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A Course in Context: Video Course Trailers

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Abstract:	This study reports the development of a “course trailer” video series that communicates the professional and academic value of general education courses’ core competencies and describes the results of a survey measuring the impact of those videos on student perception. While general education programs represent a staple of U.S. undergraduate education, enrolled students frequently misunderstand the nature and value of the programs’ core goals and or competencies. Universities are making increasing use of devices such as catalog descriptions, mission statements, course websites or blogs, and course trailer videos to communicate and clarify their general education competencies and values; however, little empirical research exists demonstrating the efficacy of such devices. This study’s results provide statistically significant evidence that the course trailer video series improved students’ general education course contexts, and their understanding of how the courses fit into both their academic and professional plans.
Keywords:	general education, contextualization, video trailer, transferable skills
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Introduction

Despite a prolonged debate over the effectiveness of general education programs, 76% of U.S. institutions continue to use distribution requirements – an approach that requires all students to take several courses outside their major in broad fields like humanities, social sciences, and physical and biological sciences (Hart Research Associates, 2016). Critics of this approach point to a lack of thoughtful integration of these different fields of study.

Most institutions (85%) have universal learning outcomes for all students, regardless of major, with common elements being writing skills, critical thinking and analytic reasoning skills, quantitative reasoning skills, science literacy, math literacy, knowledge of arts and humanities, cultural literacy, knowledge of social science, oral communication skills, information literacy, research skills, and ethical reasoning (Hart Research Associates, 2016). Other skills that were less common but still quite prevalent were integrative learning across disciplines, bridging learning beyond the classroom, and civic engagement.

Previous research has shown that the skills students are learning in higher education are not necessarily the same skills they need in the workplace (Raish & Rimland, 2016). Institutions have begun targeting the skills emphasized in their general education programs at the skills desired by employers. A 2013 study reported that over half of employers surveyed wanted candidates to possess both field-specific knowledge and a broad range of skills and knowledge (Hart Research Associates, 2013). The same survey also identified they key areas employers wanted emphasized in higher education as critical thinking, problem solving, written and oral communication, real world application of knowledge and skills, information literacy, as well as innovation and creativity. Not surprisingly, 91% of employers in this survey reported requiring a broader skill set than in the past.

There is clear alignment between the most common elements in general education programs and employer needs. But how aware are students of their general education requirements and its relevance to their career? A 2005 study at Central Michigan University (CMU) reported that a strong majority (83%) of students were aware of the goals of the general education program (Peruski, 2005). However, only slightly more than half of the students surveyed agreed with the goals of the program. Even fewer (36%) felt that the institution explained the goals well. Some suggest that the problem is not with the courses themselves but that the course importance is not inherently clear to students (Hanstedt, 2012). In contrast to the strong awareness of general education program goals at CMU, only 36% of provosts surveyed in 2015 felt that a majority of students understand the learning outcomes of the general education program at their institution (Hart Research Associates, 2016).

There is a clear need for improved communication with students regarding the goals of general education, placing them in context of academic and professional careers (Johnson et al., 2016). The CMU study also reported that 59% of surveyed students viewed the general education requirements with an agenda of completion, meaning they view the general education courses as simply something they have to do and do not perceive a true benefit (Peruski, 2005). It is possible that improved communication which contextualizes the general education requirements can help dispel the student opinion of general education as simple gatekeeping. Some methods used by institutions to inform students of the purpose of general education courses include the institution mission statement, course catalog, blogs, and videos (Table 1).

Table 1. Example institutional communication that contextualizes general education

	Method of Communication			
Institution	**Mission Statement**	**Course Catalog**	**Website or Blog**	**Course Trailer**

Duke University			✓	✓
Georgia Tech	*		✓	
Rice University				✓
The City College of New York	*		✓	
University of Maryland – College Park	✓	✓	✓	
University of Tennessee – Knoxville	*	✓	✓	✓
Virginia Commonwealth University			✓	✓

***** *Institution has a mission statement specifically for general education; general education is not mentioned in the institutional mission statement*

Many institutions use video trailers to attract students to their courses (Goudsouzian, 2018; Gross, 2015). A video trailer creates a first impression with the student regarding the course content, structure, and expectations (Stacey, 2014). The first impression of a course has a critical effect on students' decisions to persist in the course (Wong, 2016). Therefore, an effective introduction is crucial. A course trailer can be leveraged as a tool in general education courses to frame key transferable skills developed in the course that will be critical in their academic and professional career. Contextualized courses have been shown to increase student persistence, degree progression, and student success (Wachen, Jenkins, & Van Noy, 2011; Wiseley, 2009). Studies have also shown that contextualization of a course results in improved students' bridging of content and increased participation (Nentwig, 2005; Rathburn, 2015).

Some best practices for course trailers are presented in the literature. Several resources suggest course trailers should have a key take-away message centered on the significance and context of the course (Hofer, 2015; Rush, 2015; Truell, 2018). An ideal trailer length is identified as 1-2 minutes (Truell, 2018). Production value is important; the content, organization, and delivery should be professional (Hofer, 2015). A best practice in

videos is to vary the visuals, which can be achieved in the trailer by avoiding simply using a "talking head" through the use of still images, video clips, and even leveraging social proof of the significance and context of the course using student and employer testimonials (Goudsouzian, 2018; Hofer, 2015). It is also suggested to present the course organization and workload before concluding the video with contact information (Rush, 2015; Truell, 2018). We performed a survey of existing course trailers at multiple universities, which revealed varying application of these best practices (Table 2). Production value and varied visuals were subjectively categorized.

