Five Tips from Filmmakers: An Online Instructional Module for Documentary Film Research

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Abstract

Information about the overall documentary filmmaking process is available; however, there is a lack of literature and educational resources about how to conduct subject research and data collection. As documentary filmmaking becomes an increasingly democratic endeavor due to technology, and information distribution and education use increases, there is a corresponding need for quality resources to support this essential step. In this study, a content-rich, technology-enhanced, online instructional module that was designed and developed in another study to guide and assist beginner documentary filmmakers with subject research and data collection, was implemented and evaluated by the target audience. This module featured five filmmaking tips summarizing professional documentary filmmakers' wisdom and expertise with subject research and data collection. Motivational and instructional models served as frameworks to inform and guide the study's learning design process. The quantitative and qualitative findings, field notes and observations provided data triangulation. After analysis and interpretation were completed, the results significantly confirmed the module had a positive, educational impact on the target audience and accomplished its purpose. This module addressed the lack of resources and utilized consultation of experts in content design and development to improve the creativity and production of beginner documentary filmmakers. This project successfully merged learning sciences theory and instructional design with humanities and arts research. It will contribute to the literature of documentary film research studies, the fields of instructional design and education, and the humanities. It has significant potential to influence and impact the broad possibilities of innovative, interdisciplinary research design and collaboration.

Keywords: instructional design and content development, documentary filmmaking, research and data collection, documentary film instructional module, ADDIE design model, ARCS motivational design concepts

The documentary film genre is a dynamic and effective information and communication medium that educates, inspires, and motivates its audience. It is a nonfictional documentation of fact-based reality, and its purpose is to share knowledge, increase understanding, or preserve historical records. Aufderheide (2007) defines a documentary as a film or video that "tells a story about real life, with claims to truthfulness" (p. 2). Documentary film's increasing utilization in educational settings, as well as its advantages in distributing information to extensive audiences, is well-timed with the field's technological advances. What was an expensive undertaking can now be created with inexpensive equipment and software applications (Loustaunau & Shaw, 2018; Winston, Vanstone & Chi, 2017). Democratizing the industry allows more people, from diverse populations, to tell meaningful stories globally via documentary film.

Although information about the overall process is available, literature on the research and data collection step of documentary filmmaking, which is essential to the production process, is limited. There is a lack of information and quality educational resources about *how* to conduct subject research and collect data for documentary film in either scholarly or popular sources (Adorama Learning Center, 2018; Desktop Documentaries, 2018). This is a disadvantage for many beginners and students exploring documentary film production who might not know how to begin subject research and data collection for documentary film. There is a clear need for informative and user-friendly educational resources to fill this gap.

An educational resource about subject research and data collection, generated from the knowledge and experiences of professional filmmakers, would be extremely helpful to student filmmakers. Receiving a head start in the challenging filmmaking process, beginner filmmakers could share their important stories with the world more quickly and with improved creativity and production. This expert guidance would not only benefit beginner filmmakers, but also audiences and society at large (Leavy, 2015; Loustaunau & Shaw, 2018). An increased availability of timely documentaries would give audiences expanded learning opportunities.

Thus, this study's purpose was to implement and evaluate the educational value of an existing resource about subject research and data collection for documentary film, one that was designed and developed in another study (Iwasaki, 2021; Iwasaki, in progress). This content-rich, online, interactive instructional module, titled *Five Tips from Filmmakers for Documentary Film Research and Data Collection,* is presented on a website. The five tips featured the wisdom and recommendations of professional filmmakers from actual filmmaking experience. The module utilized technology and consultation of experts in content design and development to support and improve the overall learning, creativity and production of student filmmakers. This article is comprised of the following sections: literature review, methodology, results, discussion and conclusion, and references.

Literature Review

Steps to a Documentary

Generally, traditional documentary film takes a highly subjective approach. The filmmaker directs the entire process, from subject selection and research, to creative approaches (Bell, 2011; Friend & Caruthers, 2016). Filmmakers claim it is an extremely rewarding experience, but also one of the most challenging and demanding creative endeavors. It is often a long and arduous process with many steps including budgeting, planning, script writing, production, editing and distribution. Since information or instruction is limited or undocumented, and producing documentary films can be such a creative, artistic process, many filmmakers learn

by intuitively moving the project to completion (Adorama Learning Center, 2018; Desktop Documentaries, 2018).

The first step in creating a documentary film is to find a subject that is important to the filmmaker and is of interest to others. Since the documentary journey is often daunting and complicated, the subject needs to both energize and sustain the filmmaker for the lengthy work, and the filmmaker needs to feel compelled to share the story through film.

