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The Impact of Homework and Homework Preferences in Ninth Grade Geography

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Abstract

This study measured the impact of homework and student homework preferences on the learning of 9th grade geography students of average and below average reading levels. Quiz averages were compared between two student groups that had alternating periods of exogenous manipulation, where one group was assigned homework while the alternate group was not assigned homework. Surveys determined the students' perceived gaps between preferred homework conditions and actual homework conditions. These gaps were then compared to quiz averages and homework completion rates. Data showed that quiz averages remained similar whether students were assigned homework or not, and that gaps between actual and preferred homework conditions had minimal and inconsistent effects on quiz scores. Homework seemed to have little relationship to learning.

The Impact of Homework and Homework Preferences in Ninth Grade Geography

Academic experts and empirical researchers are divided on the issue of homework. Some believe the practice of requiring homework increases learning and should therefore be preserved and modified for improvement (Marzano & Pickering, 2007). Others believe the practice is useless, or in fact harmful to learning and emotional health, and should therefore be stopped (Kohn, 2006). Some teachers assign homework because they assume it improves learning, and they grade homework because they assume students will not be otherwise motivated to do it. As a high school social studies teacher, I struggled with the homework issue myself, especially with my ninth-grade geography classes. Many of my students who failed geography did so not due to lack of ability, but rather due to lack of homework completion. Some students who did not complete homework scored poorly on tests and quizzes, while others who did not complete homework scored satisfactorily. This situation perplexed me, and I perceived the homework issue to be among the most important challenges facing my ninth-grade students. I had ideas and biases about homework, but never really studied the issue. With so many students not doing homework, I began to question why I continued to assign it and wondered if it actually improved student learning at all. Therefore, I endeavored to conduct an action research study in my own classroom, in hopes of determining the impact of homework on my students so that I could modify it to better fit their needs.

After reviewing the existing literature, I decided that the purpose of my research was to: a) measure the impact of assigning homework versus the impact of assigning no homework, and b) to measure the impact of the gap between actual homework conditions

and preferred homework conditions on homework completion rates and quiz scores. My general intention was to obtain evidence indicating whether or not the homework I assigned improved the learning of my students. Additionally, I also hoped to see if there was a relationship between homework preferences and achievement. I hypothesized that my results would indicate that assigning homework would improve quiz scores overall, but more significantly for students whose actual homework conditions more closely matched their homework preferences.

Review of Literature

This review of literature uncovered a large number of studies done on homework. In general, I divided them into studies that focused on how homework directly affected achievement and studies that focused on how student perceptions factored into how homework affected achievement. More specifically, research on the following subtopics was reviewed: (a) achievement, (b) student perception, (c) ethnography, (d) homework and learning styles, and (e) homework preferences.

Achievement

Voices in the homework debate, whether in support of it, like Marzano and Pickering (2007), or against it like Kohn (2006), arrived at opposite conclusions while citing a lot of the same research. Kohn and Marzano and Pickering both mirrored the work of Cooper (2007) and Cooper, Robinson and Patall (2006), who offered a large synthesis of past homework research. Therefore, I decided that no literature review on homework would be complete without Cooper serving as a baseline. Cooper offered a solid foundation for the beginning action researcher by identifying, defining and

categorizing homework, as well as outlining common research methods and summarizing research results. Cooper's work was especially useful for an action researcher who planned to do a study on a small population. However, I also included in this baseline the commentary of Baker and LeTendre (2005), who reviewed large scale, international homework research, suited for very large populations. My hope was to gain insight of studies done both locally and internationally.

Cooper (2007) defined homework as any task assigned to students that is to be done outside the hours of the school day. Cooper also classified homework based on its amount, purpose, skill area, degree of student choice, degree of individualization, whether it is short-term or long-term, and whether it is done alone or with others. Because homework is so complex, it was hard to find research that adequately addressed all the variables, including the impact of the different types of homework outlined above, as well as the impact of other social, economic, cultural and psychological factors that might have interfered with homework-achievement correlations (Cooper, Robinson, & Patall, 2006). However, despite these potential validity issues, there were reliable results indicating that homework helped student achievement (Cooper, 2007; Cooper et al., 2006). Of 20 studies reviewed, 14 revealed a positive relationship between homework and achievement (Cooper et al.), and in another six studies that compared students who had homework with students who had no homework, the average homework student did better than 73% of the no-homework students on unit tests (Cooper, 2007). However, the positive effects of homework seemed to vary by grade level. Homework seemed to have little benefit in elementary school, some benefit in middle school and the most benefit in

high school, (Cooper et al.). The research of small, local populations, as reviewed by Cooper (2007) and Cooper et al., made me think that homework in high school was worth studying and improving, and not hastily discarding, as Kohn (2006) might suggest.

Looking at global and international research reviewed by Baker and LeTendre (2005), I saw striking contradictions to negative stereotypes about American laxity in homework, yet at the same time I noticed patterns of complexity as identified by Cooper (2007) above. For example, the view of American schools was that they do not expect as much homework from their students compared to foreign schools. However, according to Baker and LeTendre, the U.S. was among the international leaders in the amount of homework assigned. In sharp contradiction to what Marzano and Pickering (2007) reported, American math teachers, on average, assigned about twice as many hours of homework as Japanese teachers.

Initial inspection of national scores and the amount of homework assigned supported the criticisms offered by Kohn (2006). Countries with high national scores, such as Japan, Denmark, and the Czech Republic, did not assign as much homework as countries with lower scores, like Greece, Iran and Thailand (Baker & LeTendre, 2005). However, a closer look at all nations showed that homework and its effects were complicated, as Cooper (2007) pointed out. Not all nations fit into an inverse homework-test score relationship. In Romania, students did more homework than any nation and had high test scores, but Korea, whose students did less math homework than American kids, scored higher on math tests (Baker & LeTendre). Baker and LeTendre reported that "there are obviously other factors at play" (p. 121).