Table 2. Characteristics of Course Trailers at Multiple Institutions

Institution	**Total Course Trailers (#)**	**Trailers with Gen Ed Context (#)**	**Video length (seconds)**	**Production Value**	**Varied Visuals**
Carleton University	2	1	122 (± 9)	High	High
Centennial College	1	0	53	Low	Low
Duke	5	0	143 (± 46)	Moderate	Low
Harvard	13	8	164 (± 46)	High	High
OCAD University	1	1	261	Moderate	High
Penn State	1	1	348	Low	Low
Rice University	4	2	126 (± 31)	High	Low
Southwestern University	1	1	161	High	High
University of Bristol	1	1	101	High	Low
Virginia Commonwealth University	2	0	142 (± 2)	High	Moderate

From the 31 trailer videos reviewed for general education courses, some common practices emerged. On average, video lengths were just over two and a half minutes. Only 29% of the videos met the best practice criteria of 1 -2 minute length. Most videos used a single speaker, with 82% of the videos using instructors as speakers and the remaining videos using students. No videos used representatives from industry. Only 61% of videos varied the

graphical content. Despite its mention as a best practice, only 18% of videos provided contact details. Surprisingly, less than half (48%) of the videos contextualized the general education course.

This survey of existing course trailers reveals that trailers are indeed used by institutions to contextualize general education courses. However, there is no data existing in the available literature to support the effectiveness of trailers in doing so. The purpose of this work was to measure the student perceptions of video course trailers that contextualize a general education course, measured using a qualitative survey.

Materials and Methods

Course Trailer Video Production

This study was conducted at a medium-sized private university in 3 general education STEM courses: introductory physics, statistics, and meteorology. Each course serves as a 3-credit hour general education course and may be expressly required for certain degree programs while serving as an elective option for others. The institution uses distributive general education requirements, with a total of 36 credit hours of general education coursework, with 15 credit hours allocated to STEM courses within computer science/information technology, mathematics, and physical/life sciences.

The general education program identifies the following seven key competencies that are selected to provide the basis for success in future academic endeavours, the workplace, and in life: critical thinking, quantitative reasoning, information literacy, communication, scientific literacy, cultural literacy, and collaborative learning. With the exception of cultural literacy and collaborative learning, these competencies are aligned with the most common outcomes reported in the 2016 AAC&U survey (Hart Research Associates, 2016). The competencies of critical thinking, communication, and information literacy align with the

skills that employers desire in candidates (Hart Research Associates, 2013). As an initiative intended to fulfil the College of Arts and Sciences' three year strategic plan to improve student affinity, an interdisciplinary and administrative team was assembled to develop a motivational course trailer video series.

The video production team is composed of full-time faculty from the university's Department of Math and Physical Life Sciences, Department of English, Humanities and Communication, the Associate Dean of the College of Arts and Sciences, the College of Arts and Sciences' Assistant to the Dean, and media production staff from the Department of Instructional Design and Development. Faculty members responsible for developing and managing the key general education courses are solicited to write video scripts. The alignment with videos for best practices is presented in Table 3. Due to an existing media production team with access to key software, the primary cost of this project was the indirect cost of time.

Table 3. Characteristics of General Education Video Trailers

Course	**Number of Speakers**	**Speaker Type**	**Video length (seconds)**	**Varied Visuals**	**Contact Information**
College Algebra (MATH 140)	1	Instructor	126	High	No
English Composition (ENGL 123)	1	Instructor	132	High	No
Introduction to Meteorology (WEAX 201)	1	Instructor	78	High	No
Introduction to Physics (PHYS 102)	1	Instructor	225	High	No
Introduction to Research Methods (RSCH 202)	1	Instructor	154	High	No

General Chemistry I (CHEM 139)	1	Instructor	123	High	No
Pre-calculus for Aviation (MATH 111)	1	Instructor	126	High	No

On the advice of the media production staff, the production team developed a standardized script template to guide the script writing process. The template offered a brief introduction to the video series project's purpose and intent, as well as an explanation of general expectations such as an approximation of how many words to expect to write per minute of finished video. The template also provided a table, breaking the video into discrete sections: "Introduction – attention grabber;" "Challenge;" "Course concepts;" "About/from the experts;" "Call to action;" and "Wrap-up/welcome." Each section included a suggested duration, a brief description of the recommended content, and a content example. For example, the "Challenge" section suggested a duration of 15 to 20 seconds and asks the writer to;

> State an example of a problem/issue that will be answered/addressed by taking this course (a 'more specific to the subject' type of question). For example: Could a tiny domino cause a chain reaction that could topple something as big as a 112-meter tall tower? Physics can give you the answer.

After iterative rounds of editing and revision between at least three members of the production team and the faculty writer, film dates and locations were selected. After receipt of a final script template, the video-production team began selecting appropriate additional stock-footage, audio, and graphics.

Each general education course trailer was designed to address one to two skills or competencies, contextualizing the course in terms of the competency's application in future academic and career settings (Table 4). The faculty writers and course developers were

encouraged, but not required to star in their own course trailer videos; so far, the faculty have accepted their starring roles. Video was recorded on Canon 5D Mark III. Stock footage was obtained from Pond 5 and music is provided by Omnimusic. Post-production was handled by the video-production staff using Adobe Premier CC and After Effects software.

