

THE USE OF SCAFFOLDS TO HELP IMPROVE STUDENTS' SUCCESS WITH PERSUASIVE TERM PAPERS IN AN ONLINE MUSIC COURSE

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A scaffold was created for use in a 16-week, fully online general education music course. A persuasive paper of 10 pages was assigned in four steps starting at midterm and concluding in finals week. After the topic and concept maps were approved by the instructor, students were provided access to a sentence starter scaffold for use in drafting their paper if needed, but not required. Students self-reported use of various instructor-supplied scaffolds used for the persuasive paper—one option available was the sentence starter scaffold. The submitted papers were also filtered for use of the sentence starters presented in the scaffold. The results indicated that only 12% of the participants (N = 116) admitted to using the scaffold, while filters found evidence of sentence starters in 23% of the participants' papers. The analysis of variance of participant grades on the final paper was $p = 0.948543$, which is significant (alpha of 0.05). This identifies that the population of students using the scaffold earned scores significantly different from those who did not use the sentence starter scaffold. As a result, this study evidences the importance of providing students with scaffolds when learning in the online environment.

KEY WORDS: online music instruction, assessment, analysis of variance (ANOVA), online scaffold design, general education course

1. INTRODUCTION

Scaffolding is a specific educational technique used to support students' learning by providing a temporary framework to existing knowledge. Many types of scaffolding are used in education, which include both face-to-face and online techniques that can be divided mainly into two categories. Hard scaffolds are typically preloaded into an online course as extra clues, models, or hints that help students get through a module if needed. Soft scaffolding is more tailored and offers one-on-one assistance between the student and instructor, such as allowing an instructor to answer a direct question. Scaffolding is generally not required to be used by a student in order to complete a unit; the material is provided “just in time” to the student if needed.

The literature studies reviewed were exceptionally helpful in illustrating the various models for scaffolding argumentation writing with younger learners in both online and face-to-face formats. Belland et al. (2008) provided a thorough review of scaffolding models and scaffold studies in order to analyze how students use and benefit from scaffolds in their study involving an ill-structured problem. The assignment was to create an evidence-based argument. Six guidelines were suggested for the creation of evidence-based argumentation scaffolding: 1) embed scaffolds within a system; 2) have students articulate their thoughts; 3) constrain the problem space; 4) consider motivation; 5) make scaffolds explicit for students with less prior knowledge; and 6) focus on the development of conceptual, strategic, and procedural hard scaffolds.

Modeling is a common tactic used by educators in the classroom to scaffold better writing skills. Educators should discuss topics that lead to a variety of good argumentative papers, after which other topics that have fewer options or “dead ends” can be analyzed. Read et al. (2014) created a 10-step checklist to help students achieve success in argumentative papers. Included in the steps was identifying a curriculum topic that would provide a rich context for writing persuasive arguments. While some topics such as “the crippling effect of Miles Davis' cocaine addiction on his performing career” might work, a student would struggle with a broader topic like “the use of the quarter note by the kick drum in western swing.”

Another step was to plan for the inquiry phase of the writing and discuss the kind of persuasive text assigned. Depending on the students' age, the Toulmin (1958) approach, which uses the warrant and grounds, is commonly employed. Read et al. (2014) suggested referencing where to locate and how to glean information in order to support an argument. In modeling, the students might be shown prewriting notes from the library search results. Next, Read et al. (2014) suggested modeling how students should think about their audience, purpose, and features of the persuasive paper. Final suggestions from Read et al. (2014) called for additional modeling of revising and editing for the conventions of a persuasive paper.

Graduate students appear to rely on each other rather than scaffolds. They have possibly built a rapport with one another in previous courses, in their professional careers, and feel more comfortable asking each other for help. In An (2010) the research questions measured students' use of hard scaffolds placed in the course during the design phase. Scaffolds varied from conceptual, metacognitive, and procedural to strategic in type (see Table 1). A specific research question targeted the scaffolding types that did not work well in an ill-structured problem for the group.

TABLE 1: Scaffolds of conceptual, metacognitive, procedural, and strategic nature in An (2010)

Well-Structured Problems	Mean
Claims	6.733
Grounds	4.000
Warrants	1.000
Backings	0.000
Rebuttals	0.467
Ill-Structured Problems	Mean
Claims	7.600
Grounds	5.267
Warrants	1.467
Backings	1.400
Rebuttals	1.000

The results indicated that group members divided tasks into individual subtasks in order to complete the ill-structured activity. Use of the scaffolds was considered helpful, but peers were found to be most beneficial. The author deemed hard scaffolds as helpful for many students with soft scaffolds necessary for others as well. In the ill-structured problem, a synchronous communication tool surfaced in student commentary as important despite the wiki's intended placement by the author to foster that communication online.

