THE IMPACT OF MEMBERSHIP IN CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSO’S) UPON STUDENT ACHIEVEMENT

By

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ABSTRACT

The purpose of this study was to determine the impact of student membership in Career and Technical Student Organizations (CTSO) upon their achievement in high school. For the purpose of this study, data concerning student achievement was studied. A t-test analysis was conducted concerning the factors of Career and Technical Education (CTE) class student grades, overall GPA, and discipline issues for members and non members of CTSO’s at Hillyard Technical Center. The t-test results indicated that there is a significant difference between members and non-members in CTE class grades and overall GPA. There is not a significant difference in member and non-member discipline occurrences. Based on the literature review, a student being involved at the high school level is crucial to their achievement during these years. Studies also show that membership in secondary level CTSO’s impact students into their post high school life. It is recommended that all schools at the secondary level continue to find and expand ways for involving students in extracurricular activities especially those that such as CTSO’s that incorporate employability skills.
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INTRODUCTION TO THE STUDY

Background

Student achievement is an issue affecting all parties: students, schools, families, and communities. If students want to be successful beyond the high school realm, they must demonstrate their ability to be successful in high school. Students come into school with all types of varying backgrounds. The most prevalent being culture, ethnicity, socioeconomic status, gender, and other household characteristics. These differences have an impact on a student’s achievement in secondary education. Since students come into education with varying backgrounds, it is essential that the school attempt to make all students more equal. Allowing students the opportunity to be involved in extracurricular activities and become highly engaged in their education helps to create a better sense of equality in diverse student populations.

There are many obstacles to student participation in extracurricular activities: school funds, work, family needs etc. There is currently little research to support the claims of how Career and Technical Student Organizations benefit their members. While there are adequate amounts of research relating to student engagement and how this correlates to student achievement, constant financial stresses on school districts have diminished the amount of activities that are available to students. Once student engagement has been determined to
influence higher levels of achievement, it must also be determined that extracurricular activities are necessary for student engagement.

**Practice under investigation**

The practice under investigation is the membership of students in Career and Technical Student Organizations affecting student outcomes and achievement.

**Conceptual Underpinning**

Every school needs to focus on student achievement and strive to increase this. So the question remains, how is this best accomplished? In Chickering’s work on student development, he establishes seven vectors of development that allow individuals to function with greater stability and intellectual complexity (Chickering 1969). Of these seven vectors, several can be achieved through membership in Career and Technical Student Organizations. They include: developing competence, developing mature interpersonal relationships, establishing identity, developing purpose and developing integrity. If a member can achieve these through the activities and competitions associated with CTSO’s, then their academic outcomes will also positively be affected.

**Research Questions**

The study was conducted to answer the questions: What are the descriptive statistics for all variables overall and by membership? Does membership make a difference in student outcomes?
Null Hypotheses

The null hypothesis of this study is: Membership in a Career and Technical Student Organization does not make a significant difference in student outcome and achievement.

Anticipated Benefits of Study

The results of this study will inform the school district administrators as to the impact of membership in a Career and Technical Student Organization in secondary education. It will provide administrators with information that can be relayed to students and parents to encourage them to become members of these organizations.

Summary

Through this study I am hoping to find there is a positive impact on student achievement and outcome due to membership in Career and Technical Student Organizations. I hope to find this positive impact upon each of the areas assessed – CTE classroom grade, GPA and discipline issues. This research is in comparison to those students that are not members of Career and Technical Student Organizations.

REVIEW OF LITERATURE

Student achievement has become a “hot topic” in education. Everyone is being judged by student outcomes including students themselves, teachers and school districts. So the question becomes, how does a school increase student achievement? Practice through engaged learning helps to take the “experience and turn it into a learned behavior,” claims Bancino and Zevalkink (2007). This research puts an emphasis on schools to present students with real world scenarios followed by reflection of the individual benefit from the experience. Teachers should encourage
independence on solving problems through engaged learning but also “provide guidance to better handle situation that parallel routine workplace challenges” (Bronson, 2007).

