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RESEARCH ARTICLE

ASSESSING THE CORRELATION BETWEEN ONLINE GAMING AND STUDENT'S ACADEMIC ACHIEVEMENT

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Abstract

This study aimed to determine the correlation between online gaming to the academic performance of the students of New Washington, Aklan, Western Visayas in the Philippines. There were 24 students determined using snowball sampling coming from both public and private secondary schools in New Washington, Aklan, and Western Visayas in the Philippines, and 72 key informants—24 parents, 24 teachers, and 24 peers related to the 24 student respondents—took part as subjects of the study. Two sets of questionnaires were used for gathering data. The first one is a researcher made pre survey questionna ire, which was used to gather the demographic profile of the students playing online games and subjected to inferential statistics. The second one is a researcher-made open-ended questionnaire for the key informants and was analyzed using thematic analysis by Braun & Clarke (2006). The outcomes of the quantitative phase are integrated into the analysis and interpretation of qualitative data to explain their correlation. As revealed by the results of the demographic profile of the students that play online games, the majority of respondents are male and ages 14. Mobile Legends was the most popular online game among the respondents, who were all using cellphones. The findings showed that, with the exception of English, student demographic profiles were significantly correlated with academic success in all other subjects, which means playing online games affects the academic performance of online gamers positively. In contrast, some students have all been adversely affected by online gaming and exhibit poor behavior and a lack of interest in physical activity, as revealed by the results. Our findings suggest that playing online games has had a negative impact on students' behavior rather than their academic performance.

Even though their grades were satisfactory and their academic performance was unaffected, teachers and school administrators may enforce discipline on the students who are playing online games. It is also recommended that parents be informed of the impacts of excessive internet games. Students' problem-solving abilities may be enhanced by playing online games, but parents must watch out for their children's safety.

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Introduction:-

One of the most popular pastimes among many individuals is playing video games online. According to some, there are several reasons why people should play video games: stress relief, competitiveness and challenge, enjoyment, relaxation, social contact, and even a mental escape from the outside world (Dumrique and Castillo, 2018). With a wide range of game genres, platforms, and other services, the online gaming business has made significant strides in the entertainment sector. One of the inaugural eSports medal events at the 2019 Southeast Asian Games (SEA Games), which took place from December 5–10 at the Filoil Flying V Centre in San Juan, Metro Manila, was Mobile Legends, according to an article by Reyes (2019).

Online gaming has been linked to improved neurological impacts and enhanced cognitive capacities (Nuyens et al., 2019). Competitive gaming, which is by definition a team sport and requires a lot of effort, cognitive spatial awareness, and decision-making under pressure, may benefit players, according to some research (Boyle et al., 2011; Halbrook et al., 2019).Studies by Boyle et al. (2016), Hoyt et al. (2018), Taylor (2018), and Jeong et al. (2019) that highlight compounded potential difficulties of addiction run counter to this viewpoint. According to research by Jongco (2022), using internet gaming improperly can lead to problems including addiction and concentration problems. Furthermore, according to Dumrique and Castillo's (2018) research, pupils pick up knowledge in unanticipated ways. But playing online games carelessly can also lead to problems like being distracted in class.

However, the study of Chen (2024) revealed a significant correlation between academic achievement and video game addiction. Li, et. al (2023) also cited three benefits from playing online games: fostering academic success, fulfilling the demands of social life, and satiating the urge for personal development. According to Gabrito, Ibañez, and Velza (2023), online gaming also improved test scores, grades overall, school activity submission, study time, concentration, participation in learning activities, social interaction, interest in class discussions, willingness to attend school, and interest in school activities. Additionally, Shahi and Saud (2024) noted that playing educational online games improves business students' academic performance, suggesting that playing educational online games raises academic achievement levels. Additionally, Cabrillos, Gapasin, Marfil, and Calixto (2023) found no significant correlation between respondents' academic success and their participation in online gaming.

As physical education instructors, the researchers saw that most of the students actively engage in peer-to-peer online gaming during breaks and leisure time. Given how popular these games are and how obsessed people are with playing them, the researchers are worried about how playing them online may affect students' academic performance. The investigators also aimed to determine the relationship between online gaming and secondary school pupils' academic achievement in New Washington, Aklan, Western Visayas in the Philippines.