The second step is "research and data collection," an essential task to find resources and conduct interviews that includes background, history and context of the subject, as well as the interesting, credible, emotional and inspiring material that will resonate with the audience. This step is crucial because it determines the content of the film (Aufderheide, 2007; Bell, 2011; Frank 2013; Studio Binder, 2018; Winston et al., 2017).

Documentary Film and Education

How documentary films are used in education. Along with technological advances and lower film production costs, documentary film's information distribution and social commentary use opened the doors for its increasing applications in education (Aufderheide, 2007; Bell, 2011; Nash, Hight, & Summerhayes, 2014; Winston et al., 2017), and social science research and methodology (Frank, 2013; Goldman, Pea, Barron, & Derry, 2007). The anthropology field embraces documentary film using terms such as ethnographic film and ethnocinema (Harris, 2012; Leavy, 2015; Sjöberg, 2008). Frank (2013) expanded the educational significance, practice and application of the genre and Bell (2011) emphasized the importance of its historiographical research and scholarship. Whiteman (2004) discussed documentary films' political impact upon audiences, and Fonda (2014) combined art therapy and filmmaking.

Documentary film is used in varied research and teaching contexts and approaches from elementary education onward (Aufderheide, 2007; Frank, 2013). They can range from roughly coordinated projects to planned and scripted professional productions with a cinematographer, crew, and actors. Some may also highlight the researcher(s), participants, and others (Leavy, 2015; Leavy & Chilton, 2014). Documentary film is popular for researchers and instructors hoping to inspire and promote awareness of diverse issues such as climate change and social justice (Friend & Caruthers, 2016; Hanley, Noblit, Sheppard, & Barone, 2013); migration (Loustaunau & Shaw, 2018); to the environmental concerns of agricultural chemicals (The Monsanto Papers, 2018).

How students learn about documentary filmmaking. Just as there are steps in the documentary filmmaking process, a filmmaker's path necessitates specific actions. The journey can include obtaining a degree in film studies. Some believe a successful career requires enrolling at an elite film program at the American Film Institute or University of Southern California, while others believe that experiential learning is more important. Tuition at these schools is approximately $60,000 per year for undergraduates and $65,000 for graduate students (Learn How, 2020; Galuppo & Chuba, 2020).

Although access to state-of-the-art equipment and the networking opportunities that may come with attending these schools are helpful, there are no requisite rules. Many leading filmmakers say their passion for filmmaking began while they were young, making short videos with friends and family, and that experience, matters the most. "Even films created on a smartphone

and edited on a laptop can convey your raw talent and eye for cinematography." (Learn How, 2020, para. 4).

Quality online educational resources about the documentary filmmaking process would further democratize the industry for beginner filmmakers. The overall goal of this study was to add an original, informative, and free educational resource to help student filmmakers make their goals a reality.

The Current Study

The purpose of this study was to evaluate the educational value and impact of an instructional module about subject research and data collection for documentary film that was designed and developed in another study (Iwasaki, in progress) to address the lack of information and inadequate educational resources about this topic.

The module featured beneficial recommendations by professional filmmakers from their actual filmmaking experiences (Iwasaki, 2021) condensed into five major tips with explanatory information: 1) do the research, 2) tell the story visually, 3) find strong characters, 4) support universal themes, and 5) relate to your audience. This study implemented and evaluated the module to answer the research question:

> RQ: What is the impact of an instructional module for documentary film subject research and data collection upon student filmmakers learning about and exploring documentary film production?

