

The Impact of Completed Homework on Academic Measures

By Meghan Bulls

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## Table of Contents

List of Tables	i
Abstract	ii
I. Introduction	1
Overview	1
Statement of the Problem	2
Hypothesis	2
Operational Definitions	2
II. Review of the Literature	4
Homework Defined	4
Advantages of Homework	5
Disadvantages of Homework	7
Constructing Beneficial Homework Assignments	9
III. Methods	12
Design	12
Participants	12
Instrument	12
Procedure	13
IV. Results	14
V. Discussion	17
Implications of Results	17
Threats to Validity	17
Connections to Previous Research	17

Suggestions for Future Research	18
Conclusions	19
References	20

## List of Tables

1. Table 1	15
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## Abstract

The purpose of this study was to determine whether the completion of homework affects the academic measures of students. The measurement tool were six quizzes and a final unit test. This study involved use of a modified repeated measures design. Quiz scores were slightly higher when students were assigned content-related homework. Research in this area should continue as the sample size of students was very limited.

# **CHAPTER I**

## **INTRODUCTION**

### **Overview**

The topic of homework has been the center of debate in the educational field. The advantages, disadvantages, methods of assignment, and influential factors all come into play when school systems and teachers decide whether to assign homework or not. For many teachers it is a formality to assign homework whereas other teachers do not find it necessary. There are so many reasons for both assigning and not assigning homework.

Many never really thought about the impact of homework growing up; students just knew that they had to do the assignments. Students worked under the assumption that homework helped with school success. If students did not do their homework, then their overall grade would be lowered.

Baltimore County Public School teachers were recently faced with the challenge of not being allowed to grade homework assignments. It was suggested that teachers should give students assignments for home, but the argument was that, by grading homework, teachers are not grading a student's success but rather grading for completion. Under this new system, many students were not completing the homework assignments because they were not receiving grade for it. Although teachers would often explain that the practice of completing homework would help them succeed on their tests and quizzes (ultimately affecting their overall grade), still the students would not do the homework.

In the researcher's class, an overall drop in students' grades ensued, which led to an inquiry into the effects of homework. Through this study, the researcher seeks to discover ways

to assign beneficial homework and to see firsthand whether doing homework versus not doing homework has an effect on student achievement.

### **Statement of Problem**

The purpose of this research was to determine whether the completion of homework affects the academic measures of students.

### **Hypothesis**

The completion of homework will not make a difference in a student's academic success.

### **Operational Definitions**

The independent variable in this study was the assignment or non-assignment of homework during the dance performance unit. During this unit, students were exposed to 30 vocabulary words, specifically covering five per week. During class, students defined the vocabulary words and completed in-class activities related to these vocabulary words. The vocabulary words were randomly divided into two groups of 15 with equal difficulty; one group of vocabulary words had homework assignments, and the other group of words did not.

The homework assignments consisted of a total of 15 French dance vocabulary words (five per week) that were picked by random from the 30 total vocabulary words in the unit. The homework assignments were given in a variety of contexts to suit different learning styles. The homework assignments were given twice a week, alternating the days of the week and typically took about 15 minutes to complete. Homework was assigned every other week during the six-week unit.

The dependent variable in this study was the students' achievement of the 30 vocabulary words. Students' achievement was assessed with a total of six weekly quizzes and a final unit test. The quizzes were given on the first day of the week (Monday or Tuesday depending on

when the students had class). The quizzes entailed assessing the five words that were covered the week prior. The quizzes varied in style and format. The quizzes were designed to determine which week's students were most successful (which would correlate to whether or not the homework assignments had an effect). The final unit test included all 30 words and was administered at the end of the six-week unit. This test compared the students' success on the 15 words that were assigned for homework versus the 15 words that were not assigned for homework. The unit test included questions in a variety of formats.



## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

This review of the literature considers the issue of homework. Section one defines homework. Section two discusses the advantages of assigning homework while section three discusses the disadvantages. Section four demonstrates how to construct beneficial homework assignments.

#### **Homework Defined**

Homework is not a new concept; in fact, homework has been the center of debate for many years. The advantages, disadvantages, methods, and influential factors of homework have been discussed time after time, and new perceptions are constantly arising.

Homework can be defined and classified as many different things. For some, homework is the completion of school assignments that were not finished during the regular school day. Others define homework as assignments that offer new learning at the home setting. Sallee and Rigler (2008) state that homework has been historically known as a way to have students practice skills outside of the classroom.

