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Assessing the influence of sports participation on academic achievement of student-athletes of university of education Winneba

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Abstract

The purpose of this study was to find out whether sports participation significantly influence the academic achievement of students-athletes of University of Education, Winneba (UEW). Out of two hundred and fifty (250) student-athletes who participated in the 2012 GUSA games at KNUST, Kumasi, one hundred and twenty-five (125) of them were randomly sampled and their GPA scores compared to an equal number of randomly selected non-student-athletes. Using a two group posttest-only quasi-experimental design with t-test and Chi-square as the statistical techniques, the research sought to respond to two hypotheses; whether academic achievement of student-athletes differs from that of non-student-athletes as a result of their engagement in sporting activities. Analysis of the data collected showed that the academic performance of the student-athletes were not significantly affected as a result of their engagement in sports, It was recommended that universities should institute academic support systems to help alleviate some of the problems that student-athletes encounter as a result of their participation in sports.

Keywords: Academic achievement, student-athletes, cumulative GPA

1. Introduction

Sports is now a powerful entity in the social and economic world; however, one cannot easily quantify the benefits that human beings accrue from it in terms of health and physique, social and emotional stability as well as entertainment. It is not surprising that nations incorporate sports at all levels of the educational curricula. Sports activities in Ghanaian universities include disciplines like athletics, soccer, cross county, volleyball, basketball, field hockey, tennis, table tennis, badminton, baseball, taekwondo, rugby and swimming. All sporting activities in the public universities are competed for beginning from inter-hall level to inter university level culminating in the Ghana Universities Sports Association (GUSA) games, and then to international levels in competitions like West African Universities Games (WAUG), Federation of African Sporting Universities (FASU) games, and Federation of International Sports (FISU) games.

Sports activities in Universities worldwide have become very popular and competitive and there is the demand by university authorities for students to be able to strike a balance between their academic work and participating in sports. According to Lucas and Lovaglia (2005) [1], the National Collegiate Athletic Association (NCAA) in the USA introduced Academic Progress Rate (APR) as a way to measure the academic progress and graduation rates of colleges and universities in 1999. Playing sports at the university as a student is a right, according to the UNESCO Charter, Article 1.1(1978).

Beside the risks associated with sports, one can also quantify the lost academic contact hours for these student-athletes. The numbers of lecture hours these student-athletes lose as a result of university sports add up. While some of it can be made up, majority are completely lost putting the student in a bind. It is also possible to quantify the preparatory periods (camping and training periods) where most students shift their attention to sports rather than their academic engagement. Such situations if not organised properly may pose challenges to sports participation and academic activities in a university setting. It is not surprising that the role of sports in UEW is often questioned by those who are against sporting activities in the school;

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however, a few students continue to participate in sports in UEW even to the international level.

With quite a number of students who participated in sports in UEW, Management of the university continues to supports students sports activities in the following ways:

1. Setting up sports units solely to coordinate the students' sports programmes.
2. Supporting students to participate in sports programmes from the local level to the international level.
3. Setting aside Wednesday afternoons for sporting activities for all students in all campuses of UEW.
4. In terms of sports supplies, equipment and facilities, Management is doing well to provide them in all campuses of UEW.

Previous studies assessed the effect of sports participation and physical activity on academic achievement were done at the Junior High School and College levels and some Universities mostly in Europe and United State of America. The findings were mixed. Some of the studies found that sports participation negatively affected academic achievements while others concluded that sports and physical activities have positive effect on other areas of students' life including students' attitude, work ethic, students' behaviour and development of social skills, self-esteem, academic achievement and student choices concerning drug and alcohol use (White 2005) [4].

For years, parents, teachers, administrators, lecturers, coaches and students have formed their own opinions and argued about the importance and significance of sports within academic circles. There are three groups of opinions on participation of university sports: Those who love it and support it, those who despise it and will always speak against it, and those who do not seem to care.

Those who dislike university sports argue that money spent on sports could otherwise be used for research, stock the library with books, buy computers for departments, offer scholarships to faculty and students and provide academic necessities for the university. They are of the opinion that sports is risky and takes a lot of time away from students which could have been channelled into academic work and that, sports participation has a negative effect on academic achievement of students. Those who support sports are also of the opinion that sports participation has a positive effect on academic achievement of the students. The student becomes physically strong and healthy, socially and emotionally sound to do academic work better.

