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Organized Gaming and Its Effect on Collegiate Academics

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ORGANIZED GAMING AND ITS EFFECT ON COLLEGIATE ACADEMICS

A Thesis Submitted

in Partial Fulfillment

of the Requirements for the Designation

University Honors

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University of Northern Iowa

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ORGANIZED GAMING AND ITS EFFECTS

This Study by: Mark Cochran

Entitled: Organized Gaming and Its Effects on Collegiate Academics

has been approved as meeting the thesis or project requirement for the Designation

University Honors with Distinction or University Honors (select appropriate designation)

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ABSTRACT

With the emergence of gaming as an ever more popular pass time, and professional level eSports gaining steam, collegiate student organizations are beginning to reflect this change as well. This study of 166 college students from across the United States addresses the rise of gaming organizations and their subsequent effects of collegiate academics, namely grade point averages (GPA). The results suggest that participation in an organization dedicated to gaming results in a slightly lower GPA than those involved in other organizations, but still higher than average pointing towards factors of involvement still benefiting students. An important factor to note is that students who report playing electronic games Once or Twice a month actually showed the highest GPA of all participants. This suggest that if gaming organizations can host events targeted at students who seldom play electronic games normally, overall GPA's will actually increase.

Introduction

Gaming has quickly become more widespread than ever before. A 2008 study done by Pew research revealed that 97% of all teenagers play video games (Lenhart & Macgill). As electronic gaming becomes more prevalent, researches have increasingly investigated the effect of gaming on academic scores in children, and on violent behavior (eg Craton, 2011; Gentile, et al, 2004), but gaming at a collegiate level has been left mostly unexamined. The same study by Pew suggests that students over the age of 18 are more likely to play games than their counterparts (76% of students vs 49% of nonstudents reporting playing games). With gaming during college having such a widespread effect, it is important to examine the potential implications.

I have seen this personally, as I have led the marketing efforts for the Panther eSports club at the University of Northern Iowa over the past two years. This is a club dedicated to both casual and competitive gaming in the Cedar Valley area. The club organizes and manages teams that play together and compete against other colleges across North America. As one can imagine, it involves playing games for many hours a week, and even requiring that others do so in order to continue competing at a collegiate level. On the casual side we host events for the community that are designed to bring people out of their dorms and apartments and into community with others to enjoy social gatherings and try new things with new people. One of our biggest challenges in regard to marketing was getting past the stereotype that all gaming is bad and that gaming causes students to drop out of college. From my perspective it did not seem as if our members were struggling with school any more than average, so I began to question the validity of the claims. The purpose of this research is to examine the validity of

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social stereotypes regarding gaming, and to investigate the effects that organized gaming has on one's academic performance

Literature Review

Video games have become extremely prevalent in society today, and their use is not limited to only adolescents. A 2008 study by Pew Research found that 55% of all adults play online games; with 81% of persons aged 19-29 partaking on a regular basis. To add to this, students are actually more likely to play online games than their non-student counterparts, with 76% and 49% partaking respectively, (Lenhart, Jones, & Macgill 2008). With such a high percentage of people involved, especially among traditional college aged students, many questions have risen in regard to the effects that gaming has on one's academic performance.

Most research done in regard to this subject revolves around adolescents and younger teenagers. One such study that measured the habits of 607 8th and 9th graders found that students who showed signs of video game addiction tended to have lower grades among a series of other effects noted (Hauge & Gentile 2003). Their findings are consistent with most other studies that have currently been published (Kirschner & Karpinski 2010). The effects on college students is slightly less extensive. One reason for this is that finding hard causal relationships in regard to gaming and academics is much harder when examining this specific population. Students that choose to attend institutions are naturally more inclined to study, so their academic performance is more likely to reflect this, regardless of whether video games are present (Posso 2016). Difficulty should never deter determined researchers, though, as there is

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a need for more extensive research on the subject, even with the few studies that have been conducted, and the several prominent spokespeople who have voiced thoughts on the issue.

