Perceptions of Instructional Video Clips: Effects of the Presence or Absence of a Model in Instructional Video Clips on the Perception of the Model

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ABSTRACT
Instructional videos are increasingly being used for educational purposes in academia. Distant learning is showing a massive growth in recent years and instructional videos are the key element of distance learning. The internet is filled with thousands of instructional video clips. However, characteristics such as the presence of a model in the video tend to differ across videos. This study aims to explore the effects of the presence or absence of a model in instructional video clips on the learners’ perception of the model, self-efficacy beliefs and perceived learning. A total of 78 Sri Lankan information technology undergraduate students participated in the study. Two instructional video clips on professional writing were used for the study; one where the viewers can see the model (video alternates between the model and the slides), and another one where they can only hear the voice of the model. Two video clips were randomly assigned to each participant and data was collected on their perception of the model, self-efficacy beliefs and perceived learning. The results showed that the presence or absence of the model does not have a significant effect on learners’ perception of the model, self-efficacy beliefs or perceived learning. However, both instructional video clips had a positive effect on learners’ self-efficacy.

Keywords
Instructional video; perception; online education; professional writing; writing self-efficacy; perceived learning.

1. INTRODUCTION
In today’s academia and corporate world, professional writing is held in high regard. A successful professional writer should be able to analyze a given situation and find the most optimal strategy, and then use his or her writing skills to address that issue while justifying the chosen strategy to the intended audience [1], [40]. While good writing skills are deemed an essential asset for employability in the 21st century, it seems that it is a skill that most students struggle to master [2], [3]. [4]. This could be a reason for the increasing number of online courses that offer instructional video on writing [5].

Because of growing up in the television era, today’s students are more visually oriented [6]. At the end of the year 2015, 28% of higher education students in the United States of America were enrolled in at least one online course Allen, Seaman et al. [7] and Guo, Kim et al. [8] recognize instructional videos as one of the most commonly used resources in online learning. All of these might be reasons for why the popularity of instructional videos in the education sector is rapidly increasing [9]. For years, instructional videos have been used by many institutions as a rich medium of communication that helps them overcome the limitations in traditional face-to-face education in the classroom [10], [11]. However, partnerships between several prestigious universities and massive open online course (MOOC) platforms, such as, EdX and Coursera have pushed the use of instructional videos in education into the mainstream during the past couple of years [12]. Now, the internet is filled with thousands of instructional videos hosted on these platforms, and other for- and non-profit educational websites such as Khan Academy, Lynda.com and Udemy, on various subjects ranging from history and basic math to computer programming and artificial intelligence. Not to mention YouTube, which is one of the most commonly referred to resources used in education, that has been found to enhance students’ learning experience [13].

When browsing through this sea of instructional videos, it is seen that each of these videos has a different way of presenting the content. In other words, they have different production styles. Guo et al.[8], recognize six main production styles in instructional videos; classroom (video of live lecture with audience), slides (slideshow with voice-over), code (screencast of a coding exercise), Khan-style (video of writings on a digital tablet – popular on Khan Academy), studio (video of lecture without audience) and office desk (close-up shot of the model sitting behind a desk). However, it is also possible to have videos that have been made by combining a couple of these production styles. For example, it is possible to produce a video that combines the slides and studio styles by alternating between the lecture slides and a video of the instructor.

Upon further investigation, it was observed that one of the main differences in these production styles is whether there is a model (instructor/teacher) present in the video. Research has shown that the presence of a model on instructional video is preferred by learners as they deem those videos as more educational [14]. In other words, learners prefer instructional video clips where they can see the model, over the ones where they can only hear the voice of the model. Learners also show higher levels of engagement with instructional video clips where they can see the model, when compared to instructional video clips where they can only hear the voice of the model [8]. While research about the effects of the presence of a model on instructional video has generally focused on the areas of the learners’ cognitive processing, engagement, perceived and actual learning and satisfaction [15], there appears to be a lack of research exploring how it affects the learners’ perception of the model. Thus, the main purpose of this research is to study the effects of the presence or absence of such a model in instructional video on the learners’ perception of the model. The study also explores the effects of instructional video on learners’ self-efficacy beliefs, and the
effects of the model presence on their self-efficacy beliefs and perceived learning. Following the practices of numerous prior studies (e.g., Raedts, et al. [16]), the research was focused on the influence of instructional video on writing. The study will be conducted with the undergraduate students who are currently enrolled in a Sri Lankan university, and analyze the effects that an instructional video about professional writing would have on the learners

2. LITERATURE REVIEW

This section begins by looking at the previous literature on professional writing and motivation. This is followed by a review of prior literature on observational learning and self-efficacy.