Cooper (2007), Cooper et al. (2006), and Baker and LeTendre (2005) offered a research baseline that supported homework as a positive factor that influenced achievement. However, this baseline also pointed out that homework had many forms, each involving different lengths, styles and skill levels. To further complicate the issue, homework was completed by students who varied in their personalities and preferences regarding homework. From the results reported above, one might agree with Marzano and Pickering (2007) that homework improved learning, at least in general. On the other hand, the complexity of both homework and the people who did it, along with striking exceptions within the above results, required that I pay close attention to the methods and criticisms of research so that my study was best suited to the unique patterns of my own students.

Despite criticisms of this traditional research, I examined methods available to myself as an action researcher. Cooper, et al. (2006) identified three common styles for studying the impact of homework on learning. First, there is *exogenous manipulation*, where the teacher manipulates the amount of homework only for the purpose of research. This manipulation can be done randomly or non-randomly. If done non-randomly then some process should occur to make sure the homework and no-homework groups are as similar as possible (Cooper et al.). The two groups should have about the same backgrounds, traits, levels of academic achievement, and about the same number of males and females (Cooper, 2007). The researcher then compares the achievement of students who are intentionally assigned homework with the achievement of those who are intentionally not assigned any homework, while making sure the teacher takes great care

to see that both groups are treated exactly the same in every other way (Cooper, 2007). As mentioned earlier, these studies usually resulted in the students being assigned homework doing better on unit tests than students not assigned homework (Cooper, 2007; Cooper et al.).

A second research style reviewed by Cooper et al. (2006) is *naturalistic, cross-sectional*, which entails measuring the amount of time spent on homework without manipulation by the researcher but often includes what Cooper et al. (2006) described as "an attempt to statistically equate students on other variables that might be confounded with homework and therefore might account for the homework-achievement relationship" (p. 13).

Finally, Cooper, et al. (2006) outlined a third method, *simple bivariate correlation*, which is a simple correlation "between the time spent on homework and the measure of achievement" (p. 13). There is no statistical equating of students on variables that may interfere with the homework-achievement relationship, but different correlations with homework are calculated based on gender, social class, and exceptional education status (Cooper, et al.).

I believed exogenous manipulation and simple bivariate correlation to be better suited to my work as a beginning action researcher. Naturalistic, cross-sectional research involved less control and manipulation of homework as an independent variable than exogenous manipulation, but instead relied on complex statistical analyses to determine if extraneous variables were interfering with the correlation between homework and achievement. Therefore, naturalistic, cross-sectional methods seemed appropriate for

action researchers who were more experienced, especially in data analysis and statistics. I ultimately decided that as a beginning action researcher the first part of my study would simply use exogenous manipulation to determine if homework I assigned had a general impact on achievement.

Cooper (2007) provided my research with a general direction for measuring the relationship between homework and achievement. However, I realized that it would be difficult to measure how homework impacted learning, as there seemed to be little consensus that how researchers measured learning was valid or reliable. How could I measure the impact of a given factor on learning, such as homework, if there was not agreement upon how to measure learning itself?

One indicator that was commonly used to measure learning, or achievement, was standardized tests, especially for studies on large populations, like the ones Baker and LeTendre (2005) cited. What was typically done was that the test scores of students who did more homework were compared with those who did less. For example, in another review of homework research, 43 out of 50 studies showed that students who spent more time on homework scored higher on national and state tests (Cooper, et al., 2006). However, critics pointed out that homework was not causing the high achievement, but rather that teachers often required more homework from students who ranked at higher levels of achievement (Kohn, 2006). I must admit that in my own honors geography class, where students were enrolled based on higher reading scores, I felt compelled to challenge these talented students with more complicated, time-consuming work.

Another problem with standardized tests was that there were correlations between high scores and other factors that were greater than the correlation between high scores and time spent on homework. Consider socioeconomic factors. From standardized test scores, we could more accurately guess the value of students' houses and how affluent their neighborhoods were, than we could guess how much homework they did (Kohn, 2000). Such seemingly extraneous variables clouded homework research for African-American students as well as White students. Flowers and Flowers (2008) conducted a statistical analysis of the Educational Longitudinal Study of 2002 and concurred with the baseline research that homework improved achievement of students of all racial groups. However, their analysis indicated that homework did not affect reading achievement as much as family income or parental involvement.

With measurements on learning, such as standardized test scores, I saw a complex set of variables that may have a lot more effect than homework. If this was the case for standardized tests, then I suspected the same was true for the chapter tests I administered, even though I wrote them myself. Grades, teacher test scores, and standardized tests scores had positive correlations with time spent on homework, but could I really be sure that there was a connection between homework and learning?

The challenges against using test scores to prove that homework was effective reminded me of what I saw in the literature as a trend that had come about. Researchers and critics pointed out that most of the earlier research on homework and learning was homework-centered, achievement-centered, teacher-centered, or parent-centered, but not student-centered. Another body of research indicated that the amount of homework

students completed, and how much homework affected their learning was actually based on the motivation, preferences, culture and psychology of the students themselves (Hong & Milgram, 2000; Kralovec & Buell, 2000; Trautwein & Ludtke, 2007; Xu 2005). Therefore, despite criticisms against using student input, many recent studies used student interviews and questionnaires, in addition to achievement measures.

Student Perception

Trautwein and Ludtke (2007) wrote that teachers commonly believed that a lack of effort in completing homework was due to a lack of conscientiousness on the part of their students. However, while many students lacked effort, research that relied on student input indicated that motivation was connected to how much students perceive homework to be meaningful (Trautwein & Ludtke). Homework effort seemed to vary from subject to subject, depending upon how the student perceived each specific course (Trautwein & Ludtke). This approach offered some insight into the homework issue, beyond the homework-achievement correlation. Why would a student spend more time on homework in one class, and not spend any time on homework in another class? Student perception seemed to play a hard-to-see role in the correlation between time spent on homework and achievement.