In a 2008 speech, FCC commissioner Deborah Taylor Tate stated that World of Warcraft was one of the leading factors in the high number of college dropouts (Hivner 2011). At the time there was only fleeting evidence to point toward, but since then numerous studies have been conducted to bring validation to the idea that gaming is detrimental to academic performance. For example, a study done by Vivek Anand (2007) came to the conclusion that there is a strong negative correlation with the amount of time one plays video games and their grade point average (GPA). While not enough to describe a causal effect, the correlation is strong enough that there is a high probability of a relationship between video game playing and GPA, and that the data did not occur by chance. Overall, there are various claims as to the size of the correlation, with some people suggesting that time alone only accounts for a 4% deviation in GPA (Craton 2011). Possible other variables could include time trade-offs, such as spending less time studying due to playing video games, and the groupings of people who are more inclined to play video games, also being more inclined to have lower GPAs.

One recent study sought to differentiate itself from past studies claiming that much research ignored key factors that significantly effect a child's academic achievement. For example, one study examined internet use including playing video games and its effect on academic achievement on students in Australia. The average age of participants was 15. When taking into consideration parental education levels and household wealth among other factors, results showed that, while using social networking sites did indeed have a negative relation

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with a student's GPA, students who played online games actually scored higher in math, reading and science (Posso 2016). Posso's research begins to point to benefits of gaming, particularly on test scores in an environment that uses the internet more than any country.

Another influence on one's GPA (specifically college students) is student engagement. Webber, Krylow and Zhang 2013 added to the field with their study that found high levels of engagement contribute significantly to a student's cumulative GPA. Involvement in organizations creates a sense of community that in turn benefits the participating students in all aspects of their life. Their academics increase and students are less likely to struggle with mental health issues. This begins to relate to gaming, as recent years have seen the emergence of gaming organizations on campus, which combines a potentially negative effect with something that has been shown to increase academic performance, gaming and student engagement respectively. As of yet, there is not extensive research examining the combination of these two aspects, so it is not known whether one effect can outweigh the other, or if together the two may effect academics in an unexpected way.

With recent studies suggesting that the negative relation between gaming and academic achievement is negligible if present at all, and few studies examining collegiate gaming at all, it is important to look into the subject more before making conclusions that could affect a student. When student engagement is added to the picture, there is more of a reason to examine potential effects on college campuses that see a vast majority of students playing games online, which is why this research will examine the effect of gaming organizations on academics.

Methodology

The research was collected by distributing a survey through social media. All participation was voluntary and no compensation was offered. The requirement for participation was current enrollment at an educational institution or university. A pretest was run to check question clarity. The sample size was 166 with responses coming from students at 32 different educational institutions and universities across the United States. The majority of responses (115) came from respondents at the University of Northern Iowa. The questions used in the survey were all original with the exception of one, which was derived from a question used in a 2016 study in Australia. The question as it appears in this study is as follows: How often do you play an electronic game? (Electronic game was defined on the survey for each participant as any game played [online or offline] on a computer, console, or handheld device). The question was formatted as a multiple choice question with five possible answers: Every day, Almost every day, Once a week, Once a month, and Never (Possibly). To begin the discussion on gaming organizations and their academic impact, one must first understand how a gaming organization was defined. For the purpose of this research, a gaming organization was defined as a video game club, eSports club, or a club devoted to a specific electronic game (as outlined prior). There was no criteria offered in regard to the extent of the organization so all respondents citing "Yes" to involvement in a gaming organization are grouped together for the purposes of reporting results (please see [Limitations](#) for a full discussion).

Results and Discussion

Gaming Organizations

Respondents that reported participating in a gaming organization showed mean GPA's that were 0.17 points less than those that did not report participating (3.21 and 3.38 respectively). While these differences may be small, the results are significant at the $p \leq .05$ level. In order to compare these numbers to a benchmark, I isolated the responses from the University of Northern Iowa (UNI). After doing so the GPA for respondents involved in a gaming organization versus those not involved was 3.20 and 3.36 respectively. While lowering the sample size caused the p value to read as insignificant, the values closely track those of the larger sample (differences of .01 and .02) hinting at a type two error. According to data from UNI, the average GPA of the 2017 graduating class was 3.2 (Career Services). With this data as an anchor, the data suggests that the students involved in student organizations other than a gaming organization have increased GPA's, and students involved in gaming organizations are at the average. The data points towards involvement in non-gaming organizations as beneficial to one's GPA, and gaming organizations as null, or no effect.