1.1 Statement of the Problem

At UEW, there is often subtle agitation by forces opposed to sports that use unsubstantiated and unverified relationship between sports participation and academic performances to discourage students from participating in university sports.

Although UEW authorities offer extensive financial and moral support to the sports department, only four thousand, seven hundred and sixty five students (4,765) participated in local and international sports competitions for the university between 2008 and 2011. To inculcate sports into the mission and vision of UEW, it is important to educate all those who oppose university sports to realise that those in charge of sports development are equally anxious to help student-athletes understand that they are students first and athletes second. It is also very important to explore further parameters of influence such as type of academic course pursued by research participants in this study to help inform all

stakeholders about the nature of sports participation and academic achievement of student-athletes of UEW.

1.2 Purpose of the Study

1. The purpose of this study was to help either to dispel or confirm the notion that academic performance is positively or inversely related to performance in sports of the student-athletes of UEW
2. The study was also to find out whether any perceived differences in academic courses pursued by the student-athletes and non-student-athletes has a direct relationship to their sports participation in the university.

1.3 Research Questions

1. How does academic achievement of student-athletes compare with non-student-athletes of UEW in terms of their cumulative GPA scores?

1.4 Hypothesis

1. Academic achievement (cumulative GPA) of student-athletes would significantly differ from that of nonstudent-athletes.
2. Participation in sports would significantly influence academic achievement of student-athletes.

2. Materials and Methods

This study was a two group posttest-only quasi-experimental design using t-test and chi-square as the statistical techniques. The quasi-experimental design was deemed appropriate because of lack of randomisation of the study sample selection and group assignment; in addition, the two groups for the study have already been classified or grouped into two naturally occurring categories (student-athletes verses non-student-athletes).

2.1 Population

The student population of UEW is 50,012 (source: Vice Chancellor's Annual report and Basic statistics, 16th Congregation, 2011). This number includes regular students, distance education students, evening part time students, sandwich students and graduate students from the six campuses of UEW. The target student-athletes population is the student-athletes who train and are invited to compete in organised sports in or for the university. The study population comes from UEW annual inter-hall level games in which each competing hall of residence is allowed to present 242 athletes comprising of 121 male and 121 female athletes in 10 sports disciplines. For the purpose of representation of GUSA games, only 250 student-athletes were selected to represent the university at the 2012 GUSA games. This category of student-athletes constitute the population of interest for the study.

2.2 Sample and Sampling Technique

A sample of 125 student-athletes were randomly selected from the student-athletes population of 250 for the 2012 GUSA games and a second random sample of 125 non student-athletes, identified as nonparticipants in any university organised sports programme was used as the sample frame for the study. Simple random sampling technique was used in all the sampling. The index numbers of the 250 student-athletes and the rest of the non-participants were obtained and separately printed out, and by lottery method, a student-athlete selected the 125 non-participants while non-participants selected the 125 student-athletes.

2.3 Procedure for Data Collection

The Academic records of students of UEW for the first semester 2011/2012 academic year (cumulative GPA) were the main source of data collection for the study. This enabled the researcher gain access to the cumulative GPA scores of the sampled students from the examination officers of the departments concerned.

2.4 Procedure for Data Analysis

Since the data was in ratio scale, the statistical techniques most preferred for this analysis is the independent t-test. The chi-square (χ^2) test of independence was used to determine whether the type of academic programmes pursued by the student-athletes had any significant influence on their sports participation.

3. Results

Comeax and Harison (2001) [6] identified GPA to be powerful predictor of academic performance for both student-athletes and non-student-athletes. With this, academic performance becomes a level ground to strive for by both student-athletes and non-student-athletes. In this study, the cumulative GPA scores were used as the performance index of the respondents for the analysis.

The statistics of the academic performance of the selected student-athletes and non-student-athletes for the study are presented in Table 1 below. This table shows the academic grades, the range of class cumulative GPA scores obtained by the student-athletes and non-student-athletes, together with the standard deviation units and mean of class cumulative GPA scores. The performances of these selected samples for the study were again grouped into high and low GPA achievers according to university classification criteria.