Homework can serve multiple purposes; it can enhance student performance and aid in differentiation of instruction. Homework often supports new learning as well as reinforcement of material (Dettmers, Trautwein, Ludtke, Kunter, & Baumert, 2010). Bempechat (2004) believes that homework assignments help students develop ideas about achievement and allow students to practice necessary study skills. Bempechat also believes that homework helps to teach students the value of effort, hard work, and coping skills. In recent years, the “flipped classroom” or “student-centered learning” is one preferred method of education. Homework can

aid in this process by allowing students to teach themselves the material on their own prior to class time (Maltese, Tai, & Fan, 2012).

Epstein and Van Voorhis (2001) found that teachers and students agree that homework deepens conceptual understanding of course material. Homework has changed over time to meet the needs of the United States. In fact, after the launch of Sputnik in 1957, the nation as a whole placed more importance on educational excellence, and, therefore, the amount of homework began to increase (Maltese et al., 2012). Homework can be used for many different reasons depending on the teacher, student, or school system; with that leeway comes many advantages and disadvantages to these at-home assignments.

### **Advantages of Homework**

There are many advantages to both students and teachers when it comes to assigning homework. Students are able to gain a sense of independence and control over their education. They are able to develop time management and organization skills as well as independent problem solving skills (Sallee & Rigler, 2008). Homework also allows students to have time to reflect. While in school the student may be focusing on the teacher and methods/fundamentals, but at home the student is able to practice the necessary skill. The student can reflect not only on the material but also on how well he/she understands the skill (Sallee & Rigler, 2008).

Cooper (2001) believes that homework assignments can lead to learning during leisure time and allow the student to learn in another setting apart from the classroom. Homework provides immediate achievement by improving a student's retention rate, increasing understanding, and improving critical thinking skills (Cooper, 2001). Bennett (2017) found that homework helped to eliminate students' frustration during class because they felt more prepared. Another advantage of homework to the student is the idea of increased parental involvement.

Cooper found that homework can often get parents involved in their child's school work. The benefits of parental involvement can show the child the importance and appreciation of education.

Eren and Henderson (2007) show that homework has great advantage to both high achievers and low achievers. Homework can allow students to work at a comfortable pace and at a level they are ready for. Homework can be differentiated in ways that more advanced students can be challenged and students who may be struggling can complete assignments to help them bridge the gap.

Homework not only offers many advantages to the students, but it can also provide many advantages for the teachers. A teacher can assign homework to help introduce a topic or unit prior to class (Sallee & Rigler, 2008). Teachers are constantly under pressure to perform and teach their students a certain amount of material due to testing and school system policies (Sallee & Rigler, 2008). Homework extends the school day which means that students can continue learning the necessary material even when apart from the teacher. Teachers are also faced with short class periods, so homework can simply be a method for students to get assignments completed.

Homework can be an advantage to both teachers and students when it comes to increased test scores. Students need decent test scores in order to play sports, graduate from high school, and to get into college. Teachers and the school system need students to earn good test scores for policy making decisions, budgeting, and other purposes. Keith and Cool (1992) found that the amount of time students spend doing homework increases their achievement. In another study that measured the association between time spent on homework and the result of academic achievement, researchers found that any amount of homework that students completed resulted

in better standardized test scores (Maltese et al., 2012). According to Maltese et al. (2012), students who spend 1-60 minutes on homework each day scored 1.8-2.2 points higher on a standardized test than students who reported doing no homework. Students who spent 61-120 minutes on homework each day scored 2.9-3.0 points higher than students who reported doing no homework (Maltese et al., 2012). When it comes to increased SAT scores, students who spent 31-90 minutes each day on homework scored 40 points higher than their peers (Maltese et al., 2012). Evidently, homework does have a positive impact on test scores.

### **Disadvantages of Homework**

While multiple studies show the advantages of assigning homework, concurrently there are also disadvantages to students and teachers. Sallee and Rigler (2008) believe that homework may cause students to learn too much information on their own. Some students are unable to learn without the guidance of a teacher and may struggle grasping the information.

Hong, Wan, and Peng (2011) found that if students were assigned too much homework, they would often not complete it all. The incomplete homework assignments would cause some students to fall behind in the content and material. If teachers were heavily relying on homework as a method of instruction and some students were not completing the assignments due to difficulty or amount, then they would fall behind their peers, according to Hong et al.

As discussed earlier, some studies found that the extension of the school day with the use of homework led to advantages to students. Other studies have found that the time needed to spend on homework can be difficult for some students. Many students have after school commitments such as sports, jobs, and taking care of siblings, and they cannot devote time to homework (Sallee & Rigler, 2008).

