

Spring 2019

Participation in Extracurricular Activities and Academic Achievement: A Comprehensive Review

Erin Morris,

Western Kentucky University, erin.morris911@topper.wku.edu

Follow this and additional works at: <https://digitalcommons.wku.edu/theses>

Part of the [Developmental Psychology Commons](#), [School Psychology Commons](#), and the [Secondary Education Commons](#)

Recommended Citation

Morris,, Erin, "Participation in Extracurricular Activities and Academic Achievement: A Comprehensive Review" (2019). *Masters Theses & Specialist Projects*. Paper 3097.
<https://digitalcommons.wku.edu/theses/3097>

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact topscholar@wku.edu.

PARTICIPATION IN EXTRACURRICULAR ACTIVITIES AND ACADEMIC
ACHIEVEMENT: A COMPREHENSIVE REVIEW

A Specialist Project
Presented to
The Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

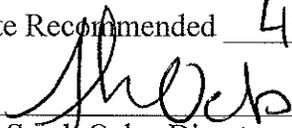
In Partial Fulfillment
Of the Requirements for the Degree
Specialist in Education

By
Erin Morris

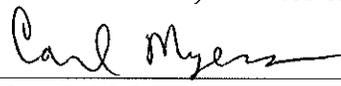
May 2019

PARTICIPATION IN EXTRACURRICULAR ACTIVITIES AND ACADEMIC
ACHIEVEMENT: A COMPREHENSIVE REVIEW

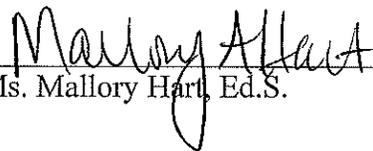
Date Recommended 4-17-19



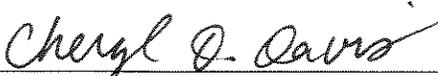
Dr. Sarah Ochs, Director of Specialist Project



Dr. Carl Myers



Ms. Mallory Hart, Ed.S.

 4/23/19

Dean, The Graduate School Date

ACKNOWLEDGMENTS

I would like to thank Dr. Sarah Ochs, Dr. Carl Myers, and Mrs. Mallory Hart for being on my Specialist Project committee and for providing fruitful feedback and discussion about my project. I am eternally grateful for my chair, Dr. Sarah Ochs, for her guidance, patience, and commitment to this project. I would also like to thank my husband, Byron Morris, and my family for their neverending support throughout this project and graduate school.

TABLE OF CONTENTS

Introduction	1
Statement of the Problem	4
Purpose of the Study.....	5
Method.....	6
Results	8
Discussion	28
References	32

LIST OF FIGURES

Figure 1. PRISMA consort diagram.....	7
---------------------------------------	---

LIST OF TABLES

Table 1. Summary of Findings 26

PARTICIPATION IN EXTRACURRICULAR ACTIVITIES AND ACADEMIC
ACHIEVEMENT: A COMPREHENSIVE REVIEW

Erin Morris

May 2019

36 Pages

Directed by: Dr. Sarah Ochs, Dr. Carl Myers, Ms. Mallory Hart

Department of Psychology

Western Kentucky University

At school, students are provided numerous opportunities to use their skills and abilities to complete tasks or solve problems. Students are considered to have academic success when they meet specific criteria on outcomes such as grade point averages (GPA), scores on standardized tests, and skill acquisition across areas like reading and math. Given the importance of academic achievement (AA) as an outcome measure, researchers have attempted to study certain variables that may relate to or predict AA. Extracurricular activities (EAs) are defined as school-sanctioned activities that students can participate in outside of the traditional school day. Participation in EAs has been associated with several benefits to students, including higher AA, noncognitive skills, and transferable skills. A comprehensive review was conducted to examine the literature on EA participation and academic performance as measured by various AA variables including the American College Test (ACT), Scholastic Aptitude Test (SAT), and GPA. Results of the study indicated that students participating in EAs, regardless of type, benefited academically compared to non-participants. AA declined for students who participated in more than two EAs. However, this project should not take the place of well controlled, empirical studies. Implications of these findings and future directions are discussed.

Introduction

Most would agree that a primary role of schools is to teach academic skills to students. In academic settings, students are continuously given tasks and situations which utilize their abilities and intelligence (Urda & Midgley, 2001). Students are considered to have academic success when they meet specific criteria set by schools and state guidelines on tasks of academic performance in areas such as reading or mathematics. Measures of performance may include grade point average (GPA), scores on standardized tests, and evidence of skill acquisition. Cumulative or comprehensive academic achievement (AA) is commonly measured by yearly state-required assessments, the Scholastic Aptitude Test (SAT), or American College Test (ACT) (Qiu & Wu, 2011).

Academic Achievement Outcome Measures

Dickinson and Adelson (2016) measured the content validity of the required state assessment, the ACT test, and student GPA using a multitrait-multimethod (MTMM) approach. Although state assessments and the ACT test measured student achievement, state assessments were linked to a specific course curriculum or instructional sequence, whereas the ACT test was a broad measure of cumulative prior knowledge across all academic years and areas. Performance on the ACT and state assessments were found to have a stronger achievement construct than GPA, meaning that data obtained from these measures were better able to identify gifted students and predict future academic outcomes (Dickinson & Adelson, 2016).

Koretz et al. (2016) predicted freshman GPA (FGPA) in college using high school GPA (HSGPA), SAT and ACT scores, and high school tests in mathematics and

English. Participant data included students who graduated from New York and Kentucky school systems in 2010, who completed the SAT and ACT respectively, and who entered their first year of college in 2011. HSGPA was found to have a strong positive relationship with FGPA (Pearson's $r = .50$) for both the New York and Kentucky school systems. Similarly, HSGPA was found to be the strongest predictor of FGPA for both New York ($R^2 = .25, p < .001$) and Kentucky systems ($R^2 = .32, p < .001$) compared to state assessments and the ACT/SAT tests. In the New York sample, a significant predictive relationship was found between HSGPA and SAT scores ($R^2 = .28, p < .001$) as well as between HSGPA and state assessment scores ($R^2 = .27, p < .001$). Similarly, a significant relationship was found between HSGPA and ACT scores ($R^2 = .34, p < .001$) and between HSGPA and state assessment scores ($R^2 = .33, p < .001$) in Kentucky. Results of this study indicated that performance on various high school achievement measures predicted freshman GPA, even across states.

As important measures of academic achievement, students' ACT and SAT scores are often considered when applying for college. The ACT and SAT are standardized tests that measure broad academic knowledge and college readiness ("ACT," n.d.; "SAT," n.d.), and to assess school performance (Qiu & Wu, 2011). Marsh, Vandehey, and Diekhoff (2008) compared ACT scores, SAT scores, and cumulative GPA for 271 first and second year undergraduate students at a small public university (approximately 6000 students). All students completed a General Psychology course and a self-report demographic survey. Their ACT scores, SAT scores, and General Psychology course exams were recorded, then compared to their cumulative GPA three semesters after the course. Results of this study indicated positive correlations between ACT scores and

GPA ($r = 0.43, p < .01$) as well as SAT scores and GPA ($r = 0.44, p < .01$). Both ACT and SAT scores were found to be predictors of GPA for first and second year undergraduate students, and an even stronger predictor when combined with performance on the first two General Psychology course exams (Marsh et al., 2008).