Student-to-student interaction scaffolds can also be implemented into an online learning environment. Cho and Cho (2014) studied 158 college students enrolled in an online educational psychology course where they implemented a scaffold for peer interaction paired with the class mastery goal and another scaffold for peer interaction for a class performance-approach goal:

“Mastery goal structure was focused on developing student competence; therefore, instructors in the type of classroom environment promote student engagement in academic work to master skills and emphasize improved understanding about content. Performance-approach goal structure focuses on demonstrating competence relative to other students; therefore instructors in this type of classroom environment emphasize students' superior ability to others” (p. 26).

The results indicated participants perceived their online class as being more mastery-oriented than performance-approach oriented (0.53 and significance at $p = 0.01$).

Participants of the mastery-oriented approach group also showed higher levels of emotion and behavioral engagement (0.66 and 0.62, respectively; both significant at $p = 0.01$).

As seen in a study by Felton and Herko (2004), open discussion of ideas among peer groups allows for the flow of debate, generates fresh opinions, and can present new angles to the author. Felton and Herko (2004) hosted a writing workshop to strengthen students' writing abilities by teaching them to introduce counterarguments and rebutting counterarguments in their persuasive papers. A metacognitive scaffold developed was termed PREP:

- Position: "What is your position on this issue?"
- Reason: "What is your reason for this position?"
- Explanation: "How could you explain this reason?"
- Proof: "What evidence could you present to support this explanation?"

A prewriting activity asked students to develop multiple perspectives on the argument of the day. A verbal debate was held before assigning a written document as homework overnight. Peers responded to the written work the next day and provided feedback to the author.

Students using a two-sided argument should first identify opposing-side claims or arguments made to support a position antithetical to their own viewpoint. Second, students should address and ideally counter-argue the opposing-side claims that they identify. Third, the students should identify possible arguments against their own position and respond with a rebuttal. Additionally, students need qualifications to communicate the strength or force of a position statement, as well as reservations that communicate the specific circumstances under which one is willing to hold or abandon a stance.

The use of ill-structured problems in online learning appears to be an area of promise for constructivist-style learning. Ill-structured problems are created by the instructor to mimic authentic situations in the discipline, yet have fewer constraints and missing information, leaving students more options to manipulate and construct their answer. Cho and Jonassen (2002) compared the claims of a group of participants in a well-structured activity using a scaffold to those claims by a group of participants in an ill-structured activity using a scaffold. The ill-structured activity small group with scaffolds earned statistically significant better mean scores, as shown in Table 2.

TABLE 2: Scaffolded well-structured claims compared to scaffolded ill-structured claims

Scaffold Type	Scaffold
Conceptual	Project specification
	Resources and tips
	Feedback on social bookmarking activity
	Feedback on drafts
Metacognitive	Project plan
	Progress reports
Procedural	YouTube videos and related articles
	Step-by-step instructions
Strategic	Feedback on project plans
	Feedback on progress reports
	Resources and tips

De La Paz (2001) designed a simple acronym, STOP, to simplify argumentative writing strategies for students, which stands for *suspend* judgment, *take* a side, *organize* ideas, and *plan* more as you write. She used a scaffold of transition words and questions to help her students through the writing process.

Argumentative writing can be done with many age groups if an educator crafts modifications to existing models. Nussbaum (2002) adapted a design from Stephen Toulmin's approach to argumentation (Toulmin, 1958) with slight changes to wording from warrant and grounds to opinions and evidence. Sixth grade students used the scaffolds to generate more complete and explicit arguments. The author stressed the importance of practice. The graphic organizer was laid out like a flow chart with arrows to assist students in understanding how a piece of evidence relates to the opinion about the overall argument of the day.

Students amid the struggle in comparing opinions might find it useful to turn to a collection of sentence starters neatly organized by Graff and Birkenstein (2014). In their book that might be adapted as a textbook for college-level composition courses, *They Say, I Say: The Moves that Matter in Academic Writing*, the authors provided "templates" for students to use in various scenarios throughout their persuasive paper. Their book was organized in easily adaptable sections of "They say," "I say," "Tying it all together," and "In specific academic contexts." Each of those sections had additional subsections with more specific templates for use in writings. The research was insightful in that it addressed common student struggles such as providing ways to agree and disagree with various authors,

signaling to the reader who's opinion is who's, entertaining objections, naming naysayers to the claim, establishing why the claim matters, and extending the length of the paper without redundancy.