Table 4. Video Message Alignment with Institutional General Education Competencies

Course	**General Education Competency**	**Skill Desired by Employers**
College Algebra (MATH 140)_	Critical thinking Quantitative reasoning	Critical thinking
English Composition (ENGL 123)	Communication Information Literacy	Communication Information Literacy
Introduction to Meteorology (WEAX 201)		Real world application
Introduction to Physics (PHYS 102)		Problem-solving
Introduction to Research Methods (RSCH 202)		Real world application Creativity
General Chemistry I (CHEM 139)	Scientific literacy	
Pre-calculus for Aviation (MATH 111)	Critical thinking Quantitative reasoning	Critical thinking

The videos were made available to students through the learning management system Canvas. Videos were posted as a required first-week exercise in their course's Canvas page. Students had to access their course's trailer video to 'unlock' the remainder of the first week's readings and assignments.

Participants

Students were invited to complete a voluntary survey on the videos, administered anonymously through SurveyMonkey. The survey consisted of 7 qualitative questions, 6 of which used a 5-point LIKERT scale. Survey data was collected between March and September 2018. The survey was deemed exempt by the institutional review board.

Data Analysis

All data were tested using Chi Square at an alpha of 0.05. While the survey used a 5-point LIKERT scale, the "significantly agree" and "agree" categories were regarded as "agree"

while the "neutral", "disagree", and "significantly disagree" categories were regarded as disagree (Gay, Mills, & Airasian, 2009). Data were tested using StatCrunch Data Analysis on the Web and StatDisk (Triola, 2013). The tested hypotheses were:

H_{a1}: Viewing the video will make a significant difference on how students view the connection between the course and its impact on their academic plan.

H_{a2}: Viewing the video will make a significant difference on how students view the connection between the course and its impact on their professional plan.

Results

The average response rate to the survey was 28%, ranging from 5% to 68% in individual courses. In order to understand the effectiveness of the contextualizing message of the course trailers, the survey inquired about student understanding of the course fit in their academic and professional plan before and after watching the video. Student perceptions of the course fit with their academic and professional plans *before* watching the video are presented in Table 5. All values were statistically significant at an alpha of .05. Student perceptions of the course fit with their academic and professional plans *after* watching the video are presented in Table 6. All values were statistically significant at an alpha of .05, meaning that in each course, students agreed that they understood their fit of the course in their academic and professional plans before watching the video as well as after watching the video. Note that both CHEM 139 and MATH 140 had a low number of responses, which was too small to make an adequate statistical determination. Responses from these courses were used in the aggregate data.

Table 5. Self-reported understanding of course fit with academic and professional plan before watching video

	Academic Plan					**Professional Plan**			
	Yes	**No**	**Chi Square**	**P-Value**		**Yes**	**No**	**Chi Square**	**P-Value**

PHYS 102	186	58	67.2	<.001	176	68	47.8	<.001
CHEM 139	4	0	N/A	N/A	4	0	N/A	N/A
ENGL 123	16	5	5.8	0.016	16	5	5.8	0.016
MATH 111	25	10	6.4	0.0011	24	11	4.8	0.028
MATH 140	1	3	N/A	N/A	1	2	N/A	N/A
RSCH 202	20	5	9.0	0.002	19	6	6.8	0.009
WEAX 201	23	8	7.3	0.007	23	8	7.3	0.007
All	275	87	97.6	0.001	263	99	74.3	0.001

Table 6. Self-reported understanding of course fit with academic and professional plan after watching video

	Academic Plan				**Professional Plan**			
	Yes	**No**	**Chi Square**	**P-Value**	**Yes**	**No**	**Chi Square**	**P-Value**
PHYS 102	202	42	104.9	<.001	204	40	110.2	<.001
CHEM 139	4	0	N/A	N/A	4	0	N/A	N/A
ENGL 123	20	1	17.2	0.001	20	1	17.2	0.001
MATH 111	29	6	15.1	0.001	29	6	15.1	0.001
MATH 140	2	2	N/A	N/A	2	2	N/A	N/A
RSCH 202	21	4	11.6	0.001	20	5	9.0	0.003
WEAX 201	25	6	11.6	0.001	22	9	5.5	0.02
All	303	59	164.5	0.001	301	61	159.1	0.001

The more interesting question is whether watching the video made an impact on student understanding of the fit. Aggregate student perceptions of the course fit before and after watching the video were compared to determine if differences were statistically significant. With a Chi Square value of 6.73 and a p-value of .01 (for academic fit) and Chi Square value of 11.6 with a p-value of <.001 (for professional fit), the differences were statistically significant at an alpha of .05. Not all individual course comparisons yielded significant results, but aggregate data showed a significant result regarding how the video impacted student perceptions of their understanding of the fit of the course in their academic and professional plans. For individual courses, p-values for academic plan fit ranged from .073 to .713 while p-values for professional plan fit ranged from .002 to .733.

The survey also inquired about the video clarity and usefulness (Table 7). Data were evaluated using Chi Square at an alpha level of .05. All differences were statistically significant. CHEM 139 and MATH 140 responses were included in the total but the *n* was too small for statistical analysis at the class level.