Statement of the Problem

The study aimed to assessed the correlation between online gaming and student's academic performance.

Specifically, this study sought to answer the following questions:

1. What is the demographic profile of the students in terms of:
a. Age
b. Gender
c. Number of hours spent in playing online game in a day
d. Access to gadgets
e. Socio economic status
f. Online games played
2. What are the students' academic performance in English, Mathematics, Science, Social Studies?
3. Is there a correlation between the demographic profile of the students and their academic performance?
4. What are the effects of online gaming on the students as perceived by the parents, teachers, and peers?

Conceptual Framework:-

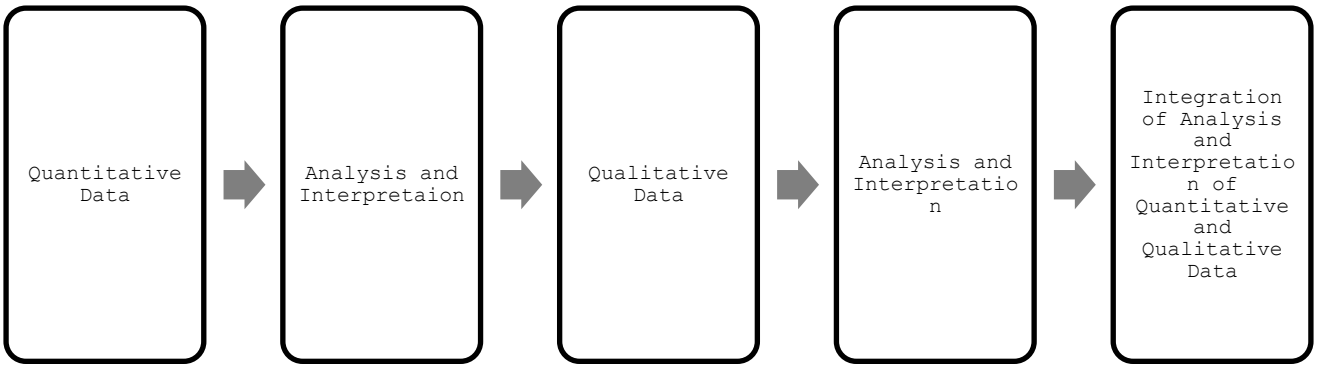

Figure 1. Diagram showing the process of collecting the data

Methodology:-

Research Design:-

The explanatory sequential design starts with quantitative data collection and analysis and then follows up with qualitative data collection and analysis, which leads to interpretation. This helps determine what quantitative results need further explanation. (Creswell, 2011). An explanatory sequential mixed method research (MMR) design was chosen for this study in order to analyze and interpret the findings from the first quantitative phase, and occasionally, the outcomes of the quantitative phase are integrated to the analysis and interpretation of qualitative data to explain the correlates of online gamers' academic performance in the Municipality of New Washington, Aklan, and determine whether these effects were positive or negative as perceived by peers, parents, and teachers.

Respondents:-

The snowball sampling was used to choose 24 students from public and private secondary schools in New Washington, Aklan, and 72 key informants—24 parents, 24 instructors, and 24 peers—were connected to 24 student respondents. The respondents were chosen based on the following criteria: (a) secondary school students between the ages of 14 and 19; (b) people who lived in New Washington, Aklan; and (c) regular online gamers who played for three to six hours every day. Either the mother, father, or guardian of the student responders are the criteria used to choose the parents as key informants. One or both of the following criteria were used to choose the teachers as key informants: (a) the student respondents' adviser or (b) their subject teacher. Using the recommendations of the student respondents, the following criteria were used to choose the peers as key informants: (a) friend classmate, (b) player buddy, or (c) non-player friend. To choose the respondents based on the pre-survey that was carried out prior to the real survey, the researcher asked the teachers at each secondary school for their recommendations. Before beginning the study, the researcher obtained the informed consent of each respondent.