Nerison – Low (1994) suggests high school elective courses allow students real world experience and the freedom to choose among many alternatives to pursue professional interests and develop talents. Career and Technical Education, is the perfect place to relate elective high school courses with workplace preparation. Many CTE areas also include career and technical student organizations (CTSO’s) which assist students to further explore career paths in their field of interest and strengthen personal skills by taking on leadership roles (Reese, 2003). In research completed by Alfeld (2000) it was found that CTSO’s have many beneficial activities such as “skill contests, community service and leadership development to improve the member’s leadership skills, career and technical knowledge and skills, personal characteristics and employability skills.

In a study by Alfed et al. (2000) for the National Research Center for Career and Technical Education, a positive relationship was found between the participation of students in CTSO activities and higher academic motivation, academic engagement grades, career self-efficacy, college aspirations and employability skills. This study additionally found professional development and competitive activities have positive influence on employability skills.

Berns and Erickson (2001) stated that in recent years, a discussion has come about regarding the best way of teaching to attain a higher level of student achievement. Since the report A Nation at Risk (National Commission on Excellence in Education 1983), school reform has been called for to allow for more effective schools as measured by achievement levels of all students. For career and technical educators, this achievement, which is typically measured by
achievement on standardized tests in academic areas such as mathematics, reading and science, has been a challenge. However, the competitiveness of the local and global marketplace along with the advancement of technology has reiterated the need for career and technical education. Along with all of this, the changing educational concepts for how students learn and are engaged has caused career and technical education to revamp the way that CTE subject matter is taught.

Early career and technical education was taught based on theories by David Snedden and Charles Prosser, who believed that the public schools were an extension of the society and should therefore create students who would be productive members of society once they were done with school. Then a change was noted and the learning theory, *behaviorism*, designed by E.L. Thorndike came into view. This theory was based on the link between stimuli and responses through the application of rewards. This theory has served as the basis for learning in Career and Technical Education (Doolittle and Camp 1999). It is evident in performance objectives, criterion-referenced measures, task lists, and predetermined skills demonstrated to industry standards. Another theory that developed around the same time is *constructivism*. This theory is based on the teachings of John Dewey and revolves around the concept that students construct their own knowledge by testing ideas based on prior knowledge and experience, applying these ideas to a new situation, and integrating the new knowledge gained with preexisting intellectual constructs. Constructivism mandates that students must be actively participating in problem solving and critical thinking in regards to authentic learning activities that students find relevant and engaging (Briner 1999). Both theories are used in career and technical education and form into a new theory based on Contextual Teaching and Learning (CTL). A definition of Contextual Teaching and Learning (CTL) emerged from a joint study in 2000. “Contextual Teaching and Learning is a conception of teaching and learning that helps
teachers relate subject matter content to real world situations; and motivates students to make connections between knowledge and its applications to their lives as family members, citizens, and workers and engage in the hard work that learning requires.” Thus, contextual learning allows students to connect the content they are learning in school to their future and in what context that learning should be used. They then find meaning in the learning process. Thus students are engaged. An example would be as follows: a student in a horticulture class watches an expert demonstrate how to plant roses, this is followed by the students planting their own roses with an instructor observing and providing feedback and then the FFA chapter, with members in the horticulture class, plant roses at the local park for a community service project.

Support for CTL includes the theme of Socialization. This theme allows children to learn the standards, values, and knowledge of society by raising questions and accepting challenges to find solutions that are not immediately apparent, along with explaining concepts, justifying their reasoning, and seeking information. These factors play into membership in Career and Technical Student Organizations and their effect on students. It is also the intent of CTL to raise the level of learning so that students can better understand life situations, identify and effectively solve problems, make wise decisions, and think creatively. CTL helps students to take their existing knowledge, past experiences and current situations and conduct various activities in varying contexts to allow for a deeper understanding and retention of competencies for a longer period of time and ability to apply them at appropriate times in the future. Activities and projects sponsored by Career and Technical Student Organizations allow for various attributes of CTL.