2.1 Observational learning

The effectiveness of observational learning in relation to learning writing skills has been observed in multiple studies (e.g., Raedts et al. [16]). In fact, Bush and Zuidema [1] points out that “successful and effective learning” has occurred through models. The social cognitive theory further states that the learning cycle consists of four processes: attention, retention, production and motivation [17].

2.2 Self-efficacy in learning and perception of the models

In the academic context, Bong [18] defines self-efficacy as “subjective convictions that one can successfully carry out given academic tasks at designated levels” (p. 288). Simply put, it represents a learner’s confidence in his or her capability of successfully performing a given task. In education, higher self-efficacy beliefs have been found to have numerous positive effects on learners. However, it is worth mentioning that some of the research has not been able to confirm the foreseen connection between self-efficacy and performance [19], [16]. Nevertheless, higher level of self-efficacy is generally considered a key contributing factor in educational attainments [20] [21].

2.3 The importance of the perception of teachers as models in education

The learning environment is one of the many factors that can affect someone’s learning process and motivation [22]. Teachers have always been an important part of the learning environment. In the learning process, teachers are supposed to play multiple roles, including initiator, mentor, facilitator, motivator, consultant, and the ideal model, which are known to affect learner’s motivation [23].

Although there have only been a limited number of studies that explore the effect of motivation in online learning, motivation of the learners is still considered a key factor that determines the success of online learning [24]. Research related to online learning has found that the perceived level of involvement of the instructors, and their interpersonal skills could influence learners’ motivation [25], [26]. Furthermore, a study by Hew [27] showed that instructors in MOOCs should have a real interest in the subject, should be genuinely interested in teaching it, and have an in-depth knowledge of their course material, as it can build up the excitement in learners. It also asserted that the perceived passion of the instructor to teach the subject could influence the learners’ engagement. Other studies have also noted that instructors that convey more enthusiasm and energy might receive a higher level of engagement from the learners [8]. All the above leads to the logical conclusion that the learners’ perception of the instructor does indeed influenced them.

2.4 Instructional video

Online learning, flexible learning, distance learning, and blended learning are just a few of the terms that are used to describe the use of digital technologies to enhance or extend traditional learning [24]. Often, these terms go hand in hand with the use of instructional videos. At first, they were used by institutions as a rich medium of communication which helps them overcome the limitations in traditional face-to-face education in the classroom [10], [11]. However, over the past few years, several high-profile massive open online course (MOOC) platforms, such as, EdX, Udacity, and Coursera partnered up with prestigious universities and institutions from around the world and brought instructional videos, in the form of MOOCs, into the mainstream by offering a range of free and paid courses [12]. In addition, the number of higher education institutions that offer online study programs has also seen a steady increase during the past few years [7]. Together, these MOOC platforms and other online study platforms such as Khan Academy, Lynda.com and Udemy have delivered millions of online lessons to their learners over the past decade [8].

The programs on these MOOC platforms largely consist of pre-recorded instructional videos that the students can follow according to their own schedules [14], [28]. Prior research suggests that instructional videos have the capability to deliver learning results that are comparable to traditional lectures [28]. The instructional videos on MOOC platforms can normally be categorized into either one, or multiple, production styles documented by Guo et al. [8] slides, classroom, code, Khan-style, studio and office desk.

Initially, the concept of social presence was explored as an aspect of the telecommunications [29]. However, more recent research has recognized it as a very important factor in various types of computer mediated activities, including online gaming, video conferencing, e-mail and discussion boards [30], [31], [32].

