“Get Students Involved to Improve Academic Performance”

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Educators routinely make the claim that students involved in extracurricular activities receive higher grades. This claim is based on personal observations, and a "feeling" that it must be correct. It is necessary to quantitatively study this topic because high school budgets are meager, and consequently, funding for extracurricular activities has been decreased in many school districts across the nation. Administrations of these schools want to use their limited resources most efficiently. This study intends to put some light on what many consider to be a very effective way to help students meet their academic goals.

Coaches and sponsors often complain that when school districts face financial crises, extracurricular activities, particularly art, music, and drama but sometimes sports as well, are the first programs cut. What can students and parents in that situation do? "This is a dilemma, especially since many of these activities are viewed as 'frills' by some," wrote Holloway (1999, p. 42). He went on to offer this advice: "Students, parents, teachers, and school administrators must use the available research to begin a process of educating the public about the importance of these activities in the overall education of the children and their value in increasing student academic performance." That is the reason for research such as this. The tax paying public rightfully demands to know that tax dollars are effectively spent.

Forty subjects were randomly chosen for this study. Twenty had met the criteria for students involved in extra-curricular activities, and twenty had not. The subjects were selected randomly from a graduating senior class of 483 students. A criterion was developed to differentiate the two groups of students. Students that were classified as involved students were members of the same group or team for all four years of high

school. Due to the fact that some students were either unable to make a team or group in four consecutive years, or were unable to participate for four consecutive years due to injury, an additional criterion was used. If they were not in the same group or team for four consecutive years, then they needed to be members of at least two different groups or teams for a total of six semesters. These criteria ensured that no student classified as involved would have spent an entire year not having participated in an extracurricular activity.

The random selection process made no differentiation between the types of activities the students were involved in. Since the students were only classified as involved or not involved in extracurricular activities, the involved students had equal chances of being involved with sports teams, fine arts groups, or other clubs. The selection process was begun by separating the class into two groups. The first group was the 259 students who met the extracurricular criteria, and the second group was the 224 students who did not meet the extracurricular criteria. Using an Excel spreadsheet, the student data was separated into two alphabetized sets, one of involved students and the other of uninvolved students. For reasons of confidentiality, names were omitted from the study. In the place of names numbers were assigned to each student in both groups. The Excel program was then used to randomly select 20 numbers from each of the two data sets. The result of this random selection is listed in Table #1.

Table 1

Randomly selected students Grade Point Averages

Involved Students			Not Involved Students							
Number	GPA		Number	GPA						
199	3		90	3.102						
48	3.333		169	2.681						
143	3.979		208	3.531						
171	3.25		173	2.696						
35	3.553		83	2.896						
118	3.936		217	3.5						
114	3.851		40	3.25						
175	2.469		102	3.106						
29	2.204		149	1.961						
37	3.809		163	2.146						
17	3.959		82	3.067						
233	2.378		24	2.66						
138	3.872		63	2.787						
164	3.875		157	2.809						
111	3.688		175	2.596						
15	3.438		189	2.388						
205	2.347		47	2.563						
112	3.646		115	2.936						
66	3.222		71	3.826						
26	3.479		163	2.854						

Given the premise that students who are involved in extracurricular activities derive no academic value from their participation, the statistical analysis of their academic performance should not be different than the academic performance of students not involved in extra curricular activities. Therefore, a causal comparative study was conducted as a means to demonstrate a causal link between the independent and dependent variables. If an F-ratio is found to be statistically significant, the researcher is able to infer a causal link between the two variables. The two variables for this study were the participation in activities, which is the independent variable, and the student grade point average, which is the dependent variable.

The null hypothesis would be that there should be no significant difference between the grade point averages of students, whether they were involved in extra curricular activities or not. The alternate hypothesis claimed was that by using grade point averages as a comparison, students involved in activities will be found to have higher averages than students who are not involved in activities.

An F- Test is the anthology test to determine if there is evidence to suggest that there is a statistically significant variance between the two data sets. Figure #1 shows the F- test P value of 0.13427 is greater than .05 and indicates that there is not a statistical difference between the variances of the two sets of data. This evidence demonstrates a link between the independent and dependent variables.

Having found equal variances from the F- Test, a two sample T- Test was conducted to interpret the means of the data sets in order to examine the previously stated null hypothesis ($\mu_{act} = \mu_{nonact}$). The T-test result contains a P value of 0.00489. That P value is less than .05 and requires the null hypothesis to be rejected, as the researcher could only conclude that the variance between the means is greater than sampling error. Therefore, the statistical analysis of the data does support the claim ($\mu_{act} > \mu_{nonact}$) that students who are involved with extracurricular activities do perform at a higher level of academic achievement then students who are not involved with extracurricular activities.

F-Test Two-Sample for Variances		
	Variable 1	*Variable 2*
Mean	3.3644	2.86775
Variance	0.34592	0.206236
Observations	20	20
Df	19	19
F	1.6773	
P(F<=f) one-tail	0.13427	
F Critical one-tail	2.16825	

Figure 1 F-Test Two-Sample for Variances

t-Test: Two-Sample Assuming Equal Variances		
	Variable 1	*Variable 2*
Mean	3.3644	2.86775
Variance	0.34592	0.206236
Observations	20	20
Pooled Variance	0.27608	
Hypothesized Mean Difference	0	
Df	38	
t Stat	2.98906	
P(T<=t) one-tail	0.00244	
t Critical one-tail	1.68595	
P(T<=t) two-tail	0.00489	
t Critical two-tail	2.02439	

Figure 2 T-Test: Two-sample assuming equal variances

This study clearly supports the claim that involvement in extracurricular activities will lead to higher GPA's for students. Despite its limitations, this study adds to the literature documenting the importance of involvement in extracurricular activity for adolescents. School activity participation is associated with a wide range of benefits, and this study further indicates that there is an academic advantage derived by students who participate in extracurricular activities.

The belief that activities such as sports and performing groups support the academic missions of schools, are co-educational, and are predictors to success in later life is held by the sponsors of these types of activities. While it is unclear how these activities make an impact on student achievement, it is clear that in the end involvement in extracurricular activities does improve student achievement. That claim is evidenced through this study, and many others, that use a variety of measurements to determine improvements in student achievement.

Bibliography

Holloway, J. H. (1999, December). Extracurricular Activities: The Path to Academic Success?. Educational Leadership, 57(4), pages 42 to 45.