Compared to studies like Trautwein and Ludtke (2007) that relied on student self-report, traditional research treated students like lab animals, having variables and factors acted upon them, rather than being treated like intelligent human beings with the ability to interpret their own realities and make their own decisions (Kralovec & Buell, 2000). The methods of research conducted by Hong (2004), Hong and Milgram (2000), Minotti

(2005), Xu (2005), and Xu (2006) supported the perspective of students as active shapers of experience who had their own learning styles and preferences. The studies outlined below did not convince me to eliminate homework-achievement correlations from my action research, but they did convince me to add a student-centered component.

Ethnography

Preceding Kohn (2006), Kralovec and Buell (2000) asserted that homework did more damage than good, in that it harmed children's relationships with their families. The traditional homework research of the past, that focused on achievement, was too narrow because it did not take into account the effect that long hours of homework had on families (Kralovec & Buell) and on student health and endurance (Buell, 2004). For example, Buell hypothesized that long workdays, brought on by homework, caused students to suffer social and academic impairments similar to the health impairments suffered by overworked doctors and nurses in the medical field.

In order to measure the effects of homework that were not visible in test scores, Kralovec performed a case study in a New England high school while teaching a philosophy course for college-prep students (Kralovec & Buell, 2000). Kralovec assigned no homework. Data collection was ethnographic in nature: in order to measure the impact of no homework on college-prep students, Kralovec received input from the students about the format of the course. Students in the study reported mostly positive data, pointing out that Kralovec's no homework policy improved learning, relieved them of great stress, enhanced cooperative learning, and reduced inequities in achievement (Kralovec & Buell).

Homework and Learning Styles

Although ethnography might have provided a lot of interesting information about the emotional and social effects of homework, as a beginning researcher I wanted to collect student-centered data that could be more directly and efficiently linked to achievement than student interviews. For example, the next study I outlined measured the effects of learning style-based homework on achievement (Minotti, 2005). In this method, achievement scores were compared between one group, where everyone got the same traditional assignments, and another group, where everyone got customized assignments based on learning-styles. The focus here was not solely on achievement scores, but on each child's individual style. This study used the model of learning styles formulated by Dunn and Dunn (as cited in Minotti), which includes six strands: a) environmental conditions in which a child learned the best; b) emotional state, which entailed the child's motivation, responsibility and persistence; c) sociological conditions, which was whether the child learned better alone or with others; d) physiological, which were the child's sensory strengths, such as sight, touch, hearing, action, or whether the child preferred to move around while learning or to sit in one spot; and e) psychological, which was whether or not the child was analytical, impulsive or reflective. The hypothesis here was that homework improved achievement the most when it was individualized for a child's learning style, as outlined by Dunn and Dunn (as cited in Minotti).

Minotti (2005) performed this study on a body of sixth, seventh, and eighth grade students from a parochial school in New York City, most of whom were from racial

minorities and low socioeconomic backgrounds. Experimental and control groups were filled with students selected randomly (Minotti). Careful steps were taken to ensure that both the control group and experimental group were treated exactly the same in every way, except that the control group had traditional homework, while the experimental group had learning style-based homework. Prior to the 2-week research window, the experimental group took an assessment to determine each student's learning style, after which a computer produced individual homework packets based on each student's results. Meanwhile, the control group received a booklet of homework tips that followed a traditional style of studying (Minotti).

Minotti (2005) reported that in all content areas studied, the control group, with its traditional study tips, had small, nearly insignificant gains. The experimental group, however, with each student having an individualized homework packet, had significant improvement. Minotti concluded that this study clearly favored the individualization of homework assignments based on each child's assessed style.

As a teacher I felt compelled to heed the advice of Minotti (2005), that these results should "provoke educators, parents, and students to explore and seriously consider this concept" (p. 82). A student's learning style seemed to be an important factor as to whether or not homework had a positive impact on learning.

Homework Preferences

While Minotti (2005) supported a learning style approach to homework, other research showed that the focus on learning styles was not the most effective way to improve the practice of homework (Hong, Milgram, & Rowell, 2004). Despite the

positive influence that learning style-based homework seemed to have had in Minotti's research above, the Homework Performance Model asserted that there were limitations to the application of learning styles to homework (Hong & Milgram, 2000; Hong et al., 2004).

The Homework Performance Model was a student-centered model, focusing on student learning styles, student motivation and student preferences, especially at home where homework was done. Devising this model was necessary because home learning styles and school learning styles were confused with one another (Hong & Milgram, 2000; Hong et al., 2004).

First of all, the learning styles model formulated by Dunn and Dunn were in-school learning styles, and were therefore limited in their application to homework, which was out-of-school. Researchers were mistaken if they assumed that a student's learning style was the same at both school and at home, because these two styles were distinguished empirically by research (Hong & Milgram, 2000). Therefore, Hong and Milgram formulated the Homework Performance Model to address student homework preferences.

Secondly, the Homework Performance Model also included the concepts of a) motivation, which were environmental, cognitive and emotional forces that activated student homework behavior, and b) preferences, which were student likes and dislikes that influenced whether or not an individual persisted in adequately and meaningfully completing homework (Hong & Milgram, 2000). The Homework Performance Model supported the position of Kralovec and Buell (2000) that stated a student-centered

approach was important by asserting that each student had a unique pattern of motivational and preferential factors that influenced how effective any given homework assignment was for that student's achievement (Hong, et al., 2004).

Within the scope of their study, Hong and Milgram (2000) identified three types of motivation: self-motivation, parent-motivation and teacher motivation. Self-motivation was the level of intrinsic motivation to do homework activities outside of school. Parent motivation was the attention and set of parenting strategies used to motivate one's child to complete homework. Teacher motivation was a student's motivation to do homework based on satisfying a teacher. Both parent and teacher behavior could increase or decrease motivation to do homework, depending upon whether or not teacher and parent strategies fit the personal preferences and needs of the child. Hong and Milgram's outline of preferences are discussed next.