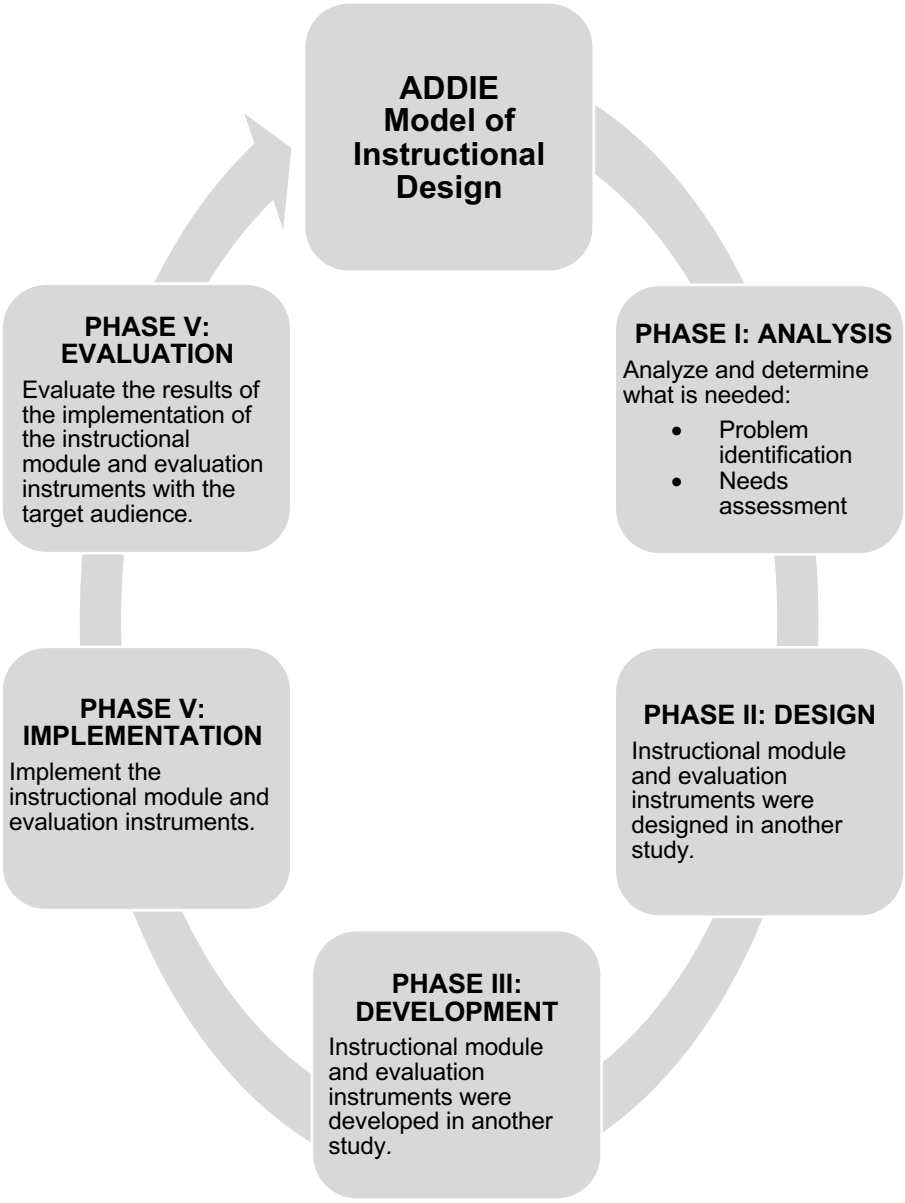
Methodology

Research Design

A convergent mixed methods design approach was used (Creswell, 2009, 2015, 2018) to gather quantitative and qualitative data from the target audience during the same time frame, rigorously strengthening the data collection, analysis and interpretation of the study. Along with the quantitative and qualitative instruments, field notes and observations were recorded and used in analysis and interpretation, applying triangulation to strengthen the study and increase credibility and validity (Glesne & Peshkin, 1992; Yin, 2016). A pilot test (Bryman, 2012) of the instructional module and evaluation instruments was conducted with a student and confirmed that the instruments worked well to collect the necessary data. Integration of the study's mixed methods approach ensured feasibility and the data was recorded, documented, and validated as much as possible (Bryman, 2012; Maykut & Morehouse, 1994; Yin, 2016).

ADDIE model of instructional design. The ADDIE model of instructional design, with its iterative phases of Analysis, Design, Development, Implementation and Evaluation, systematically guided and organized this study's learning design process (see Figure 1) (Dick, Carey, & Carey, 2001; Gagne, Wager, Golas, & Keller, 2005; McGriff, 2000; Molenda, 2015; Molenda, Pershing, & Reigeluth, 1996; Serhat, 2017). The process included formative assessments by experienced reviewers that informed and guided the strategic design modifications involving multiple iterations of the instructional module (Iwasaki, in progress). The final format of the module was important to this study. A basic, single-page infographic progressively evolved to become an engaging, easy-to-navigate, multimedia module on a website. The ADDIE process ensured that the study focused on the best educational practices for the target audience, beginner filmmakers.

Figure 1
Representation of the study using the ADDIE model



Analysis: Problem identification. A lack of information and educational resources about subject research and data collection for documentary film in either scholarly or popular sources (Adorama Learning Center, 2018; Desktop Documentaries, 2018) is a problem as many students exploring documentary film production might need assistance on how to begin research and data collection.

Analysis: Needs assessment. Since the target audience is student filmmakers in higher education, addressing their academic, cognitive, and physical needs were essential to the study's design. U.S. college student generalizations include: diverse population at 42% non-white, 62% work part- or full-time, demand for digital technology, self-paced learning, multimedia integration, online learning's flexibility and convenience, need for financial aid and affordable housing, and focus on the cognitive knowledge, exploration, discovery and meaning needs (Bill & Melinda Gates Foundation, 2020; Education Dive, 2017; McGraw-Hill,

2016; National Center for Education Statistics, 2020). This study was also informed by the students at a four-year comprehensive, regional university in the western United States who participated in this study. The learner profile includes a diverse, mostly full-time undergraduate and graduate student population.