Results and Discussion:-

The Demographic Profile of the Students:-

Age. It is utilized to characterize a respondent's age at a specific period in order to pinpoint the age range of individuals who are drawn to play online games. Table 1 showed the demographic profile of the students where it showed that 45.80% of the respondents aged 14 years old, 25% aged 13 years old, 20.80% aged 15 years old and both 12 and 16 years old had a percentage of 4.20%. Kuss & Griffiths (2012) assert that teenagers who play online games are merely having fun. They play not only because they are truly serious, but also because they want to feel relieved. Due to the overwhelming amount of schoolwork, students frequently experience tension during school hours. By playing this game, they can relax.

Table 1. The demographic profile of the students

Profile	Frequency	Percentage
Age		
12 years old	1	4.20
13 years old	6	25.00

14 years old	11	45.80
15 years old	5	20.80
16 years old	1	4.20
Mean/Median Age: 13.95		
Gender		
Male	17	70.80
Female	7	29.20
Ratio: 7:3		
No. of hours in playing online games in a day		
1 – 3 hours - Casual	9	37.5
3.1 – 6 hours - Average	9	37.5
More than 6 hours - Hard	6	12.5
Socio-Economic Status		
Below Php 10000	17	70.80
Php 10000 – Php 20000	4	16.70
Above Php 20000	3	12.50
Aklan's Poverty Threshold in 2021 is P13, 542.00 according to PSA – Aklan		
*Access to gadgets		
Cellphone	24	100.00
Laptop	2	8.30
Tablet	4	16.70
Personal Computer	4	16.70
*Online Games Played		
ML	22	91.70
ROS	2	8.30
COD	13	54.20
Minecraft	4	16.70
PUBG	2	8.30
Free Fire	2	8.30
COC	3	12.50
Genshin Impact	1	4.2
Cookie Run Kingdom	1	4.2
Roblox	1	4.2
Valorant	1	4.2
Online Sabong	1	4.2
Online Casino	1	4.2
Summer Saga	1	4.2

***Multiple response**

Gender. This table showed that most online gamers are male with a percentage of 70.80% while the 29% of the online gamers are female. This gender disparity in online gaming has been a topic of discussion for quite some time. Various factors might contribute to these statistics, including historical gender norms, game content and marketing, social perceptions, and more. This result has been in consonance to the study presented by Griffiths, et. Al., (2004) in their study demographic factors and playing variables in online computer gaming, where an online questionnaire survey was used to examine basic demographic factors of online computer game players who played the popular online games, it has showed that 81% of online game players were male.

Number of hours spent in playing online games in a day. Based on the provided data from the study, it can be inferred that the majority of the respondents fall into the categories of casual and average online gaming. 37.5% of

respondents play for 0-3 hours. This suggests that a significant portion of respondents engage in short gaming sessions, which could be considered casual gaming. Another 37.5% of respondents play for 3.1-6 hours. This group likely spends a moderate amount of time gaming, which could be seen as an average level of engagement. While 12.5% of respondents play more than 6 hours. This indicates that a smaller portion of respondents dedicate a substantial amount of time to online gaming, potentially indicating a higher level of gaming intensity. The article published by Sinclair (2019) supported the result that was stated above wherein 12 to 15-year-olds reported a surge of an hour and a half more each week, now averaging 13 hours and 48 minutes. Socio-economic Status.

Socio-Economic Status. The result of this study also stated that 70.80% of the respondents had an average monthly income below Php 10000, 16.70% had Php 10000 – Php 20000, and 12.50% of them had an average monthly income above Php 20000. The first semester of 2021 saw an increase in the number of poor Aklanons, according to the Philippine Statistics Authority-Aklan. The minimum income necessary for Aklanon households to cover their basic food and non-food needs for the first semester was calculated to be P13, 542.00. In order to meet their basic needs for non-food items like shelter and food, a family of five would have to make at least P11, 285.00 each month. It means that most of the respondents who are playing online games belong to those families below the poverty threshold. The ability of individuals or families living below the poverty threshold to afford certain luxuries, such as online games, can be attributed to a variety of factors. It's important to note that poverty is a complex and multifaceted issue that goes beyond just income levels. Ekinci et. Al. (2017) indicated increasing impacts of family income on the digital gaming addiction of children, while Muslu, et. Al (2020) present mitigating effects of household income.