Another issue with homework apart from the time it takes is that not all students have the necessary resources at home in order to complete the assignments. Bennett (2017) found that students often were unable to complete the assignments because they could not afford the textbooks, did not have internet access at home, and did not have parental support. If children are denied these resources, then the advantages of the homework assignments would not pertain to them and instead may cause them to fall behind.

Warton (2001) found that homework alone does not equal long term results; other influences such as a student's memory and educational abilities have more of an impact on a student's long term educational success. Too much focus on school and homework could also cause children to lose interest in their education. If they are having to give up play and leisure time to spend additional hours on school work after the normal school day, then they could begin to lack interest (Cooper, 2001). Another disadvantage to homework is that students in the lower social classes do not benefit as much from homework assignments as students in the upper social classes (Ronning, 2011). This could be caused by the fact that parents in the lower social classes are less able to provide support or that students in the lower social class are spending their time working or caring for siblings.

Teachers can also be disadvantaged when it comes to assigning homework. The biggest disadvantage to teachers is when they assign homework and some students do not complete the assignment. If a teacher creates a lesson in which students need to complete the homework assignment prior to class and a few students do not do the assignment, then the teacher has to alter his or her lesson in order to keep the class on track. Often the use of homework has good intentions, but if students do not complete the assignments then it could end up making more work for the teacher (Bennett, 2017).

Although homework can improve test scores, studies also show that homework does not help students improve their course grades. The same study that found the amount of time spent on homework positively impacted standardized test scores also found that time spent on homework does not have a significant association with a student's final grade (Maltese et al., 2012). There are many other factors that go into a student's final grade such as projects and attendance for which homework cannot be credited.

### **Constructing Beneficial Homework Assignments**

Studies show that if a teacher is going to assign homework then he or she should focus on making the homework as beneficial as possible. Homework assignments need to be of good quality, relevant, equitable, contain variety, and take a specified amount of time to complete. Keith and Cool (1992) found that high quality homework assignments were preferred and completed by students more than low quality assignments. Students defined high quality assignments as rigorous and challenging (Dettmers et al., 2010).

Homework needs to be relevant and meaningful. Teachers need to consider the objectives of each homework assignment and how the assignment relates to standards and learning (Sallee & Rigler, 2008). Administrators agree with students in that homework needs to be relevant. In fact, when interviewed by Bennett (2017), one administrator stated that homework was "supposed to be relevant and meaningful" (p. 29). The administrator also felt that if the assignments were not meaningful then they would not help a student's learning (Bennett, 2017).

Some teachers feel that in order to make students see the relevance and importance of homework that they should, in fact, grade these assignments. This causes a lot of debate as homework is supposed to be a skill for practicing and not assessing. One huge issue with

grading homework is that the teacher cannot be 100% sure that each student's work is completely his or her own (Sallee & Rigler, 2008).

Homework assignments also need to be equitable for all students. The teacher needs to take into account all of the students prior to assigning homework. Sallee and Rigler (2008) point out that a teacher may assign a 20-page chapter for students to read at home. For strong readers, this assignment would not be difficult, but for troubled readers this assignment could take an unbearable amount of time and could result in the student giving up. Prior to assigning homework, teachers should also take into consideration the student's home life. If the teacher assigns homework that requires a computer and knows that not all of the students have access to a computer, the teacher should make accommodations or give options so that the students all receive the same opportunity to succeed (Bennett, 2017).

Another way to construct beneficial homework assignments is by offering a variety of assignments. Studies show that by offering different formats of homework assignments teachers are able to reach more students (Dettmers et al., 2010). Students preferred alternating between essays, word problems, studying, and reading rather than always being assigned the same work (Maltese et al., 2012).

A big factor in creating beneficial homework assignments is the time it takes to complete. Teachers need to understand that homework is beneficial with how it is used and not the amount that students receive (Maltese et al., 2012). Some educators believe that a good rule of thumb for assigning homework is by multiplying the student's grade level by 10 minutes (Cooper, 2001). Studies show the importance of finding the right amount of time to spend on a homework assignment. Spending too much time doing homework can have the same outcome as not spending any time on homework (Maltese et al., 2012). Although studies show that time and

length of homework are crucial factors in creating beneficial assignments, there are no proven studies stating exactly how much time is the most efficient to spend on homework. This could be due to the fact that the length could depend on the student and the task.

As noted, homework has many advantages and disadvantages to students and teachers. It is important for teachers to understand the implications of homework and how to assign beneficial activities.