One way we analyze AA is by examining differences in student groups (e.g., native and non-native English speakers or by ethnicity categories). Achievement gaps are observed when the academic performance of a given student group is substantially lower than other matched student groups (Kentucky Department of Education, 2018). Common groups identified include racial and ethnic minority students, English learners, students with disabilities, and economically disadvantaged students. Prior efforts to address achievement gaps include the implementation of the No Child Left Behind (NCLB, 2001) Act (since replaced by the Every Student Succeeds Act) and the introduction of accountability. While gap students have progressed in reading and math, minimal progress has been made towards closing achievement gaps (Legislative Research Committee, 2016). There is a need to explore options outside of the classroom that minimize achievement gaps and increase AA for all students at the school level. One avenue that has been explored is participation in extracurricular activities.

Academic Achievement and Extra-Curricular Participation

Given the importance of AA as an outcome measure, researchers have attempted to study certain variables that may relate to or predict AA. Some variables include classroom behavior (Covay & Carbonaro, 2010), physical activity (Alvarez-Bueno et al., 2017; Yeung, 2015), socioeconomic factors (Marchetti, Wilson, & Dunham, 2016), and self-concept and academic self-concept (Abruzzo, Lenis, Romero, Maser, & Morote,

2016). Much research has also been conducted examining AA and extracurricular activities. Extracurricular activities (EAs) are school-sanctioned activities that students can participate in outside of the regular school day. Some examples include sports, fine arts programs, clubs, and religious organizations. Participation in EAs has been associated with several benefits to students, including higher AA (Barber, Eccles, & Stone, 2001 as cited by Viau & Poulin, 2015). While there are a variety of studies exploring the concepts of AA and EAs, there are very few that specifically focus on the effects that EA participation has on AA. For example, Alvarez-Bueno et al. (2017) completed a meta-analysis focusing on the effects of physical activity in general on AA, but other forms of EAs were not explored (e.g., academic-based EAs, clubs, etc.). Viau and Poulin (2015) examined how EA participation affected numerous variables, including AA, but the study was not conducted with American students and academic clubs were not included. Additionally, Bradley and Conway (2016) explored the skills learned from EAs and how they promote learning and AA. However, EAs were broadly divided into two categories (sport and non-sport), and there may be significantly different AA outcomes between EAs within those categories. For example, students participating in an academic-based club may have higher GPA compared to students who are in a religious-based club, but both were sorted into the non-sport activity category.

Statement of the Problem

AA is an important outcome in schools and may drive availability of funding. Schools across the nation are facing the challenge of increasing AA with fewer and fewer available resources. Substantial cuts in funding may negatively impact public

school education, especially instructional materials and trainings, adequate staffing, and appropriate amounts of instructional time. However, one possible way to increase AA is through opportunities to participate in EAs. Prior studies have identified participation in EAs as beneficial for adolescent development (Feldman & Matjasko, 2005; Viau & Poulin, 2015), developing transferable skills and/or translatable skills (Bradley & Conway, 2016; Covay & Carbonaro, 2010; Wood, Little, Goldring, & Jenkins, 2011), and improving academic performance (Abruzzo et al., 2016; Alvarez-Bueno et al., 2017; Chan, 2016; Marchetti et al., 2016; Yeung, 2015). Seow and Pan (2014) highlighted the importance of examining participation in EAs and academic achievement. They conducted a literature search in the general education journals and developed three theoretical frameworks for explaining results. While an important step in the literature, no comprehensive review of studies or results were included.

Purpose of the Study

This purpose of this project was to undertake a comprehensive review and synthesis of the literature on the relationship among participation in EAs and AA. Completing this review benefited the author by advancing her knowledge as a practicing school psychologist of the positive impacts that EA participation has on AA as well as how it applies to schools.

Method

Procedures

In order to complete this study, a comprehensive literature review was conducted to organize and summarize the effects of EA participation on AA. In this study, a broad computerized search of the literature was completed. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) consort diagram (Moher, Liberati, Tetzlaff, & Altman, 2009) was utilized to make intentional decisions about inclusionary and exclusionary criteria (Figure 1). The following search terms or combinations of search terms were used: “extracurricular activities”, “American College Test”, “ACT”, “Scholastic Aptitude Test”, “SAT”, “grade point average”, and “GPA.” Full-text articles, dissertations, thesis projects, and peer-reviewed journals from 2000 to 2018 were reviewed from the American Search Premier, ProQuest, PsycARTICLES, PsycINFO, and Web of Science databases. These databases were recommended by the librarian scientist because they provided a narrower search of the results. The initial search identified 106 records. After removing duplicates, 68 records were screened. Upon initial screening, a total of 37 records were excluded because they did not measure the variables of interest (20), only measured one variable of interest (10), or were studies conducted in countries outside of the United States of America (7). After screening 31 abstracts, 16 records were excluded due to the lack of direct measurement between EA participation and AA. A total of 15 records were reviewed in this project. Based on an initial search of the literature, results were organized into three categories of studies based on extracurricular participation: examining multiple types of extracurricular

activities, academic-specific or specialized extracurricular activities, and after-school employment or work-related activities.