“Preparing students with the education and technical skills they will need for successful employment in various careers or professions. Teaching students about all aspects of an industry. Enhancing academics by bringing real world context and application – especially targeted to
workplaces – to education. Teaching students how to apply high-level math, science, technology, and language in workplaces and communities. Preparing high school students for college, should they and their families choose for them to attend. Preparing students with the academic foundation to be life-long learners.” Lynch (2000) cites the previous directions for a career and technical education system in which a seamless flow between school (a student’s present) and work (a student’s future) exists.

In order for this smooth transition to occur, students must learn how to become leaders now so they can continue this focus in their future careers. Career and Technical Education’s focus on leadership development has traditionally started in secondary programs, where leadership skills are advocated as one part of total student development (Cahill and Brady 1999). CTSO’s are a way to provide leadership experiences to students both inside and beyond the classroom. In 1999, there were 10 CTSO’s recognized by the United States Department of Education and those had more than 1.5 million students in 1999 and drew many other students to Career and Technical Education.

Student organizations have been formed to enhance and support learning in many career and technical education fields. These student groups provide opportunities for leadership development, service learning and career exploration. It is expected that membership in these organizations will result in learning and enhanced skills as well as the development of positive values, social skills, and an ability to work independently and collaboratively. (Vaughn, Keith and Lockaby 1999; Williams 2001). A major research study was conducted by Purdue University comparing agricultural education students to the “typical high school student” identified by the Horatio Alger Association (“Communicating the Good News!” 2000). This study showed outcomes of students who participated in the FFA (a CTSO) with about 450,000
members (Stagg and Stuller 1999). Since all CTSO’s have similar goals for their members, this study can be used as a basis for identifying four outcome areas: scholarship, motivation, professional development, and citizenship.

Key findings of this study include that students who were members of the FFA were more motivated about and attached greater value to academics than those that are not members. Members were also more engaged in other school activities, equated personal effort to success, and were more likely to pursue post-secondary studies (Reese 2001). Along with this, 83% of members considered their agricultural education classes to be exciting, interesting and challenging as compared to 32% of non-members. Members are also more likely to believe that the amount of work they do in school directly relates to their success in later life and therefore it is important to do their best in all areas of academics (Reese, 2001). 89% of members believe that they will have success in their chosen career field (Reese, 2001). In these numbers, the students are had more specific career goals and were more likely to work in high school.

Through membership in CTSO’s and participating in national conferences and competitions, students gain invaluable professional experience. These activities give members an opportunity to apply their skills in the area of communication, leadership and networking skills.

It has been shown that members of CTSO’s are more actively involved in their community. 90% of FFA members participate in school and community activities (Reese, 2001). According to Leventhal, 1999, students involved with student organizations were more likely to be involved in community affairs and organizations, school organizations and church. All of this research shows the contribution of CTSO’s to the member as an entire person. According to
Brown, (2002) “Young people have a variety of needs that must be met if they are to become mature, responsible, caring and informed individuals. CTSO’s provide a variety of opportunities that will help students in these areas.” “Career and Technical Education can benefit students directly by providing advantages before and after graduation. It can benefit them indirectly by increasing engagement, retention, and persistence and by directing them to post-secondary education and pursuit of lifelong learning (Brown, 2003).”

Being a member of a CTSO has tremendous on the student both during and after high school. It not only effects their achievement during secondary education but allows them to become a stronger citizen after their education.

RESEARCH METHODOLOGY

Research Design

Because the participants in the study were minors, permission was obtained from the Superintendent of the district to use the data. All data collected was analyzed using A Statistical Package software. A t-test was used to determine the significance at the 0.10 P value to challenge the null hypothesis. This study will compare two groups of student outcomes related to overall GPA, CTE class grade and discipline issues during their tenure at Hillyard Technical Center.

Independent variable

The independent variable in this study is membership in a Career and Technical Student Organization.
Dependent Variable

The dependent variable in this study is a student’s outcomes and achievements.

Study Group

CTE class grade, overall GPA and discipline issues will be investigated and compared among students at Hillyard Technical Center who are and are not members of Career and Technical Student Organizations. The study consisted of 1349 students, 484 female students and 865 male students. Student outcomes were collected from three consecutive school years: 2009-2010, 2010-2011, 2011-2012. All students were in high school during the years the data was collected.