Table 1: Distribution of Academic Performance of Student-athletes and Non-student-athletes

Sample	Gender	Grade	Status in GPA	No. observed	Range of class GPA scores		Mean of class GPA	SD
					Mini.	Max.		
Athletes	Male	1 st class	High	13	3.50	4.00	3.67	0.19
		2 nd class upper	High	30	3.00	3.40	3.18	0.12
		2 nd class lower	High	18	2.50	2.90	2.79	0.15
		3 rd class	Low	7	2.10	2.40	2.29	0.13
		Pass	Low	1	1.80	1.80	1.80	-
	Female	1 st class	High	7	3.50	3.90	3.63	0.16
		2 nd class upper	High	30	3.00	3.40	3.20	0.16
		2 nd class lower	High	15	2.50	2.90	2.72	0.15
		3 rd class	Low	3	2.20	2.40	2.33	0.12
		Pass	Low	1	1.60	1.60	1.60	-
Non-athletes	Male	1 st class	High	5	3.70	3.70	3.70	0.20
		2 nd class upper	High	18	3.00	3.40	3.13	0.12
		2 nd class lower	High	35	2.50	2.90	2.75	0.14
		3 rd class	Low	9	2.00	2.40	2.25	0.16
		Pass	Low	3	1.80	1.90	1.85	0.07
	Female	1 st class	High	6	3.50	3.80	3.60	0.14
		2 nd class upper	High	16	3.00	3.40	3.17	0.13
		2 nd class lower	High	25	2.50	2.90	2.67	0.13
		3 rd class	Low	6	2.00	2.40	2.32	0.12
		Pass	Low	2	1.60	1.90	1.73	0.15

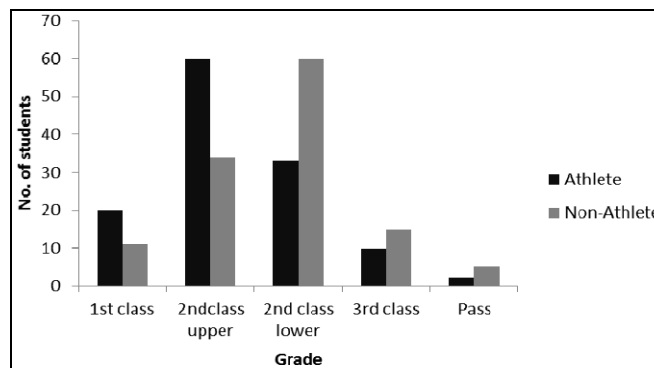


Fig 1: Graphical representations on the academic performance of the sampled data

Figure 1 shows significant variations on the data of academic performances of the selected sample. In Table 1, the mean cumulative GPA scores of the student-athletes were mostly higher than that of the non-student-athletes except in the case of 1st class for the male category of students, where non-student-athletes scored higher (3.70) than the athletes (3.67). There was also marked variations on the numbers at each of the grade status. A further look at the differences in academic performances of the research sample for the study in Table 1

also gives an indication that the standard deviation units of the data between the student-athletes and non-student-athletes were significantly different.

Generally, a closer look at the information in Table 1 and Figure 1 suggest that, academic achievement of student-athletes differ slightly from that of non-student-athletes in the sense that, the number of student-athletes who constituted the high GPA achievers was slightly higher as compared to the performance of the non-student-athletes. Secondly, there were

some few individual academic performances which were outstanding and therefore contributed to the spread of the performances of the student-athletes sampled for the study.

3.1 Test of Null Hypothesis 1

Hypothesis: Academic achievement (cumulative GPA) of student-athletes will not significantly differ from that of non-student-athletes.

Null Hypothesis: $H_0: \mu_1 (CGPA) = \mu_2 (CGPA)$

To find the difference between the mean cumulative GPA scores of student-athletes and non-student-athletes, an independent t-test was used to test the null hypothesis. Jackson (2006) recommended an independent group t-test as the most appropriate parametric statistical test for this purpose because it compares the means of two different samples of participants from a single population.

Table 2: t-Test on the Academic Performances of the Student-Athletes and Non- student-athletes

	No	Mean GPA	S.D.	Std Err.
Student-athletes	125	3.01	0.45	0.04
Non-student-athletes	125	2.94	0.39	0.04
Diff(1-2)		0.07	0.6	

t (df = 248, p.<.001) = 5.21

Given the level of significance at $P<.05$, the critical value for a 2-tailed independent t-test is ± 1.960 at that level. Our obtained value $t(df=248; p<.001) = 5.21$ is higher than the critical value at $df= 248$. Therefore we have sufficient information to reject the null hypothesis and to conclude that there is a significant difference in mean of academic performance (GPA) between the two samples of data.