Students that report participation in a gaming organization also report playing electronic games for an average of 24 hours in a typical week; their counterparts who are not involved in such an organization reported 5 hours. The data suggests that the number of hours that one plays electronic games negatively impacts their GPA ($R^2=.038$, $F=4.539$, $p=0.035$). Those students who report participating in an organization dedicated to gaming, however, seem to overcome this. With an average hours playing electronic games that is 19 higher than their

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counterparts, the expectation would be for their GPA to reflect this with a decline of 3.7. Now, obviously a negative GPA is not possible, but there is still an expectation that fails to be met. Not only is their grade point the same as the average, it is actually only 0.17 less than those who reported no participation in any gaming organization. This variance is less than one hour worth of playing electronic games.

Student Involvement

Regarding student involvement, if a student reported a student organization as being more enjoyable, their hours per week in activities devoted to this student organization were higher than those that reported less enjoyable organizations ($R^2= 0.039$, $F=4.368$, $p=0.039$).

A student's involvement in an organization and the organization being enjoyable has an extraordinarily significant relationship (mean=6.06, sd=1.48, $t=14.907$, $p<0.001$). This signifies that nearly every involved student cites enjoyableness as a key factor of their involvement.

In regard to the organizations that students were most involved with, students also reported slight increases in the benefit to their career (mean=4.79, sd=2.32, $t=3.446$, $p=.001$). Organizations that a student is most involved in were reported as beneficial to education as well, but the results were not statistically significant (mean=4.29, sd=2.29, $t=1.278$, $p=0.204$).

Other notable results

Initially, both the pretest and the main research showed no significant correlation between studying and one's GPA ($p=0.161$). One explanation for this is that the study fails to take into consideration the natural inclination a student. For instance, let us examine two

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students: Student A, and Student B. Student A is naturally good at math, whereas Student B struggles in regard to this subject. Student A spends an average of 30 minutes on the assigned problems and receives an A grade. Meanwhile, Student B spends two hours on the assignment and still only receives a B grade. The study looks at the data and takes this as less studying correlates to a higher GPA, but in actuality, student A just does not spend as much time do to their natural inclination to be good at math. This causes data to become muddled, thus lowering the significance level of the correlations between studying and GPA. It is important to note, though, that after removing outliers and testing the regressions again, the data suggests that studying has a curvilinear relationship with GPA ($R^2=0.031$, $F=4.124$, $p=0.044$) (see exhibit 1). The ideal studying amount is 23 hours (see chart below). The average respondent reported studying for 14 hours a week, with 50% of their total studying classified as beyond required assignments ($p<0.001$).

