the level of creativity (scale of 1 to 10) and enjoyment (scale of 1 to 10) in statistics learning at a distance. This two-item question has a Cronbach's alpha coefficient of 0.80, which is considered reliable (Cronbach, 1951). Table 1 presents the interval perception scores for the level of creativity and enjoyment and its corresponding verbal description.

Additionally, the selected possible factors (independent variable) of the level of creativity and enjoyment are as follows: age of students (in years), sex of students (male or female), residency of students (urban or rural), leisure time rating (scale of 1 to 10), physical health rating, mental health rating (scale of 1 to 10), internet connectivity rating (scale of 1 to 10), money spent on the internet load (₱/week), use of a laptop (yes or no), number of hours studying (per week), how conducive is the learning environment (at home) (scale of 1 to 10), level of how rewarding is learning statistics (scale of 1 to 10), and statistics anxiety (scale of 1 to 10)

*Data management and empirical model***.** After clearing the data gathered, some descriptive statistics were used to summarize and give interpretation to the variables such as mean average (M), standard deviation (SD) as a measure of dispersion, minimum (min) value, maximum (max) value, and statistical graph (bar graph, scatter plot, trend line). The Pearson correlation (r_p) and simple regression were used to elucidate the association between creativity and enjoyment in learning statistics. In the regression model construction, the dependent variables (level of creativity and enjoyment) were treated as continuous. Hence, ordinary least square multiple regression was used (Mátyás & Sevestre, 2013). In that case, the regression models are given by:

$$LC_i = \partial_0 + \partial_1 age_i + \partial_2 male_i + \partial_3 urban_i + \partial_4 liesure_i + \partial_5 phealth_i + \partial_6 mhealth_i + \partial_7 internetcon_i + \partial_8 \log(spent+1)_i + \partial_9 laptop_i + \partial_{10} hourstud_i + \partial_{11} lenvironment_i + \partial_{12} rewarding_i + \partial_{13} statanxiaty_i + \varepsilon_i$$

and

$$LE_i = \rho_0 + \rho_1 age_i + \rho_2 male_i + \rho_3 urban_i + \rho_4 liesure_i + \rho_5 phealth_i + \rho_6 mhealth_i + \rho_7 internetcon_i + \rho_8 \log(spent+1)_i + \rho_9 laptop_i + \rho_{10} hourstud_i + \rho_{11} lenvironment_i + \rho_{12} rewarding_i + \rho_{13} statanxiaty_i + e_i$$

where LC_i and LE_i are the level of creativity and enjoyment in learning statistics online, respectively. In addition, $i=1,\ldots,n$ and n refer to the number of students, ∂_t, ρ_t $(\forall t \in \{0,1,\ldots,13\})$ refers to the parametric quantity to be approximated, age_i represents the age in years, $male_i$ is a dummy variable referring to a male student, $urban_i$ is a dummy variable referring to a student who lived in an urban place, $liesure_i$ refers to the perception (1 to 10 rating) of students' leisure time, $phealth_i$ refers to the students' perception (1 to 10 rating) for their physical health condition, $mhealth_i$ refers to the students' perception (1 to 10 rating) for their mental health condition, $internetcon_i$ refers to the students' perception (1 to 10 rating) for their internet connection, $\log(spent+1)_i$ refers to the logarithm (normalized) of their money spent for internet load + 1 (weekly), $laptop_i$ is a

Table 1. Mean interval perception score and its corresponding verbal description

Perception Score	Creativity category	Enjoyment category
1.00 - 2.80	Not Creative	Not Enjoyable
2.81 - 4.60	Slightly Creative	Slightly Enjoyable
4.61 - 6.40	Moderately Creative	Moderately Enjoyable
6.41 - 8.20	Creative	Enjoyable
8.21 - 10.00	Very Creative	Very Enjoyable

Source: Casinillo (2022b).

dummy variable referring to a student who uses laptop, $hourstud_i$ refers to the hours studying statistics per week, $lenvironment_i$ refers to the students' perception (1 to 10 rating) for their learning environement at home, $rewarding_i$ refers to the students' perception (1 to 10 rating) on how rewarding studying statistics, $statanxiaty_i$ refers to the level (1 to 10 rating) of students' anxiety in learning statistics, ε_i and e_i refers to the remaining random errors in the two regression models. Diagnostic tests were performed before interpreting the model construction results, and all statistical calculations were done using the STATA software.

