

Effectiveness of Theory Related Learning Activities

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ABSTRACT. This study compared two learning activities, a research article critique learning activity and a family science theory project involving music (referred to as the “Music Theory Project”), to determine if the learning activity is associated with increased knowledge of common family science theories. Specifically, this study examines students’ knowledge of overall subject matter content, as well as knowledge of common marriage and family theories presented during an introductory marriage and family course. Participants consisted of students enrolled in the introductory marriage and family course in a family science degree. Findings indicate that students demonstrated increased knowledge of both overall course content knowledge and theory knowledge at a statistically significant level. However, determining exactly which learning activity had a greater impact on the learning process was not clearly identifiable.

Keywords: teaching theory, assignment effectiveness, learning activities, music

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Examining strategies in the teaching and learning process is becoming increasingly important (Clegg & Smith, 2010; Gibbs, Habeshaw, & Yorke, 2000; McWilliam, 2004; Patterson, 2001; Rowley & Sherman, 2001). In some countries, the emphasis has moved away from student outcomes and toward teaching effectiveness in an effort to bolster accountability within the educational system (Bransford, Brown, & Cocking, 2000; Tomlinson, 2008).

In *Views of Effective College Faculty: A Mixed Analysis*, students identified 29 characteristics of effective college professors (Slate, LaPrairie, Schulte, & Onwuegbuzie, 2011). While “being knowledgeable” was a top-ranked characteristic, students did not identify “learning as a result of good teaching.” However, a common assumption is that teaching process has direct impact on student learning. Therefore, effective teaching must result in student learning (Tomlinson, 2008). One way teachers attempt to influence student learning is by employing various learning activities.

Although faculty develop activities to enhance student learning, graduate school programs in most disciplines offer little guidance about designing effective learning activities. Mohr (2002) developed a *Course Assignment Framework* aimed at helping faculty members design quality assignments that are not too time-consuming for students to complete or for faculty to grade.

Fitzpatrick and Kostina-Ritchey (2012) support the concept of relevance-based teaching techniques (RBTTs) to enhance student learning because these techniques are designed to relate directly to course concepts, often supplementing or replacing traditional lectures. RBTTs include using reflections, service-learning interactions, and media (e.g., movies, literature, television, gaming, and music).

Demitt (1998) argues that including various sensorimotor methods in teaching addresses different learning styles and may provide students with more enjoyable learning experiences than relying on traditional textbooks does. However, Howard Gardner’s multiple intelligences theory incorporates various teaching strategies tailored to optimize students’ cognitive preferences along with providing positive emotional experiences. In one study, students in 10 psychology courses had the option of completing assignments based on individualized “intelligence” preferences. Ten years after the first course using this theory was offered, results indicated that rates of student motivation, satisfaction with learning, and retention of material were higher than for students who participated in traditional teaching strategies (Diaz-Lefebvre, 2006). *Musical intelligence* is one of the intelligences Gardner identified.

Music-related Learning Activities

According to Moreno (2009), there is a correlation between music and cognition. Research shows that music activates both hemispheres of the human brain, which should boost learning (Baines, 2008). While there appears to be a human cognitive connection to music, others claim music is also a socializing influences. According to Martin and Fabes (2006), music is a strong influence on adolescent culture, which shapes identity and defines social groups. Music can

define generations through the stories it tells. Music can also have strong impact on listeners' beliefs and attitudes (Leck, 2006).

Music has been linked successfully to teaching in sociology (Elterman, 1983; Walczak & Reuter, 1994) and to psychology, especially in relation to topics such as abnormal behavior (Potkay, 1982), adolescent development (Napoletano, 1988), personal adjustment (Hughes, 1984), and personality theory (Leck, 2006). Music and other art forms have been identified as very popular methods for teaching family therapy theory (May, 2004).

Research Critique Learning Activities

A more traditional learning activity used in some courses involves research critiques. A research critique familiarizes students with current research in the field and prepares them for writing literature reviews to promote future research. While teaching theory is seldom the primary purpose of a research article critique assignment, Knowles and Morag (2011) believe students begin to learn how to apply theory by examining research. Regardless of the type of learning activity used in courses, research on evaluating an assignment to determine its impact on student learning is lacking (Mohr, 2002).