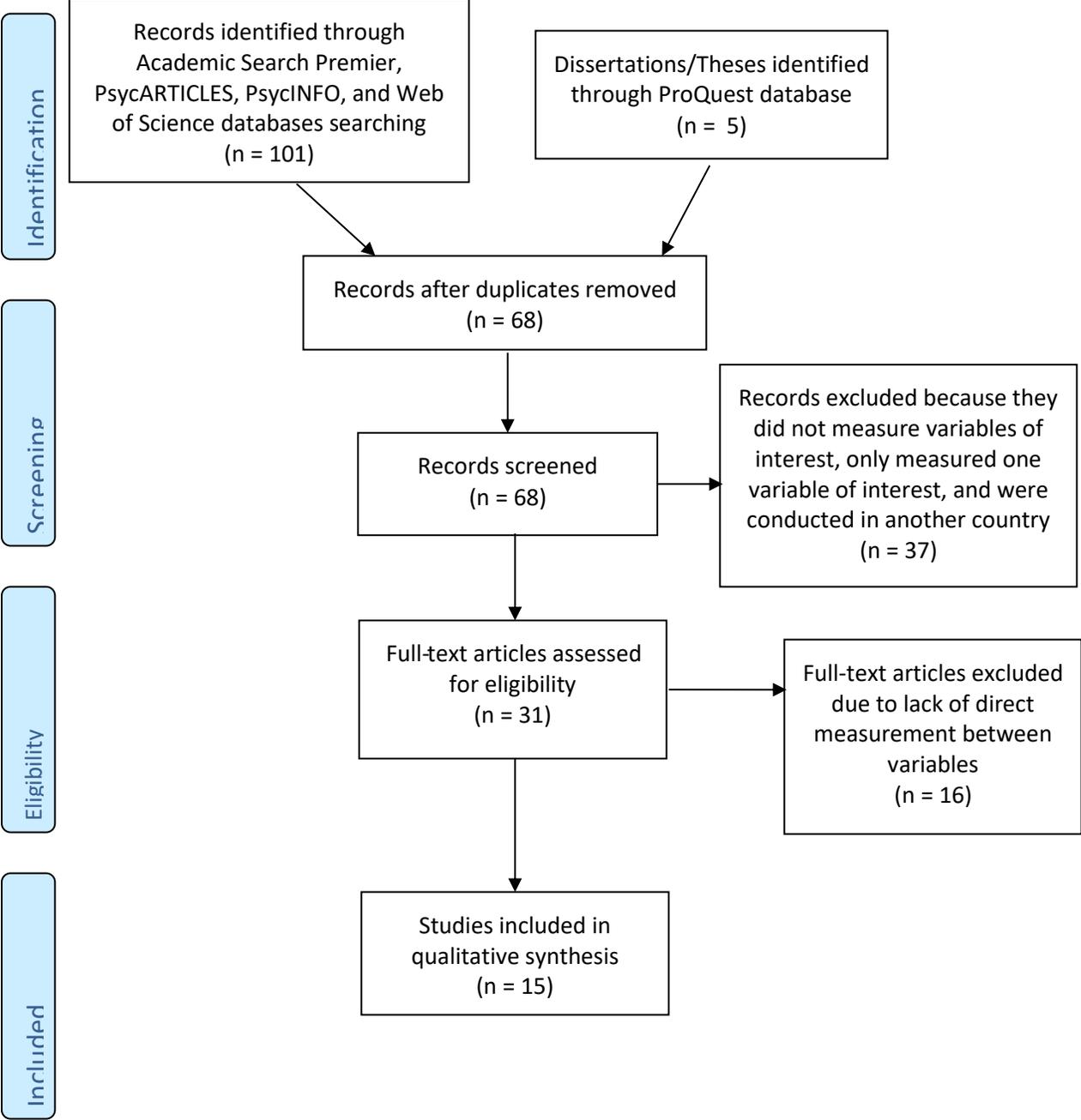


Figure 1. PRISMA consort diagram (Moher et al., 2009).

Results

Examining Multiple Types of Extracurricular Activities

Nine studies were located that examined participation among multiple types of EAs. Schwartz, Cappella, and Seidman (2015) examined the relationships between participation in EAs, types of participation, the breadth of participation, and AA. Data from a four-wave longitudinal study of low-income urban youth were used to derive the sample for this study, specifically waves 1-3 of the Adolescent Pathways Project (APP) early adolescent cohort (Siedman, 1991 as cited in Schwartz et al., 2015). A total of 625 fifth and sixth grade students with documentation of EA participation from the New York City subsample of the APP were included. EA participation was measured for school (tutoring or counseling, fundraising, arts, school clubs, student government, school publications, etc.), community (neighborhood involvement, community youth organizations), religious (youth group, participating in services, etc.), and athletic (sports) settings. Frequency of participation in school, community, and religious settings were rated on a six-point scale (0 = Never to Almost Never to 5 = Almost Every Day), while frequency of participation in athletic settings was rated on a five-point scale (1 = Once a Month or Less to 5 = Almost Every Day). AA was measured using self-reported GPA.

Results indicated that students had significantly higher GPA when involved in community-based ($\beta = .140, p < .01$) and athletic-based EAs ($\beta = .075, p < .05$). Students participating in religious-based EAs had significantly lower GPA ($\beta = -.099, p < .01$) and those involved in school-based EAs had no significant effect on GPA ($p = .806$). There was no significant effect of time on GPA variance, indicating that

decreasing GPA over the transition to middle school was attributed to race/ethnicity of the student, family structure, and family employment status. However, school attended and classroom engagement were largely associated with GPA ($\beta = .356, p < .01$), which accounted for some of the variance in student data and school fixed effects. Students involved in two or more EAs were not found to have significantly higher GPA ($p = .075$), but students involved in three or more EAs had significantly lower GPA ($\beta = -.198, p = .054$). There were some limitations to this study. Participant data were used from an older study in order to accommodate the needs of the study. Additionally, GPA was provided via student self-report. This limited the credibility of the results, indicating a need for a current student population and a more reliable measure of GPA.

Camacho and Fuligni (2015) studied the relationships between EA involvement and AA among immigrant high school students. Specifically, whether participation in EAs predicted AA, and whether generational status modified associations with EA participation and academic outcomes. Eleventh grade students from three high schools in Los Angeles ($N = 468$) completed questionnaires. Overall, 20% of the students were first generation, 52.4% were second generation, and 22.6% were third generation or greater. EA participation was coded into five categories: sports, service (community service club or organization), arts (e.g., dance, theatre, music, etc.), academics (e.g., academics and school publication), and other (e.g., social, ethnic/religious, and other). AA was measured using 10th and 11th grade GPA. Grades were coded (F=1, D=2, C=3, B and A = 4), and then averaged for a composite GPA.

Results of the study indicated that 11th grade EA participation was associated with significantly higher GPA ($\beta = .75, p < .001$). Sports were found to be positively

associated with GPA ($\beta = .06, p = .044$). There was no significant relationship between breadth of EA involvement and GPA. A significant difference was found between participation in any EA and GPA for first and third generational students ($\beta = .20, p < .01$). First generation students who participated in academic EAs had higher GPAs ($M = 3.62$) than first generation students who did not participate ($M = 2.74$). Similarly, third generation students who participated in academic EAs also had higher GPAs ($M = 3.34$) than third generation students who did not participate ($M = 2.83$). However, the difference between first generation students' participation versus non-participation was significantly greater than that of third generation students. First and third generation students were found to have differences in GPA when they participated in a wider variety of activities ($\beta = .16, p = .002$). First generation students who participated in a greater breadth of EAs achieved higher GPAs ($b = .15, p < .001$). Generational status did not modify previously reported non-significant curvilinear associations with GPA. The results of this study supported the notion that EA participation predicted and positively correlated with GPA. However, there were several variables that were not considered, such as family socioeconomic status or differences among immigrant students versus students born in America. Excluding these variables limited the generalizability of the results to the majority of American students.

Wolniak, Wells, Engberg, and Manly (2016) studied the relationships between college enhancement strategies and 4-year college enrollment, the differences between students with varying socioeconomic statuses, and to what extent those relationships and socioeconomic differences have changed between the 1990s and the 2000s. The 12th grade cohorts from the National Educational Longitudinal Study (NELS: 88/94) and the

Educational Longitudinal Study (ELS: 2002/06) were used as participant data. Data from the Barron's Admissions Competitiveness Index were analyzed to obtain information on the selectivity of colleges for the years NELS and ELS students were entering higher education. Student data were included for those who enrolled in a 4-year public or private non-profit institution within 2 years of each cohort's typical high school graduation year. Selectivity was determined by whether a student applied or enrolled at an institution labeled as "most" or "highly" selective in the Barron's Admissions Competitiveness Index dataset. College enhancement strategies were defined as whether or not a student took or planned to take an Advanced Placement (AP) exam, prepared for the SAT through a preparatory course or a tutor, used SAT preparatory self-study materials such as books or computer programs, held a leadership role in EAs, and reported any volunteering activity. The number of possible enhancement strategies was also considered. Socioeconomic status (SES) data were derived from parental income, parental educational attainment, and parental occupation and divided into four quartiles – low, mid-low, mid-high, and high SES.