A casual observation of the spread of the distribution showed that there was a marked variation of differences in distribution of scores. Assuming normal distribution of our data, then there was the likelihood that the difference could be attributed to the

Table 3: Statistical Values on the Cumulative GPA scores of the Student-Athletes and Non-student-Athletes

	No	Mean GPA	σ of GPA	Std Err of GPA	t-score 1.75
Athlete	125	3.0546	0.45	0.04	
Non-Athlete	125	2.9381	0.39	0.04	

Establishing the level of significance at $p<.05$, the critical value for a 2-tailed independent t-test is ± 1.960 at that level. Our obtained value $t(df = 249; p > .05) = 1.75$ is less than the critical value at $df = 249$. According to Opoku (2006) [7], comparing $t_{obs} = 1.75$ to our decision rule, we observe that $t_{obs} = 1.75 < 1.960$. Under a non-directional test at any given level of significance and appropriate df, the t value = 1.75 must lie between the positive and negative critical values of t for Null Hypothesis to be rejected or upheld. The analysis in table 3 provided sufficient information to reject the Null Hypothesis at the probability level of 0.05 and also because the difference between the t_{obs} and the t_{ev} was slightly insignificant (0.21).

The result of this analysis shows that at the 0.05 level of significance, it is indeed true that the mean cumulative GPA of the student-athletes is almost the same as the mean cumulative GPA of the entire student population.

3.3 Test of Null Hypothesis 3

H_0 : For the general population of students, the pursued

spread of scores at the extreme ends of the distributions. It was necessary to determine the source of the significant difference from our data. While the main difference of the high GPA achievers and SD scores were remarkably evenly spread, the spread at the upper end of the distribution of the high achievers painted a different picture.

Separating the low achievers from the high achievers and subjecting our data to a significant test of difference of mean scores showed a significant difference between the upper scores $t(df=216; P<.001) = 5.36$ and $t(df=30, P > 0.94) = 0.08$ for low achievers. These results indicate that there were significant differences between the higher GPA achievers of student-athletes and non-student-athletes, and there were slightly significant differences between the low GPA achievers of the same data. Referring to table 5, these differences can be identified looking at the cumulative means and the standard deviation scores.

3.2 Test of Null Hypothesis 2

Hypothesis: Participation in sports will not significantly Influence academic achievement of student-athletes in UEW.

$H_0: \mu_1 (GPA) - \mu_2 (GPA) = 0$

To determine whether sports participation affects the academic achievement of the student-athletes, the means of their cumulative GPA scores were compared to the mean cumulative scores of the entire student population. The t-test based on a single population was used as an inferential procedure that uses sample data to evaluate the credibility of a hypothesis about the population. Therefore t statistic was used to test the null hypothesis about μ because the value of σ was unknown.

Two basic assumptions were made: (a) That the values in the samples consisted of independent observations, that is, there was no consistent predictable relationship between the two samples identified, and (b) that the population sampled was normal.

academic programme of study is independent of participation in sports

For Hypothesis 3, the academic courses of the sampled students were analyzed to find out whether they had any significant influence on students' sports participation. The Chi-square test of independence is the most suitable in this situation and was used to determine whether the kind of academic programmes pursued by these sampled students had any significant effect on their overall participation in sports in the university.

Table 4 shows the chi-square table of our data according to the academic programmes pursued at the university. The objective was to find out whether per chance students' sports participation could be attributed to the type of academic programme they pursue.

A descriptive evaluation of the data in Table 4 showed that 54% of the sampled participants were students of HPERS department indicating a skewed distribution of the participants.