For homework preferences, both Hong and Milgram (2000) and Hong, et al. (2004) defined four categories: a) Organizational. Some students had preferences as to how homework was assigned and when and where it was to be done. Preferences varied as to whether the material had strict directions or flexible directions, or whether the work was done right after school or later in the evening, or whether it was to be done at the kitchen table or in the living room; b) Surroundings. The environment in which a student did homework factored into the amount of sustained effort a student had to complete assignments. Students often had choices as to the lighting, temperature, type of seating, level of noise, and other situational factors in which they did homework; c) Perceptual-Physical. Students had preferences as to whether the homework activities were visual,

auditory, hands-on, or kinesthetic. Some preferred to read about theories, while others preferred video dramatizations or discussions about real-life applications. Furthermore, some students preferred to eat and drink while doing homework, while others preferred to eat before or after doing homework. And finally, some preferred to do homework in one spot, while others liked to move around, switching from the library down the street, to the living room at home, and then maybe later to the back porch; d) Interpersonal. Some students preferred to do homework alone, whereas others preferred doing it with other students, or with teachers around.

The purpose of this study was to measure, outside of school, whether or not students were able to complete homework in their preferred homework style, by comparing students' actual motivation and preferences to students' preferred motivation and preferences. The study compared the achievement of students who did homework according to their preferences to the achievement of students who were not able to do homework according to their preferences (Hong, et al., 2004).

Hong and Milgram (2000) collected data using questionnaires they formulated, called the Homework Preferences Questionaire (HPQ) and the Homework Questionaire, where 272 American seventh graders self-reported how they preferred to do homework as compared to how they actually did homework. The questionnaires included items about motivation, organizational preferences, surroundings preferences, perceptual-physical perceptions, and interpersonal preferences. Hong and Milgram used the results of these questionnaires to calculate mathematical gaps between the students' preferred homework

conditions and actual homework conditions, which were then compared to student achievement.

In terms of homework preferences and achievement, this and other studies showed that a wider gap between a student's preferred homework conditions and actual homework conditions resulted in lower achievement measures, while a smaller gap between a student's preferred homework conditions and actual homework conditions resulted in better scores on achievement (Hong, et al., 2004). Furthermore, positive relationships were found between achievement and parental knowledge of a child's homework preferences and between achievement and a child's freedom to do homework according to their homework preferences (Hong, et al.).

Reasons for the gaps between preferred and actual circumstances while doing homework were likely due to factors at home that deprive students control over their homework settings (Hong & Milgarm, 2000), but according to the Homework Performance Model, homework increased learning, if the homework and homework setting matched a student's personal preferences. Therefore, action research of student preferences seemed important to my use of homework in the classroom. Along with measuring a homework-achievement correlation through exogenous manipulation, I would also measure the impact of student homework preferences by measuring the gap between my students' preferred homework conditions and their actual homework conditions.

Research Questions

After reviewing the literature, I believed that action research could be used to improve my educational practices. In studying the effects of my homework policy, I needed to consider using student input as well as measures of achievement. Although Cooper (2007) and Cooper, Robinson, and Patall (2006) indicated that homework generally improves test scores, I also agreed with the other literature reviewed here that student perceptions of homework were likely to be important to learning as well (Hong & Milgram, 2000; Kralovec & Buell, 2000; Trautwein & Ludtke, 2007; Xu 2005;). Nevertheless, action research on homework was not without its critics. Not only did Kohn criticize the use of achievement (Kohn, 2000) and student self-reports (Kohn, 2006), but Buell (2004) criticized action research altogether by saying that teachers who study the impact of homework on their own kids are likely to be biased in their teaching and grading between their control groups and experimental groups. However, despite the potential flaws and biases that could interfere with my research, I believed that the working relationships between my students and I was likely to improve if I attempted action research that entailed both achievement-centered and student-centered data. I decided to measure the impact of homework on achievement scores and the impact of student preferences on homework completion and achievement scores. In order to improve my educational use of homework, I intended for my action research to answer the following questions:

RQ_1: What was the impact on quiz scores from assigning homework as opposed to not assigning homework?

RQ_2: How did the gap between students' preferred homework conditions and actual homework conditions impact homework completion rates?

RQ_3: How did the gap between students' preferred homework conditions and actual homework conditions impact quiz scores?

Methodology

Participants

Participants in this study were ninth-grade geography students from a Midwestern, suburban public high school. The study required measuring the impact of homework and homework preferences on two groups of students taking the same course, therefore twenty-one students were selected from two separate sections of the same world geography course. The 12 students in Group A were selected from a section of world geography in which 18 students were enrolled. Group A was made up of 5 White males, 1 Latino male, 1 African American male, 4 White females and 1 Latino female. Two of the participants from Group A were students who had been identified as qualifying for special education services. The 9 students in Group B were selected from the other geography section in which 25 students were enrolled. Group B was made up of 4 White males, 1 Asian American male, 1 Latino male, 3 White females, and 1 Latino female. One of the students from Group B was a student who had been identified as qualifying for special education services. Participants in both groups scored from average to below average on high school entry reading tests. The purpose and procedure of the study was presented to the students two weeks before the research window, and informed consent was obtained from both the participants and their parents or guardians. As the classroom

teacher for both Groups A and B, I conducted this study, along with the support and assistance of one special education teacher and one special education aide.

Procedure

This study lasted for 18 weeks, from the start of the high school's second semester in January of 2009, until the end of the semester in June of 2009. At the beginning of the study, I collected archival data in the form of first semester quiz scores from Groups A and B, in order to determine the level of similarity between the two groups.

During the second semester, I manipulated my homework policy for the two groups. For the first 9 weeks of the second semester, I assigned no homework to Group A, while I assigned homework to Group B. During this period, the special education staff and I treated both groups the same way as much as possible during instructional time and during the school day. I used the same learning activities in both sections, and the special education aide spent the same amount of support time in both sections. The special education teacher was careful to provide the same geography support to the special education participants in both groups during a learning skills class later in the school day. I assessed participants in both groups with the same quizzes, except for the special education participants who took modified assessments. At the end of the first 9-week period, I surveyed Group B about their homework preferences and about how often they were able to do homework according to their preferences during the first 9-week period.