Access to gadgets. In this study, it revealed that all of the respondents used cellphones as an access to online games. Aside from it, tablet and personal computer both had a percentage of 16.70% as another gadget used, and only 8.30% of them used Laptop. A poll conducted in the third quarter of 2022 revealed that 81.9 percent of internet users globally played video games on any type of device, according to a piece written by Clement (2023) which in congruence to the result of this study.

Online Games Played. Mobile Legends got a percentage of 91.70% as one of the online games played by the respondents, 54.20% played Call of Duty, 16.70% played Minecraft, 12.50% played Clash of Clans, 8.30% played Rules of Survival, Player Unknown Battleground, & Free Fire, and 4.2% played Genshin Impact, Cookie Run Kingdom, Roblox, Valorant, Online Sabong, Online Casino, Summer Saga. This result cemented the claim of an article published by Racoma (2021) that Mobile Legends' convenience as a result of being on the mobile platform gives it an advantage over its PC rivals.

Students' Academic Performance in English, Mathematics, Science, Social Studies:-
Table 2 showed that all of the respondents had a Satisfactory grading scale descriptors in the subjects English, Mathematics, Science, and Social Studies based on the learner's progress and achievement descriptors of DepEd.

This likely indicates that the students performed well in these subjects according to the standards set by DepEd's grading scale and descriptors.

Table 2. The Academic Performance of Students in English, Mathematics, Science, and Social Studies

Subjects	Mean	Sd	Interpretation
English	83.04	3.47	Satisfactory
Mathematics	83.81	3.83	Satisfactory
Science	83.58	3.12	Satisfactory
Social Studies	83.98	3.40	Satisfactory

Note: Below 75 – Did not Met Expectations, 75.00 – 79.99 – Fairly Satisfactory, 80.00 – 84.99 – Satisfactory, 85.00 – 89.99 – Very Satisfactory, 90.00 – 100.00 – Outstanding

The Relationship between the Students' Demographic Profile of the Students and Academic Performance:-
This section reflects the correlates of students' demographic characteristics and their academic performance in all major subjects. Table 3 showed that all demographic profiles of the students are not significantly related to the academic performance in English.

Table 3 Relationship between the students' demographic profile and academic performance in English

Profile	Statistical tool	R	p-value	Interpretation
Age	Spearman rho	-0.336	0.109	Not Significant
Gender	Cramer's V	0.512	0.098	Not Significant
No. of hours playing online games	Spearman rho	0.077	0.721	Not Significant
Socio-Economic Status	Spearman rho	-0.127	0.553	Not Significant
Access to Gadgets	Cramer's V	0.381	0.791	Not Significant
Online Games Played	Cramer's V	0.298	0.641	Not Significant

It means that the respondents' age, gender, number of hours in playing online games in a day, socio-economic status, access to gadgets, and online games played have no bearing on how well they perform academically in English. This study opposed the statement of Rehbein, et. Al., (2010) wherein the English teacher noted that playing video games appears to help students learn English words, and this contributes positively to their foreign language learning by increasing their motivation toward the English course. Table 4 showed that gender and number of hours in playing online games have significant relationship to the students' academic performance in Mathematics while age, socio-economic status, access to gadgets, and online games play are not significantly related.

Table 4. Relationship between the students' demographic profile and academic performance in Mathematics

Profile	Statistical tool	R	p-value	Interpretation
Age	Spearman rho	-0.266	0.209	Not Significant
Gender	Cramer's V	0.619	0.027	Significant
No. of hours playing online games	Spearman rho	0.559	0.035	Significant
Socio-Economic Status	Spearman rho	0.164	0.444	Not Significant
Access to Gadgets	Cramer's V	0.502	0.254	Not Significant
Online Games Played	Cramer's V	0.339	0.480	Not Significant

The data imply that as respondents get older and spend more time playing online games, they tend to mature both cognitively and emotionally. This could lead to self-discipline for better time management, improved study skills, and a greater understanding of complex subjects like Mathematics, which in turn could positively impact their grades.