3. RESEARCH GOALS

The main intention of the present study was to determine the effect that the presence or absence of a model in an instructional video has on the learners’ perception of the model. There are three research questions addressed as follows:

- **Research Question 1 (RQ1):** How does the presence or absence of a model in an instructional video about professional writing influence the learners’ perception of the model?
- **Research Question 2 (RQ2):** Does an instructional video about professional writing have a significant influence on learners’ self-efficacy?
- **Research Question 3 (RQ3):** Does an instructional video about professional writing where a model is present on the video have more influence on learners’ perceived learning and self-efficacy than a video where a model is not present?

4. METHODOLOGY

4.1 Participants

The participants of the study were 78 information technology undergraduates who were enrolled in a Sri Lankan university. They were all second-year students of the three-year (six semester) “Bachelor of Science in Information Technology.”
degree programme conducted by the faculty of computing. The programme includes a foundation course in English communication skills, and a “Business English & Communication Skills” course in its first semester. In addition, all the course materials and lectures for the programme are presented exclusively in English. All the participants were assured of the confidentiality in their responses. Participation in the study was voluntary and the students did not receive any compensation for participating. All the participants were native Sinhalese speakers with an average age of 23.5 (SD = 4.28) years. There were 51 males (65.4%) and 26 females (33.3%) among the respondents, while one participant chose not to reveal the gender by choosing the “Prefer not to answer” option. All the participants reported that they have had prior experience with instructional video, claiming that they watched instructional videos “occasionally / sometimes” (26.9%), “often” (50%) or “always” (23.1%). All of them claimed that it was important for them to learn English professional writing skills; extremely important - 36, very important - 30, moderately important - 11, slightly important - 1. Fig 1, 2 and 3 present visual breakdowns of the demographic data of the participants.

4.2 Instructional materials (The video clips)

The study is an investigation into the effect of the presence or absence of a model on an instructional video, on learners’ perception of the model, and their perceived learning and self-efficacy beliefs. More specifically, A test was conducted using two instructional videos that were made using different production styles. The first instructional video combined the slides and studio styles by alternating between the lecture slides and a video of the model. The second one was a slides style instructional video. The participants were randomly assigned to one of the two videos.

The video “Professional Writing (Level of Formality) - University of Pennsylvania” was used, which was available for repurposing and re-use under the Creative Commons 4.0 Attribution license (See Appendix A). It is a part of the English for Career Development course by the University of Pennsylvania; a course which currently holds a rating of 4.8 out of 5, based on 290 ratings. The adherence of the video to recommendations provided by previous research was one of the biggest reasons for the selection of this video clip. It is a short five-minute video clip, that was recorded in a studio setting which makes the learners feel as if the model is personally addressing them, and has no unnecessary backgrounds [8], [33], [34]. The model in the video is Mr. Brian McManus, language specialist of the English Language Programs at the University of Pennsylvania, who holds an MA in English (TESOL) from San Francisco State University (SFSU).

- The video had been made by combining the studio and slides production styles. Following changes were made to the original video;
- First nine seconds of the video was removed
- A small introductory text about the model was added at the start of the video
- The play time for the post lesson attribution text was reduced

The second video was made (slide styled) by removing all the instances of the video where the model appears and replacing them by increasing the on-screen time of the previous slide. Careful consideration was taken to make sure that both video clips were the same length (4m 35s), so that differences in video length would not affect the results of the research. In fact, other than the difference in production style (slide vs. alternating between slide and studio), all the other aspects of the two video clips were kept the same. Henceforth, the two video clips would be referred to as the video with the model and video without the model. Fig 5 and 6 show screenshots from the two videos.
There have been only a couple of previous research that used the same type of videos [8], [34] where they mainly focused on learners’ engagement and the post video attempts of given problems. While they reported higher engagement and problem attempts and recommended the videos where it would alternate between slides and the recording of the model, none of them attempted to study the connection between the model presence and the learners’ perception of the model.

If the learners’ perception of the model, self-efficacy and perceived learning are positively affected by the model’s presence on the video, it could unveil one of the reasons for their preference towards instructional video which include a recording of the model. It would also further justify the effort and costs associated with adding a model to the video [11]. Conversely, if the learners’ perception of the model and other factors is the same for both video clips, instructional video creators could further research why they express the preference. Furthermore, if learners’ perception of the model, self-efficacy or perceived learning is negatively affected by the model’s presence on the video, additional research could be done to study how to make a positive effect with the model presence. This study would also help video producers in MOOC platforms to back up their decisions with data, rather than relying on their intuition.