4.0. Results and Discussion

Summarized students' profile

Table 2. Descriptive statistics for students' profile

Variables	Mean (M)	(±)SD	min	max
Age[a]	20.12	1.47	18	30
Male[b]	0.39	0.49	0	1
Urban[b]	0.26	0.44	0	1
Laptop(s)[b]	0.82	0.38	0	1
Money spent for internet load[c]	234.49	205.09	20	1400
Learning Environment[d]	5.63	2.29	1	10
Number of hours studying Statistics[a]	6.90	9.68	1	70
Signal connectivity[d]	5.49	1.95	1	10
How rewarding is studying Statistics[d]	6.93	2.08	2	10
Physical health[d]	6.09	2.24	1	10
Mental health[d]	4.81	2.33	1	10
Leisure[d]	6.59	2.53	1	10
Statistical anxiety[d]	7.16	1.88	1	10

Note: a - Count; b - Dummy (indicator variable); c - Philippine Peso (PHP); d - Scale 1 to 10.

As seen in Table 2, on average, students' age is close to 20.12 (SD=1.47), ranging from 18 to 30. In this batch of engineering students, the dominant are females, about 61%, and only 39% are male. Only a few of these students live in urban areas (26%), and most (74%) are from rural areas. It is an advantage for most of these students during online learning since 82% use laptops, and only 18% use cellular phones. Students' expense for internet load weekly is about 234.49 PHP (SD=205.09), and this amount of money is intended for their online activities. As for their learning environment, they have rated it as 5.63 (SD=2.29) out of 10, and it is considered moderate. This implies that it is hard to learn in a place (at home) with some distractions as opposed to a face-to-face setup. These students are studying their lessons in statistics for about 6.9 hours (SD=9.68) with a minimum of 1 hour and a maximum of 70 hours.

Signal connectivity is only rated 5.49 (SD=1.95) out of 10. This implies that students are having some problems with internet signals in their respective places. On average, studying statistics is considered rewarding based on the student's perception scores (M=6.93, SD=2.08). This goes to infer that statistics is considered a challenging subject that is satisfying to learn, especially during the pandemic. Students' perception score for their physical health is close to 6.09 (SD=2.24) and considered in good condition. However, their mental health is relatively low (M=4.81, SD=2.33) due to the difficulties they have encountered during their online learning. And it is revealed that these students have more time for leisure (M=6.59, SD=2.53) to unwind from stressful moments in their learning statistics journey. However, these students have a high level of statistical anxiety (M=7.16, SD=1.88) which is considered a hindrance to a creative and enjoyable learning experience during the new normal setup.

Creativity and enjoyment in learning Statistics

Table 3 reveals that learning statistics online amid the COVID-19 pandemic is moderately creative (Table 1) (M=6.07; SD=1.86). This means that students are experiencing some barriers in learning where their creative ideas are not totally expressed in the classroom environment. In addition, teachers are also having difficulty persuading their students to participate and engage in the learning process due to some limitations in the communication aspects. In the study by Lopena et al. (2021) and Casinillo et al. (2022), it is stated the process of online learning or distance education has lowered the level of interaction between teachers and students which resulted in a low level of creativity and cognitive operation. In addition, students' perception of how enjoyable learning statistics is amid the new normal is considered "Moderate" (Table 1). This

implies that students are not enjoying their online learning experiences in statistics. According to Irfan et al. (2020) and Salta et al. (2022), students are hesitant to participate because of shyness, and some students have difficulty acquiring a good internet signal to attend classes regularly. Additionally, students are also experiencing anxiety and stressful moments due to the barriers and limitations during the pandemic, which is difficult to feel enjoyment in the learning environment (Fruehwirth et al., 2021).