Results from the study indicated that there were significant differences in SES when using college enhancement strategies. Specifically, the magnitude of high SES students that used AP exams, SAT prep instruction, volunteerism, and EA leadership activities was significantly greater than that of low SES students. Among the high SES quartile, use of the college enhancement strategies was most often greater than the other three quartiles for both cohorts. However, EA leadership significantly decreased across cohorts for the highest SES students who applied to selective institutions. From the 1992 cohort, students enrolled in SAT preparatory courses or tutoring were significantly

related to the likelihood of enrolling in a 4-year college (1992 Cohort: OR 1.388; $p < 0.01$). For the 2004 cohort, students who completed or planned to complete an AP exam (2004 Cohort: OR 1.506, $p < 0.001$) and participated in EA leadership (2004 Cohort: OR 1.421, $p < 0.001$) significantly increased their odds of enrolling by approximately 1.5 times compared to those students who did not participate in the activity. While this study provided evidence that EA participation significantly increased students' odds to enroll in a 4-year college or selective college, the sample was limited to students from the 2004 cohort who only participated in a leadership role. Additionally, EA participation was not directly measured as a variable that affected enrollment in 4-year or selective institutions.

Knifsend and Graham (2012) investigated the relationships between the total number of activity domains in which 11th grade students ($N = 864$) participated and their sense of belonging at school, academic engagement, and school records of GPA over one year. Students were recruited from 11 urban, ethnically diverse Title I middle schools as part of a larger longitudinal study of social adjustment. Students were asked to complete a written questionnaire in the spring of 11th grade and spring of 12th grade. EA participation was divided into four domains at school – academic/leadership groups, arts activities, clubs, and sports. AA was measured by school records of GPA during spring of 11th grade and spring of 12th grade. Student grades were coded on a five-point scale (0 = F to 4 = A) and averaged to create an index of GPA.

Results of the study indicated a curvilinear relationship between the number of activity domains and GPA. Eleventh grade GPA was greatest at two activity domains and was lower for students involved in three or four domains. These results suggested

that two activity domains may be the threshold at which students have the time and energy to complete their coursework while simultaneously developing positive skills that promote AA. EA participation was found to be beneficial to an extent, but may be the most beneficial if a student is moderately involved. No relationship was found between breadth of EA participation in 11th grade ($\beta_{11\text{th}} = -.08, p < 0.05$) and GPA in 12th grade ($\beta_{12\text{th}} = -.03$). Limitations of the study included limited data to further explore relationships between EA participation and GPA, such as a relationship between the activity domains and GPA. There was no evidence that specific types of EAs were more beneficial towards AA than others. Additionally, time spent in each activity was not explored. Student GPA may be mediated by the amount of time spent participating in EAs per week.

Marchetti et al. (2016) explored the relationships between employment, EA participation, and family structure of students from low socioeconomic (SES) families that achieved state-approved benchmarks on the ACT. A total of 211 12th grade students participated in the study. Participants completed the ACT during 11th grade as well as a survey which assessed sociological variables (e.g., who the student lived with, student and parent employment, parent education, SES), EA participation, and college and career readiness as defined by state-approved ACT benchmarks. Types of EAs were not coded. SES was measured by eligibility of free and reduced lunch. AA was measured by ACT performance in math and reading. Results of the study indicated that students who met the ACT benchmarks in reading ($p = .05$) or math ($\chi^2 = 8.21, df = 1, p = .004$) were more likely to participate in EAs. There was no significant relationship between student after-school employment and meeting ACT benchmarks in math ($p = .914$) or

reading ($p = .790$). There were several limitations to this study. Data were limited for EA participation. Students only identified if they participated in EAs, so no correlational analysis was completed between types of EAs and performance on the ACT. Additionally, mediating effects of SES on EA participation and meeting ACT benchmarks were not explored due to a lack of data.

Dearman (2017) studied the relationship between the average time spent participating in EAs per week and AA. Time spent in competitive versus non-competitive EAs was also compared to AA. A total of 136 11th grade students from a participating Illinois high school were included in the study. EA participation data were collected from the school's athletic director at beginning, middle, and end of the students' 11th grade year. EAs were separated into two categories, competitive (sports and scholastic bowl) and non-competitive (arts and clubs). It should be noted that scholastic bowl participants were originally sorted into the competitive activity category, but were analyzed under the non-competitive activity category. This potentially created an error in the data reported. The total number of hours spent per activity was divided evenly among the typical 42-week school calendar. AA was measured using students' GPA and ACT composite scores provided by the school administration. GPA was measured using a 4-point scale (1 = D, 4 = A). Accelerated classes used a weighted GPA of 5.0 on the 4.0 scale.

Results of the study included four groups: competitive activities ($n = 24$), non-competitive activities ($n = 61$), 36 students participated in both, and 15 students did not participate in any activity. There was a moderately strong, positive relationship between GPA and hours of participation per week ($r = .564, p < .0005$), with number of hours

explaining 31.8% of the variance (r^2) in overall GPA. There was also a moderately strong positive relationship between ACT composite scores and hours of participation per week (Pearson's $r = .545$, $p < .0005$), with number of hours explaining 29.7% of the variance (r^2) in ACT composite scores. Students in both groups achieved the highest mean GPA compared to students in competitive activities ($p = .000$), non-competitive activities ($p = .005$), and neither ($p = .000$). Conversely, students who participated in no activities achieved the lowest mean GPA compared to those who participated in non-competitive ($p = .000$) or both types ($p = .000$). Students who participated in both achieved the highest mean ACT score compared to those who only participated in competitive activities ($p = .000$), only non-competitive activities ($p = .015$), and no activities at all ($p = .000$). Those not participating in activities achieved the lowest mean ACT composite score compared to those who participated in non-competitive activities ($p = .004$) and both types ($p = .000$). There was no significant difference between those who participated in competitive activities and those who did not participate in any. There were several limitations to this study. The sample consisted of primarily Caucasian female students of an above-average SES, which compromised the generalizability of the findings. Another limitation was the measurement of GPA throughout students' 11th grade year. This limited the magnitude of change in GPA in students who participated in EAs for several years prior to data collection versus first-year participants.

Watkins (2004) investigated gender differences in the relationship between EA participation on mean GPA. Data were collected from students in a rural high school in Georgia from 9th-12th grades during 1997-2002 ($N = 3,274$). EA involvement was divided into four categories: co-curricular activities (arts, student council, and vocational

clubs), interscholastic athletics (sports), both co-curricular and interscholastic athletics, and no EAs. AA was measured by GPA on a 4-point scale (0 = F to 4 = A).

Results of the study indicated that EA participation had a positive relationship on mean GPA for both male ($F_{3,1619} = 86.85, p < .001$) and female students ($F_{3,1647} = 96.02, p < .001$). For both male and female students, mean GPA was significantly higher for students who participated in all forms of EAs versus non-participants. There was no significant relationship between female students who participated in interscholastic athletics versus female students who participated in co-curricular activities (mean difference = .10, $p = .523$). There were some limitations to this study. The author studied gender differences within each category of participation, but no comparison between male and female groups was completed. Students in both co-curricular and interscholastic athletics demonstrated the highest academic performance, but data were not collected on the breadth of participation. This inhibited generalizability of results.