## **CHAPTER III**

### **METHODS**

#### **Design**

This study consisted of a modified repeated measures design. The factor studied was students' achievement when assigned homework versus students' achievement when not assigned homework. Students were tested on 30 vocabulary words, 15 for which they had homework lessons and 15 for which they did not. The null hypothesis is that the completion of homework will not make a difference in a student's academic achievement in this study, homework completion amounts to five quizzes and a unit test.

#### **Participants**

The participants in this study included 15 students in a public high school Dance Company class. Thirteen of these students were female, and two were male. Students ranged in grade levels from 9-12 and ages from 15-18. Students' academic levels ranged from on grade level to advanced placement. One student had an IEP due to mild autism, and one student had a 504 plan because of a concussion and clinical depression. Participants were chosen because of convenience.

#### **Instrument**

The researcher designed the six quizzes for participants to complete. Each quiz had five questions focusing on the weekly vocabulary taught in class. The questions included fill in the blank, true or false, multiple choice, and recall. The quizzes were assigned on Mondays or Tuesdays during second period based on which day Dance Company met. On average the quiz took students about five minutes to complete. The researcher also developed the final unit test

which encompassed all 30 words. The unit test was also formatted with fill in the blank, true or false, multiple choice, and recall questions. The final unit test was given during week seven.

### **Procedure**

At the start of third quarter and the beginning of the dance performance unit, the researcher introduced this homework versus no-homework plan to the class. It was normal for students to receive and study five vocabulary words a week; however, the implementation of homework, quizzes, and a unit test would be a change for these Dance Company students. At the start of each week, the researcher wrote the five weekly words on the board and had students define the terms in their notebooks. The researcher had students practice these terms throughout the week. Practice would include using the movements in class and dance routines as well as using the terms while speaking. During weeks one, three, and five, students would simply use the words during class time. During weeks two, four, and six, students were given homework assignments focusing on the weekly vocabulary in addition to the class practice. At the start of a new week, the students took the quiz on the previous week's vocabulary words. At the start of the seventh week, students took a final unit test which included all 30 words.

A series of paired t-tests will be used to assess the differences between mean quiz scores for weeks with and without homework. The null hypothesis is that there is no difference in the population mean quiz scores whether or not students were assigned homework.

## **CHAPTER IV**

### **RESULTS**

The primary purpose of this study was to determine whether high school dance students would have higher dance vocabulary quiz scores when assigned related homework than when they are not assigned homework.

Fifteen high school students completed six quizzes designed by the researcher. Quizzes number one, three, and five were taken by the students and did not include related homework assignments. Quizzes two, four, and six were taken by the same students but included related homework assignments. Additionally, students took a unit test that was composed of items without related homework and items with related homework. Quizzes one and two, quizzes three and four, and quizzes five and six were equivalent in content and difficulty. The only difference was whether or not homework was assigned.

A series of paired t-tests were used to test the null hypotheses versus the alternative hypotheses. The customary 0.05 level of statistical significance was applied to the t-tests to decide whether the null or alternative hypothesis was more credible. Cohen's (1992) Delta Effect Size statistic was also computed to measure the standardized difference between homework and no homework quizzes independent of sample size. Cohen's (1992) rules of thumb were applied to categorize the effect size (0.20 to 0.49=small; 0.50 to 0.79=medium; 0.80 and higher=large). Null hypothesis one: Population mean difference between quiz two and quiz one will be zero or less than zero (no advantage for homework).

Alternative hypothesis one: The population mean difference between quiz two and quiz one will be greater than zero (advantage for homework).

Null hypothesis two: Population mean difference between quiz four and quiz three will be zero or less than zero (no advantage for homework four).

Alternative hypothesis two: The population mean difference between quiz four and quiz three will be greater than zero (advantage for homework).

Null hypothesis three: Population mean difference between quiz six and quiz five will be zero or less than zero (no advantage for homework).

Alternative hypothesis three: The population mean difference between quiz six and quiz five will be greater than zero (advantage for homework).

Null hypothesis four: Population mean difference between unit test items with homework and unit test items without homework will be zero or less than zero (no advantage for homework).

Alternative hypothesis four: The population mean difference between unit test items with homework and unit test items without homework will be greater than zero (advantage for homework).

In all of these hypotheses, the population refers to all high school dance classes, wherever they may be, with similar groups of students to the study sample.

Table 1 depicts the results of homework versus no homework..