The studies cited previously involved a variety of face-to-face, blended, and fully online courses. They also spanned the ages of sixth graders to graduate students and utilized very little technology to highly integrated with technology. All of the studies cited hard scaffolds and specified/implied the use of soft scaffolds as well. In each of the studies, scaffolds were shown to positively influence student performance on an argumentative paper.

The existing literature lacks an application of an argumentative paper in a fully online music course. This is important since the field of music education is slowly adapting to online delivery; however, our pedagogy for this platform is still in its infancy. Researchers need to adapt concepts from other disciplines to study the transferability into online delivery for music teaching and learning.

This study was designed to investigate students' use of a hard scaffold that was modeled using the Graff and Birkenstein (2014) templates with a persuasive paper assignment of 10 pages in an online music course. Triangulation consisted of: 1) self-identifying their use of the template, 2) tracking the use of the template in the online learning management system (LMS), 3) scanning final papers for use in the sentence starters presented on the scaffold, as well as comparing the grades of students using the templates to students who did not use the templates.

2. METHODOLOGY

This study was guided by constructivism, wherein the central tenant is that learners gain new information through experiencing and attaching new material to prior knowledge. Closely related to this is Lev Vygotsky's "zone of proximal development" (Vygotsky, 1978), which posits learners either need no help to acquire the material or the activity is beyond the students' capability even with assistance. That assistance is scaffolding, which can be soft (one-on-one assistance provided to the individual) or hard (diagrams, models, hints, and clues provided to students). This study focused on the student use of an optional hard scaffold used by students for persuasive paper writing and its effect on the paper grade obtained by those students who used the optional scaffold in an online general education music course.

Data for the study were gathered from an online music course that had a pre-existing argumentative paper available to use as a reference in an effort to reduce plagiarism. An argumentative paper is more personal in nature, with connections to the writer's belief system; therefore, it is harder to plagiarize. Argumentative papers allow students to

exercise problem solving, craft inferences, make sound judgements, formulate opinions, make decisions, and form beliefs. The paper process is broken into four parts with unequal graded weights. The participants were required to choose a topic related to blues or jazz and have it approved by the instructor. The topic approval was due around midterm, in which it was presented similarly to the method of Toulmin (1958) as a court case with a charge (warrant) and grounds with evidence. Once the one-sentence topic was approved, the student earned one point (10% of the paper's final grade) and was provided access to various hard scaffolds, which included the following: 1) information on how to access the university's library databases; 2) six short videos of one minute in length about academic research and finding scholarly resources; 3) advise against using Google resources; and 4) contact information of research librarians willing to assist the students during the information gathering process.

The second checkpoint was a concept map that included the evidence collected by the student during the research process. The map illustrated the major tenants of the argument and displayed the resources and evidence found in the library. It also drew links from one source to another, creating a web that referenced each source. From here, I was able to help interject counterarguments to stimulate students' thinking and encourage more research. Additionally, I referred the students to a video in which I interviewed a county judge about the various kinds and types of evidence used in a court. In the 10 minute video, the judge discussed the quality of evidence, how to connect it to an argument, and then how to weave it into a narrative that tells an overall story of how things happened in the case.

The concept map was due about three weeks after the topic and was worth two points (20% of the paper's final grade). Once approved, the student was provided scaffolding to the writing phase derived from *How to Read a Book* (Adler, 1940); a scaffold of the sentence starter template from *They Say, I Say: The Moves that Matter in Academic Writing* (Graff and Birkenstein, 2014) (see Fig. 1); links to YouTube videos on how to avoid plagiarism and paraphrasing; tools for citations in various style formats; and suggestions for how to host an optional peer writing workshop. A final piece of scaffolding provided was a step-by-step guide on how to upload the rough draft for the next checkpoint.