Reed (2014) examined the relationship between EA participation, ACT scores, GPA, and school attendance. Participating schools collected data on 12th grade students during the 2012-2013 academic year. Surveys were then sent to those students to obtain EA participation data. A total of 491 students responded to the survey, which included them as participants in the study. EA involvement was measured by whether students reported participation on the survey. AA was measured by GPA and ACT scores. Results of the study indicated that students who participated in EAs achieved significantly higher GPA ($r = .320, p < .001$) and ACT scores ($r = .319, p < .001$) compared to non-participants. Additionally, participation in EAs was significantly associated with a decrease in absences ($r = -.343, p < .001$) compared to non-

participants. There were some limitations to this study. Although the study provided evidence that EA involvement was beneficial to AA, the activities themselves were not divided into specific categories. This limited generalizability of the results because there was not enough information about which types of EAs were considered the most beneficial.

Everson and Millsap (2004) explored the hierarchical relationship among school characteristics, individual differences in AA, EA participation, and socioeconomic background on performance on SAT scores. The goal of this study was to use multilevel structural equation models (SEMs) with latent means to analyze influences on SAT performance, including ethnic and gender differences at both student and school levels. Data were collected from the College Board's Student Descriptive Questionnaire, which was administered to students taking the SAT. Students were included in the study if they had taken the SAT during their 11th or 12th grade year and if they had graduated from high school in 1995. Additionally, data were excluded for students who reported that they were not U.S. citizens, English was not their first language, did not attend a U.S. public high school at the time of testing, and were missing responses on the questionnaire on the variables of interest. EA participation was measured by dividing participation into academic and nonacademic categories. AA was measured by high school GPA, class rank, and GPA for each subject.

Results of the study indicated that EAs had a direct influence on SAT verbal (SAT-V) and math (SAT-M) scores. EAs produced a 45-point increase in SAT-M scores and a 53-point increase in SAT-V scores, which was approximately a ½ standard deviation increase. A significant relationship was found between SAT scores and family

socioeconomic background influencing achievement and exposure to EAs. These results suggested that all students participating in EAs – regardless of family background, ethnicity, or high school achievements – substantially increased their SAT performance. Additionally, the relationship between family socioeconomic status and SAT scores appeared to be moderated by AA and exposure to EAs at the individual student level. There were some limitations to this study. Demographic information about the participants were utilized from the SAT questionnaire, and not collected to answer the research questions. Also, a linear relationship was assumed among family SES, school achievement, EAs, and SAT performance. Non-linear models need to be explored to gain further understanding of the relationships among these variables.

Academic-Specific or Specialized Extracurricular Activities

Five studies were located that analyzed EAs that were specific to an academic area or department. Mezuk (2009) studied the relationship between African American males participating in debate and AA. Data were obtained from Chicago Public Schools (CPS) and the Consortium on Chicago School Research (CCSR) at the University of Chicago over the 10-year period between 1997-2006. The CCSR maintained enrollment, demographic, and academic data on CPS high school students since 1991. The sample consisted of students who attended at least one year of public high school at CPS from the 1997-1998 to 2006-2007 school years. The CPS district consisted of 116 high schools (approximately 112,000 students), but only the 39 schools that make up the Chicago Debate League (CDL) were included in the study. A total of 12,179 students were considered participants in the study, of which 458 participated in the CDL. The authors studied predominately African American male students ($N = 2,614$). Debate

participation was derived from CDL tournament registration records from the 1997-1998 to 2006-2007 school years. AA was measured by collecting cumulative GPA for 8th and 12th grades, ACT scores, and high school completion.

Results of the study indicated that African American male debate students who debated 25 rounds or more had 12th grade GPAs that were 0.49 points higher than those who debated fewer than 5 rounds, but these findings were marginally significant ($p = .056$). From 1996-1997 to 2006-2007, the percentage of students who graduated from CPS was 59.1% and the percentage of African American males who graduated was 48.9%. African American debaters were more likely to graduate high school versus non-debaters ($p < .001$). Conversely, African American male non-debaters were approximately three times more likely to drop out of high school ($p < .001$). When examining cumulative ACT scores, African American male debaters had higher ACT scores compared to non-debaters (19.4 and 17.0, respectively, $p < .001$). Additionally, African American male debaters were twice as likely to score at or above the ACT English benchmark compared to non-debaters (odds ratio: 1.00, $p < .003$), and 70% more likely to score at or above the ACT reading benchmark (odds ratio: 1.56, $p < .02$). There was no significant association between debate and the ACT reading benchmark for the overall sample (odds ratio: 1.18, $p = .082$). This may indicate that African American male students may have benefited from the reading skills learned in debate, as this subgroup has struggled with reading skills historically. There was no significant association between debate students and the ACT Science (odds ratio: 1.34, $p = .322$) or the Math (odds ratio: 1.18, $p = .551$). This study was unique because the authors focused on a specific student group, African American males. However, there were

limitations to this study. Because this study was limited to a specific subgroup of students, these results may not generalize to other student subgroups.

Anderson and Mezuk (2015) evaluated whether indicators of positive youth development (i.e., the Engagement index measured by student-teacher trust, educational expectations, and social competence) mediated the relationship between students who participated in urban debate league (UDL) and AA. Similar to Mezuk (2009), data were obtained from Chicago Public Schools (CPS) and the Consortium on Chicago School Research (CCSR) at the University of Chicago. Students were identified as debaters from CDL tournament records from 1997-2007. A random sample of comparison students who did not debate was chosen for each debater. Specifically, three students who attended the same school and entered high school at the same time as the debater were chosen for the comparison sample. A total of 9,320 high school students, 2,449 of which were debate students, were considered for this study. AA was measured by high school completion and ACT scores.

Results of the study indicated that debaters had higher scores on the Engagement index compared to non-debaters ($p < .001$). Debaters reported significantly higher social conscience ($p < .001$), social competence ($p < .001$), civic commitment ($p < .01$), and importance of education ($p < .001$) compared to students who did not participate in debate. These results indicated that aspects of debate participation other than competitiveness or quantity of involvement (e.g., peer relationships, coaching, mentorship, development and use of non-cognitive skills) may be positively associated with AA. Debaters had 2.8 times higher odds ($p < 0.001$) of graduating from high school compared to non-debaters. Higher scores on the Engagement Index were also

positively associated with graduating high school ($p < .01$) and negatively associated with dropping out of school ($p < .001$). The relationship between participating in debate and high school completion was not statistically significant. Debate students were associated with scoring at or above the benchmark on the Math section of the ACT ($p < .01$). However, this association was significantly larger for the English, Science, and Reading sections of the ACT ($p < .001$). There were some limitations to this study. For example, participation in debate was the only listed EA. Therefore, debate participation was not compared to other EAs in regards to AA.