Table 7. Student perceptions of video clarity and usefulness

	Video Clarity				Video Usefulness			
	Yes	**No**	**Chi Square**	**P-Value**	**Yes**	**No**	**Chi Square**	**P-Value**
PHYS 102	233	11	202.0	<.001	198	46	94.7	<0.001
CHEM 139	4	0	N/A	N/A	4	0	N/A	N/A
ENGL 123	21	0	21.0	0.001	18	3	10.7	0.001
MATH 111	32	3	24.3	0.001	29	6	15.1	0.001
MATH 140	2	2	N/A	N/A	2	2	N/A	N/A
RSCH 202	22	3	14.4	0.001	20	5	9.0	0.003
WEAX 201	31	0	31.0	0.001	28	3	20.2	0.001
All	345	17	297.2	0.001	299	63	153.9	0.001

Discussion

Impact on Understanding of Course Fit

The objective of this study was to determine if the video successfully contextualized the general education course, improving their understanding of how the general education course fit into both their academic and professional plans. Prior to watching the video, students tended to understand how the course fit into both their academic and professional plan. After watching the video, students continued to understand how the course fit into both their academic and professional plan. This demonstrated that the video did no harm to their understanding of how the course fit into both their academic and professional plan.

With aggregate data from all courses, the video made a positive impact on their understanding of how the course fit with both their academic and professional plans. At the individual course level, comparisons before and after watching the video did not tend to produce statistically significant results. The one exception is the video in PHYS 102, which

did significantly impact students' understanding of the course fit with their professional plan. The PHYS 102 course had the largest *n*. Chi square is sensitive to sample size, with the power of the test increasing with the sample size. Chi square can give inaccurate results with low expected numbers, though expected cell sizes greater than 5 indicate that Chi Square was appropriate (Triola, 2013).

It is possible that some courses benefit more from contextualization than others, which may be specific to the degree path of the student. This could be explored more thoroughly in a future study, with the goal of identifying what types of general education courses most benefit from contextualization.

Video Clarity and Usefulness

Overall, respondents felt the message of the video they viewed was clear. Respondents also felt the video was useful. However, if you compare the raw data for clarity and usefulness, you can see that fewer students felt the video was useful.

It should be noted that perception of clarity and usefulness traits in a course trailer are likely not related to production value (Bligh, 2000). Instead of spending more money producing a course trailer, developers might instead focus on achieving clarity through current best practices, including the use of varied visuals (e.g. avoiding a talking head) and limiting video length.

Usefulness requires contextualisation. We believe that if this contextualisation is produced by the student through engaging with the course trailer, as opposed to being told, it might create improved perception of usefulness - additional research is required to explore this concept further. This engagement might be elicited through several means:

- Promote active learning by posing a question or challenge, with or without group or public results sharing (e.g. discussion board, social media). We believe that a focus on

integration would strengthen usefulness perception and should be tested in future research.

- Provide location of additional deeper dive resources to encourage self-led learning
- Usefulness messages reiterated across multiple formats, including the course trailer
- And a range of other best practices for improving student engagement in online learning environments

If there is a common misconception regarding a course's usefulness, this should be tackled head-on in the course trailer as a simple 'clarity' approach is unlikely to resolve the issue (Muller, 2011). Specific techniques for resolving usefulness challenges in course trailers warrants further research.

Limitations of the Study

A primary limitation of this survey is measurement errors where the survey statistics differ from the true value due to data collection methods. One source of measurement error is from poor question wording. This survey did not capture student understanding of their academic or professional plan. This may have been a confounding factor; students who do not understand their plans would be poorly suited to evaluate the impact of a video on their plan. While this study did not expressly measure this moderating variable, the "unsure" option in the LIKERT scale can serve as a rough surrogate. Prior to watching the video, 16% of all respondents indicated "unsure" in regard to fit with academic plan and 18% for professional plan. After watching the video, these responses fell to 13% and 12% respectively. This demonstrates a small potential for this confounding factor to influence the dependent variable, which should be tested in order to strengthen internal validity, thus improving evidence of causality. Future studies should include a question to gauge student understanding of their plans.

Another measurement error is nonresponse error. The survey response rate was less

than 100% and in some cases was extremely low (5%). Voluntary survey response can introduce bias. This bias tends to over-represent strong opinions, both positive and negative. This limitation is challenging to overcome in survey research but is not expected to have significant impacts on the conclusions in this study.

A third limitation of this study involves longitudinal effects. This survey measured student opinions directly after watching the video. It is possible that student perceptions may change over time. A future study should explore perceptions immediately after watching the video as well as after a specified amount of time has elapsed, such as the end of the term. It would be interesting to explore how student perceptions regarding course fit with their academic and professional plans correlated to gains in the key transferable skills developed through the general education program.

A final limitation of this study is from the limited availability of previous literature. This concept is not well explored in the literature, limiting the amount of data with which to craft a theoretical framework for this study.

Conclusions

The survey's results provide statistically significant evidence supporting H_{a1} and H_{a2}: Viewing the video does make a significant difference on how students view the connection between the course and its impact on their professional and academic plans. This study's positive results suggest that video series developed with the best practices described above can represent effective devices for the communication of general education competencies, as well as how these courses add value to their academic and professional careers.

The video development team and process described in this study can serve as a model for developing devices likely to improve student engagement with and understanding of the value of general education courses. As U.S. universities seek to develop devices that improve their students' relationship with general education courses they should focus on the inclusion

of subject-matter and course content experts; development of a standardized script template; application of rich multi-media and strict time limits; and posting in multiple locations. Because production value may not be linked to student perceptions of usefulness or clarity, the use of professional grade media production, editing staff, and editing tools is suggested as optional.