Table 1

*Hypothesis Tests: Homework vs. No Homework*

Quiz	Home work	N	Mean	S.D.	Paired t	p	Statistically Significant	Cohen's (1988) Delta Effect Size
2	Yes	14	4.71	.73				
1	No	14	4.71	.83				
Diff		14	0.00	.68	0.00	.500	No	0.00, n1
4	Yes	14	3.43	.94				
3	No	14	2.82	1.30				
Diff		14	0.61	1.11	2.04	.031	Yes	0.55, medium
6	Yes	14	4.43	.94				

5	No	14	4.14	1.46				
Diff		14	0.29	1.33	0.81	0.81	No	0.22, small
Unit Test	Yes	14	12.21	2.67				
Unit Test	No	14	10.64	3.48				
Diff		14	1.57	2.71	2.17	0.03	Yes	0.58, medium

Note: p-levels are one-sided, aligned with the alternative hypothesis.

Note: table based on output from Stata 13.1, Stata Corp., 2016 revision.

In conclusion, the differences in vocabulary scores between quizzes three and four and between the unit test with and without homework were statistically significant ( $p < .05$ ) with medium effect sizes. The differences were in favor of assigned homework. The differences in vocabulary scores between quizzes one and two and five and six were not statistically significant ( $p > .05$ ). The difference between quizzes five and six, however, was large enough to have a small effect size. Therefore, the lack of statistical significance is more likely due to the small sample rather than to a lack of effect.

## **CHAPTER V**

### **DISCUSSION**

The purpose of this study was to determine whether the completion of homework affects the academic measures of students. After assessing the students through six quizzes and a unit test, overall the null hypothesis is that the completion of homework will not make a difference in a student's academic success was rejected in favor of homework being beneficial.

#### **Implications of Results**

The results of this study indicated that there is statistical evidence that when students are assigned content-related homework, they will perform better on the quizzes. The homework assignments aided students with retention, practice, and familiarity with the vocabulary words. During the weeks of the study that students were assigned homework, the students were exposed to the vocabulary and content at least double the amount of time than on weeks that students were not assigned homework. The extra exposure benefited students academically.

#### **Threats to Validity**

In this study, the small sample size threatened the validity of the study. Although the results are positive and support the assignment of homework, the gains between quizzes are sometimes not statistically significant due to the small sample size. Therefore, effect sizes were also calculated to measure the direct effect of the treatment independent of sample size. The gains from quizzes three to four and on the unit test were statistically significant with medium effect sizes; however, the gain from quizzes one to two and five to six were not as statistically significant but still showed a small effect size in favor of homework. The sample size was chosen based on the amount of students in the class.

#### **Connections to Previous Research**

The topic of homework has been an ongoing debate for many years. Many educators no longer assign homework because they feel that the students will not complete the assignments. Sallee and Rigler (2008) found that only 47% of students completed homework all of the time. The teacher of this current study found that 100% of the students involved completed all of the homework assignments. When the teacher of this current study asked why the students were so willing to complete the assignment, the students answered with responses such as “because you want us to do it” or “because we have to do it.” This was similar in response to the 43% of students in the Sallee and Rigler study who felt that they had to do the homework assignments because they do what is asked. Many studies regarding homework completion showed that students were more motivated to do the assignments if they deemed those assignments beneficial to their success. The current study proved that homework directly related to the content will, in fact, help a student succeed. During the weeks when homework was assigned, students overall did better on the quizzes than on weeks when homework was not assigned. The study by Dettmers et al. (2010) also shows that homework quality predicts motivation. If the homework is impactful, then students are more apt to complete it.

### **Suggestions for Future Research**

In order to make the current study more valid, a few changes could be implemented moving forward. The researcher could increase the sample size in order to have more reliable results. With only 14 students being tested, it does not give a wide range of differences among the students. In the future it would be interesting to test the entire dance department rather than just the Dance Company class. The research could also extend over a longer period of time. This study took six weeks and stretched over the course of one unit. The issue with this is that some students may be stronger with this unit than other units which may give altered results. In this

study the students were able to maintain a 100% completion rate for the homework assignments; if the study were longer than six weeks, it would be interesting to see if students could still maintain this rate or if it would lower.

### **Conclusions**

The purpose of this study was to determine whether completing homework would lead to academic success in a high school Dance Company classroom. The data obtained was in favor of homework being beneficial to the students. Although there were several snow days during the unit, the students were still able to complete the homework assignments and quizzes in the appropriate order. The students were eager to learn the vocabulary and to participate in the lessons. All of the students completed all of the homework assignments on time and for the most part earned a 'C' or better on the homework assignments. The homework assignments were graded for student reference only; the homework grades were not entered the grade book or factored into the quarter grades. Overall the students were able to improve their quiz scores on weeks when they were assigned homework.



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