Moreover, students cannot focus on learning their lessons due to some distractions in their learning environment and cannot penetrate their lessons. Hence, the joy of learning is adversely affected (Casinillo, 2022a). Based on the result of the Pearson correlation (r_p=0.669, p<0.001), it is shown that there is a positive correlation between creativity and enjoyment level in statistics. This goes to infer that as the creativity level in learning increases, the level of how enjoyable learning statistics is also increasing. In fact, if the students create new ideas and exercise their logical thinking, their level of well-being is positively influenced (Casinillo & Casinillo, 2020). In other words, the more the students participate in their lessons, the more they enjoy learning.

Using simple regression, the association between creativity and enjoyment in learning statistics is significant at a 1% level (F_c=103.3; p<0.001) (Table 4). In addition, the coefficient of determination shows a good value (R^2=0.45) in which the model has revealed a better fit. In fact, for every 1 unit increase in the level of creativity (Scale of 1 to 10), there is a corresponding increase of 0.711 in the level of enjoyment (Scale of 1 to 10) in learning statistics, which is significant at a 1% level. This means that if the class discussion and activities involve a creative way of thinking, students are more likely to enjoy learning statistics online. Note that creativity in learning gives a stimulating behavior and desire to participate in the learning activities (Doane, 2002). This can be shown in Figure 1 that the regression line is increasing in nature. Hence, to increase the joy and productivity of students in learning statistics amid the health crisis, teachers must increase creativity and interesting activities in the teaching-learning environment (Beghetto, 2017).

Table 3. Descriptive statistics and Pearson correlation for Creativity and Enjoyment

	Mean	SD	Description[s]	Correlation	p-value
Creativity	6.07	1.86	Moderate	0.669***	<0.001
Enjoyment	5.78	1.98	Moderate		

Note: s - See Table 1; *** - significant at 1% level.

Table 4. Simple regression model (Dependent variable: Enjoyment)

	Coefficient	Std Error	p-value
Creativity	0.711***	0.070	<0.001
Constant	1.461***	0.445	0.001

Note: *** - significant at 1% level.

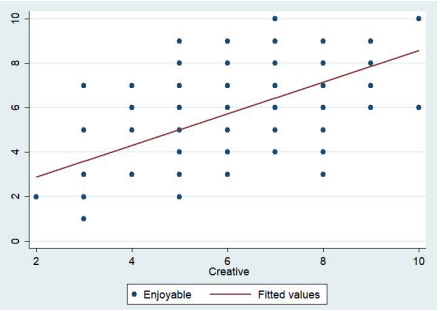

Figure 1. Scatter plot and line fit for enjoyment and creativity

Predictors of creativity and enjoyment

Table 5 depicts the two multiple regression models as creativity level, and enjoyment level are dependent variables in the constructs. These two models were under diagnostic tests to ensure their validity in interpreting the results and avoid unnecessary bias. Based on the Breusch-Pagan test, it is observed that the two models had no trouble in their respective variances, meaning the models are considered homoscedastic (p>0.05). In addition, the two models have no omitted variable bias based on the result of the Ramsey RESET test that their p-values are greater than the 5% significance level. Moreover, according to Allison (2012), a regression model is safe from multicollinearity problems, given that its mean variance inflation factor (VIF) is lesser than 10. In that case, the two models are free from multicollinearity since the mean VIF=1.34<10. Furthermore, based on the result of the Shapiro-Wilk W test, it is depicted that the models' residuals are normal (p>0.05). Hence, the two models are valid for the results'

interpretation. Observe that the models are significant (Model I: F_c=103.3, p<0.001; Model II: F_c=12.08, p<0.001), which means that the level of creativity and enjoyment has significant factors that influenced its variation. Moreover, the models have predicted a reasonable coefficient of determination (Model I: R^2=0.459; Model II: R^2=0.577) that indicates that there are causal determinants that explain the variation of the regressands.