Data Collection and Instrumentation

Data was collected through the school information system that is used within the St. Joseph School District, PowerSchool. This data is archived and was accessed by the secretary at Hillyard Technical Center.

Data Analysis Methods

A t-test was conducted using ASP software. The software computed the mean for both sets of students (those members and nonmembers), the mean difference among the two groups, and the probability value. This process was repeated for each of the three student outcomes (CTE classroom grade, overall GPA, and discipline issues).
FINDINGS AND RESULTS FROM DATA ANALYSIS

The following tables represent the analysis from the data gathered comparing members of CTSO’s with non-members. Table 1 represents the t-Test results from discipline issues of members and non-members. Table 2 signifies the results from the t-Test comparing GPA’s of members and non-members. Table 3 represents the results of the t-Test of CTE classroom grades of members and non-members.

Table 1

*t-Test Analysis Results Between CTSO Members Discipline Issues and Non-Member Discipline Issues*

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean D</th>
<th>t-Test</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member</td>
<td>1.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Member</td>
<td>3.22</td>
<td>-1.26</td>
<td>-1.61</td>
<td>46</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Note: Significant when $p = < 0.10$

Table 2

*t-Test Analysis Results Between CTSO Members GPA and Non-Member GPA*

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean D</th>
<th>t-Test</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member</td>
<td>2.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Member</td>
<td>2.43</td>
<td>0.35</td>
<td>4.38</td>
<td>318</td>
<td>0.0000161</td>
</tr>
</tbody>
</table>

Note: Significant when $p = < 0.10$
Table 3

*t-Test Analysis Results Between CTSO Members Grade in Class and Non-Member Grade in Class*

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean $D$</th>
<th>$t$-Test</th>
<th>$df$</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member</td>
<td>3.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Member</td>
<td>3</td>
<td>0.194286</td>
<td>1.81984</td>
<td>319</td>
<td>0.0697</td>
</tr>
</tbody>
</table>

Note: Significant when $p = < 0.10$

As you can see in the above tables, in Table 1, the results from the t-Test of discipline issues; $t$-Test $= -1.61$, a $p$ Value of 0.11, and Mean $D$ of -1.26 concludes that there is not a significant difference in the number of discipline issues of CTSO members and non-members. In Table 2, the results of the t-Test of GPA comparing members and non-members; $t$-Test $= 4.38$, $p$ Value of 0.0000161 and a Mean $D$ of 0.35 concludes that there is a significant difference between the members and non-members GPA with the members being higher. Finally in Table 3, the results are displayed from the t-Test of CTE class grades between members and non-members. This table shows $t$-Test $= 1.81984$, $p$ Value of 0.0697 and Mean $D$ of 0.194286. This also shows a significant difference between members CTE class grade and non-members CTE class grade. Therefore, the null hypothesis was confirmed in the area of discipline issues but was rejected in the areas of CTE class grades and overall GPA.
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Through analysis of the t-test results, it has been concluded that discipline issues is not significantly impacted by membership in a CTSO. However, a student’s CTE class grade and overall GPA is greatly affected by membership in a CTSO. Therefore it can be concluded that membership in a CTSO has a positive effect on student outcomes.

There were limitations to this study. First was that this data set only contained information regarding Hillyard Technical Students. For a more accurate study in the future, all CTSO members and non-members in the St. Joseph School District should be used. Another limitation was that there was a large number of members, however, are they active enough in their membership to be of advantage to them in the outcomes. A future study might include an indicator for active membership and compare active members, non-active members, and non-members.

Policy Recommendations

Through the findings of this research, it is recommended that all school districts provide and encourage membership in extracurricular activities (especially Career and Technical Student Organizations) to increase student achievement.
REFERENCES


Moss, J., Jr., and Jensrud, Q. "Gender, Leadership, and Vocational Education." Journal of Industrial Teacher Education 33, no. 1 (Fall 1995): 6-23.