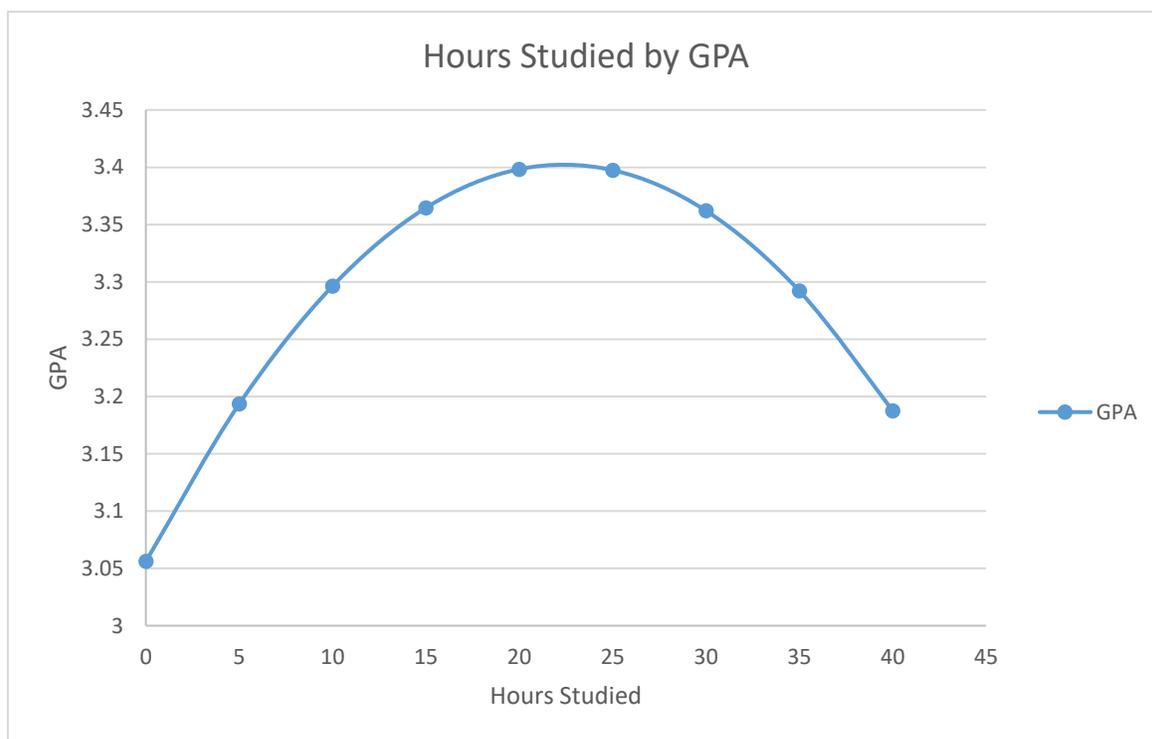


Exhibit 1

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There can be multiple factors influencing study time; for instance how often you play electronic games correlates with how much you study (0.281, $p=0.001$). Students who record playing games more often generally had less studying time overall. The data suggests that there is actually an ideal number of days that one should attempt to partake in electronic gaming. Students who report playing electronic games “once or twice a month” recorded the highest GPA’s of all respondents. Notably, ‘every day’ was the lowest.

How often you play electronic games also correlates with the total number of hours you play games per week (-0.705 , $p<0.001$). As expected, the more often you play electronic games, the higher number of hours you will tend to record.

There is an interaction effect between how often one reported playing electronic games, how many hours they study, and how many hours they play electronic games. If a respondent reported playing games closer to every day with a high number of hours per week, they also tended to report higher hours studying as well. Conversely if a respondent reported playing electronic games less frequently, but still a higher number of hours per week, their studying time was actually lower. One reason for this could be the act of scheduling. Those respondents who have more scheduled study time will take regular breaks and thus play games more often. Alternatively, the respondents who have irregular study time are more likely to play games on a couple days and play much longer hours on these days, thus studying less, and playing less often, but still accumulating a higher number of hours (see exhibit 3).

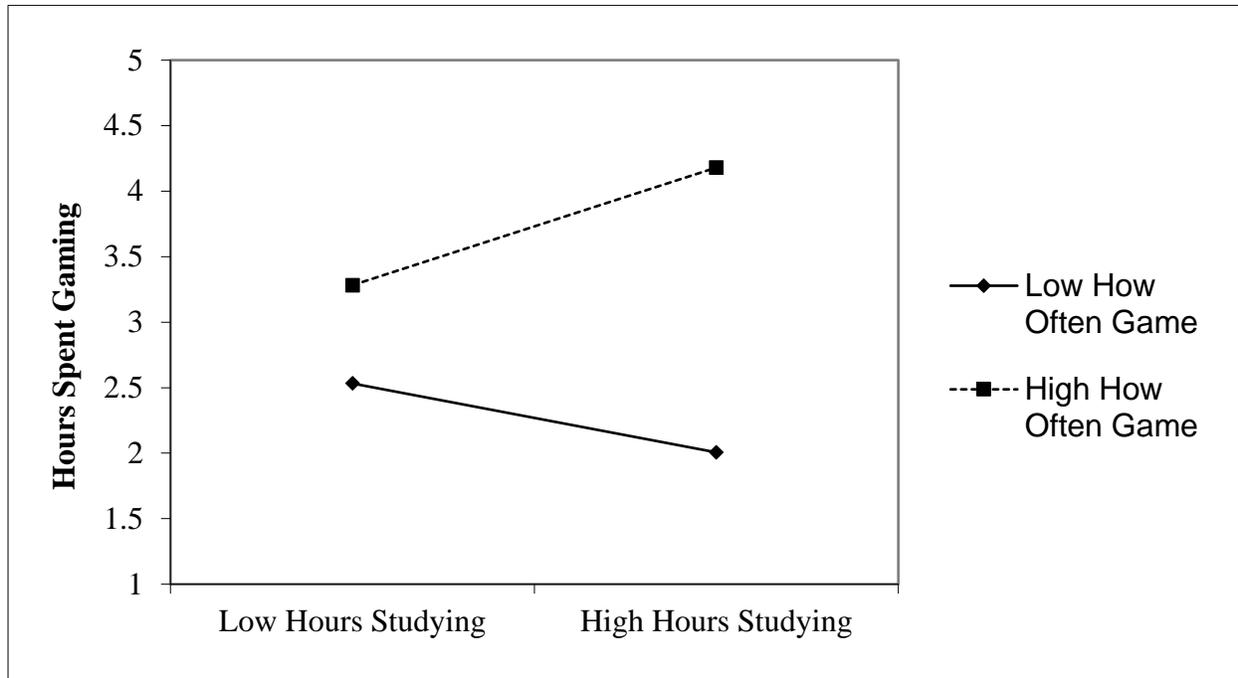


Exhibit 3

The average respondent volunteers close to 5 hours a week, and works for 15 hours.