By including subject matter and course experts with professional media production staff, the interdisciplinary production team succeeded in developing content rich in meaningful information focused on specific courses. Using a standardized script template facilitated efficient iterative communication and revision between the interdisciplinary faculty and the media production staff. The application of rich multi-media and strict time limits likely contributed to the development of content engaging enough to sustain student interest. Given the lack of consensus about how to develop course trailer videos, the model described here represents an effective heuristic for developing devices that improve student understanding of the important role general education courses hold in their academic and professional plans.

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Most institutions (85%) have universal learning outcomes for all students, regardless of major, with common elements being writing skills, critical thinking and analytic reasoning skills, quantitative reasoning skills, science literacy, math literacy, knowledge of arts and humanities, cultural literacy, knowledge of social science, oral communication skills, information literacy, research skills, and ethical reasoning (Hart Research Associates, 2016). Other skills that were less common but still quite prevalent were integrative learning across disciplines, bridging learning beyond the classroom, and civic engagement.

Previous research has shown that the skills students are learning in higher education are not necessarily the same skills they need in the workplace (Raish & Rimland, 2016). Institutions have begun targeting the skills emphasized in their general education programs at the skills desired by employers. A 2013 study reported that over half of employers surveyed wanted candidates to possess both field-specific knowledge and a broad range of skills and knowledge (Hart Research Associates, 2013). The same survey also identified they key areas employers wanted emphasized in higher education as critical thinking, problem solving, written and oral communication, real world application of knowledge and skills, information literacy, as well as innovation and creativity. Not surprisingly, 91% of employers in this survey reported requiring a broader skill set than in the past.

There is clear alignment between the most common elements in general education programs and employer needs. But how aware are students of their general education requirements and its relevance to their career? A 2005 study at Central Michigan University (CMU) reported that a strong majority (83%) of students were aware of the goals of the general education program (Peruski, 2005). However, only slightly more than half of the students surveyed agreed with the goals of the program. Even fewer (36%) felt that the institution explained the goals well. Some suggest that the problem is not with the courses themselves but that the course importance is not inherently clear to students (Hanstedt, 2012). In contrast to the strong awareness of general education program goals at CMU, only 36% of provosts surveyed in 2015 felt that a majority of students understand the learning outcomes of the general education program at their institution (Hart Research Associates, 2016).

There is a clear need for improved communication with students regarding the goals of general education, placing them in context of academic and professional careers (Johnson et al., 2016). The CMU study also reported that 59% of surveyed students viewed the general education requirements with an agenda of completion, meaning they view the general education courses as simply something they have to do and do not perceive a true benefit (Peruski, 2005). It is possible that improved communication which contextualizes the general education requirements can help dispel the student opinion of general education as simple gatekeeping. Some methods used by institutions to inform students of the purpose of general education courses include the institution mission statement, course catalog, blogs, and videos (Table 1).

Table 1. Example institutional communication that contextualizes general education

	Method of Communication			
Institution	**Mission Statement**	**Course Catalog**	**Website or Blog**	**Course Trailer**

Duke University			✓	✓
Georgia Tech	*		✓	
Rice University				✓
The City College of New York	*		✓	
University of Maryland – College Park	✓	✓	✓	
University of Tennessee – Knoxville	*	✓	✓	✓
Virginia Commonwealth University			✓	✓

***** *Institution has a mission statement specifically for general education; general education is not mentioned in the institutional mission statement*

Many institutions use video trailers to attract students to their courses (Goudsouzian, 2018; Gross, 2015). A video trailer creates a first impression with the student regarding the course content, structure, and expectations (Stacey, 2014). The first impression of a course has a critical effect on students' decisions to persist in the course (Wong, 2016). Therefore, an effective introduction is crucial. A course trailer can be leveraged as a tool in general education courses to frame key transferable skills developed in the course that will be critical in their academic and professional career. Contextualized courses have been shown to increase student persistence, degree progression, and student success (Wachen, Jenkins, & Van Noy, 2011; Wiseley, 2009). Studies have also shown that contextualization of a course results in improved students' bridging of content and increased participation (Nentwig, 2005; Rathburn, 2015).

Some best practices for course trailers are presented in the literature. Several resources suggest course trailers should have a key take-away message centered on the significance and context of the course (Hofer, 2015; Rush, 2015; Truell, 2018). An ideal trailer length is identified as 1-2 minutes (Truell, 2018). Production value is important; the content, organization, and delivery should be professional (Hofer, 2015). A best practice in

videos is to vary the visuals, which can be achieved in the trailer by avoiding simply using a "talking head" through the use of still images, video clips, and even leveraging social proof of the significance and context of the course using student and employer testimonials (Goudsouzian, 2018; Hofer, 2015). It is also suggested to present the course organization and workload before concluding the video with contact information (Rush, 2015; Truell, 2018). We performed a survey of existing course trailers at multiple universities, which revealed varying application of these best practices (Table 2). Production value and varied visuals were subjectively categorized.