For the second 9 weeks of the second semester, I assigned no homework to Group B, while I assigned homework to Group A. During this period, the special education staff

and I treated both groups the same way during instructional time and during the school day. I used the same learning activities in both sections, and the special education aide spent the same amount of support time in both sections. The special education teacher was careful to provide the same geography support to the special education participants in both groups during a learning skills class later in the school day. I assessed both groups with the same quizzes, except for the special education participants who took modified assessments. At the end of the second 9-week period, I surveyed group A about their homework preferences and about how often they were able to do homework according to their preferences during the second 9-week period.

Research Design

The purpose of this study was to measure the impact of homework on learning and to measure the impact of student homework preferences on homework completion and on learning. Data collection tools included teacher-created quizzes, a homework completion log and a homework preferences survey.

In order to measure the impact of assigning homework versus assigning no homework, I relied on chapter quiz scores. For the first 9 weeks of the study, I compared the average scores of Group A, the no homework group, to the average scores of Group B, the homework group. Then for the second 9 weeks of the second semester, I compared the average scores of Group B, the no homework group, to Group A, the homework group. Finally, I compared the differences in quiz averages from the second semester, where homework was manipulated, to the differences in quiz averages from prior to the study, where homework was not manipulated. I also calculated correlation coefficients

between homework completion rates and quiz averages for the entire sample of 21 students. The intention was to determine if quiz scores were higher or lower due to homework.

In order to determine how student homework preferences factored into the impact of homework on learning, I administered the Homework Preferences Survey (see Appendix) to participants in both Groups A and B, a survey that I created based on the Homework Preferences Questionaire (HPQ) and the Homework Questionaire as outlined by Hong and Milgram (2000). The survey determined student preferences on several homework conditions, including when and where the participants preferred to do homework, whether they preferred to do homework with or without music playing, alone or with others, and several other factors. The survey also measured how often the participants perceived they were able to do homework as they preferred to do it. Students rated how often they were able to do their homework according to each surveyed homework condition by using the following scale: *(1) Always, (2) Often, (3) Sometimes, (4) Rarely, and (5) Never.* A final option of *(6) Not applicable/no preference* was provided for students who had no preference for a given homework condition. Using the results of this survey, I calculated the average gap between each participant's actual homework conditions and preferred homework conditions. Mean responses closer to 1.0 meant that there was a smaller gap, and mean responses closer to 5.0 meant that there was a larger gap. However, responses of *(6) Not applicable/no preference*, were not included in calculating a participant's average gap.

To determine the impact of student homework preferences on homework completion, I compared the average gap between each participant's actual and preferred homework conditions with their homework completion rate. To determine the impact of student homework preferences on learning, I compared the average gap between each participant's actual and preferred homework conditions with their average quiz scores.

Results

Homework versus No Homework

Table A displays the mean quiz scores for Groups A and B for both prior to the study, where both groups had homework, and for during the study where the homework policy was manipulated. During the first 9 weeks of the study, mean quiz scores are compared between Group A, who had no homework, and Group B, who had homework. During the second 9 weeks of the study, mean quiz scores are compared between Group A, who had homework, and Group B, who had no homework. (Table A).

Table A

Quiz scores and exogenous manipulation of homework.

	One semester prior to study (Both had homework)		First nine weeks (Group B had homework)		Second nine weeks (Group A had homework)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Group A	78	19	79	14	78	19
Group B	84	19	79	16	80	23

Homework completion logs revealed that for the first 9 weeks, Group B had a mean homework completion rate of 67% and a median rate of 81%, while for the second 9 weeks Group A had a mean completion rate of 39% and a median rate of 41%. I also calculated correlation coefficients for all 21 participants between homework completion rates and quiz averages. During the first 9 weeks Group B had a coefficient of 0.38, and during the second 9 weeks Group A had a coefficient of 0.52. When the results for all 21 students were combined, the overall correlation coefficient between homework completion and quiz averages was 0.44.

Homework Preferences and Homework Completion

During the first 9 weeks of the study, homework preference surveys of Group B yielded an overall average gap between actual homework conditions and preferred homework conditions of 1.8. The correlation of Group B homework completion rates and average homework preference gaps yielded a coefficient of 0.45. Group B students with mean preference gaps less than 2.0 averaged a completion of 10 homework assignments during the first 9 weeks, while students with mean preference gaps more than 2.0 averaged a completion of 14 homework assignments.

During the second 9 weeks of the study, homework preference surveys of Group A yielded an overall average gap between actual homework conditions and preferred homework conditions of 2.2. The correlation of Group A homework completion rates and average homework preference gaps yielded a coefficient of -0.31. Group A students with mean preference gaps less than 2.0 averaged a completion of 6 homework assignments

during the second 9 weeks, while students with mean preference gaps more than 2.0 averaged a completion of 3 homework assignments.

For all 21 participants in the study, the overall correlation coefficient between homework completion and the average gap between actual and preferred homework conditions was -0.27. Mean homework completion rates for all participants with average preference gaps less than 2.0 was 56%, while for all participants with average preference gaps more than 2.0 was 33%.

There were negative correlations between homework completion rates and gaps between actual conditions and preferred conditions for 7 of the 11 specific homework preferences, with the strongest negative correlation being for the organizational preference of when homework was to be done. On the other hand, there were positive correlations between homework completion rates and 4 of the 11 specific homework preferences (see Figure 1 on p. 27).