Table 5. Relationship between the students' demographic profile and academic performance in Science

Profile	Statistical tool	R	p-value	Interpretation
Age	Spearman rho	-0.516	0.010	Significant
Gender	Cramer's V	0.362	0.208	Not Significant
No. of hours playing online games	Spearman rho	0.472	0.020	Significant
Socio-Economic Status	Spearman rho	-0.047	0.826	Not Significant
Access to Gadgets	Cramer's V	0.606	0.042	Significant
Online Games Played	Cramer's V	0.267	0.489	Not Significant

Table 5 showed that age, number of hours in playing online games, and access to gadgets have significant relationship to the students' academic performance in Science while gender, Socio-economic status, and online games being played had no significant relationship. In other words, students who spend more time playing online games and have more exposure to gadgets are more likely to achieve better academic results in science subject. This correlation might imply that these students are developing certain skills or cognitive abilities through their interactions with technology, which in turn positively impacts their scientific understanding and performance. Table 6 showed that age have significant relationship to the students' academic performance in Social Studies while gender, no. of hours in playing online games, socio-economic status, access to gadgets, and online games played had no significant relationship.

Table 6. Relationship between the students' demographic profile and academic performance in Social Studies

Profile	Statistical tool	R	p-value	Interpretation
Age	Spearman rho	-0.446	0.029	Significant
Gender	Cramer's V	0.476	0.066	Not Significant
No. of hours playing online games	Spearman rho	0.293	0.164	Not Significant
Socio-Economic Status	Spearman rho	0.000	0.998	Not Significant
Access to Gadgets	Cramer's V	0.537	0.180	Not Significant
Online Games Played	Cramer's V	0.146	0.905	Not Significant

It means that the older the respondents play online games; they will score better in the social studies subject. Some types of online games can enhance cognitive skills such as problem-solving, critical thinking, spatial awareness, and strategic planning. These skills might also be beneficial in academic subjects like social studies, which require analysis, interpretation, and understanding of complex concepts. The result conforms an article by Posso (2016) which states that, students who regularly played online games scored higher in Mathematics, Reading, and Science

tests than their peers who didn't. Posso suggests that students who regularly spend time playing online games are developing analytical and problem-solving skills that can also help them in their schoolwork.

Observations of the parents, teachers, and their peers among the students who are playing online games
Neglecting domestic obligations:-
Ignoring responsibilities at home nearly every significant informant noted that students who play internet games are ignoring their household duties. The key informants noted that students' participation in online gaming may cause them to disregard their domestic duties. This suggests that playing video games may cause people to neglect important chores that help keep their homes tidy and functional. This supports studies by Jongco (2022) that suggests inappropriate online gaming use may lead to problems including addiction and focus problems. Online game addiction is characterized by emotional and cognitive deficits. Unrestrained, all-night gaming sessions are a symptom of online gaming addiction, which causes people to abandon their obligations at

Distracted learning:-
Key informants have observed that students are becoming feeling sleepy, losing interest in class, and becoming fatigued easily throughout class. This corroborates the study of Dumrique and Castillo (2017), which asserts that pupils learn in novel ways. But playing online games carelessly can also lead to problems like being distracted in class. Research has shown that dividing a child's attention might also have an unintended effect on their social and health life.

Online gaming and time management issues:-
The findings suggested that when students are immersed in online gaming, they might not be able to effectively manage their time. This can result in an excessive amount of time spent playing games, which would leave less time for other crucial tasks like housework or schoolwork. This is in line with Chen's (2008) research, which discovered that students who are addicted to playing online games prefer to play them constantly and try to avoid doing anything else save play online games. Online game addicts disregard other interests and squander more time. On the other hand, schoolchildren excel in time management because it facilitates their everyday life, according to research by Bast (2016).

Development of social skills, communication abilities, and strategy in online gaming:-
Participating in online gaming frequently requires cooperation and coordination, which can foster the growth of strong communication abilities. Players must communicate concisely and clearly in order to coordinate strategy, exchange information, and make snap judgments. Better communication abilities in everyday settings can also result from this. This supports the conclusions of studies by McClelland et al. (2011), Snodgrass et al. (2011), and Oliver et al. (2016), which assert that online games also enhance the sensation of interaction and establish the significance of social ties in social life. . Their access to devices and the amount of time they spent playing online games also had an impact on their academic achievement, according to the quantitative investigation. As a result, according to the key informants, playing video games online helps pupils improve their social and communication abilities. It has been noted that because of the advantages of technology, pupils who have greater access to devices and spend more time playing online games tend to do better academically.