Table 2. Characteristics of Course Trailers at Multiple Institutions

Institution	**Total Course Trailers (#)**	**Trailers with Gen Ed Context (#)**	**Video length (seconds)**	**Production Value**	**Varied Visuals**
Carleton University	2	1	122 (± 9)	High	High
Centennial College	1	0	53	Low	Low
Duke	5	0	143 (± 46)	Moderate	Low
Harvard	13	8	164 (± 46)	High	High
OCAD University	1	1	261	Moderate	High
Penn State	1	1	348	Low	Low
Rice University	4	2	126 (± 31)	High	Low
Southwestern University	1	1	161	High	High
University of Bristol	1	1	101	High	Low
Virginia Commonwealth University	2	0	142 (± 2)	High	Moderate

From the 31 trailer videos reviewed for general education courses, some common practices emerged. On average, video lengths were just over two and a half minutes. Only 29% of the videos met the best practice criteria of 1 -2 minute length. Most videos used a single speaker, with 82% of the videos using instructors as speakers and the remaining videos using students. No videos used representatives from industry. Only 61% of videos varied the

graphical content. Despite its mention as a best practice, only 18% of videos provided contact details. Surprisingly, less than half (48%) of the videos contextualized the general education course.

This survey of existing course trailers reveals that trailers are indeed used by institutions to contextualize general education courses. However, there is no data existing in the available literature to support the effectiveness of trailers in doing so. The purpose of this work was to measure the student perceptions of video course trailers that contextualize a general education course, measured using a qualitative survey.

Materials and Methods

Course Trailer Video Production

This study was conducted at a medium-sized private university in 3 general education STEM courses: introductory physics, statistics, and meteorology. Each course serves as a 3-credit hour general education course and may be expressly required for certain degree programs while serving as an elective option for others. The institution uses distributive general education requirements, with a total of 36 credit hours of general education coursework, with 15 credit hours allocated to STEM courses within computer science/information technology, mathematics, and physical/life sciences.

The general education program identifies the following seven key competencies that are selected to provide the basis for success in future academic endeavours, the workplace, and in life: critical thinking, quantitative reasoning, information literacy, communication, scientific literacy, cultural literacy, and collaborative learning. With the exception of cultural literacy and collaborative learning, these competencies are aligned with the most common outcomes reported in the 2016 AAC&U survey (Hart Research Associates, 2016). The competencies of critical thinking, communication, and information literacy align with the

skills that employers desire in candidates (Hart Research Associates, 2013). As an initiative intended to fulfil the College of Arts and Sciences' three year strategic plan to improve student affinity, an interdisciplinary and administrative team was assembled to develop a motivational course trailer video series.

The video production team is composed of full-time faculty from the university's Department of Math and Physical Life Sciences, Department of English, Humanities and Communication, the Associate Dean of the College of Arts and Sciences, the College of Arts and Sciences' Assistant to the Dean, and media production staff from the Department of Instructional Design and Development. Faculty members responsible for developing and managing the key general education courses are solicited to write video scripts. The alignment with videos for best practices is presented in Table 3. Due to an existing media production team with access to key software, the primary cost of this project was the indirect cost of time.

Table 3. Characteristics of General Education Video Trailers

Course	**Number of Speakers**	**Speaker Type**	**Video length (seconds)**	**Varied Visuals**	**Contact Information**
College Algebra (MATH 140)	1	Instructor	126	High	No
English Composition (ENGL 123)	1	Instructor	132	High	No
Introduction to Meteorology (WEAX 201)	1	Instructor	78	High	No
Introduction to Physics (PHYS 102)	1	Instructor	225	High	No
Introduction to Research Methods (RSCH 202)	1	Instructor	154	High	No

General Chemistry I (CHEM 139)	1	Instructor	123	High	No
Pre-calculus for Aviation (MATH 111)	1	Instructor	126	High	No

On the advice of the media production staff, the production team developed a standardized script template to guide the script writing process. The template offered a brief introduction to the video series project's purpose and intent, as well as an explanation of general expectations such as an approximation of how many words to expect to write per minute of finished video. The template also provided a table, breaking the video into discrete sections: "Introduction – attention grabber;" "Challenge;" "Course concepts;" "About/from the experts;" "Call to action;" and "Wrap-up/welcome." Each section included a suggested duration, a brief description of the recommended content, and a content example. For example, the "Challenge" section suggested a duration of 15 to 20 seconds and asks the writer to;

> State an example of a problem/issue that will be answered/addressed by taking this course (a 'more specific to the subject' type of question). For example: Could a tiny domino cause a chain reaction that could topple something as big as a 112-meter tall tower? Physics can give you the answer.

After iterative rounds of editing and revision between at least three members of the production team and the faculty writer, film dates and locations were selected. After receipt of a final script template, the video-production team began selecting appropriate additional stock-footage, audio, and graphics.

Each general education course trailer was designed to address one to two skills or competencies, contextualizing the course in terms of the competency's application in future academic and career settings (Table 4). The faculty writers and course developers were

encouraged, but not required to star in their own course trailer videos; so far, the faculty have accepted their starring roles. Video was recorded on Canon 5D Mark III. Stock footage was obtained from Pond 5 and music is provided by Omnimusic. Post-production was handled by the video-production staff using Adobe Premier CC and After Effects software.

Table 4. Video Message Alignment with Institutional General Education Competencies

Course	**General Education Competency**	**Skill Desired by Employers**
College Algebra (MATH 140)_	Critical thinking Quantitative reasoning	Critical thinking
English Composition (ENGL 123)	Communication Information Literacy	Communication Information Literacy
Introduction to Meteorology (WEAX 201)		Real world application
Introduction to Physics (PHYS 102)		Problem-solving
Introduction to Research Methods (RSCH 202)		Real world application Creativity
General Chemistry I (CHEM 139)	Scientific literacy	
Pre-calculus for Aviation (MATH 111)	Critical thinking Quantitative reasoning	Critical thinking

The videos were made available to students through the learning management system Canvas. Videos were posted as a required first-week exercise in their course's Canvas page. Students had to access their course's trailer video to 'unlock' the remainder of the first week's readings and assignments.