Table 4: Chi-square Table on Selected Research Samples of the Study in their Academic Courses

Academic Course		HPERS	SPED	BUS. Educ	Agric Educ.	Basic Educ.	HEC	ICT.	Lang. Educ	Total	$(\chi^2_{\text{obt}}) = 23.02$	
Sample												
SA	O	67	7	4	8	5	3	3	1	98	$p < .05$	
	E	56	7	5	6	7	6	6	5			
NSA	O	28	5	4	2	7	7	8	8	69		
	E	39	5	3	4	5	4	5	4			
Total		95	12	8	10	12	10	11	9	167		$df = 7$

Key: Upper roll = Observed frequency, Down Roll = Expected frequency
SA= Student-Athletes NSA=Non Student-Athletes

Our obtained chi-square (χ^2) value = 23.02 is greater than the critical value at $p < .05$ significant level at $df = 7$. Since our obtained χ^2 value = 23.02 is significant enough to support the hypothesis at $p < .05$ level of significance (two-tailed), we can conclude, with regard to the data obtained from our sampled research participants, that there was a significant difference in performance between the student-athletes and non-student-athletes based on the type of academic programmes pursued.

4. Discussion

A t-test of independence was used to determine whether there was any significant difference between the academic achievement of the 125 student-athletes and the 125 non-student-athletes sampled for the study. Results and findings of the above t-test in table 4 indicated that, there was a statistical significant difference in mean GPA between the student-athletes and the non-student-athletes. Therefore, the Null Hypothesis was rejected because there was sufficient evidence of the differences between the academic performances of the two groups of research participants.

Some studies have been done on academic achievement (GPA) of student-athletes and non-student-athletes but mostly because of wide variety of methods used and the types of measurements employed, the results had several variations that were often contradictory. For example, as far back as 1965, Stecklein and Dameron compared 202 male student-athletes with a sample of 293 non-athletes at the Minnesota. Their research showed no significance difference in grade point averages. Subsequently, Stecklein and Pilapil (1970) [9] published a follow-up study of the academic success of student-athletes at the University of Minnesota. The study was conducted to determine if any differences could be attributed to changes in NCCA eligibility requirement and the results showed significant difference.

Silliker and Quirk (1997) studied the relations between academic performance and interscholastic athletic participation by examining the in-season versus out-season academic performances of soccer players. The researchers drew the conclusion that participation in sports can occur without significant risk to academic performance, and suggested that participation can enhance it. Although the participants in Silliker and Quirk's (1997) study were not university students, the findings were similar to this study.

Pilapil, Stecklein, and Liu (1970) [10] studied academic characteristics of athletes and non-athletes at the University of Minnesota and, using mainly descriptive statistics, found that the student-athletes had slightly higher GPA scores: 2.42 as against 2.40 for non-student-athletes. Our findings supports the findings of Pilapil *et al* (1970) [10] in which the academic achievements of the selected student-athletes were significantly different and also looked better than the sampled non-student-athletes.

Lomonico (2008) [12] observed that, sports benefits all factions of the university. In support of this assertion, Voinis (2009) [13] lauded the efforts of one university's student-athletes. He found that over 60% of the student-athletes achieved a GPA score of 3.0 or higher and drew the conclusion that athletic participation did not affect academic performance of the student-athletes. Simon, Van Rheenen, and Covington (1999) [14] observed that, while it often seems that student-athletes have more responsibilities than they can manage, many still succeed just like the sampled study participants of this study.

To find out whether the type of academic courses pursued by the sampled student-athletes of this study has a significant influence on their sports participation, their academic courses were analysed using chi-square as the statistical tool. The 125 sampled student-athletes and non-student-athletes were found to be from 20 different academic course areas. Physical Education had the highest number, 67 student-athletes representing 53.60% of the study sample. Special Education had 7 and Agriculture Education also contribute 8 student-athletes representing 5.60%. Basic Education contributed 5 student-athletes representing 4.0% while 4 student-athletes were from Business Education department representing 3.20% of the research sample. The rest of the 35 student-athletes did 12 different courses in the university. The data showed that, these 35 student-athletes pursued the 12 different academic courses in groups of between 1 and 3.

5. Summary of Findings

Analysis of the data revealed the following:

1. The academic achievement of the sampled student-athletes did not differ from that of the sampled non-student-athletes. The means of the cumulative GPA of the two samples of data were almost similar.
2. Sports participation did not significantly influence the academic achievement of the student-athletes of UEW. The data also revealed that, the 125 student-athletes who were randomly sampled for the study had a mean cumulative GPA of 3.05, while the non-student-athletes had a mean cumulative GPA of 2.93. This led to the conclusion that sports participation did not significantly influence the academic achievement of the student-athletes in terms of GPA scores.
3. There was a significant difference between the student-athletes and non-student-athletes based on the type of academic programme they pursue. A descriptive evaluation of the data showed that 54% of the sampled student-athletes were from the Department of Health Physical Education, Recreation and Sports in the Faculty of Science Education indicating a skewed distribution of the participants. Therefore, the academic programmes pursued by the student-athletes could influence the sports participation of the student-athletes.