Design and development. The design and development of the module and evaluation instruments for this study were completed in other studies (Iwasaki, 2021; Iwasaki, in progress).

Implementation. The implementation of this study will be reported in the Methodology section.

Evaluation. Evaluation of this study will be reported in the Results section.

Participants

There were 17 participants out of a pool of 20; students taking a free, 11-week non-credit class on film and video production at a four-year university in the western United States, and other students interested in documentary film production at the same institution. Taught by two professionals, the course covered pre-production, production and post-production, including educational and documentary filmmaking. Some of the students taking the course were also associated with the university's video production program. An exempt status IRB approval was secured for the study.

The majority of students, seven students (44%), were sophomores. College majors of the participants varied widely. Two participants declared Administration of Justice, two Business, two Education, two Kinesiology, and the rest were individually different: Accounting, Biology, Communication, English, Environmental Science, Hawaiian Studies, Nursing, Political Science, and Psychology.

Instructional Module

Table 1 below presents the content in the module: five major themes aligned with the ARCS model concepts of attention, relevance, confidence and satisfaction (Keller, 1983, 2010, 2017), and organized as five beneficial "tips," summarizing the wisdom and knowledge of professional filmmakers from their actual filmmaking experiences. This information was derived and condensed from the results of a previous study (Iwasaki, 2021). The module included photos supplementing each tip, and short audio clips of filmmakers elaborating highlights of each tip (Iwasaki, in progress).

Table 1
Five tips from filmmakers and their relationship to the ARCS concepts

Tip 1. Do the Research (Confidence) • Complete an exhaustive resource search. • Collect existing material about your subject. • Identify key characters who can tell the story. • Determine experts who can add legitimacy. • Pinpoint a gap in the story, or a lack of the story. • Fill that void with your documentary film.
Tip 2. Tell the Story Visually (Attention) • Collect interesting interviews, historical documents, material, photos, videos and supplemental footage. • Answer why this story needs to be presented visually. • Determine if the sources and materials are accessible. • Establish an organized system for all of the data. • "Show" the audience, not just tell the audience.
Tip 3. Find Strong "Characters" (Attention) • Focus on the strength of your interview sources. • Feature genuine interview characters who are engaging, fascinating, vulnerable, revealing, and who feel true. • Create an emotional and impactful audience connection. • Generate affinity and empathy with the audience. • Guide the audience on a storytelling journey.
Tip 4. Support Universal Themes (Relevance) • Focus on all-embracing topics such as love, joy, peace, family, survival, pain, suffering, equity, or the striving and struggling one takes to reach a goal. • Unravel the universal human stories and relationships. • Shed light on the shared and collective human experience. • Select topics that entertain and move audiences.
Tip 5. Relate to your audience (Relevance and Satisfaction) • Create a meaningful, relevant story that resonates, informs, educates, inspires and empowers audiences to action. • Help the audience apply the story to the real world, current issues, and to their own lives and circumstances. • Encourage viewers to insert their own stories, experiences and struggles into what they're seeing.

The module began with a welcome page thanking participants for reviewing and evaluating the module, followed by: an overview page with instructions, the five filmmaking tips on separate webpages, embedded evaluation surveys, a webpage featuring all five tips serving as a review, and a final page thanking participants (Iwasaki, in progress). Here is the link to the instructional module website: http://www2.hawaii.edu/~piwasaki/Five_Tips/

Figure 2
Screenshot of "Tip 1. Do the Research" webpage

Instruments

The evaluation instruments that were designed and developed in another study (Iwasaki, in progress) were embedded into the module: the pre-module (pretest) and post-module (posttest) surveys, and five short in-module surveys assessing each of the five filmmaking tips. There were seven surveys in total. A student filmmaker completed a pilot test of the module and instruments, successfully navigating through the module and answering all seven surveys smoothly "with no problems." He said the module was interesting, inspiring and very helpful, noting that the audio clips of filmmakers were especially enlightening and useful. He did not provide any suggestions for improvement.

ARCS model of motivational design. This study sought to evaluate the educational value of an existing instructional module (Iwasaki, in progress) about subject research and data collection for documentary film. To increase the likelihood that the module and evaluation instruments would resonate with the target audience, beginner filmmakers, in addition to applying educational best practices, a well-established model in motivation and instructional design, Keller's ARCS model (1983, 2010, 2017), served as the framework that informed and guided the design and development of all three types of evaluation surveys: pre-module, post-module and in-module. The framework also guided the analysis and interpretation of the data collected. Two other purposes in using ARCS was to: 1) motivate students to become interested in subject research and data collection for documentary film, and 2) inform, guide and instruct students about the process of subject research and data collection for documentary film.

