

# How Do Consumers Evaluate Explainer Videos? An Empirical Study on the Effectiveness and Efficiency of Different Explainer Video Formats

Andreas Krämer<sup>1,2</sup> & Sandra Böhrs<sup>3</sup>

<sup>1</sup> BiTS-Business and Information Technology School GmbH, University of Applied Sciences, Iserlohn, Germany

<sup>2</sup> exeo Strategic Consulting AG, Bonn, Germany

<sup>3</sup> The Simpleshow Company S.A., Luxembourg

Correspondence: Andreas Krämer, BiTS-Business and Information Technology School GmbH, Reiterweg 26b, 58636, Iserlohn, Germany. Tel: 49-178-256-2241. E-mail: andreas.kraemer@bits-laureate.de

Received: October 31, 2016

Accepted: November 30, 2016

Online Published: December 8, 2016

doi:10.5539/jel.v6n1p254

URL: <http://dx.doi.org/10.5539/jel.v6n1p254>

## Abstract

There is a significant rise in the use of videos. More and more people use videos not only as a source of information but also as learning tool. This article explores the future potential of explainer videos, a format that conveys complex facts to a target group within a very short time. The findings are based on an empirical study representative for the German and U.S. population (18+ years). In the first step, the status quo of the use of e-learning in general and explainer videos in particular is presented. Subsequently, the effectiveness and efficiency of five different explainer video formats are analyzed using an experimental test design for one topic (US presidential election). On one hand, all formats reach a favorable evaluation based on the perception of the respondents, with only a few differences between test groups. On the other hand, significant differences occur in terms of relative improvements in knowledge level as well as input/output-ratios. Thirdly, expectations of potential users regarding the design of explainer videos are determined.

**Keywords:** customer expectations, e-learning, explainer video, experimental online survey, learning effects

## 1. Introduction

In recent years the use of videos has been growing steadily. Indicators for this are the strong growth of e-learning applications such as online courses as well as an increase of the overall use of videos for example on YouTube or video integration in online journals. Among the instruments of e-learning, online courses are regarded as a subsector with a particularly strong growth (Zhang & Nunamaker, 2003). The vision of the democratization of knowledge might come true soon. According to Fozdar (2015), ODL (Open and Distance Learning) can be the solution for overcoming the gap between those who have access to an education with science and technology and those who do not. Studies suggest that learning success can be improved if teachers use a mixture of media. Videos play a crucial role since video is by far one of the most powerful and expressive non-textual media that captures and conveys information (Hampapur & Jain, 1998). According to a meta-analysis of Mayer (1997), students who received a coordinated presentation of explanations in a verbal and visual format (multiple representation group) generated a median of over 75% more creative solutions on problem-solving transfer tests than students who received verbal explanations only (single representation group). At the same time, companies are using eLearning programs to take advantage of the possibilities of digitization to achieve economies of scale in the transfer of knowledge among employees. Here, videos play an important role (Derouin, Fritzsche, & Salas, 2005).

Furthermore, the development of the video hosting platform YouTube shows the growing interest in the video format. The average upload of videos per minute on YouTube boosted from 8 hours in 2007 to 300 hours in 2014 (Statista, 2015). In recent years, YouTube has become the most popular free video-sharing website for user-created content or user-generated content (Shifman, 2011), mainly driven by its perceived usefulness and ease of use (Lee & Lehto, 2013). Apart from YouTube as the most popular and well-known video hosting site, there are other platforms that are widely used, e.g., Vimeo, Wistia, Sprout Video and many more.

Today, an increasing number of users create explainer videos using free of charge tools (Forbes, 2014). According to Graham (2015) video and presentation platforms are often applied for producing advertisement, e-learning courses and explainer videos. Hence, not only Business-to-Business (B2B) segments are making use of explainer videos but also Business to Consumer (B2C) and Consumer-to-Consumer (C2C) markets. The changes depicted so far have an influence on the consumption of videos. As a recent study (ARD/ZDF, 2016) shows for Germany, the share of people who watch videos every day increased from 9% (2011) to 26% (2016).