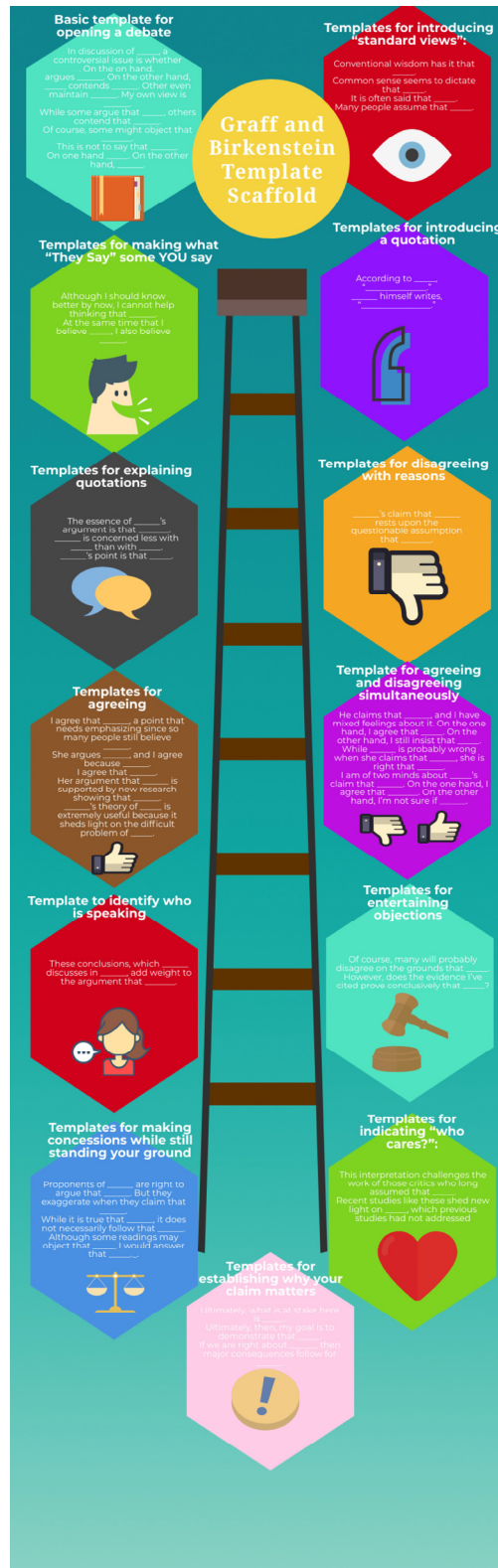


FIG. 1: Graff and Birkenstein (2014) template scaffold: “They Say, I Say: The Moves that Matter in Academic Writing”

The third checkpoint was the rough draft of the paper reviewed by an online service linked inside the Canvas LMS platform. The participants uploaded their paper, received a tutor's feedback, downloaded the feedback as a Word file, uploaded the file into the gradebook, and completed an AVID (which stands for advancement via individual determination; www.avid.org) survey. The AVID "3-2-1" technique questionnaire called upon the students to address the following: "3" things they were proud of in the essay thus far; "2" things they intended to fix before the final submission; and "1" thing they would do in the future for term papers. This checkpoint was due about three weeks after the concept map and was worth one point (10% of the paper's final grade). When received, the student was provided scaffolding on how to use the tutor's feedback most effectively without being overwhelmed. The final version of the argumentative paper was uploaded by the students to the gradebook through a plagiarism filter during finals week. The students were asked in a submission survey to identify which scaffolds, if any, they had used in the process of writing their paper (see Fig. 2); the Graff and Birkenstein (2014) sentence starter scaffold was one of the choices.

□	Question 1	1 pts
Which of these items (if any) did you use to help you in the writing of your persuasive paper?		
<hr/>		
<input type="radio"/> the sentence starters Dr. Keast sent by Canvas message		
<hr/>		
<input type="radio"/> emailed Miguel Chavez at the Dunagan Library		
<hr/>		
<input type="radio"/> the handouts on "How to Choose a Topic" and such linked on the Course Calendar page		
<hr/>		
<input type="radio"/> all of the above		
<hr/>		
<input type="radio"/> just A and B		
<hr/>		
<input type="radio"/> just A and C		
<hr/>		
<input type="radio"/> just B and C		
<hr/>		
<input type="radio"/> None of the above		

FIG. 2: Paper submission optional survey

The grading of the final papers was completed by academic coaches independent of the instructor using a six-point rubric (60% of the paper's final grade): one point for discussing music in relationship to other academic disciplines; two points for adequate scholarly research; one point for a well-constructed paper with minimal grammatical/mechanical errors; and two points for fully justifying the argument or stance with evidence. The grading rubric was created five years before this study and the academic coaches were not part of this research study. The total paper was worth 10% of the participants' course grade.

The participants ($N = 116$) in this study were undergraduate non-music majors seeking general education credit at a rural southern masters-granting university. Most of the students enrolled in the course were not resident students but resided around the state and had enrolled through a cooperative network. The age ranges of the participants were 55% in the 17–19 age bracket, 29% in the 20–22 age bracket, 14% in the 23–29 age bracket, and 2% in the 30–55 age bracket. The gender of the participants was slightly skewed: 64% female and 36% male.

Students could self-identify their use of the Graff and Birkenstein (2014) scaffold on the survey. The LMS could also report which students opened the page with the Graff and Birkenstein (2014) sentence starters, when they did so, and how many times they accessed that specific page. Finally, to complete the triangulation of the data, papers were filtered for use of any of the sentence starters provided in the scaffold.