In Model I (Table 5), it is revealed that the following independent variables are not significant causal factors of creativity in learning statistics online: age (p=0.844), male (dummy: p=0.878), urban (dummy: p=0.723), money spent (PHP) for internet load per week (p=0.532), learning environment (p=0.151), number of hours studying Statistics per week (p=0.547), physical health (p=0.202), mental health (p=0.264), leisure activities (p=0.483), and statistical anxiety (p=0.245). However, Model I shows that students who are not using laptop/s found learning statistics more creative (p=0.083) at a 10% level of significance. This implies that these types of students are more looking at creative ways to deal with their learning outputs than students with laptops. Hence, to be competitive in their class without a laptop, they must make their imaginative ideas to learn and finish their required tasks. In the study of Gadari et al. (2022), it is stated that students are productive even in a health crisis as long as with the right resilience and efficacy in doing their learning activities. In addition, learning statistics is more creative if the students' internet signal (p=0.083) is relatively good and significant at a 10% level. This suggests that students can creatively participate in their class activities and interact with the class discussion when they have good access to the internet. In fact, Morgan (2020) stated that the best way to implement online learning is for both teachers and students to have good internet access to maintain creativity and productivity and prevent experiencing setbacks.

Furthermore, students who find statistics rewarding (p<0.001) to learn found statistics creative, which is significant at a 1% level. This implies that students who participated in the online class and made some effort to learn the concept of statistics found that learning is creative and imaginative. Students dedicated to learning statistics have to look for new ideas and creative ways to solve statistics problems. Apparently, learning statistics needs logical and analytical thinking to which creative ideas are found (Casinillo & Miñoza, 2020; Miñoza & Casinillo, 2022).

On the other hand, Model II (Table 5) depicted that the following predictor variables are not significant factors of enjoyability in learning statistics online: male (dummy: p-value=0.971), urban (dummy: p=0.884), use of a laptop (dummy: p=0.310), money spent (PHP) for internet load per week (p=0.794), learning environment (p=0.911), number of hours studying Statistics per week (p=0.844), internet signal connectivity (p=0.295), mental health (p=0.762), and leisure activities (p=0.939). However, it is shown in Model II that the age (p=0.035) of students influences their level of enjoyment in learning, which is significant at a 5% level. In particular, a positive coefficient of the variable age (0.189) indicates that older students are more likely to be happy with learning. This suggests that older students are more experienced and mature and less afraid of the consequence of the pandemic. In that case, they are more resilient and adaptive to unprecedented situations. Hence, they have more focus and motivation in doing their online class while enjoying as they learn. In the study of Peng et al. (2019), older students are an advantage in learning online due to their stock knowledge and past experiences. Likewise, Casinillo (2020b) has stated that younger students have difficulty coping with the challenges of the new normal. Moreover, older age is a significant predictor of readiness for learning (Rafique et al., 2021).

In the same manner in Model I, it is revealed that in Model II, students who find statistics as a rewarding (p<0.001) subject during the new normal are enjoying it simultaneously. This implies that students who find statistics as a practically useful subject for their future jobs are more likely doing their class well and enjoy the moment. According to Gustiani (2020), students are motivated and enjoy learning during the pandemic because of their ambition to learn new knowledge that is useful to their degree program.

Moreover, it is shown in Model II that being physically healthy (p=0.032) is a significant (at a 10% level) predictor of enjoyment in learning statistics. This means that healthy students tend to enjoy learning statistics online more. This result is consonant with the study of Zhai and Du (2020) and Ziols and Kirchgasler (2021), which stated that being healthy during the pandemic is the key to being productive in learning.