### *1.1 The Market for Explainer Videos*

Explainer videos effectively convey complex facts to a target group within a very short time. Characterizing elements are storytelling and multisensory. Explainer videos are usually one to three minutes long. Rather than going into detail, they focus on the most relevant facts. The visualization includes animated illustrations, graphics, or photos. There are different types of explainer videos, such as paper cut-out or so-called papermation videos, live scribble, whiteboard animation, or fully animated explainer videos. The sector for explainer videos is fragmented and the suppliers often have a regional focus. Some of the international players are Powtoon, GoAnimate, Swith Video, Firestarter, epipheo, explain-it, explainity and simpleshow.

Since the market for explainer videos is not fully saturated, the competitive environment is changing dynamically, which makes it difficult to estimate the size of the global market. In order to provide an indication, published data and forecasts for the German market are used for this study. According to an analysis of simpleshow and infotainweb (2014), German companies spent around EUR 30m for the creation and production of explainer videos. Within the next few years simpleshow expects an annual market growth of over 50%. For the year 2020, there is a predicted market potential of EUR 250m in Germany.

Online video has quickly emerged as the preferred content medium for Business-to-Business (B2B) marketers around the world. Today, explainer videos are used at all stages of the sales cycle to educate, entertain, inspire, and engage potential customers (Litt, 2014).

### *1.2 Characteristics of Explainer Videos*

Tu (2015) identifies six different web video types that have emerged in the industry. Explainer videos are one of the Internet video flavors, which are typically used to explain difficult topics such complex processes, trainings, guidelines, etc.

In the following some key characteristics of explainer videos are described:

- 1) Script: A well-written script is essential for a successful explainer video. It is important to know the main message that needs to be conveyed to the audience and to have a clear structure of the script.
- 2) Reduced length: The videos need to be short. Bond (2008) describes this fact based on his research (a project including more than 1,000 participants). He learned that “short videos of 1 to 4 minutes are ideal” and points out that “short 3 or 4 minute YouTube videos help an instructor to make a key point without having to sacrifice a significant amount of time. The learning payoff is immense as the learner can recall the information through both, verbal and visual channels”.
- 3) Focus: In order to keep a video short and to explain to core message to the target group, it is necessary to keep the content as simple as possible. In the first step, it is important to focus on the “why” rather than on “what” or the “how”. This way, a causal framework for the explanation is built before the need to go into any detail. By using a simple, approachable language and by concentrating on what the audience already knows about the subject or situation the explanation can be build by using cause and effect (Schmelzle, 2014).
- 4) Storytelling: It is a fundamental and extremely powerful element to explainer videos. It is the most effective way to engage and persuade an audience as people’s brains become activated when a good story is being told (Wright, 2004).
- 5) Visuals: Good visuals have an immense effect on the audience and can captivate their imagination. By using metaphoric imagery the main points of an explanation can be contextualized making the core message easier to understand and stick with the audience (Schmelzle, 2014).

### *1.3 Background of Study and Objectives*

Simpleshow is a media company (founded in 2008) specializing in the production of explainer videos in the business sector. With an accumulated production volume of approximately 8,000 videos, simpleshow has a leading position in the worldwide market. Simpleshow explainer videos summarize information and improve the

learning outcome using empathetic storytelling and a finely tuned interplay of sound and image. This makes this charming and engaging format a perfect key element for an online course. In April 2016 this year simpleshow launched a DIY-Tool that helps people to create high quality explainer videos (30.000 clips already have been produced since then).

The general objective of the study is to explore the future prospects of explainer videos using a quantitative and representative survey to measure the anticipated consumer acceptance and expectations for explainer videos. The goal is also to analyze the effectiveness (learning effect) and efficiency (ratio learning effect pro time of consumed video) of the explainer video as a format to improve the knowledge base of the user. Since Germany and the US represent the major markets of simpleshow, these two countries were selected for the study. Taking into account that there is a broad variety of different explainer video formats in these markets, this study not only investigates the effect on general knowledge when using an explainer video to transfer information to the consumer but also focuses on differences related to the video format.

#### 1.4 Research Questions

- 1) What are relevant customer segments in e-learning in general and explainer videos in particular? Which differences are prevalent across the sample groups?
- 2) How were explainer videos used in the past (customer groups, topics, formats) and evaluated in terms of customer satisfaction?
- 3) What are the main requirements for using explainer videos in the future?
- 4) How do users evaluate different formats of explainer videos with regards to key performance characteristics such as quality of the speaker, length of the video etc.? Does the evaluation vary across different formats?
- 5) How strong do explainer videos affect the knowledge level of its users (example video of the U.S. presidential election)? What are main determinants for knowledge improvements?