4.3 Experimental design
The participants (n = 78) were randomly allocated to either one of the two videos; video with the model or the one without the model. They were provided with the weblink to access the survey which was carried out through Qualtrics online research software. Before watching the video, they had to answer a questionnaire that was designed to gather demographic, task value and self-efficacy information. Then they watched one of the two videos, which was randomly assigned through the “Randomizer” option in Qualtrics. After the video, the participants were directed to a second questionnaire which was developed to measure their perception of the model, perceived learning and post-video self-efficacy beliefs. Fig 7 shows the flow of the survey. The post survey data analysis was carried out using the IBM SPSS statistics software.

4.4 Measures
The experiment started with the questionnaire by asking the participants to answer a short questionnaire before showing them one of the instructional video clips. The questions were adapted from [14], and collected information about the participants age, gender and prior experience with instructional videos. In addition, two questions were adapted from [16] to measure learners’ task value and pre-test self-efficacy beliefs.

An instrument to assess the learners’ perception of the model after watching the video was developed by drawing items and questions from multiple sources [35] [36] and adjusting the wording. 8 statements were used with ratings following a
seven-point Likert scale, scaled from 1 (strongly disagree) to 7 (strongly agree). The 8 statements were:

1. I like the instructor
2. The instructor is friendly
3. The instructor is well prepared and knowledgeable (He seems to have a good command of his subject matter)
4. I can trust the lesson that is presented by this instructor
5. Given the instructor’s personal qualities and the course content, I think he is doing an excellent job of teaching
6. The instructor has good communication skills (e.g., He speaks clearly)
7. The instructor is enthusiastic about teaching this subject
8. The instructor is energetic in conducting the lesson

In addition, two questions were included to measure the effect of the model’s presence on learners’ perceived learning and post-video self-efficacy beliefs [15], [16]. The same seven-point scale for the perceived learning question was used, while a 100-point scale (range 0-100) was used to measure self-efficacy beliefs, following the guidelines provided by Bandura [37] for creating self-efficacy scales.

9. I learned a great deal of information from this lesson (perceived learning)
10. I am confident that I can write a professional cover letter in English, using a formal tone
   a). 0 (Not sure at all I can do this)
   b). 50 (Moderately certain I can do)
   c). 100 (Highly certain I can do this)

An instrument to assess the learners’ perception of the model after watching the video was developed by drawing items and questions from multiple sources (Liew et al., 2013; Jones, 1989; Griffin, 2004) and adjusting the wording. 8 statements were used with ratings following a seven-point Likert scale, scaled from 1 (strongly disagree) to 7 (strongly agree).

In addition, two questions were also included to measure the effect of the model’s presence on learners’ perceived learning and post-video self-efficacy used the same seven-point scale for the perceived learning question, while a 100-point scale (range 0-100) was used to measure self-efficacy beliefs, following the guidelines provided by Bandura [37] for creating self-efficacy scales.

While the use of single-item scales might restrain the ability to compute the internal consistency of the measures, their equal or superior validity compared to multiple-item measures has been documented in multiple studies [38], [39].

5. RESULTS

Tables 1, 2 and 3 show the descriptive statistics for the participants and the assignment of the videos. From the sample of 78 participants, 40 (51.3%) watched the video with the model, while the other 38 (48.7%) participants watched the video without the model. The results from the pre-video questionnaire, which used a 5-point Likert scale ranging from 1 (not at all important) to 5 (extremely important), suggested that the participants place a high task value on learning English professional writing skills. The mean of the responses to the question, “How important is it for you to learn English professional writing skills?”, was 4.29 with a standard deviation of 0.76. While the score suggests that the participants placed a high task value on learning English professional writing skills, the low standard deviation suggests a low spread of responses with considerable in-group consensus. The participants generally showed a high level of prior experience with instructional video clips. The mean of the responses to the question, “How often do you use instructional videos for academic or other learning purposes?”, which also used a 5-point Likert scale ranging from 1 (never) to 5 (always), was 3.96 with a standard deviation of 0.71.