This study compared two learning activities designed to reinforce marriage and family related theoretical concepts presented in the textbook used for an undergraduate introductory family science course. Learning activities were required assignments; along with two tests and a final exam, these assignments determined student course grades.

The first learning activity was a *Research Article Critique* assignment. Students were required to write a critique of two articles in family science research. The articles had to involve quantitative research and to appear in peer-reviewed journals. Students addressed specific information provided in the assignment instructions. One element of the assignment involved identifying the theoretical perspective of the author(s). Students were asked to choose from among theories the textbook identified as primary theories used in family science research studies (i.e., Structural-Functional, Conflict, Feminist, Ecological, Family Life Course Development, Symbolic-Interactionist, Social Exchange, and Family Systems). Student learning objectives for this assignment were (a) become familiar with current research topics, (b) learn how to read a research article, (c) identify data collection methods used in the family science field, and (d) identify the author's or co-authors' theoretical perspective(s).

The second learning activity was a family science theory project involving music, referred to as the *Music Theory Project*. In this assignment, students provided summaries of each theory in the textbook and selected songs that depicted these theories. Students also explained how the songs depicted main aspects of theories. The assignment's intent was to help students gain deeper understanding of theories taught in the course.

The study's purpose was to establish which assignment has an impact on student knowledge and understanding of subject matter in an introductory college-level marriage and family course (or, whether either assignment has such an impact). Specifically, this study examines students'

knowledge of overall subject matter content and their knowledge of common marriage and family theories presented in the course. The investigation tested these four hypotheses:

- Hypothesis 1: Students will demonstrate greater knowledge of course material at the end of the semester than they did at the beginning.
- Hypothesis 2: Students will demonstrate greater theory knowledge at the end of the semester than they did at the beginning.
- Hypothesis 3: Supplementing the Research Article Critique learning activity with the Music Theory Project learning activity in spring 2008 will produce greater theory knowledge than did using only the Research Article Critique learning activity in Spring 2007.
- Hypothesis 4: The Music Theory Project learning activity in fall 2007 will enhance students' understanding of family science theories more than the Research Article Critique learning activity in spring 2007 did.

Methods

Participants

There were 75 participants, all of them enrolled as students in the introductory course for a family science degree. The course was required for students majoring in family science. However, this course was open to all undergraduates.

Instrument

The final exam, designed to evaluate how well students achieved course objectives (see Appendix A for course objectives), was the pre-test and post-test for this study. This exam consisted of 46 multiple choice questions, 13 matching items, and one true or false question from the test bank provided with the course textbook, *Marriages and Families: Choices and Constraints* (Benokraitis, 2008). In its entirety, the final exam determined the change in overall content knowledge. (Contact the author for a copy of the final exam.) A theory knowledge scale designed to measure theoretical knowledge was created, using only those questions pertinent to theoretical concepts.

Procedure

The Institutional Review Board (IRB) granted permission to collect study data. During the 2007 spring semester, students enrolled in the introductory family science course were taught 17 marriage and family related theories in the textbook. Instructors used various teaching techniques. However, the process for teaching the material was consistent for each semester of the study. Students were asked to read assigned chapters before attending classes. For each chapter in the text, content was delivered via mini-lectures using PowerPoint presentations

available through instructor resources and class discussions. When first introduced to primary marriage and family theoretical perspectives and to common theories about love, students participated in additional in-class group activities.

For the primary marriage and family theoretical perspectives the textbook presented (i.e., structural-functional, conflict, feminist, ecological, family life course development, symbolic interactionist, social exchange, and family systems), each group was assigned a theoretical perspective. Students were asked to review text material about their assigned perspective. Next, students were instructed to watch a scene from the movie *The Great Santini* and to identify types of issues the clip illustrated that a theorist from their assigned perspective would be interested in studying. After viewing the clip, students could compare notes with group members about the movie clip before presenting their group's findings to the rest of the class.

For primary theories about love (i.e., biochemistry, Lee's styles of loving, attachment, Reiss's wheel theory, Sternberg's triangular theory of love, and exchange), the instructor again divided students into groups and assigned them specific theories about love. Next, each group was asked to write a love poem about their theory with specific instructions to include major concepts about the theory and unique terminology (e.g., "secure attachment") associated with their poem's theory. Each group presented major concepts of their theories and read their poems to the class.