Strapp and Farr (2010) explored the relationship between college-level psychology students, involvement in psychology-related EAs, satisfaction with the psychology major, and AA. A total of 71 senior psychology majors enrolled in psychology courses in Spring 2006 or Spring 2007 from Western Oregon University participated in the study. A self-report measure was administered to participants indicating involvement in available EAs sponsored by the psychology department, GPA, and satisfaction with the psychology major on a point scale of 0 (very dissatisfied) to 4 (very satisfied). EAs sponsored by the psychology department were defined as mentoring or practicum experiences, experience as a research assistant or a teaching assistant, Psi Chi honor society, psychology club, and student association. Results of the study indicated that the majority of seniors participated in the student association and the Psi Chi honor society sponsored by the psychology department. The mean student-reported GPA was 3.37. Involvement in psychology-related activities was related to GPA, $r(69) = .279$, $p = .019$, $R^2 = .080$. Satisfaction was not related to GPA, $r(69) = .028$, $p = .820$, $R^2 = .001$. This indicated that participating in psychology-related EAs

benefited students' AA. However, there are limitations to this study. This study did not explore other academic departments or EAs sponsored by those academic departments. Generalization of this study was limited since it was completed for one specific academic area.

Gonzalez, Hernandez, Coltrane, and Mancera (2014) examined the relationship between physical activity and GPA for graduate-level students enrolled in an allied health program (i.e., occupational therapy, physical therapy, speech language pathology, rehabilitation counseling, and pharmacy). A total of 81 graduate students enrolled in health science programs at a university along the Texas-Mexico border were included in the study. Students completed the International Physical Activity Questionnaire (IPAQ) short form to measure physical activity participation. The IPAQ short form included 7 self-report items assessing four physical activity domains – leisure time, domestic and gardening, work-related, and transport-related physical activity. If items were left blank on the IPAQ form, that survey was excluded from the study. AA was measured by self-reported GPA.

Results indicated that the mean self-reported GPA was 3.62 among participants. No correlation was found between physical activity and GPA (Spearman's $\rho = -0.13$, $p = 0.128$). Additionally, there was a correlation between IPAQ scores and GPA, but that relationship was not significant ($r = -0.12$, $p = 0.152$). Findings from this study did not support a positive association between GPA and physical activity in allied health graduate students. There were some limitations. The participant sample included graduate-level students. While Gonzalez et al. (2014) explored the relationship between physical activity and GPA, this literature review focuses mainly on high school students.

Physical activity was not compared to other EAs or activities that did not involve physical activity. Students enrolled in the allied health programs could not have a GPA below 3.0, while possible undergraduate GPA ranged from 0.0 to 4.0. This limited the magnitude of change of academic success. Additionally, admission into these allied health programs was considered highly competitive. Students enrolled in these programs may have already developed skills to moderate AA, which potentially minimized the effect of physical activity on GPA.

Urlings-Strop, Themmen, and Stegers-Jager (2017) examined whether students who participated in EAs during pre-university training were selected for admittance into medical school continued EA participation (msECAs), and whether this continued participation supported AA in the clinical years of medical school. A total of 1,087 medical students from Erasmus MC Medical School in the Netherlands participated in this study, with 338 students selected by a school-specific procedure and 749 students admitted by lottery. If the target number of students to be selected was not met, more students were admitted through the national lottery system. All students were assessed for EA involvement prior to application. In this study, EA participation during medical school was divided into three categories: completing a research master program, conducting important administrative or organizational functions at Erasmus MC Medical School, and enrolling in an additional degree course at Erasmus University Rotterdam. AA was measured by clerkship GPA and pre-university GPA. Clerkship GPA was calculated as the mean of the grades obtained on the 10 discipline-specific clerkships. Grades were given on a 10-point scale (1 = poor, 10 = excellent) and 5.5 was the cut-off

pass/fail score. Pre-university GPA was calculated based on school examinations and the national examination in the Netherlands, and then translated into Z-scores.

Results of the study indicated that participation in msECAs did not depend on a student's pre-university GPA for selection-group students (OR = 2.71, $p < 0.001$). However, this may be explained by the self-discipline and time-management skills displayed by selection-group students over lottery-group students. Significant main effects were found for both participation in msECAs ($F(1, 1030) = 9.88, p < 0.01$, partial $\eta^2 = 0.009$) and admission group ($F(1, 1030) = 20.72, p < 0.001$, partial $\eta^2 = 0.020$) on clerkship GPA. Selection-group msECA students had significantly higher clerkship GPA than selection-group students who did not participate in msECAs ($F(1, 1030) = 8.50, p < 0.01$, partial $\eta^2 = 0.008$). Meanwhile, there was no significant relationship between lottery-group students who participated in msECAs and non-participants in the lottery-group. Limitations of this study included a limited pool of EAs. Requirements for selection students included minimum EA participation of four hours per week for at least two years prior to medical school. The selection-group students in msECAs may have had an advantage in managing participation with coursework over selection-group non-participants and lottery-group students.

After-School Employment or Work-Related Activities

Only one study was located that studied student after-school employment or work-related activities. Zierold, Garman, and Anderson (2005) studied the effects of after-school employment on school performance and school behaviors. A questionnaire was administered that contained questions regarding student employment, workplace injury, and school performance and behaviors, such as skipping class or arriving late to

school. School performance and behaviors were measured by self-reported GPA, number of hours spent participating in EAs per week, and per year the number of days late, absent, or cutting class, and the amount of time spent on homework in school and out of school. The questionnaire was sent to 8,071 students in participating school districts from five different public health regions of Wisconsin as determined by the Wisconsin Department of Health and Family Services (the northern region, the northeastern region, the western region, the southern region, and the southeastern region). Teachers within the participating schools administered the questionnaire to students during the same time of day. Only students who completed the survey and responded to the GPA question were included in this study ($n = 6,100$).

Results of the study indicated that 64% of students who answered the question about GPA reported working during the 2001-2002 school year ($n = 3,903$). Overall, 42% reported working 10 or fewer hours per week, while 36% of students reported working more than 17 hours per week. There were no significant differences between working and nonworking students regarding three or more absences per year (33% vs. 32%, $p = 0.40$) and arriving late to school three or more times per year (39.7% vs. 41%, $p = 0.18$). Nonworking students reported spending four or more hours participating in EAs per week than working students (37.7% vs. 30.7%, $p < 0.0001$). Fewer working students reported lower GPA compared to nonworking students (12.9% vs. 14.6%, $p = 0.07$), but this difference was not significant. There were several limitations to this study, including that the participant data were obtained using strictly self-report measures. Information provided by the participants were not verified (i.e., GPA, absenteeism, tardiness, skipping class, etc.) due to the anonymity of the respondents.

After-school employment was not considered as an EA in this study, but non-working students tended to participate in EAs more often than working students. Additionally, GPA was not found to be significantly different between working students versus nonworking students. This may indicate that employment outside of school was neither beneficial nor harmful to a student’s GPA. However, this also suggested that the skills and discipline learned from employment may not have translated to a student’s GPA.