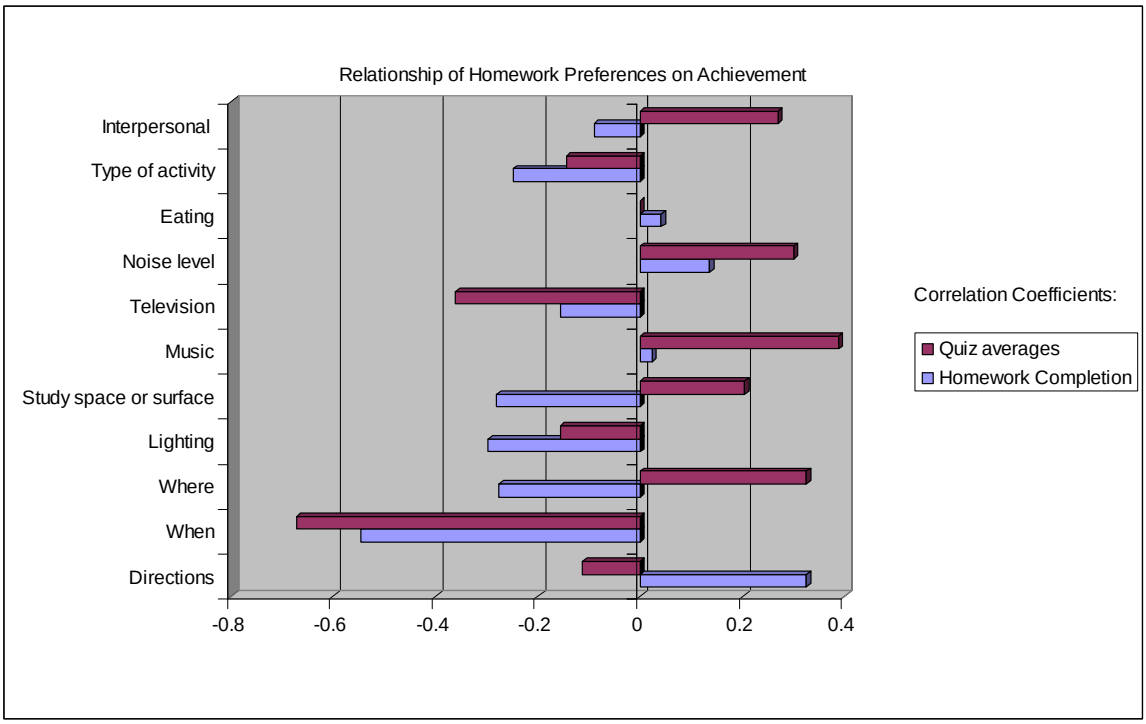
Homework Preferences and Quiz Scores

During the first 9 weeks of the study, mean quiz scores and mean gaps between actual and preferred homework conditions for Group B yielded a correlation coefficient of -0.16. Students with average preference gaps less than 2.0 had average quiz scores of 80, while students with average preference gaps more than 2.0 had average quiz scores of 76.

During the second 9 weeks of the study, mean quiz scores and mean gaps between actual and preferred homework conditions for Group A yielded a correlation coefficient of 0.32. Students with average preference gaps less than 2.0 had average quiz scores of

78, while students with average preference gaps more than 2.0 had average quiz scores of 77.

Figure 1. Correlations between specific homework preferences and quiz averages and homework completion rates.



There were negative correlations between quiz averages and the gaps between actual conditions and preferred conditions for 5 of the 11 specific homework preferences, with the strongest negative correlation being for the organizational preference of when homework was to be done. However, there were positive correlations between quiz averages and 6 of the 11 specific homework preferences (see Figure 1 on p. 27).

Discussion

I believe that the data presented in this study revealed an inconclusive relationship between a) homework and quiz scores, b) homework preferences and homework

completion, and c) homework preferences and quiz scores. First of all, not only did quiz averages remain the same between both groups regardless of homework status, they remained the same throughout the duration of the study, through both the first and second 9 weeks. Second, the gap between actual homework conditions and preferred homework conditions seemed to have only a weak relationship to homework completion and almost no relationship to quiz scores. Finally, I believe the findings of this action research study were very limited in their application to my own practice as an educator, because my normal teaching style changed in order to accommodate the exogenous manipulation of my homework policy.

Homework versus No homework

During the second semester of the 2008-2009 school year, when this study took place, quiz averages between groups A and B remained similar regardless of status as either the homework group or no homework group. While Group B had a higher quiz average than Group A before the study began, both groups averaged about the same on quizzes during the study. During the first 9 weeks of the study, both the homework group and no homework group had the same average quiz scores of 79. Compared to before the study when they had homework, Group A quiz scores for the first 9 weeks remained about the same even though they had no homework. Group B quiz scores actually dropped from prior to the study, even though they still had homework.

During the second 9 weeks of the study, results changed very little, even though I reversed the homework policy for the two groups. Group A, the homework group, had a quiz average of 78, while Group B, the no homework group, had a quiz average of 80.

Throughout the 18 weeks of this study, homework averages remained between 78 and 80 regardless of homework policy, therefore homework seemed to have little impact on learning.

I think it is important to note that during the first half of the study Group B had a homework completion rate of 67% while during the second half of the study Group A had a homework completion rate of only 39%. Regardless of the reasons for this low rate for Group A, I believed that this comparison to Group B's higher rate provides useful insight. During each group's homework time there were similar quiz averages, despite a wide difference in homework completion, further demonstrating that homework did not impact learning. Students had similar quiz averages whether they completed homework more often or less often.

Comparing this study to those reviewed by Cooper (2007) and Cooper, Robinson, and Patall (2006) demonstrated that homework in this study did not have as much impact as it did in previous research. For example, six studies reviewed by Cooper showed that the average homework student did better than 73% of the no homework students on unit tests. In contrast, during the first half of this study the average homework student from Group B did better on quizzes than only 50% of the no homework students in Group A, and during the second half of this study the average homework student from Group A did better on quizzes than only 37.5% of the no homework students in Group B.

Although for all 21 participants in the study there was a positive correlation between homework completion rates and quiz averages, the coefficient of 0.44 is not strong. Furthermore, a positive relationship between homework completion and quiz

scores does not provide conclusive evidence that homework improves learning. Kohn (2006) asserted that such correlations only show associations and do not prove actual cause and effect. There was nothing in the data of this study that indicated whether higher quiz scores resulted from doing more homework, or from some other academic, social, or economic factors.

As Baker and LeTendre (2005) mentioned, there are many unseen factors that impact the homework-achievement relationship, and this study is no different. My research offers little explanation as to why Group B's quiz average dropped six points from prior to the study, but it seems clear that homework did little to help them during the study. As for Group A, their average remained very much the same before and during the research window, also indicating that homework did little to help them either.