There was no significant difference regarding UNI students and other institutions.

Conclusion

Final Discussion

So what is organized gaming, and what are its effects on collegiate academics, specifically grade point averages? Earlier in the paper it was addressed that a gaming organization is a video game club, eSports club, or a club devoted to a specific electronic game. To conclude what effects it has you have to examine both direct and indirect results. Directly, participation in a gaming organization showed to have a negative effect on the respondents

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GPA. This is likely caused due to the likelihood of members playing electronic games for vastly more hours per week. Much like in the study by Hauge & Gentile, playing electronic games is seen to lower one's GPA, so it is not surprising to see a decline (2003). What is surprising, however, is that due to the number of hours, a greater disparity in GPA is not seen. It appears that participation in a gaming organization causes this effect to be counteracted. This points towards the results of Webber, Krylow and Zhang (2013): Involvement correlates with an increased GPA. In this case it is not above average, but instead it counteracts a negative relation. Another important aspect to note is that, just like in Posso's 2016 study, there is an optimal frequency for how often one should play electronic games. Playing electronic games once or twice a month actually shows the highest GPA's.

Leaders of gaming organizations can use this data to lead their respective clubs. On one hand, you have the appeal for casual participants, or those that generally would not play ever. There are actually benefits of bringing them out and having them participate in electronic gaming once or twice a month. The other aspect is towards those who want to play more consistently or competitively. These are students who are already more likely to play high numbers of hours, and thus more likely to have lower GPA's. If these students are connected into organizations dedicated to gaming, it is possible to avoid the negative effects. This study also suggests specific ways to market the organization. Having an organization that it is enjoyable is the most consistent factor in a student's involvement, so if leaders of the organization can market this aspect, students are more likely to begin involvement. Some other influential aspects for involvement are the benefit to career and education. Students oft cite these factors as simultaneous, so searching for specific ways to benefit members' education

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and future career is another important marketability factor. Overall there appear to be benefits of involvement in a gaming organization, but there are also tendencies that need to be addressed. It is important for all leaders of these organizations to examine them carefully and make sure that the activities they are involved in are not detrimental to their education.

Limitations and Future Research

There was no criteria offered in regard to the extent of the organization. The level of commitment for members has the potential to be vastly different within these groups, and thus the effects of participation could vary. It is difficult to measure the scale of organizations that respondents may participate in since the geographic variations of location are vast. Nearly all responses were from students involved in student organizations. The difference in sample size is too great to compare the groups, therefore the report does not address data about students who are not involved in organizations on campus. GPA (and all data) was self-reported. Actual data could differ from the data collected throughout the course of this study, but since the survey was anonymous, respondents are unlikely to falsely report information. The mean GPA of the study is higher than the probable mean of the population. With a study mean of 3.3, this value is relatively high. Since the survey was distributed through social media, a respondent needed to proactively go out of their way to participate. Students willing to do this are also more likely to be more diligent with their coursework.

Future researchers should continue to examine the effects of gaming on college students. This study revealed that participation in a gaming organization resulted in a lower GPA, but nearly every respondent was a student that was involved in an organization of some

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form. A future research study could offer a more complete picture if there was a higher percentage of students that are not involved in an organization of any form.

This study also suggests that studying has a curvilinear relationship with GPA; future studies could shed more light on this subject.

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I. Appendix

Survey

Start of Block: Default Question Block

Q1 Are you enrolled in a higher institution or university?

Yes

No

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Q2 What educational university or institution are you currently enrolled in?

(Example: University of Northern Iowa)

End of Block: Default Question Block

Start of Block: Block 2

Q11 How many hours in a week do you typically spend...

If 0, please move marker up and back to 0 to ensure your response is recorded accurately.

0 5 10 15 20 25 30 35 40 45 50 55 60

Playing an electronic game (An electronic game constitutes as any game played [online or offline] on a computer, console, or handheld device.)	
Studying or doing classwork outside of regular class time	
Working for pay	
Volunteering or working for no pay	

Q27 In regard to hours spent studying or doing classwork outside of regular class time...