## 2. Method

### 2.1 Procedures and Methodology

In order to answer the research questions, an empirical study was developed and carried out. It provided insights to regional differences and therefore focuses on the key markets such as Germany and the U.S. In addition to the economic benefits of an online research study, this survey type also has further substantive advantages for an experimental testing. This is particularly true when different types of information such as videos and graphics will be presented during the interview (Krämer, 2016). As the assessment of innovative formats of online courses is relevant for the study, online market research becomes particularly favorable.

The online survey-representing 2 different sample groups (Germany and U.S.; total n = 2.012) - was conducted in August 2016 and was focused on B2C segments (see Table 1).

Table 1. Sample groups and characteristics

Sample group*	Interviews (field)	Respondents	Interview time	Weight
# 1 Germany	Aug. 18 <sup>th</sup> -Aug 25 <sup>th</sup>	n = 1.008*	Ø 19.7 min	Age, sex, region, internet usage
# 2 U.S.	Aug. 23 <sup>th</sup> -Aug 25 <sup>th</sup>	n = 1.004*	Ø 20.1 min	Age, sex, region, internet usage

\* Sample quota were set to n = 1.000 cases for each country. Respondents with an unrealistic short interview time were eliminated (Note 1).

### 2.2 Structure of the Study

According to the purpose of the study, the designed surveys are divided into three parts: the first section deals with the previous experience in the area of e-learning in general and explainer video in particular (number of videos, subjects, degree of satisfaction and future intension to use). The second section relates to the learning effect achieved by explainer videos. Based on an experimental design five different video formats are tested. In the third part of the interview, future customer expectations towards main characteristics of explainer videos are analyzed.

The framework conditions for the five test groups should be identical. For the experiment, a popular topic was selected, for which one video was already available (US presidential election). The company Explainity released

a video on YouTube on March 21<sup>st</sup> 2016. Until early October 2016 the video had more than 50,000 views. It explains that every four years the presidential election takes place in the US and shows the process in which finally a new president is elected. On the basis of this reference video, four alternative videos were produced that contained the same information. The following formats were used: Mysimpleshow, simpleshow Classic, Colored Video and Whiteboard animation (Figure 1). Each video was produced by a different simpleshow team with accordingly uniform specifications (Note 2). These five different videos (Figure 1) were shown to the sample group. Within each sample group only one randomly chosen video of the five videos was shown to a subject; at the end five different treatment groups for each regional sample group were created.

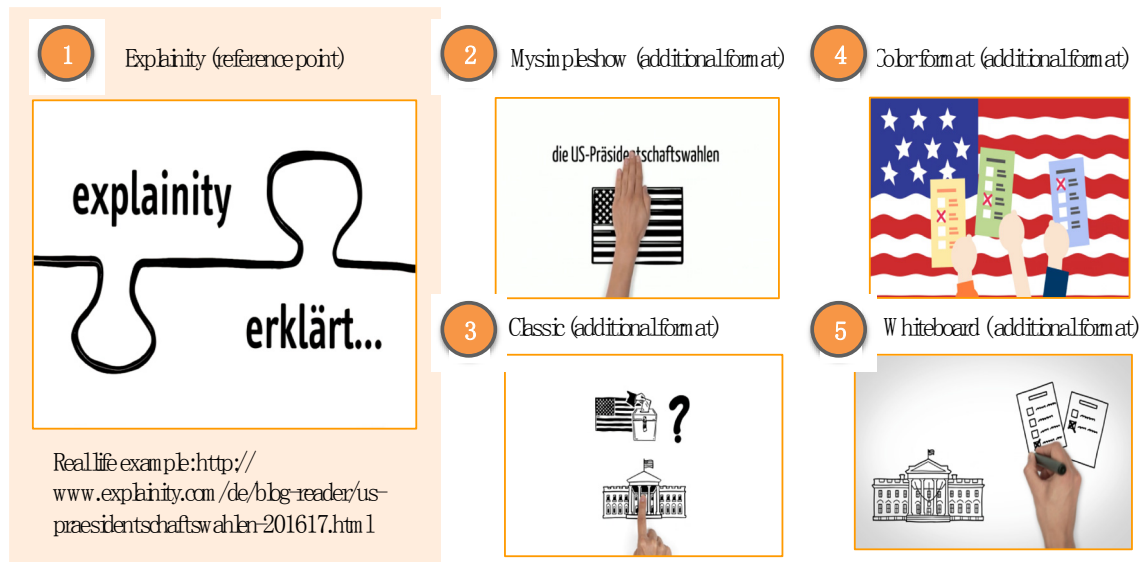


Figure 1. Experimental design: 5 explainer videos about the U.S. presidential election