During the spring 2007 semester, students took pre-tests on the first day of the course. Students received the Research Article Critique assignment (see Appendix B, Guidelines and Format for Writing an Article Critique). At the end of this semester, students completed the final exam, which was used as the post-test.

During the fall 2007 semester, students did not take the pre-test on the first day of the course. The same teaching format of the spring 2007 semester was used during fall 2007. For the fall 2007 semester, students were assigned the Music Theory Project learning activity (Appendix C), but not the Research Article Critique learning activity. The post-test was administered during the regularly scheduled final exam period.

In the spring 2008 semester, students took the pre-test on the first day of class. Again, the same teaching format of the spring 2007 and fall 2007 semesters was used during spring 2008. During spring 2008, students were assigned the Research Article Critique and the Music Theory Project learning activities. The post-test was administered during the regularly scheduled final exam period.

Table 1 summarizes this study's design. The table indicates assignment(s), numbers of participants, and types of data collection for each semester.

Table 1

Summary of Study Design

Semester	Assignment(s)	Participants	Data Collection
Spring 2007	Research Article Critique	21	Pre-test and Post-test
Fall 2007	Music Theory Project	37	Post-test only
Spring 2008	Both the Research Article Critique and the Music Theory Project	17	Pre-test and Post-test

Results

Descriptive Statistics

All study participants were enrolled in an undergraduate introductory family science course at a liberal arts institution. Of the 75 students who participated, 90% were female and 6% were members of ethnic or racial minorities. Students ranged in age from 19 to 23 years old.

Inferential Statistics

Investigators collected data for this project during three semesters. To determine whether student course content knowledge increased from the beginning to the end of the semester (Hypothesis 1), data from the spring 2007 and spring 2008 semesters were analyzed because pre-tests and post-tests were both administered. Using the paired *t*-test, there was a statistically significant increase ($p = 0.000$) in mean scores between pre-testing ($M = 39.636$, $SD = 4.885$, $n = 33$) and post-testing ($M = 53.394$, $SD = 3.929$, $n = 33$).

For Hypothesis 2, which examined change in student knowledge of theoretical concepts, the researchers analyzed data from the spring 2007 and spring 2008 semesters. Again, the paired *t*-test calculated a significant increase ($p = 0.000$) in mean pre-test ($M = 9.294$, $SD = 1.801$, $n = 34$) and post-test scores ($M = 13.500$, $SD = 1.308$, $n = 34$).

Table 2 summarizes results of paired *t*-tests for Hypothesis 1, change in course knowledge, and Hypothesis 2, change in theory knowledge.

Table 2

Means and Standard Deviations on Course Knowledge and Theory Knowledge

Knowledge	<i>n</i>	Pre-test		Post-test		<i>p-value</i>
		Mean	<i>SD</i>	Mean	<i>SD</i>	
Course	33	39.63	4.885	53.394	3.929	0.00
Theory	34	9.294	1.801	13.500	1.308	0.00

Hypotheses 3 and 4 looked at change in theory knowledge based on course assignments. During the 2007 spring semester, students were assigned a project consisting of writing two research article critiques. During the 2008 spring semester, the students were assigned the Research Article Critique and Music Theory Project assignments. Hypothesis 3 looked at whether theory knowledge increased as a result of supplementing the Research Article Critique assignment with the Music Theory Project assignment. According to the two independent groups *t*-test, there was no statistical difference ($p = 0.421$) in theory knowledge based on post-tests for students in the 2007 spring semester ($M = 13.33$, $SD = 1.39$, $n = 21$) and for those in the 2008 spring semester ($M = 13.69$, $SD = 1.20$, $n = 16$).

Hypothesis 4 compared change in theory knowledge during the 2007 spring semester and the 2007 fall semester. The assignment during the 2007 spring semester consisted only of the Research Article Critique assignment, while the 2007 fall semester consisted only of the Music Theory Project. Hypothesis 4 looked at whether theory knowledge increased because of the Research Article Critique assignment or the Music Theory Project assignment. Again, using the two independent groups *t*-test, there was no statistical difference ($p = 0.334$) in post-tests of students in the 2007 spring semester ($M = 13.33$, $SD = 1.39$, $n = 21$) and the 2007 fall semester ($M = 13.73$, $SD = 1.54$, $n = 37$). Table 3 summarizes means and standard deviations for each type of assignment.