The independent variable was the students who used the optional scaffolds during the persuasive paper process as determined through self-identification, tracking of the scaffolds, and filtering of papers for use of templates. The dependent variable was the score on the persuasive paper provided by the academic coach.

3. RESULTS

Participants were asked to complete the survey upon submission of the final paper, yielding a 37% completion rate. The data from student surveys indicated that 26% used no scaffolds during the process of the paper, 29% used the scaffold of library videos, 3% noted that they used all of the scaffolds, 3% used only the Graff and Birkenstein scaffold (2014), and 39% used a combination of the library scaffold with the Graff and Birkenstein scaffold (2014). Due to an error in page construction within the HTML code, data collection on the tracking of the Graff and Birkenstein (2014) scaffolding page failed and the data were not properly collected.

The filtering of participants' final papers found evidence of 15 out of the 35 sentence starters provided on the scaffold. In the 23% of the study's participants found to have evidence of the Graff and Birkenstein (2014) sentence starters in their paper, 11% had not

submitted the optional survey. Another five participants who had responded to the survey and indicated that they did not use the sentence starter templates were found to have evidence of the Graff and Birkenstein (2014) templates in their paper during the filtering process. Participants using the scaffold used one sentence starter template (15%), included two templates (4%), and used four templates (4%). No participants used three templates, although a few students used one template multiple times in their paper.

The final grade of the persuasive paper (representing the possibility of earning six points) was then used to compare the two populations of participants: those who were found to use the sentence starter templates during the filtering process and those who did not use the template in the final version of their paper. Analysis of variance (ANOVA) was used to compare the means of the two groups, $p = 9.48543$, which is statistically significant with alpha at 0.05. The eta of the data set yielded a 0.594, which is deemed large.

4. CONCLUSIONS

The results demonstrate that the students were willing to use the scaffold when struggling with writing longer papers such as 10 pages. The fact that nearly one-quarter of the class used a scaffold and implemented at least one of the sentence starters in their paper demonstrates that they are willing to use a hard scaffold if provided “just in time.” A question for further research would be to ask students who do not use the scaffolds why they chose not to use them.

The clear result in the ANOVA indicates that those who used the hard scaffold earned statistically higher grades than those who did not opt to use the scaffold. With an eta of 0.594, the transferability of these data is considered reliable with medium power. The use of a hard scaffold, in this study, enhanced the grades of the persuasive papers.

Many noted in anecdotes that their longest papers prior to this course were two to five pages at most. This persuasive paper was also a new angle for many since the topic approval was a challenge for many that wanted to write biographies or research papers instead of a persuasive paper. Topic proposal pass rates were 18% on first submission, 36% on second submission, 14% on third submission, and 7% on fourth submission; 25% were unable to complete (or did not complete) the task. Initial requests for topics included Louis Armstrong, swing music, effects of drugs on music, and the popularity of trumpet in jazz. Creating the fundamental change in writing format from a research paper to a persuasive paper for the students was difficult in a fully online course. Fortunately, there were tools online that aided them, as previously mentioned in the literature review.

The failure of the tracking mechanism in the Canvas LMS was a disappointment and a simultaneous learning point for future research projects. The scaffolding page's tracking function was not properly checked after it was launched. A future idea would be to

segregate the various scaffolds available in the course to a section of participants in order to identify the strength of that particular scaffold compared to another scaffold. Since the course does utilize a variety of scaffolds in the process of the persuasive paper, there could have been interaction of variables unaccounted for in the data. Isolation of those scaffolds would eliminate any interaction effect.

Another idea is to administer a personality indicator for self-directed learning. The concept will help to determine if the student is more inclined to succeed in the online course. A standard way of thinking about successful students in an online course is that they are goal directed and highly motivated. Perhaps a filter to help establish who those students are in the beginning of the course can also be used to see if those students also use scaffolds more often than “less driven” students.

The implications of this research suggest that students who use scaffolds will receive higher scores in online music courses. For instructors, we need to make the scaffolds more appealing, easier to locate, “just in time,” and with the “plug and play” mentality. The adaptation of the Graff and Birkenstein (2014) scaffold was “plug and play” because students could plug it into their paper and use it for immediate help.

Hard scaffolds have proliferated online learning classrooms and are readily available on Pinterest, Google, or even the Canvas Community. With a bit of searching, instructors can find a solution for their students' learning needs without creating something new. Most probably, a scaffold for any given situation already exists on the Internet—and it is probably available for free!

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