The ARCS motivational factors of attention, relevance, confidence and satisfaction (Pappas, 2015; Peterson, 2003) are strongly applicable to the field of documentary film with similar motivational goals for filmmakers, whether they are veterans or beginners (educators/instructional designers), and their audience (learners/students) (Astleitner & Lintner, 2004; Keller & Suzuki, 2004; West, Hoffman, & Costello, 2017). While the goals for filmmakers may not be referred to as "instructional design," their educational goals are very similar; they use relevant, motivational methods of film and video production (Frank, 2013; Nash et al., 2014; Winston, et al., 2017).

Pre-module survey. The pre-module survey was designed to determine participants' baseline interest in and familiarity with documentary film, and their knowledge of the process of subject research and data collection. To capture participants' voices, one qualitative question was asked: explain why they were interested in film and video production. To measure the degree of participants' feelings, six quantitative questions were designed using a 5-point Likert psychometric scale with appropriate qualifiers (Bryman, 2012; Gorard, 2003).

In-module surveys on the five tips. To draw out the rich and thick descriptions of qualitative data and hear the opinions of participants, five two-question surveys evaluating each of the five tips immediately followed each tip. Question 1 asked: "What stood out to you most?"; and Question 2 asked: "What was the most helpful element? Why?" These short surveys were implemented to allow a deeper exploration of each of the five tips. The "Tip 5. Relate to your Audience" survey also asked which of the five tips was the most helpful overall.

Post-module survey. The post-module survey was designed to determine the amount of learning participants had acquired from reviewing the module. Some of the post-module survey questions paralleled the pre-module survey questions in order to discover the impact of the module and if their knowledge had changed. To capture participants' voices, two qualitative questions were asked: to explain if they felt the module was helpful for research and data collection for documentary film, and if they had anything else to share. To measure the degree of participants' feelings, the 14 quantitative questions were designed using appropriate qualifiers that could be answered using a 5-point Likert psychometric scale (Bryman, 2012; Gorard, 2003).

Procedure

The researcher worked with the two instructors of the film production course and visited the class in January 2020 to introduce herself and provide an overview of the research project with a recruitment presentation, emphasizing that participation was entirely voluntary and would not affect their class participation at all. The researcher informed them she would be returning in March, after Spring break, to present the hard copy educational resource (it had not yet evolved to become an online, technology-enhanced instructional module) (Iwasaki, in progress) for them to review and evaluate. However, due to the COVID-19 pandemic, the university moved entirely to online learning and face-to-face classes were cancelled. The researcher was unable to return to the class as planned.

Thus, the researcher was motivated to develop and implement the resource and the evaluation instruments online using appropriate technology (Iwasaki, in progress). Previous findings by Mayer and other researchers report that multimedia online delivery can increase learning and outcomes (Alessi & Trollip, 2001; Chiu & Churchill, 2016; Clark & Mayer, 2011; Levonen, Biardeau, & Rouet, 2001; Mayer, 2001, 2009, 2017). Self-paced learning, multimedia,

technology integration, and online learning were important academic needs for the target audience as discussed in the Analysis section; thus, the move to online implementation was a positive, constructive development (McGraw-Hill, 2016; National Center for Education Statistics, 2020).

The researcher received participants' university email addresses from the instructors, and was able to move forward with the online implementation and evaluation of the resource after its progression into a digital, multimedia instructional module (Iwasaki, in progress). In late April 2020 participants received an email with a link to the module, recruitment letter, and a consent form. They were asked to return signed consent forms or respond affirmatively to the email, review the module, and complete the evaluation surveys via the link within two weeks.

Participants were expected to progress through the module in the following manner: welcome page, overview page with instructions, pre-module survey, review of the five filmmaking tips with a two-question survey following each tip, and a review of all five tips on a single webpage served as a reminder of the overall purpose of the module. Participants were then instructed to complete the post-module survey. Lastly, a webpage thanked the participants for their time and effort in completing the module.

During the two-week period of data collection, 15 students (88%) did not have any problems with viewing and completing the instructional module. After completing the module, some of the students emailed the researcher with positive comments such as: "This is great information!" "The next time I create an educational video or short documentary, I'll remember those five tips." "I was able to complete the module with ease." "I listened to all of the five tips and finished all of the surveys."