Participants

Students were invited to complete a voluntary survey on the videos, administered anonymously through SurveyMonkey. The survey consisted of 7 qualitative questions, 6 of which used a 5-point LIKERT scale. Survey data was collected between March and September 2018. The survey was deemed exempt by the institutional review board.

Data Analysis

All data were tested using Chi Square at an alpha of 0.05. While the survey used a 5-point LIKERT scale, the "significantly agree" and "agree" categories were regarded as "agree"

while the "neutral", "disagree", and "significantly disagree" categories were regarded as disagree (Gay, Mills, & Airasian, 2009). Data were tested using StatCrunch Data Analysis on the Web and StatDisk (Triola, 2013). The tested hypotheses were:

H_{a1}: Viewing the video will make a significant difference on how students view the connection between the course and its impact on their academic plan.

H_{a2}: Viewing the video will make a significant difference on how students view the connection between the course and its impact on their professional plan.

Results

The average response rate to the survey was 28%, ranging from 5% to 68% in individual courses. In order to understand the effectiveness of the contextualizing message of the course trailers, the survey inquired about student understanding of the course fit in their academic and professional plan before and after watching the video. Student perceptions of the course fit with their academic and professional plans *before* watching the video are presented in Table 5. All values were statistically significant at an alpha of .05. Student perceptions of the course fit with their academic and professional plans *after* watching the video are presented in Table 6. All values were statistically significant at an alpha of .05, meaning that in each course, students agreed that they understood their fit of the course in their academic and professional plans before watching the video as well as after watching the video. Note that both CHEM 139 and MATH 140 had a low number of responses, which was too small to make an adequate statistical determination. Responses from these courses were used in the aggregate data.

Table 5. Self-reported understanding of course fit with academic and professional plan before watching video

	Academic Plan					**Professional Plan**			
	Yes	**No**	**Chi Square**	**P-Value**		**Yes**	**No**	**Chi Square**	**P-Value**

PHYS 102	186	58	67.2	<.001	176	68	47.8	<.001
CHEM 139	4	0	N/A	N/A	4	0	N/A	N/A
ENGL 123	16	5	5.8	0.016	16	5	5.8	0.016
MATH 111	25	10	6.4	0.0011	24	11	4.8	0.028
MATH 140	1	3	N/A	N/A	1	2	N/A	N/A
RSCH 202	20	5	9.0	0.002	19	6	6.8	0.009
WEAX 201	23	8	7.3	0.007	23	8	7.3	0.007
All	275	87	97.6	0.001	263	99	74.3	0.001

Table 6. Self-reported understanding of course fit with academic and professional plan after watching video

	Academic Plan				**Professional Plan**			
	Yes	**No**	**Chi Square**	**P-Value**	**Yes**	**No**	**Chi Square**	**P-Value**
PHYS 102	202	42	104.9	<.001	204	40	110.2	<.001
CHEM 139	4	0	N/A	N/A	4	0	N/A	N/A
ENGL 123	20	1	17.2	0.001	20	1	17.2	0.001
MATH 111	29	6	15.1	0.001	29	6	15.1	0.001
MATH 140	2	2	N/A	N/A	2	2	N/A	N/A
RSCH 202	21	4	11.6	0.001	20	5	9.0	0.003
WEAX 201	25	6	11.6	0.001	22	9	5.5	0.02
All	303	59	164.5	0.001	301	61	159.1	0.001

The more interesting question is whether watching the video made an impact on student understanding of the fit. Aggregate student perceptions of the course fit before and after watching the video were compared to determine if differences were statistically significant. With a Chi Square value of 6.73 and a p-value of .01 (for academic fit) and Chi Square value of 11.6 with a p-value of <.001 (for professional fit), the differences were statistically significant at an alpha of .05. Not all individual course comparisons yielded significant results, but aggregate data showed a significant result regarding how the video impacted student perceptions of their understanding of the fit of the course in their academic and professional plans. For individual courses, p-values for academic plan fit ranged from .073 to .713 while p-values for professional plan fit ranged from .002 to .733.

The survey also inquired about the video clarity and usefulness (Table 7). Data were evaluated using Chi Square at an alpha level of .05. All differences were statistically significant. CHEM 139 and MATH 140 responses were included in the total but the *n* was too small for statistical analysis at the class level.

Table 7. Student perceptions of video clarity and usefulness

	Video Clarity				Video Usefulness			
	Yes	**No**	**Chi Square**	**P-Value**	**Yes**	**No**	**Chi Square**	**P-Value**
PHYS 102	233	11	202.0	<.001	198	46	94.7	<0.001
CHEM 139	4	0	N/A	N/A	4	0	N/A	N/A
ENGL 123	21	0	21.0	0.001	18	3	10.7	0.001
MATH 111	32	3	24.3	0.001	29	6	15.1	0.001
MATH 140	2	2	N/A	N/A	2	2	N/A	N/A
RSCH 202	22	3	14.4	0.001	20	5	9.0	0.003
WEAX 201	31	0	31.0	0.001	28	3	20.2	0.001
All	345	17	297.2	0.001	299	63	153.9	0.001

Discussion

Impact on Understanding of Course Fit

The objective of this study was to determine if the video successfully contextualized the general education course, improving their understanding of how the general education course fit into both their academic and professional plans. Prior to watching the video, students tended to understand how the course fit into both their academic and professional plan. After watching the video, students continued to understand how the course fit into both their academic and professional plan. This demonstrated that the video did no harm to their understanding of how the course fit into both their academic and professional plan.