Table 3

Means and Standard Deviations by Assignment Type

Assignment	<i>n</i>	Mean	<i>SD</i>
Article Critique only	21	13.33	1.39
Music Theory only	37	13.73	1.54
Article Critique and Music Theory combined	16	13.69	1.20

Discussion

This study attempted to verify that student learning occurs when students take an introductory marriage and family course, and that assignments in the course reinforce and/or improve students' learning. Findings indicate that students demonstrated increased knowledge of overall course content knowledge and of theory knowledge at statistically significant levels, which supports Hypothesis 1 and Hypothesis 2. In other words, it appears students are learning because they take this course.

However, determining which assignment had more impact on the student learning process was difficult because results were not clearly identifiable. Whether the assignment consisted only of the Music Theory Project, or only the Research Article Critique assignment, or a combination of both learning activities, the assignment did not lead to statistically significant increases in overall course content knowledge or theory knowledge. Study findings suggest that the increase in student knowledge was essentially the same regardless of the assigned learning activity. This result does not support Hypothesis 3 or 4.

Implications

Creating and grading quality assignments requires great investments of instructor time and energy. Likewise, students invest time and energy to complete assignments. This study is important for determining effectiveness of the assignments in this course.

Though it was encouraging to document that learning takes place during the semester in this course, it was discouraging to realize that the learning activities, which affected a student's overall grade in the course, may not contribute to increases in overall course content knowledge or to increases in theory knowledge. If learning does not increase because of an assignment, then the assignment may not be necessary. However, assignments may be worth repeating if there is recognition of other positive outcomes, such as positive student perceptions of the course or increased student confidence in understanding theories.

Limitations

Although this study provides more information about effectiveness of two assignments in a family science course, there are several limitations. One is the lack of comparison data during a semester where neither project was assigned to students. In this study, students received at least one of the assignments each semester.

Another limitation involves consistency of lectures over the three semesters investigated. While the same instructor delivered course content during each of the three semesters, inconsistency in content delivery might have influenced results. Furthermore, although Gardner's Theory of Multiple Intelligences was the impetus for creating the Music Theory Project, the original study design did not address all the intelligences Gardner identified. The Music Theory Project assignment was created to give students ways to connect parts of their cultural influences (listening to music) with course content.

This study only examined changes in grades on a test. The research did not account for other ways to assess student learning. Moreover, the study did not account for the possibility that either assignment, or a combination of the two assignments, may affect theory retention differently.

Future Research

There is a need for more studies to determine whether *any* learning activity will influence student learning or if student learning can occur without such an assignment. Further study is also necessary to determine whether one of these learning activities has a better impact on long-term retention of material taught during the course. Likewise, there is a need for research that establishes a connection between an assignment given during a course and how students' feelings may influence their desires to learn. Finally, evaluating effectiveness of customized, individualized assignments for each student in a course on family science theory will enrich the research literature.

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Appendix A

Course Objectives

Upon completion of the course, students will have:

1. Demonstrated knowledge of fundamental information (factual and theoretical) related to marriage and family. (*TLA: Informational ability*)
2. Identified the influences of contemporary American culture on various aspects of the marriage and family experience. (*TLA: Quantitative ability*)
3. Critiqued a recent research article in the field of Family Science. (*TLA: Quantitative ability and Writing ability*)
4. Identified significant stresses and rewards of marriage and family life at various stages of the family life cycle.

Appendix B

Guidelines and Format for Writing an Article Critique

WHAT IS A CRITIQUE?

A critique is an analysis, synthesis or evaluation of an article. This is not the same as a criticism. A critique is objective and discusses an article's strengths and weaknesses.