Results

Pre-Module Survey

Table 2 below features the results of the 5-point Likert psychometric scale (Bryman, 2012; Gorard, 2003) items for the pre-module survey and their alignment with the appropriate ARCS model concepts of attention, relevance and confidence. When asked to rate their level of interest in film and video production, the 17 participants reported an average rating of 4.12 (*SD* = 0.78). Four participants (24%) selected 5.00 (Strongly Agree). Their familiarity with the documentary film genre reported an average rating of 4.00 (*SD* = 0.71). The participants' familiarity and interest in film and video production were quite strong. However, their familiarity and knowledge about research and data collection for documentary film were weaker. Participants reported an average rating of 2.88 (*SD* = 1.11) when asked about their familiarity with the process of creating documentary film; 2.82 (*SD* = 1.01) when asked about their familiarity with the tools of documentary film; and 2.76 (*SD* = 1.09) when asked about their knowledge of research and data collection. This evidence aligns with the researcher's theory that students need more information and resources in this area.

Table 2
Average interest and familiarity ratings from the pre-module survey (n=17)

ARCS Categories	Interest and/or familiarity with:	Mean	SD	Min	Max
Attention	Film and video production	4.12	0.78	3.00	5.00
Relevance	Documentary film genre	4.00	0.71	2.00	5.00
	Documentary films	3.65	0.61	2.00	4.00
Confidence	Process of creating documentary film	2.88	1.11	1.00	4.00
	Tools of documentary film	2.82	1.01	1.00	4.00
	Research and data collection for documentary film	2.76	1.09	1.00	4.00

Participants answered one open-ended question explaining their interest in film and video production. This question produced thick and rich, narrative type responses. An inductive approach (Bryman, 2012; Maykut & Morehouse, 1994; Yin, 2016) was implemented and responses were analyzed, interpreted, and grouped according to their relationship with the ARCS model concepts of attention, relevance, confidence and satisfaction (Astleitner & Lintner, 2004; Keller, 1983, 2010, 2017).

In-Module Surveys on the Five Tips
The five in-module surveys about each tip featured two open-ended questions to collect rich, qualitative answers and an inductive approach (Bryman, 2012; Maykut & Morehouse, 1994; Yin, 2016) was implemented to analyze, interpret, and organize the data. Participants were asked what stood out most, was the most helpful, and will "take away." Frequent response themes were: collect important and relevant information and images about your subject during the research portion determines whether you have a story worth telling visually; feature characters that will emotionally move and resonate with the audience; and help the audience see themselves in the film and relate to the struggle or conflict.

One example of the depth of the responses was a participant who associated Tip 3. Find Strong "Characters" to the Hawaiian art of hula, saying "Similar to hula, filmmaking is the art of capturing the audience and making them feel a part of the story. Just as hula needs the right *wahine* (female) or *kane* (male), the characters for the film need to be a perfect match."

The five tips' effectiveness was demonstrated by the participants using the exact words used in the tips in their own responses. For example, for Tip 2: Tell the story visually: "'Show' the audience, not just tell the audience," or they paraphrased the bullet points. Each page also featured just one photo that supplemented the content. The instructional module was designed and developed using Mayer's 12 principles of multimedia learning (2001, 2009, 2017; Clark & Mayer, 2011) in another study (Iwasaki, in progress) and one of the principles states: extraneous words, pictures and sounds are excluded rather than included. The data successfully collected in this study supports this principle.

The audio clips, ranging from 34 seconds to 2:05 minutes, featuring professional filmmakers sharing their vast insight and experience were the highlights of the module. The majority of responses for the two questions "what stood out most" and "was most helpful" included the audio clips.

Participants also expressed appreciation of the multimedia and technology integration within the module. One participant said, "Having the audio file while reading through the tips and seeing the photo on the page was helpful. It made me understand how important the visual is." Another said "The text helped me understand what the filmmaker was talking about." This supports Mayer's multimedia design principles of combining graphics, narration and text and that narration is spoken in a friendly human voice. The researcher believes the real-world wisdom and experience from the professional filmmakers was key to the module's success. The audio clips featuring real voices supported the validity and truth of the information. One of the participants said, "Having the audio file to explain did help."

In answering which tip was the most helpful overall, participants selected each of the five tips almost equally. One student said, "In order to develop an astonishing documentary, all tips should be considered. Being able to generate ideas into film is not an easy task, so taking these words of recommendation can really help with the process of creating a documentary."

Post-Module Survey

In the post-module survey, 16 participants answered 16 Likert response items and one qualitative question. Table 3 features the results of the 5-point Likert psychometric scale (Bryman, 2012; Gorard, 2003) and their alignment with the ARCS model concepts.