Table 1

Summary of Findings

Citation	AA Type	EA Type	Findings
Schwartz et al., 2015	GPA	School, community, religious, and athletic	Significantly higher GPA when involved in community-based and athletic-based EAs
Camacho & Fuligni, 2015	GPA	Sports, service, arts, academics, and other	11 th grade EA participation was associated with significantly higher GPA
Wolniak et al., 2016	SAT	Held leadership role in EAs	Participating in EA leadership significantly increased odds of enrolling in a 4-year college
Knifsend & Graham, 2012	GPA	Academic/leadership groups, arts activities, clubs, and sports	11 th grade GPA was greatest at 2 activity domains
Marchetti et al., 2016	ACT	Participation vs. non-participation	If students met ACT benchmarks, they were more likely to participate in EAs
Dearman, 2017	GPA and ACT	Competitive vs. noncompetitive activities	Participating in both types achieved highest mean GPA, and moderately strong positive relationship between ACT composite scores and hours of participation
Watkins, 2004	GPA	Co-curricular activities, interscholastic athletics, both, and none	Mean GPA was significantly higher for students who participated in all forms compared to non-participants
Reed, 2014	GPA and ACT	Participation vs. non-participation	Participating in EAs had significantly higher GPA and ACT scores

Everson & Millsap, 2004	SAT	Academic vs. nonacademic activities	All participating in EAs substantially increased SAT performance
Mezuk, 2009	GPA and ACT	Debate	Debaters had higher 12 th grade GPA and ACT scores and were more likely to complete high school
Anderson & Mezuk, 2015	ACT scores	Debate	Debate students were more likely to graduate high school and scored higher ACT scores
Strapp & Farr, 2010	GPA	Psychology-related mentoring or practicum experiences, experience as a teaching or research assistant, Psi Chi honor society, psychology club, and student association	Participating in psychology-related EAs increased GPA
Gonzalez et al., 2014	GPA	Leisure time physical activity, domestic and gardening, work-related physical activity, and transport-related physical activity	There was no relationship between physical activity and GPA
Urlings-Strop et al., 2017	GPA	Completing a research master program, conducting important administrative or organizational functions at a medical school, and enrolling in an additional degree course	Selection-group EA participants had significantly higher clerkship GPA than non-participants
Zierold et al., 2005	GPA	Number of hours spent participating in EAs per week	Nonworking students were slightly more likely to have lower GPAs than working students

Discussion

The purpose of the project was to complete a comprehensive review of the literature involving EAs and AA, and synthesize the relationship between EA participation and AA. Results of this study indicated that there were positive relationships between EA participation and a variety of AA measures. Specifically, EA participation was consistently linked to positive outcomes including higher GPA, higher ACT and SAT scores, and increased likelihood to graduate high school (Anderson & Mezuk, 2015; Camacho & Fuligni, 2015; Dearman, 2017; Everson & Millsap, 2004; Mezuk, 2009; Reed, 2014; Schwartz et al., 2015; Strapp & Farr, 2010; Urlings-Strop et al., 2017; Watkins, 2004). EA participation was also found to increase the likelihood of enrolling for college (Wolniak et al., 2016). After-school employment demonstrated minimal benefits to AA, indicating that working students were only slightly more likely to have higher GPAs than nonworking students (Zierold et al., 2005). However, students not employed participated in more EAs than working students.

Several studies found that students who participated in any type of EA provided increased AA benefits compared to non-participants, regardless of type (Anderson & Mezuk, 2015; Camacho & Fuligni, 2015; Dearman, 2017; Mezuk, 2009; Reed, 2014; Urlings-Strop et al., 2017; Watkins, 2004; Wolniak et al., 2016). This suggests that it may matter less which activities students participate in, but that they may experience positive benefits just from being in any activity. However, results of these studies varied on the types of EAs that proved to be the most beneficial to AA. Breadth of EA participation was also studied in relation to AA. No significant relationship between breadth of EA involvement and increased AA, but only a handful of studies explored

this relationship (Camacho & Fuligni, 2015; Knifsend & Graham, 2012; Schwartz et al., 2015). Two of the reviewed studies found that participation in three or more EAs or EA domains was detrimental to GPA (Knifsend & Graham, 2012; Schwartz et al, 2015).

Not all studies provided evidence that EA participation was associated with or predicted AA. Marchetti et al. (2016) found that AA predicted EA participation, but EA participation was studied as a result from meeting ACT benchmarks and not vice versa. However, EA participation was not closely studied. EA participation was not divided by type, and the directionality of the relationship was not explored. Gonzalez et al. (2014) found that physical activity level was not associated with GPA, which contradicted findings of the other studies. However, physical activity domains did not necessarily include school-related EAs, and the magnitude of change in GPA was restricted due to the requirements of that graduate school program.

Limitations and Future Directions

This study inevitably had limitations. First, only full-text records available through the database search were used, which greatly limited results. Additionally, “academic achievement” was omitted from search terms in order to minimize the number of results. The majority of records reviewed in this study were found to have similar results. Other studies may have found no significant relationship between EAs and AA. Another limitation is the three categories in which results were organized. These categories were created based on some common themes in the literature by the examiner, but a stronger framework is necessary to report these results in a more meaningful way. Finally, another limitation is that studies with a wide age range were included. Some records included college-level students (Gonzalez et al., 2014; Strapp &

Farr, 2010; Urlings-Strop et al., 2017). While findings of these studies revealed important findings, the participant samples were not in the targeted age range. This study was intended to help youth and adolescents increase AA through EA involvement, but college-level students do not typically demonstrate academic growth between ACT scores or state assessment scores.

While a literature review is an important contribution, additional empirical studies are important. A controlled study with current student populations and clearly defined variables is needed to validate the findings of this review. There is a need for more extensive research on how the different socioeconomic, cultural, and environmental variables moderate or mediate the relationship between EA participation and AA.

Implications

This project has implications for both research and practice in school psychology. First, this project adds to the literature by providing a systematic review on participation in EAs and AA. While other articles have examined this topic area, none have provided a systematic review of the past 18 years. This literature review may catalyze discussions and studies to research whether some types of EAs have stronger benefits over other types. School psychologists can advocate for EA involvement because they have been previously found to promote skills that are consistently targeted for academic, social, and behavioral interventions. Such skills include positive social interactions with peers and adults and transferable/translatable skills including self-direction, following directions, teamwork, and interpersonal skills that can benefit AA (Bradley & Conway, 2016; Covay & Carbonaro, 2010; Feldman & Matjasko, 2005;

Viau & Poulin, 2015; Wood et al., 2011). School psychologists are able to promote these skills by designing and implementing interventions based on a student's relationship with their coaches or mentors, which is beneficial to AA.

Future funding will not ensure the quality of instruction both in school and in school-sanctioned EAs, as funds from other areas (such as EAs) may need to be reallocated. If EAs in general become at risk for being cut due to lack of funding, students will potentially lose opportunities to develop positive social relationships and transferable skills that can benefit AA. There are academic benefits for students who participate in a variety of EAs (Dearman, 2017; Watkins, 2004). However, participating in two EAs was shown to be the most beneficial for students (Knifsend & Graham, 2012; Schwartz et al., 2015). All of these implications should be considered when encouraging EA participation.