0 5 10 15 20 25 30 35 40 45 50 55 60

How many of these hours are above and beyond what is required? (e.g. not required homework problems, but extra studying before exams, etc)	
--	--

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End of Block: Block 2

Start of Block: Block 1

Q3 Are you involved in a school organization?

 Yes No

Q5 How many hours per week do you typically spend doing activities related to a school organization?
If 0, please move marker up and back to 0 to ensure your response is recorded accurately.

0 5 10 15 20 25 30 35 40 45 50

Hours per week	
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Q10 Think of the organization you are MOST involved with.

If 0, please move marker up and back to 0 to ensure your response is recorded accurately.

Non Beneficial

Beneficial

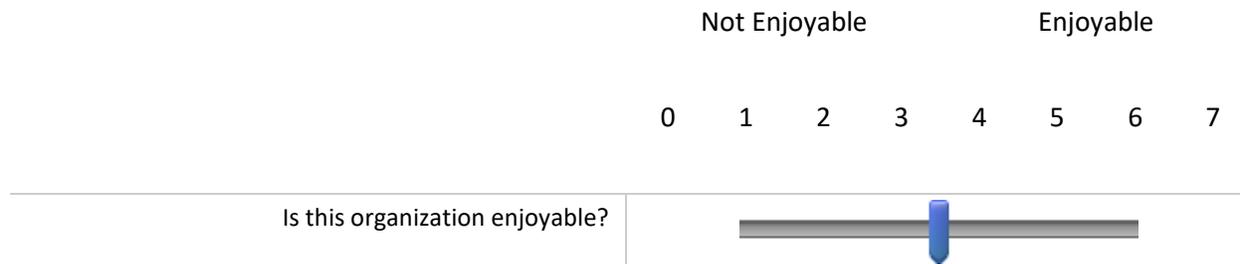
0 1 2 3 4 5 6 7

Is this organization beneficial to your education?	
Is this organization beneficial to your future career?	

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Q15 Think of the organization you are MOST involved with.

If 0, please move marker up and back to 0 to ensure your response is recorded accurately.



Q8 Are you involved in an organization dedicated to gaming?

Gaming clubs such as (but not limited to): video game club, eSports club a club devoted to a specific electronic game as outlined previously

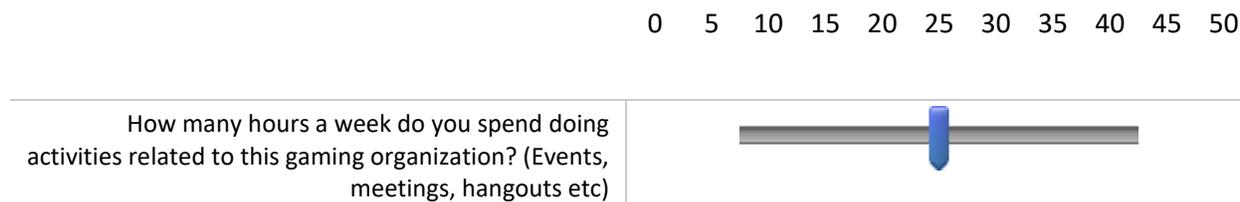
Yes

No

Q12 In regard to the organization dedicated to gaming...

If a gaming organization is the one you are most involved in, please answer this section in the same way as the previous one.

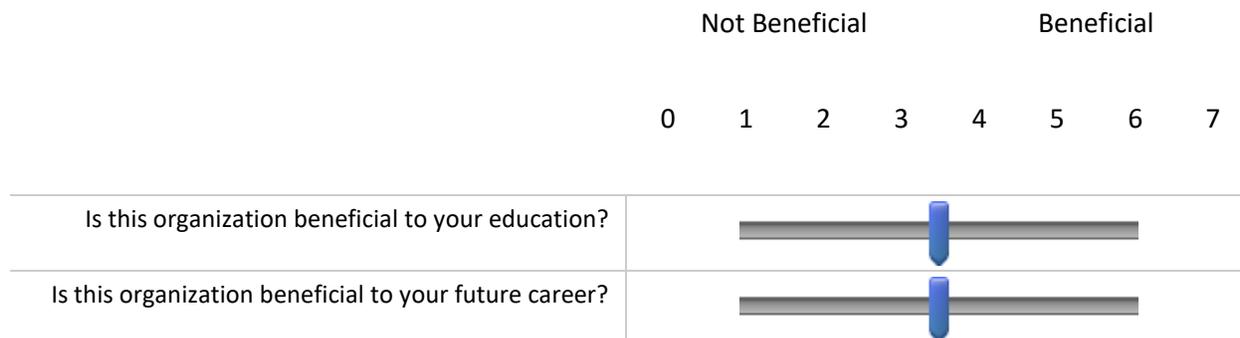
If 0, please move marker up and back to 0 to ensure your response is recorded accurately.