Homework Preferences and Homework Completion

Hong, Milgram, and Rowell (2004) and Hong and Milgram (2000) concluded that a student is more likely to complete homework if they are able to do homework the way they prefer to do it. In other words a smaller gap between actual homework conditions and preferred homework conditions resulted in a higher rate in completing homework. In this study, such a relationship was expressed as a negative correlation.

Initial analysis of the homework preference surveys concurred with Hong, Milgram, and Rowell (2004) and Hong and Milgram (2000). For actual conditions versus preferred conditions, Group B had an average overall gap of 1.8, while Group A had an average overall gap of 2.2. This means that Group B students reported being able to do homework the way they preferred to do it more often than Group A. Group B completed

67% of their homework assignments, while Group A completed 39% of their assignments. Although the group that reported doing homework more in line with their preferences completed it more often, the difference in homework completion seemed much larger than the difference in preference gaps, so there may have been factors other than homework preferences that accounted for the difference in homework completion rates.

Nevertheless, combined analysis of all 21 participants indicated that homework preferences impacted homework completion rates. Students with average overall gaps less than 2.0 had an average homework completion rate of 57%, while students with average overall gaps greater than 2.0 had an average homework rate of 33%. There was also a small negative correlation between the overall gap between actual and preferred homework conditions and homework completion rates. A coefficient of -0.21 indicated that, to a small degree, students who reported narrower gaps between actual homework conditions and preferred homework conditions finished homework more often than students who reported wider gaps.

However, correlations calculated separately for each of the two groups did not offer as consistent a relationship between homework preferences and homework completion. Group A had a coefficient of -0.31 which supports Hong, Milgram, and Rowell (2004) and Hong and Milgram (2000). For Group A, when the overall gap between actual and preferred conditions was smaller, homework was done more often. On the other hand, Group B had a positive correlation coefficient of 0.45, which contradicts the work of Hong et. al. (2004) and Hong and Milgram (2000) in that students

completed homework more often when the gap between actual and preferred conditions was wider.

Homework Preferences and Quiz Scores

While the data seems to support a weak relationship between homework preferences and homework completion, solid conclusions for the relationship between homework preferences and quiz scores are hard to find. I calculated the correlation between the overall average gap in homework preferences to quiz scores for all 21 participants and the coefficient of 0.04 indicates that there is essentially no relationship between homework preference gaps and quiz scores. Breaking it down separately for the two groups further demonstrates the absence of a relationship: Group B had a weak negative correlation of -0.21, while Group A had a positive correlation of 0.32. One group demonstrated a weak negative correlation, while the other group demonstrated a weak positive correlation, so overall this study, in contrast to the findings of Hong, Milgram, and Rowell (2004) and Hong and Milgram (2000), offers little connection between the gap between actual and preferred homework conditions to quiz scores.

Breakdown of Specific Homework Preferences

The discussion so far has focused on the impact of the average gap between several student homework preferences and the students' actual homework conditions. I also decided to itemize the homework preferences to determine if some preferences I targeted were more important to achievement than others. This breakdown revealed further doubts as to the impact of the measured homework preferences on overall achievement (see Figure 1 on p. 27).

Of the 11 preferences I measured, only 5 had negative correlations between the gap in actual homework conditions and preferred homework conditions to quiz scores. The other 6 had positive correlations. Less than half of the preferences I considered in this study seemed to play a role in learning, according to the data. Of the preferences with negative correlations the only strong correlation was the preference regarding when students did homework.

Of the 11 preferences measured, 7 had negative correlations between the gap in actual homework conditions and preferred homework conditions to homework completion rates. The other 4 had positive correlations. Of the 7 preferences that seemed to have some relationship with homework completion, again the only strong correlation was the preference regarding when students did homework.

There seemed to be no solid pattern or consistency in the breakdown of specific homework preference gaps, other than when students preferred to do homework. The remaining preferences had weak negative correlations, weak positive correlations, or opposing negative and positive correlations between quiz scores and homework completion.

Limitations

Approximately 1 week into the research window, when I began the exogenous manipulation of homework policies between Groups A and B, I realized a serious limitation to this action research that had not occurred to me before it started. As Cooper (2007) and Cooper, Robinson, & Patall (2006) advised, when manipulating an experimental group, such as the no homework group, and comparing it to a control group,

such as the homework group, it is very important to treat both groups exactly the same during instructional time as much as possible, to more accurately isolate and measure the impact of homework on assessment scores.

While I believed that I followed this rule quite well, I realized that it was impossible to use exogenous manipulation to measure the impact of homework on my own unique practice as an educator. Prior to this study, I assigned homework to all my geography classes and then used the homework in class as part of the lesson during instructional time. When the research window began, I was forced to change my normal style of teaching. Since the no homework group had no assignments for me to use during instructional time, I had to use lessons that required no use of outside homework. And since I had to treat the homework group the same as the no homework group during class, I was not able to teach the way I normally would have, by using that day's homework in the lesson. In other words, for my own unique practice as a geography teacher, this study had no true control group representing my normal practice. Therefore, I believe that this study measured the impact of homework as an independent, supplemental activity to instructional time, but not as an activity that overlapped with instructional time, which is the way I normally used it.

A second limitation in this study came to light with the huge difference in homework completion rates between Groups A and B. I was not sure why Group A had such a low homework completion rate, but I speculated that it may have been due to following a 9 week period without homework, such that they had a difficult time resuming the habit of doing it again. Group A may have had a low homework completion

rate not solely due to reporting larger gaps between actual and preferred homework conditions, but rather due to following a 9 week period of no homework.

A third limitation in this study was my role as both researcher and classroom teacher for Groups A and B, especially for the survey. Since I administered the Homework Preferences Survey myself as their teacher, the participants may not have responded to the survey as they normally would have for an outside researcher. Therefore, my presence may have biased the resulting gaps between preferred homework conditions and actual homework conditions, so this study may not have accurately measured the impact of homework preferences on learning.