| Table 1. Descriptive statistics for the participants gender and the two video clips |
|---------------------------------|-----------------|-----------------|--------|
| Gender     | Video with the model | Video without the model | Total |
| Male       | 24               | 27               | 51     |
| Female     | 16               | 10               | 26     |
| Prefer not to answer | 0           | 1               | 1      |
| Total      | 40               | 38               | 78     |

| Table 2. Descriptive statistics for the participants’ task value |
|-----------------|-----------------|--------|
| Task value*    | Video with the model | Video without the model | Total |
| Slightly important | 0              | 1       | 1      |
| Moderately important | 3            | 8       | 11     |
| Very important | 15              | 15      | 30     |
| Extremely important | 22           | 14      | 36     |

| Table 3. Descriptive statistics about the participants’ prior experience with instructional videos |
|-------------------------------------------------|-----------------|--------|
| Prior experience with instructional videos* | Video with the model | Video without the model | Total |
| Occasionally | 11              | 10      | 21     |
| Often     | 22              | 17      | 39     |
| Always    | 7               | 11      | 18     |

The learners’ perception of the model, after they watched one of the videos, was measured using the eight statements in the post-video questionnaire following a seven-point Likert scale; 1 (strongly disagree) to 7 (strongly agree). A subscale for assessing the learners’ perception of the model was constructed using these eight questions. The internal consistency of the subscale was .93 (Cronbach’s alpha). An independent samples t-test \( t(76) = -0.473, p = .64 \) was conducted to compare the perception of the participants who watched the video with the model and the ones who watched the video without the model. There was no significant difference in the scores for the video with the model (M =
The participants’ self-efficacy was measured twice; before watching the instructional video and after. A paired samples t-test \( t(77) = -7.51, p < .01 \) was conducted in order to compare the participants’ self-efficacy levels in pre-video and post-video conditions. The test results reported a significant difference in the self-efficacy scores for pre-video \( (M = 7.32, SD = 2.04) \) and post-video \( (M = 8.77, SD = 1.83) \) conditions. The boxplot in figure 8 clearly shows the positive shift in self-efficacy after watching the video. The results suggest that an instructional video about professional writing could have a significant influence on learners’ self-efficacy. Specifically, the results show that an instructional video about professional writing could have a positive effect on learners’ self-efficacy beliefs.

![Fig 8: Pre- and post-video self-efficacy of all the participants.](image)

An independent samples t-test \( t(76) = -0.995, p = .36 \) was conducted in order to compare the difference in post-video self-efficacy levels of the participants in the two groups: ones who watched the video with the model and the ones who watched the video without the model. The test did not report a significant difference in the scores for the video with the model \( (M = 8.75, SD = 1.86) \) and the video without the model \( (M = 8.79, SD = 1.82) \). A second independent samples t-test \( t(76) = 0.937, p = .35 \) also showed no significant difference in the scores for the video with the model \( (M = 1.63, SD = 1.88) \) and the video without the model \( (M = 1.26, SD = 1.50) \) for the difference in self-efficacy between the pre- and post-video conditions. These results suggest that the presence or absence of a model in an instructional video about professional writing does not significantly affect the learners’ self-efficacy beliefs.

A significant difference could not be found in perceived learning between the participants who watched different video clips. An independent samples t-test \( t(76) = 0.499, p = .62 \) that was conducted to compare the difference of perceived learning between the two groups, ones who watched the video with the model \( (M = 5.78, SD = 0.95) \) and the ones who watched the video without the model \( (M = 5.66, SD = 1.12) \) did not report a significant difference in the scores. The results suggest that the presence or absence of a model in an instructional video about professional writing does not have a significant effect on the learners’ perceived learning.