Effect of online gaming on the students as perceived by the parents, teachers, and peers:-
Poor school/academic performance:-
Students who play video games for extended periods of time may neglect their studies and schoolwork, which could result in poor quiz scores and late project submissions. This supports research by Gentile et al. (2004) that suggests playing online games can hinder academic performance by diverting time from other learning activities like homework and reading.

Poor Discipline and Behavior:-
Negative emotional states like irritation, rage, or anxiety can result from excessive online gaming, particularly when encountering difficulties or losing games. This corroborates Griffiths and Meredith's (2009) research, which found that an addiction to online gaming has a range of psychological and physical effects on individuals. Many scientific studies have looked into the negative effects of online gaming on students, and they have discovered that these games, especially violent ones, can have both immediate and long-term effects on aggressive thoughts, aggressive behaviors, and social behavior (Gentile & Anderson, 2006).

Insufficient Physical Activity Engagement:-

There are negative effects and drawbacks to technological change on people's health. Overgaming on the internet can result in a sedentary lifestyle, which raises the risk of obesity and other health problems as well as lowers general wellbeing. This supports the findings of studies by Horzum et al. (2008), Dolu et al. (2010), Akçayir (2013), and Arslan et al. (2014) that assert that students are more readily exposed to the detrimental effects of digital games on their cognitive, emotional, social, and physical development. These effects can lead to hyperactivity, learning disorders, psychomotor disorders, health issues because of inactivity and lack of movement, and antisocial behaviors. According to the quantitative analysis previously presented, there is a considerable correlation between students' academic achievement in the areas of mathematics, science, and social studies and their age, the amount of hours they spend each day playing online games, and their access to gadgets. These may be the reasons that students have poor academic achievement, bad behavior and discipline, and low levels of physical activity participation as perceived by the key informants. It has been noted that when people become older, spend longer playing online games, and have more access to devices, they tend to put off their academic obligations, exhibit violent behaviors, and refrain from participating in physical activity.

Discussion:-

There is no substantial correlation between the pupils' academic performance in English and any of their demographic profiles. There is a considerable correlation between students' academic success in mathematics and their gender and the amount of time they spend playing online games. The amount of time students spend playing online games, their age, and their access to technology all significantly affect how well they do academically in science. Finally, there is a strong correlation between pupils' academic achievement in social studies and their age. This is consistent with the findings of Garmah (2023), which found a positive relationship between academic success and the use of the internet.

Moreover, students' behavior has been shown to be affected by internet gaming in both positive and bad ways. While some of the respondents have developed time management, socialization, communication, and strategy development skills in online gaming, others have neglected their home responsibilities, become distracted, lacked focus and discipline in class, and have been addicted to online games, according to their parents, teachers, and peers. The statement is consistent with a study by Hanafie, Bakhtiar, and Darmawati (2022) that found a strong correlation between student behavior and online gaming. This indicates that students' conduct is changing significantly the more intensely they play online games.

Conclusion:-

The demographic profile of students that play online games shows that most of the respondents are 14 years old and male. All of the respondents used cellphones, and the most popular online game among them was Mobile Legends. It was concluded from the data gathered that every respondent had acceptable grading scales in the subjects of social studies, science, math, and English. Furthermore, the results demonstrated that student demographic profiles (age, daily hours spent playing online games, and access to devices) were substantially connected with academic achievement in every other subject, with the exception of English. Online gaming, however, has been shown to have both positive and negative behavioral consequences on kids. While some of the respondents have improved time management, sociability, communication, and strategy creation skills in online gaming, others have been accused by parents, instructors, and peers of abandoning their obligations at home, being distracted, losing focus, and exhibiting discipline in class.

Thus, the respondents' academic performance remains unaffected even if they engage in online gaming. They nevertheless received satisfactory ratings for the amount of time they spent playing. According to the study's findings, the respondents' interest in playing online games does not negatively affect their overall academic performance. The results, however, show that some students have all suffered from the negative effects of online gaming and display bad behavior and a lack of interest in physical activity. They have been accustomed to playing, though, and it is hard to stop even for 30 minutes. Thus, the only thing required is discipline. It follows that rather than having a detrimental effect on students' academic achievement, playing online games has unquestionably had a bad effect on their behavior.

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