References

- ACT. (n.d.). Retrieved November 6, 2017, from <http://www.act.org/>
- Abruzzo, K., Lenis, C., Romero, Y., Maser, K., & Morote, E. (2016). Does participation in extracurricular activities impact student achievement? *Journal for Leadership and Instruction, 15*(1), 21-26.
- Alvarez-Bueno, C., Pesce, C., Cavero-Redondo, I., Sanchez-Lopez, M., Garrido-Miguel, M., & Martinez-Vizcaino, V. (2017). Academic achievement and physical activity: A meta-analysis. *Pediatrics, 140*(6). <https://doi.org/10.1542/peds.2017-1498>
- Anderson, S., & Mezuk, B. (2015). Positive youth development and participation in an urban debate league: Results from Chicago public schools, 1997-2007. *Journal of Negro Education, 84*(3), 362-378.
<https://doi.org/10.7709/jnegroeducation.84.3.0362>
- Bradley, J. L., & Conway, P. F. (2016). A dual step transfer model: Sport and non-sport extracurricular activities and the enhancement of academic achievement. *British Educational Research Journal, 42*(4), 703–728.
- Camacho, D. E., & Fuligni, A. J. (2015). Extracurricular participation among adolescents from immigrant families. *Journal of Youth and Adolescence, 44*(6), 1251-1262. <https://doi.org/10.1007/s10964-014-0105-z>
- Chan, Y. K. (2016). Investigating the relationship among extracurricular activities, learning approach and academic outcomes: A case study. *Active Learning in Higher Education, 17*(3), 222-233. <https://doi.org/10.1177/1469787416654795>
- Covay, E., & Carbonaro, W. (2010). After the bell: Participation in extracurricular

activities, classroom behavior, and academic achievement. *Sociology of Education*, 83(1), 20–45. <https://doi.org/10.1177/0038040709356565>

Dearman, S. G. (2017). School sanctioned extracurricular activities and academic achievement: A quantitative study of hours of extracurricular participation and the impact upon GPA and ACT score (Doctoral dissertation). *ProQuest Dissertations & Theses Global Database*. (Order No. 10623008).

Dickinson, E. R., & Adelson, J. L. (2016). Choosing among multiple achievement measures: Applying multitrait-multimethod confirmatory factor analysis to state assessment, ACT, and student GPA data. *Journal of Advanced Academics*, 27(1), 4-22. <https://doi.org/10.1177/1932202X15621905>

Everson, H. T., & Millsap, R. E. (2004). Beyond individual differences: Exploring school effects on SAT scores. *Educational Psychologist*, 39(3), 157-172. https://doi.org/10.1207/s15326985ep3903_2

Feldman, A. F., & Matjasko, J. L. (2005). The role of school-based extracurricular activities in adolescent development: A comprehensive review and future directions. *Review of Educational Research*, 75(2), 159–210.

Gonzalez, E. C., Hernandez, E. C., Coltrane, A. K., & Mancera, J. M. (2014). The correlation between physical activity and grade point average for health science graduate students. *Occupation, Participation, and Health*, 34(3), 160-167. <https://doi.org/10.3928/15394492-20140714-01>

Kentucky Department of Education. (2018). *Resources and strategies for GAP closure*.

Retrieved from

<https://education.ky.gov/school/stratclsgap/instruction/Pages/gap.aspx>

- Knifsend, C. A., & Graham, S. (2012). Too much of a good thing? How breadth of extracurricular participation relates to school-related affect and academic outcomes during adolescence. *Journal of Youth and Adolescence*, 41(3), 379-389. <https://doi.org/10.1007/s10964-011-9737-4>
- Koretz, D., Yu, C., Mbekeani, P. P., Langi, M., Dhaliwal, T., & Braslow, D. (2016). Predicting freshman grade point average from college admissions test scores and state high school test scores. *AERA Open*, 2(4), 1-13. <https://doi.org/10.1177/2332858416670601>
- Legislative Research Committee. (2016). *Overview of Achievement Gaps in Kentucky Schools*. Retrieved from http://www.lrc.ky.gov/lrcpubs/research_reports.htm
- Marchetti, R., Wilson, R. H., & Dunham, M. (2016). Academic achievement and extracurricular school activities of at-risk high school students. *Educational Research Quarterly*, 39(4), 3–20.
- Marsh, C. M., Vandehey, M. A., & Diekhoff, G. M. (2008). A comparison of an introductory course to SAT/ACT scores in predicting student performance. *The Journal of General Education*, 57(4), 244-255.
- Mezuk, B. (2009). Urban debate and high school educational outcomes for African American males: The case of the Chicago Debate League. *Journal of Negro Education*, 78(3), 290-304.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G.; The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Med* 6(7): e1000097. <https://doi.org/10.1371/journal.pmed1000097>

- No Child Left Behind Act of 2001, 20 U.S.C. § 6319 (2011).
- Qiu, X., & Wu, S. (2011). Global and local regression analysis of factors of American College Test (ACT) score for public high schools in the state of Missouri. *Annals of the Association of American Geographers, 101*(1), 63-83.
<https://doi.org/10.1080/00045608.2010.518020>
- Reed, L. K. (2014). Relationships between participation in extracurricular activities, ACT scores, GPA, and attendance in select public high schools in Mississippi (Doctoral dissertation). *ProQuest Dissertations & Theses Global*. (Order No. 3648334).
- SAT. (n.d.). Retrieved April 5, 2019, from
<https://collegereadiness.collegeboard.org/about>
- Schwartz, K., Cappella, E., & Seidman, E. (2015). Extracurricular participation and course performance in the middle grades: A study of low-income, urban youth. *American Journal of Community Psychology, 56*(3-4), 307-320.
<https://doi.org/10.1007/s10464-015-9752-9>
- Seow, P. S., & Pan, G. (2014). A literature review of the impact of extracurricular activities participation on students' academic performance. *Journal of Education for Business, 89*(7), 361–366. <https://doi.org/10.1080/08832323.2014.912195>
- Strapp, C. M., & Farr, R. J. (2010). To get involved or not: The relation among extracurricular involvement, satisfaction, and academic achievement. *Teaching of Psychology, 37*(1), 50-54. <https://doi.org/10.1080/00986280903425870>
- Urduan, T., & Midgley, C. (2001). Academic self-handicapping: What we know, what more there is to learn. *Educational Psychology Review, 13*(2), 115–138.

- Urlings-Strop, L. C., Themmen, A. P. N., & Stegers-Jager, K. M. (2017). The relationship between extracurricular activities assessed during selection and during medical school and performance. *Advances in Health Sciences Education*, 22(2), 287-298. <https://doi.org/10.1007/s10459-016-9729-y>
- Viau, A., & Poulin, F. (2015). Youths' organized activities and adjustment in emerging adulthood: A multidimensional conception of participation. *Journal of Research on Adolescence*, 25(4), 652–667. <https://doi.org/10.1111/jora.12159>
- Watkins, A. B. (2004). The effects of participation in extracurricular activities on the mean grade point average of high school students in a rural setting (Doctoral dissertation). *ProQuest Dissertations & Theses Global*. (Order No. 3148314).
- Wolniak, G. C., Wells, R. S., Engberg, M. E., & Manly, C. A. (2016). College enhancement strategies and socioeconomic inequality. *Research in Higher Education*, 57(3), 310-334. <https://doi.org/10.1007/s11162-015-9389-4>
- Wood, J., Little, S., Goldring, L., & Jenkins, L. (2011). The confidence to do things that I know nothing about – skills development through extra-curricular inquiry activity. *Journal of Learning Development in Higher Education* 3, 2-21.
- Yeung, R. (2015). Athletics, athletic leadership, and academic achievement. *Education and Urban Society*, 47(3), 361-387. <https://doi.org/10.1177/0013124513495277>
- Zierold, K. M., Garman, S., & Anderson, H. A. (2005). A comparison of school performance and behaviors among working and nonworking high school students. *Family & Community Health: The Journal of Health Promotion & Maintenance*, 28(3), 214-224. <https://doi.org/10.1097/00003727-2005007000-00003>