CHOOSING AN ARTICLE

- I. Select an article relevant to the course topic. If you can relate this to your particular environment so much the better, but remember, this is not the first criterion for selection. Maintain a focus.
2. You will need to select a **RESEARCH** (which contains a methods section) article from a **PEER REVIEWED** (this should be an actual search criteria from the Samford Library home page) journal. *The Journal of Marriage and Family* may be a good place to start, but it is not the only place to find a research article. Please choose an article from the last 5 years. If you need help, please ask the reference librarian.
3. Be sure to get a complete copy of the entire article, not just the abstract.
4. Be prepared to turn in the following information about your article choice: (Date will be indicated on the syllabus)
 - a. Title of Journal
 - b. Title of Article
 - c. Author's name(s)
 - d. Date of publication

FORMAT

Please follow format exactly and clearly label each section. The label for each section required is underlined.

*In the Department of Family Studies, we use APA format. For this assignment, the article citation and in text citations should be in APA format. There are no additional APA format requirements for this assignment (no title page, no running head, etc.) A reference page is **ONLY** needed **IF** you use a source other than the article you chose.*

Your Name (in top left corner of paper)

Date assignment is due (in top left corner of paper)

Journal Article (*APA format and content, 5 points*)

Author(s). (Year). Article title. *Journal Title*, volume #, page numbers.

If you need help with APA format, please consult the Library Resources link on the Marriage and Family Blackboard page.

Research Method (*10 points, choose from methods described in Chapter 2*)

Choose the research method the author used to gather his/her data. Explain why you think the author used this particular research methodology. Support your case.

(Please note that in almost every research article, there is a section, near or in the introduction, where the author will review and summarize what has been researched in the past by previous authors. This is referred to as a “review of the literature”. This is not the same as the actual research conducted by the author(s) of this article. The actual research method for this article will usually be listed under a “Methods” section.)

Theoretical framework of author(s) (*10 points, choose from theories in Chapter 2*)

Choose the theory from Chapter 2 which most closely describes the way the researcher approaches the study of families. Explain what information from the article led you to believe that the author is from this particular theoretical framework. Support your case.

Summary (*5 points*)

The summary (also called an abstract) is a brief overview of the contents of the article. You will write your own summary of the article. You may **NOT** copy the abstract from the article (even if you cite it). This is supposed to be your summary of the article. Suggestions for writing the summary are below.

1. It should be informative and contain the salient data.
2. Information should be presented in the same order as it was in the original paper, and the same points should be emphasized.
3. One to two paragraphs is usually ample.
4. You may have to read the article several times before you understand it. Please see How to Read a Research Article on the FAMS 202 Blackboard page.

5. You may want to start by putting the article aside after you have read it several times, then write down what you remember most or thought was the most important information. You will then need to revise your work by referring to the article.

Critique (15 points)

You will be graded on APA in text citation format, spelling and grammar, and thoroughness of explaining the 8 items below)

1. Provide some information about the author. What are their qualifications and/or their point of view?
2. Who is the intended audience? Is the article suitable for that audience?
3. Does the author justify why this they believe this topic is important
4.
 - a. What are the strengths of the author's research method
 - b. How could it have been improved? What part of the research method could have caused these results (evidence of research bias)?
5. Does the article make a contribution to the field?
6. Does the information support or contradict your own *personal and academic* experiences?
7. Does the article have a logical format? Is it well written?

Areas of additional research (5 points)

List the additional research questions that the author(s) indicated would be helpful in future studies. If the authors do not specify additional research that needs to be done, what questions do you have remaining after reading the article?

Total point value: 50 points

Appendix C

Music Theory Project Instructions

Fall 2007

FAMS 202 Marriage and the Family

Music Theory Project

Students will create a CD with songs representing each of the following theories covered in class. **You must do #17 (Lee's Theory*)**. Then you can choose any 11 of the remaining 16 theories. In other words, there are 5 theories you can choose to omit (but not Lee's theory).

In addition to turning in the CD, you will need to provide documentation including the following information for each theory:

- Title and performer for each song
- A brief explanation of the theory the song represents
- Indicate the specific lines, versus, etc. in the song that represent the theory
- An explanation about how this song represents the theory

Theories to choose from

Social-learning theory

Cognitive development theory

Equity theory

Filter theory

Structural-functionalist theory

Symbolic interaction theory

Family systems theory

Ecological theory

Family Life Course Development theory

Feminist theory

Social Exchange theory

Conflict theory

Reiss

Biochemistry

Attachment

Sternberg

*Lee (include an example of each of the following):

Eros

Mania

Ludus

Storge

Agape

Pragma