Table 3

Average interest and familiarity ratings from the post-module survey (n=16)

ARCS Categories	The module/module's:	Mean	SD	Min	Max
Attention	Captured interest and attention	4.38	0.81	2.00	5.00
	Layout and design are appealing	4.44	0.63	3.00	5.00
	Colors are appealing	4.63	0.50	4.00	5.00
Attention/ Confidence	Read and understand information	4.81	0.40	4.00	5.00
Attention/ Relevance	Graphics are interesting and appropriate	4.50	0.52	4.00	5.00
	Sound clips are engaging and interesting	4.19	0.91	2.00	5.00
Confidence/ Satisfaction	Ease of navigation	4.69	0.79	2.00	5.00
	Hear sound clips	4.13	1.36	1.00	5.00
	Access surveys	4.50	1.21	1.00	5.00

Attention/ Relevance	Increased interest in watching documentary films	4.50	0.89	2.00	5.00
	Increased interest in research and data collection for documentary film	4.44	0.73	3.00	5.00
Confidence/ Satisfaction	Increased familiarity with documentary filmmaking	4.56	0.51	4.00	5.00
	Increased familiarity with research and data collection for documentary film	4.56	0.51	4.00	5.00
	Increased knowledge of how to begin the process of creating a documentary film	4.56	0.51	4.00	5.00
Relevance/ Satisfaction	Increased knowledge of how to conduct research and data collection for documentary film	4.50	0.73	3.00	5.00
	Helpful for research and data collection for documentary film	4.44	0.63	3.00	5.00

Participants found the instructional module captured their interest and attention; the layout and design, and colors were appealing; graphics were interesting and appropriate; and the sound clips engaging and interesting. When asked to rate their ability to read and understand information, the 16 participants reported an average rating of 4.81 (*SD* = 0.40); 13 participants selected 5.00 (Strongly Agree). Another high average rating of 4.69 (*SD* = .79) was reported in the participants' ability to navigate the module, which also received 13 "strongly agree" responses. These two items received the most 5.00 (Strongly Agree) selections. These findings validate the successful application of Keller's ARCS motivational model (1983, 2010, 2017) and Mayer's 12 principles for multimedia learning (2001, 2009, 2017; Clark & Mayer, 2011) as frameworks in the design and development of the module (Iwasaki, in progress), and the application of best practices. The lowest average rating of 4.13 (*SD* = 1.36) was reported when participants were asked about their ability to listen to the sound clips. This could be accounted for by two students who had difficulty accessing and reviewing the module. They contacted the researcher, and after troubleshooting with the researcher, the two participants were able to successfully view the module and complete the surveys.

As a posttest, the post-module survey provided positive results of the module's effectiveness. Participants added substantial and important new information to their knowledge base, applying constructivism. After reviewing the module, when participants were asked to rate their level of familiarity with documentary filmmaking, they reported an average rating of 4.56 (*SD* = 0.51), an increase of 0.56 from the pre-module 4.00 survey average. Marked rating increases were seen especially with familiarity about the process of creating a documentary film, and familiarity and knowledge of research and data collection.

When asked to rate their familiarity with the process of creating a documentary film, participants reported an average rating of 4.56 (*SD* = .0.51), a significant increase of 1.68 from the 2.88 pre-module average. When rating their familiarity with research and data collection for documentary film, participants reported an average rating of 4.56 (*SD* = 0.51); and when

asked about knowledge of research and data collection for documentary film, participants reported an average rating of 4.50 (*SD* = 0.73), a substantial increase of 1.74 from the 2.76 pre-module average. In the post-module survey, 10 participants selected 5.00 (Strongly Agree), four selected 4.00 (Agree), and two selected 3.00 (Neutral). There were no "Disagree" or "Strongly Disagree" responses. Since the original number is zero, this represents a 100% increase in the "strongly agree" category. In the pre-module survey, 0 participants selected 5.00 (Strongly Agree), five selected 4.00 (Agree), six selected 3.00 (Neutral), three selected 2.00 (Disagree), and three selected 1.00 (Strongly Disagree). Clearly, participants were not very familiar with subject research and data collection for documentary film before reviewing the module, and it was a positive and successful learning experience for the participants.

The module substantially increased participants' familiarity with documentary film, knowledge of the process of creating a documentary film, and interest in and knowledge on how to conduct research and data collection for a documentary film after deciding upon a subject.

The results also revealed that applying the ARCS model (Keller, 1983, 2010, 2017) as a design and development (Iwasaki, in progress) framework helped motivate students to become interested in subject research and data collection for documentary film. It also helped successfully inform and guide students about the process of subject research and data collection for documentary film, and increased their understanding and knowledge. These were important additional purposes in utilizing ARCS and the data confirmed that the module accomplished this.