Conclusions and Implications

The results of this action research study indicate that homework, as an independent, supplemental activity that was not used during instructional time, had little impact on learning in geography. Throughout the research window, Group A and Group B maintained similar quiz averages whether they spent time on homework or not. However, since homework was not used at all during instructional time, this study does not tell us anything about the impact of homework on learning, where the homework is discussed, corrected or used in any other way during class. The results of this study also revealed that no patterns existed between the gap in actual homework conditions and preferred homework conditions on homework completion and learning, except in regard to the student preference of when students do homework. Apparently, time and time management outside of class seemed to be important, because homework completion

rates and quiz scores seemed to be linked to the preference of when students were able to do homework.

I have shared the results of this study with my superintendent, principal, social studies department, and other colleagues, volunteering to present this study to teachers in my school district during professional development time.

Action Plan

In my practice I have continued to assign homework activities, but only activities that are used in class as part of instructional lesson activities. I no longer assign homework that is supplemental and separate from lesson activities during class, with the exception of longer projects, for which there is rigorous feedback. I have also allowed students' input on homework due dates, especially for larger assignments and projects, to provide my students flexibility in terms of when they can get homework done.

The issue of assigning homework will continue and more research needs to be done. Simply increasing the time students spend on the curriculum by assigning homework does not seem to improve assessment scores. As a result, I have modified my own use of homework accordingly. However, additional research needs to be done to measure the impact of homework that is regularly used in overlap with lesson activities during instructional time. Such research will likely require both homework-centered and student-centered methods, especially to identify and measure how the various ways homework can be used in class impacts learning.

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Appendix

Homework Preferences Survey:

Name:_____
(Your responses will remain strictly confidential.)

For each item, please circle the number next to the answer that best applies to your preferences and situations.

A. Which of the following best describes your preference in terms of geography homework directions and requirements:

1. I prefer geography homework directions and requirements that are specific.

2. I prefer geography homework directions and requirements that are flexible.

3. I prefer geography homework to have a mix of specific and flexible directions and requirements.

4. I have no preference about geography homework directions and requirements.

5. Other (list any preferences about directions/requirements that are not listed)

_____
_____

B. How often do your geography homework directions and requirements actually match your preferences from item A above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. Not applicable since I have no preference on geography homework directions.

C. When would you prefer to do geography homework?

1. In a study hall later the same day it is assigned.

2. In a study hall the next day before geography class meets.

3. Right after school.

4. Later in the evening.

5. I have no preference.

6. Other time (please list or explain)

_____

_____

D. How often are you able to actually do homework when you would prefer as reported in item C above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

E. Where would you prefer to do your geography homework?

1. At the kitchen table.

2. In a living room.

3. In a bedroom.

4. At a library.

5. At school after the student day.

6. I have no preference.

7. Other place. (Please list or explain).

_____

_____

F. How often are you actually able to do geography homework where you would prefer as reported in item E above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

G. Which of the following best describes your preference for your surroundings while you do geography homework?

1. Bright light

2. Moderate light

3. Dim light

4. I have no preference on lighting.

5. Other (please list and explain)

_____

_____

H. How often are you actually able to do geography homework with the lighting you prefer as reported in item G?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

I. What is your preference for study space while you do geography homework?

1. At a desk.

2. At a table.

3. On my lap.

4. On the floor.

5. Other (please list and explain)

_____

_____

J. How often are you able to actually do geography homework with your preferred study space as reported in item I above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

K. Do you prefer to have music playing while you do geography homework?

1. Yes

2. No

3. I have no preference.

4. It depends. Explain

_____

_____

L. How often are you able to do geography homework according to your music preferences as reported in item K above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

M. Do you prefer to do geography homework in front of a television that is on?

1. Yes

2. No

3. I have no preference.

4. It depends. Explain

_____

_____

N. How often are you able to do geography homework according to your television preferences as reported in item M above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

O. What level of noise do you prefer while doing your geography homework?

1. I prefer complete silence.

2. I prefer it to be mostly quiet – some light background noise (TV, music, people talking) is preferred.

3. I prefer moderate noise and background activity.

4. I prefer loud background noise.

5. I have no preference.

6. Other (please list and explain)

_____

_____

P. How often are you able to do geography homework according to your noise preferences as reported in item O above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

Q. What are your preferences in terms of eating and doing your geography homework?

1. I prefer to do my geography homework before eating.

2. I prefer to do my geography homework after eating.

3. I prefer to eat while doing my geography homework.

4. I have no preference.

5. Other (please list and explain)

_____

_____

R. How often are you able to do geography homework according to your eating preferences as reported in item Q above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

S. What type of geography homework activity do you most prefer?

1. Homework that is visual. (Studying maps, charts, diagrams, watching video/television etc.)

2. Homework that is auditory. (Listening to music, sound effects, speaker's voice, etc.)

3. Homework that is tactile. (Hands on, building or designing charts, dioramas, etc.)

4. Homework that is reading and writing. (Reading text and answering questions, writing definitions, etc.)

5. Homework that is kinesthetic. (Homework that requires movement such as walking around, running, biking or some other physical activities.)

6. I have no preference.

7. Other (please list or explain)

_____

_____

T. How often are you able to do the type of geography homework activity as reported in item S above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

6. (not applicable as I have no preference)

U. Which of the following best describes your preferences in terms of interpersonal contact while doing geography homework?

1. I prefer to do homework alone.

2. I prefer to do homework with other students or friends.

3. I prefer to do homework alone, but with a teacher, or teachers, around.

4. I prefer to do homework alone, with a parent or other adult around.

5. I prefer to do homework with other students or friends, but with a teacher, or teachers around.

6. I prefer to do homework with other students or friends, but with a parent or other adult around.

7. I have no preference.

8. Other (please list and explain)

_____

_____

V. How often are you able to do geography homework according to your interpersonal preferences as reported in item U above?

1. Always

2. Often

3. Sometimes

4. Rarely

5. Never

N/A. (not applicable as I have no preference)