6. Conclusions

The findings of this study also implied that sports participation did not significantly affect the academic achievement of the student-athletes although the issues of academic support services are not present as compared to other countries.

To conclude on whether sports participation influence academic achievement of student-athletes or not, it looks like this depend on the two commonly held values of schools, namely; developmental perspective and academic perspective. If a school holds the academic perspective, then sports becomes the one target that is assumed to influence academic performance forgetting the other variables that also contribute to academic performance, and then such studies go against sports participation. In such schools, very little effort is made to let sports participation exist harmoniously with academics. If a school hold the developmental perspective, sports participation is endorsed and structures are put in place to ensure that it does not influence academic achievement unnecessarily. In such schools, authorities find ways to make sports and academics exist harmoniously.

The result of our research also showed that the academic course programmes pursued by the student-athletes had a significant effect on their sports participation. This seems typical of UEW because majority of student-athletes pursue their courses in Physical Education and Sports at the Department of Health, Physical Education Recreation and Sports in the Faculty of Science Education. The congruency of this relationship may have resulted in the conclusion drawn on hypothesis 3.

Firstly, students of UEW can hardly circumvent the academic system to their advantage, although there is no research to that effect. For example, student do not miss any important examinations, they do not hustle lecturers for better grades, neither do they have the chance to do fewer courses to enable them concentrate on their sporting activities.

Secondly, the demands in the course content for all the courses in UEW are significantly similar to those in Europe such that one cannot term any course as 'gut' for athletes to 'cluster' around for easy points that goes to swell their GPA. The grading scheme is the same in all the academic disciplines.

Thirdly, students of UEW do not enjoy the kind of academic support services enjoyed by their European and American counterparts. Consequently, in UEW, students who miss lectures as a result of participating in official University sports programme, are required to find ways to make up for the loss of contact hours with their lecturers. This is the reason why most students do not want to participate in sports activities for the University during peak academic periods in the semester.

Lastly, it is not known that students are given admission based on their athletic capabilities only and as such given easy or 'gut' courses to do. In UEW, students are awarded admission based mainly on academic competences as well as performances at oral and practical interviews. When admitted, student-athletes are constantly reminded by peers, lecturers, parents and even themselves that, they are firstly students and secondly athletes. For those students that choose to participate in university sports, it becomes much harder for them to focus on these two major aspects of their lives and balance them equally. Caution is advised not to make a hasty conclusion from the current findings and influence made to other university settings in Ghana because different variables may influence those settings other than those found in UEW.

7. Recommendations

From the findings of the study and the conclusions drawn, the following recommendations were made:

1. The study of academic achievement of graduate student-athletes of UEW should be done. This is because the problem with GPA score is that it is only a representation of the student-athletes performance at a given time in a given programme.
2. The fact that student-athletes sampled for this study had equally higher mean cumulative GPA as non-student-athletes appears safe to conclude that sports in UEW can be done without any planned measures. There should be specific initiatives focusing on the student-athlete's challenges (personal/ internal factors) and the external (institutional/ environmental factors) that may impact the student-athlete's dual role in the University. Some of the specific programmes recommended included personal counselling, academic monitoring, career guidance, assignment and compatible academic advisors, inculcation of study skills, establishment of student-athlete's tutoring sessions among others. That way, the student-athlete would be able to excel academically as well as in sporting activities.
3. Academic achievements of students are not influenced by only sports participation. Research is needed to identify other variables that could contribute to low academic performance other than sports participation as detractors of sports want the public to know.
4. Also, the University should introduce student-athlete's academic support systems.
5. The findings of this study indicated that sports participation at UEW do not influence the academic achievement of student-athletes and this should inform all those who oppose students' sports participation in UEW to re-consider their views.
6. It is recommended for any future study to exclude participants from the Department of Health, Physical Education, Recreation and Sports to eliminate the influence of skewed data. It is also recommended for further study to use stratified sample of research participants from UEW rather than the simple random sampling technique adopted to select the research sample for this current study.

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