### 6. DISCUSSION

Present study investigated the effects that the presence or absence of a model in an instructional video on professional writing have on learners’ perception of the model, perceived learning and self-efficacy beliefs. The results suggest that although instructional videos on professional writing could have a significant positive effect on learners’ self-efficacy beliefs, the presence of a model on the video would not lead to a significant difference on their perception of the model, perceived learning or self-efficacy beliefs, when compared to not having the model on the video. First research question focused on the effect that the presence or absence of a model have on learners’ perception of the model. The results of the study did not indicate that the model presence on a video could significantly affect learners’ perception of the model. However, several factors might have affected this result. For example, the participants watched a video with only 4 minutes and 35 seconds of play time. Therefore, with regards to the video with the model, the timing of the presence of the model might have influenced the results as well.

The second research question examined whether an instructional video about professional writing could have a significant influence on learners’ self-efficacy. The results showed that an instructional video could make a positive effect on learners’ professional writing self-efficacy beliefs. However, a significant difference was not observed in self-efficacy between the two groups; one that watched the video with the model, and the one that watched the video without the model. It is also worth mentioning that it has been found that the learners’ lack the ability to accurately self-evaluate their level of observational learning and tend to overestimate their skills after a modelling phase.

The final research question focused on the effect of model presence in an instructional video about professional writing on learners’ perceived learning and self-efficacy. As mentioned above the results did not indicate a significant difference in scores for self-efficacy between learners who watched the video with the model, and the ones who watched the video without the model. The results were the same for perceived learning. Furthermore, the same study could not find a correlation between the learners’ actual learning performance and their learning perception.

### 7. CONCLUSION

The main goal of the current study was to examine the effect that the presence or absence of a model in an instructional video has on the learners’ perception of the model. No previous research has explored the relationship between model presence and learners’ perception of the model. The results of the study indicated that presence or absence of a model in the instructional video does not have a significant effect on learners’ perception of the model, perceived learning or self-efficacy. However, it did report a significant positive effect of instructional videos on learners’ self-efficacy beliefs. These findings also extend to the domains of perceived learning and self-efficacy, as the results of the study did not indicate a relationship between the model presence on instructional video clips and learners’ perceived learning or self-efficacy.

The results of this study indicated that presence or absence of a model in the instructional video does not have a significant effect on learners’ perception of the model, perceived learning or self-efficacy. However, it did report a significant positive effect of instructional videos on learners’ self-efficacy beliefs. While previous research has shown that learners’ perception
of the instructors could influence characteristics such as learners’ level of engagement and motivation (e.g., Hew, 2016; Matsumoto, 2011), findings show that their perception of the instructor do not depend on his or her presence or absence in the video. In other words, findings show that model presence in instructional video clips does not make a difference in how the learners perceive the model. These findings also extend to the domains of perceived learning and self-efficacy, as the results of this study did not indicate a relationship between the model presence on instructional video clips and learners’ perceived learning or self-efficacy.

The findings of this study could serve as an important reference for instructional video producers and instructors who are engaged in online learning platforms when designing their next instructional video. However, they should keep in mind that instructional videos comprise of many components that could have directly or indirectly affected the findings. In this research, these include the factors such as the short duration of these instructional video clips, the gender of the model and the small sample size.

8. LIMITATIONS AND FUTURE WORK

The current study is the first research that explores the effects of the presence or absence of a model in instructional video on the learners’ perception of the model. Despite the contributions that it makes, the reliability of the findings and their generalizability might have been influenced by several limitations. Since majority of the participants of the study were young information technology undergraduates, the study is highly biased towards the younger and tech savvy individuals, which means that it is not representative of the general population. Further research could extend the parameters of the current study by including participants from different backgrounds. Furthermore, while all the participants were enrolled in a graduate programme taught exclusively in English, due to logistic and administrative reasons, no tests were conducted to assess their level of English knowledge. Hence, it might be interesting for future researchers to further examine these results with regards to the learners’ level of English knowledge. This study also did not focus on examining whether there was a relationship between the positive effect of instructional video on learners’ professional writing self-efficacy and their actual writing performance. Furthermore, while the questionnaire for measuring the learners’ perception of the model showed a strong internal reliability, it was a short questionnaire which included only eight questions. Only two questions were used (one question each) to measure the learners’ perceived learning and self-efficacy. Future research could control these limits by using an expanded questionnaire. Lastly, further research could also examine the effects that the gender of the model in an instructional video might have on male and female learners’ perception of the model.

9. REFERENCES


[41]