Lastly, Model II revealed that students with lower statistical anxiety (p-value=0.074) are more likely to have joy in learning statistics during the pandemic. This implies that students who are

Table 5. Regression model for the level of creativity and enjoyment in learning statistics online

Independent variables	Dependent Variables					
	Creativity (Model I)			Enjoyment (Model II)		
	Coefficient	*Std. Error*	*p-value*	*Coefficient*	*Std. Error*	*p-value*
Constant	2.267[ns]	2.393	0.346	-2.466[ns]	2.251	0.276
Age[a]	-0.019[ns]	0.094	0.844	0.189**	0.089	0.035
Male[b]	0.046[ns]	0.297	0.878	0.074[ns]	0.279	0.971
Urban[b]	-0.111[ns]	0.313	0.723	0.043[ns]	0.294	0.884
Laptop(s)[b]	-0.632*	0.361	0.083	-0.346[ns]	0.339	0.310
log (Money spent for internet load per week[c]+1)	0.269[ns]	0.430	0.532	-0.106[ns]	0.405	0.794
Learning Environment[d]	0.093[ns]	0.064	0.151	0.007[ns]	0.060	0.911
Number of hours studying Statistics per week[a]	-0.008[ns]	0.014	0.547	0.003[ns]	0.013	0.844
Signal connectivity[d]	0.123*	0.132	0.100	0.073[ns]	0.070	0.295
How rewarding is studying Statistics[d]	0.525***	0.069	<0.001	0.649***	0.065	<0.001
Physical health[d]	0.101[ns]	0.078	0.202	0.162**	0.074	0.032
Mental health[d]	-0.089[ns]	0.078	0.264	-0.023[ns]	0.075	0.762
Leisure[d]	-0.039[ns]	0.056	0.483	-0.004[ns]	0.052	0.939
Statistical anxiety[d]	-0.085[ns]	0.073	0.245	-0.124*	0.069	0.074
Number of Participants		129			129	
F-computed		7.53			12.08	
p-value		<0.001			<0.001	
The goodness of fit (R^2)		0.459			0.577	

Note: a - Count; b - Dummy (indicator variable); c - Philippine Peso (PHP); d - Scale 1 to 10; ns- not significant;
** - significant at 10% αlevel; ** - significant at 5% α level; *** - significant at 1% α level.*

more confident and relaxed about statistical activities find statistics enjoyable and not a burden. Casinillo et al. (2022) stated that anxiety is tension or fear that hinders the learning process. In that case, if the anxiety level is low, students can enjoy learning with confidence and without hesitation.

5.0. Conclusion

The study's main objective is to portray the level of creativity and enjoyment in learning statistics during the new normal and predict its influencing factors. Results showed that the level of creativity and enjoyment in learning statistics is moderate due to the adverse impact of the pandemic. It is also revealed that creativity and enjoyment show a positive relationship which indicates that creativity in learning is vital to the level of enjoyment of students. The regression model depicted that students using a cell phone for their online classes are more likely to be creative than students using a laptop since they are more motivated to explore solutions due to their technology insufficiency. Internet signal connectivity is a significant factor for a creative student in learning statistics since students can explore more ideas by browsing the web. Plus, creativity in learning statistics is more exercise for those students who find statistics a rewarding subject.

Conclusively, older students are more likely to enjoy learning statistics since younger students are more vulnerable to anxiety due to inexperience. In addition, students with lower anxiety are more confident and happier in learning amid the pandemic. Moreover, it is concluded that students who are physically healthy and find statistics rewarding are more likely to be active and enjoy their learning journey despite the unprecedented times. Hence, to keep the creativity and enjoyment in learning, it is recommended that teachers must encourage their students and show a positive attitude to lower their anxiety levels. Teachers also must consider interesting and healthy learning activities to intensify their creative ideas and enjoy them simultaneously. As for future research studies, one may consider the self-efficacy, coping mechanism, and happiness level of students in remote areas during the pandemic to supplement the information of the current study.

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