With aggregate data from all courses, the video made a positive impact on their understanding of how the course fit with both their academic and professional plans. At the individual course level, comparisons before and after watching the video did not tend to produce statistically significant results. The one exception is the video in PHYS 102, which

did significantly impact students' understanding of the course fit with their professional plan. The PHYS 102 course had the largest *n*. Chi square is sensitive to sample size, with the power of the test increasing with the sample size. Chi square can give inaccurate results with low expected numbers, though expected cell sizes greater than 5 indicate that Chi Square was appropriate (Triola, 2013).

It is possible that some courses benefit more from contextualization than others, which may be specific to the degree path of the student. This could be explored more thoroughly in a future study, with the goal of identifying what types of general education courses most benefit from contextualization.

Video Clarity and Usefulness

Overall, respondents felt the message of the video they viewed was clear. Respondents also felt the video was useful. However, if you compare the raw data for clarity and usefulness, you can see that fewer students felt the video was useful.

It should be noted that perception of clarity and usefulness traits in a course trailer are likely not related to production value (Bligh, 2000). Instead of spending more money producing a course trailer, developers might instead focus on achieving clarity through current best practices, including the use of varied visuals (e.g. avoiding a talking head) and limiting video length.

Usefulness requires contextualisation. We believe that if this contextualisation is produced by the student through engaging with the course trailer, as opposed to being told, it might create improved perception of usefulness - additional research is required to explore this concept further. This engagement might be elicited through several means:

- Promote active learning by posing a question or challenge, with or without group or public results sharing (e.g. discussion board, social media). We believe that a focus on

integration would strengthen usefulness perception and should be tested in future research.

- Provide location of additional deeper dive resources to encourage self-led learning
- Usefulness messages reiterated across multiple formats, including the course trailer
- And a range of other best practices for improving student engagement in online learning environments

If there is a common misconception regarding a course's usefulness, this should be tackled head-on in the course trailer as a simple 'clarity' approach is unlikely to resolve the issue (Muller, 2011). Specific techniques for resolving usefulness challenges in course trailers warrants further research.

Limitations of the Study

A primary limitation of this survey is measurement errors where the survey statistics differ from the true value due to data collection methods. One source of measurement error is from poor question wording. This survey did not capture student understanding of their academic or professional plan. This may have been a confounding factor; students who do not understand their plans would be poorly suited to evaluate the impact of a video on their plan. While this study did not expressly measure this moderating variable, the "unsure" option in the LIKERT scale can serve as a rough surrogate. Prior to watching the video, 16% of all respondents indicated "unsure" in regard to fit with academic plan and 18% for professional plan. After watching the video, these responses fell to 13% and 12% respectively. This demonstrates a small potential for this confounding factor to influence the dependent variable, which should be tested in order to strengthen internal validity, thus improving evidence of causality. Future studies should include a question to gauge student understanding of their plans.

Another measurement error is nonresponse error. The survey response rate was less

than 100% and in some cases was extremely low (5%). Voluntary survey response can introduce bias. This bias tends to over-represent strong opinions, both positive and negative. This limitation is challenging to overcome in survey research but is not expected to have significant impacts on the conclusions in this study.

A third limitation of this study involves longitudinal effects. This survey measured student opinions directly after watching the video. It is possible that student perceptions may change over time. A future study should explore perceptions immediately after watching the video as well as after a specified amount of time has elapsed, such as the end of the term. It would be interesting to explore how student perceptions regarding course fit with their academic and professional plans correlated to gains in the key transferable skills developed through the general education program.

A final limitation of this study is from the limited availability of previous literature. This concept is not well explored in the literature, limiting the amount of data with which to craft a theoretical framework for this study.

Conclusions

The survey's results provide statistically significant evidence supporting H_{a1} and H_{a2}: Viewing the video does make a significant difference on how students view the connection between the course and its impact on their professional and academic plans. This study's positive results suggest that video series developed with the best practices described above can represent effective devices for the communication of general education competencies, as well as how these courses add value to their academic and professional careers.

The video development team and process described in this study can serve as a model for developing devices likely to improve student engagement with and understanding of the value of general education courses. As U.S. universities seek to develop devices that improve their students' relationship with general education courses they should focus on the inclusion

of subject-matter and course content experts; development of a standardized script template; application of rich multi-media and strict time limits; and posting in multiple locations. Because production value may not be linked to student perceptions of usefulness or clarity, the use of professional grade media production, editing staff, and editing tools is suggested as optional.

By including subject matter and course experts with professional media production staff, the interdisciplinary production team succeeded in developing content rich in meaningful information focused on specific courses. Using a standardized script template facilitated efficient iterative communication and revision between the interdisciplinary faculty and the media production staff. The application of rich multi-media and strict time limits likely contributed to the development of content engaging enough to sustain student interest. Given the lack of consensus about how to develop course trailer videos, the model described here represents an effective heuristic for developing devices that improve student understanding of the important role general education courses hold in their academic and professional plans.

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