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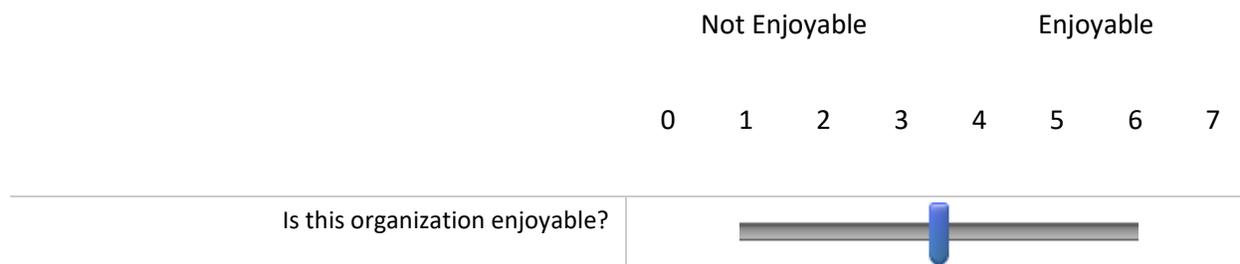
Q14 In regard to the organization dedicated to gaming...

If 0, please move marker up and back to 0 to ensure your response is recorded accurately.



Q16 In regard to the organization dedicated to gaming...

If 0, please move marker up and back to 0 to ensure your response is recorded accurately.



End of Block: Block 1

Start of Block: Block 6

Q28 How often do you play electronic games?

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(An electronic game constitutes as any game played [online or offline] on a computer, console, or handheld device).

- Every day
- Almost every day
- Once or twice a week
- Once or twice a month
- Never

End of Block: Block 6

Start of Block: Block 4

Q19 What is your Grade Point Average (GPA)

Reminder: Your responses will remain anonymous, so please be honest.

0 1 2 3 4



End of Block: Block 4

Start of Block: Block 3

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Q18 What is your gender?

- Male
- Female
- Other _____
-

Q20 Please specify your ethnicity (or Race)

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic or Latino
- Other _____
-

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Q21 Please specify the highest level of education achieved by a parent/guardian

- Less than high school
 - High school graduate
 - Some college
 - 2 year degree
 - 4 year degree
 - Professional degree
 - Doctorate
-

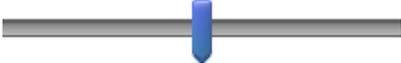
Q25 What is your year in school?

- Freshman/First year
 - Sophomore
 - Junior
 - Senior
 - Graduate student
-

Q24 How many credit hours are you currently enrolled in?

0 5 10 15 20 25

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Credit Hours	
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Q22 What is your planned academic major?

- Arts (e.g., Fine/Applied Arts, Drama/Theater, Music, Journalism, Speech, Communications, Media Studies)
 - Humanities (e.g., Classics, English Language/Literature, Foreign Language, History, Philosophy)
 - Social Science (e.g., Anthropology, Economics, Ethnic Studies, Geography, Political Science, Psychology, Sociology, Social Work, Women's/Gender Studies, Cultural Studies)
 - Religion or Theology
 - Biological Science (e.g., Biology, Botany, Biochemistry, Environmental Science, Marine Biology, Microbiology, Zoology)
 - Computer Science
 - Physical Science (e.g., Astronomy, Chemistry, Earth Science, Physics)
 - Mathematics/Statistics
 - Engineering (e.g., Aeronautical, Civil, Chemical, Electrical, Industrial, Mechanical)
 - Health Professional (e.g., Health Technology, Nursing, Medicine, Pharmacy, Therapy)
 - Business (e.g., Accounting, Finance, Business Administration, Marketing, Management)
 - Education (e.g., Elementary Education, Secondary Education, Special Education, Physical Education, Music/Art Education)
 - More than one major
 - Another major not listed
-

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Q23 Please specify your major(s)

End of Block: Block 3