The final item was "This module is helpful for research and data collection for documentary film," and participants reported an average rating of 4.44 (*SD* = 0.63). Eight participants selected 5.00 (Strongly Agree), seven selected 4.00 (Agree), and one selected 3.00 (Neutral). There were no "Disagree" or "Strongly Disagree" responses. This demonstrates the module is a valuable and useful resource to guide and assist beginner filmmakers with documentary film research and data collection.

Participants answered one post-module survey qualitative question: Why is the instructional module helpful for research and data collection for documentary film? An inductive approach (Bryman, 2012; Maykut & Morehouse, 1994; Yin, 2016) was implemented and responses were analyzed, interpreted, and aligned with the ARCS concepts (Keller, 1983, 2010, 2017; Pappas, 2015). Participants affirmed that the module was helpful to guide and assist beginner and student filmmakers. "It's a very useful and helpful module for filmmakers beginning their projects," said a participant. Table 4 below lists a sampling of participant answers and alignment of ARCS concepts.

Table 4
Examples of post-module qualitative answers

The instructional module is helpful for research and data collection for documentary film. Please explain why.
Attention
"Really encouraged connecting with others using visuals, personal stories, and being relatable." – Participant #7
Relevance
The module gave a lot of useful information for people who are beginning to start their filmmaking career. – Participants #8, #10, #13
Confidence
"Very thorough, easy-to-digest and informative." – Participant #4
Satisfaction
"This survey was well done! It was effective in providing organized and easy to understand information." – Participant #12

These significant quantitative and qualitative findings, as well as the field notes and observations that utilized triangulation, (Bryman, 2012; Glesne & Peshkin, 1992; Yin, 2016) confirmed that the instructional module did indeed have a positive educational impact on the participants. The data substantiates the educational quality, value and significance of the module and this study.

Discussion and Conclusion

The results from the quantitative and qualitative survey instruments, along with documented field notes and observations, validated the educational value of the instructional module about subject research and data collection for documentary film. The findings revealed that content and format contributed to the instructional module's success. Participants applied constructivism, the building of new knowledge upon their pre-existing knowledge base.

According to the data, the highlight of the module that positively resonated with the participants were the professional filmmakers' audio clips discussing key content points. The filmmakers' actual voices added honesty, validity and legitimacy to the material. This study successfully utilized consultation of experts in content design and development to improve the understanding, creativity, and production of beginner documentary filmmakers.

Due to the COVID-19 pandemic, the researcher was unable to implement the module in person as planned; however, it motivated the researcher to design and develop an online format which contributed to its increased success with participants. Utilizing the ADDIE model of instructional design that included multiple formative assessments by experienced reviewers and modified iterations (Iwasaki, in progress), what began as a basic, single page infographic turned into a content-rich, engaging, technology-enhanced, multimedia module on a website.

This development was extremely important because self-paced learning, multimedia and technology integration, and online learning were important academic needs for the target audience (Education Dive, 2017; McGraw-Hill, 2016). The data collected in this study validates the successful online implementation of the module and that multimedia online delivery can increase learning potential and outcomes (Alessi & Trollip, 2001; Chiu & Churchill, 2016; Clark & Mayer, 2011; Levonen et al., 2001; Mayer, 2001, 2009, 2017).

The module addressed the lack of educational resources about subject research and data collection, an important step in the documentary filmmaking process that has been challenging to document. *Five Tips from Filmmakers for Documentary Film Research and Data Collection* is a much-needed, relevant, easy-to-use, quality educational resource that will help guide and assist beginner and student filmmakers exploring documentary film production.

The wisdom and recommendations from veteran filmmakers provide student filmmakers a head start in the complex documentary filmmaking process, enabling them to share important stories more quickly and with improved outcomes. This professional guidance in the film process benefits beginner filmmakers, as well as society at large (Leavy, 2015; Loustaunau & Shaw, 2018), exposing audiences to increased learning opportunities through additional timely and important documentaries.

Looking forward, since documentary film is such an integral part of learning in a thriving, multicultural society, future research would add to the educational resources in the field and practice of documentary film research and data collection, film studies, and education, adding knowledge to this increasingly democratic, effective, and ever-expanding communication medium. Further research could also delve deeper into the need and importance of constructing knowledge and information from authentic, knowledgeable experts and voices in the design and development of instructional content to support, increase and improve overall learning.

This study successfully and innovatively applied and integrated learning sciences theory, methodology, technology, and instructional design with humanities and arts research. This study and its effective and dynamic approach to designing and developing educational content and resources has made an important and significant contribution to the fields of instructional design, the learning sciences, creative arts and the humanities. This study has significant potential to impact the broad possibilities of contemporary, interdisciplinary research design and collaboration.

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