In addition to the core areas of the study, there is a screening part at the beginning of the online interview. At the end of the interview, demographic characteristics were recorded, which later served as descriptive variables as well as parameters for weighting the raw data and adjusting those to representative structures.

### 2.3 Measurement of the Learning Effect (Knowledge Test)

In order to measure the effect of explainer videos on the level of knowledge about the presidential election, the interviewees were asked to answer a series of questions about the video, followed by a typical Pre-test-Post-test procedure (Zhang et al., 2006): Pre-test: During the online survey subjects took a test, which included questions concerning the US presidential election. Those questions were derived from the reference video (Explainity). The purpose of this test was to examine how much a respondent already knew about the topic. No significant differences in the subjective knowledge and personal interest in the subject among the five treatment groups were discovered. At the end of the interview, participants were given the same question, consisting of objective questions (with standard answers). Key elements of the knowledge tests were:

- In total, 7 questions were asked before and after the video (Multiple Choice). These questions covered main topics of the explainer video (US presidential election).
- Correct answers were rated as plus points, wrong answers were rated as minus points.
- 21 optional answers were offered: 10 correct answers (maximum result: 10 points) and 11 wrong answers (maximum result: -11 points).

### 2.4 Data Analysis

To examine the significance within the two sample groups (as well as other splits according to age group or test group) and to statistically evaluate background characteristics, the repeated measures ANOVA, given its ability to perform overall comparisons, Chi-Square tests and T-test were used. Hierarchical clustering to determine the number of clusters and K-Means-Clustering were used for segmentation. All statistical analyses of the data are based on SPSS version 22.

### 3. Results

#### 3.1 Experiences with E-Learning and Explainer Videos in the Past

As shown in Table 2, the level of involvement in e-learning reaches 55% in the U.S., compared to 51% in Germany. Compared with results of a study we conducted in 2015 (we used an identical introduction part) the level of experience has risen in both countries (Krämer & Böhrs, 2015). However, the increase is particularly strong in Germany. Overall, experience with e-learning is strongly correlated to age: Seniors (60+ years) show a lower level of involvement.

Table 2. Experiences with e-learning according to sample group

Question	Year	Germany	U.S.
Experience with e-learning*	2015	38% (19%)	45% (40%)
	2016	51% (35%)	55% (39%)

\* Question: Do you have experience with e-learning in general, and have you used digital learning applications? Values in ( ): 60+ years.

Respondents who confirmed an e-learning experience in the past were asked to indicate the digital learning applications they used. Here, the usage of online references (for example Wikipedia) ranks number 1, while YouTube ranks second. Compared to the results of 2015 the usage of YouTube faces a particularly strong increase.

While 71% of respondents in Germany indicate that they have already watched explainer videos, the corresponding value for the US is much lower (47%). It can be observed that video usage is depending on age (Table 3). When performing Chi-Square-tests, differences across groups are indicated to be significant ( $p < 0.001$ ) for both splits. The use of explainer videos is broadly diversified: product videos are most commonly used (55% of respondents with e-learning experience in Germany, respectively 57% in the US), followed by videos on health issues (44% of respondents with experience in Germany, respectively 37% in the US).

Table 3. Experiences with explainer videos according to age group

	Germany			U.S.		
	16-29 years	30-59 years	60+ years	16-29 years	30-59 years	60+ years
Yes	81.2%	73.0%	62.4%	52.9%	47.6%	37.4%
No	18.8%	27.0%	37.6%	47.1%	52.4%	62.6%

Question: Now we would like to talk about the topic “explainer-videos”. Explainer videos are short animated videos, which explain a product, or a service or a topic. Have you ever watched an explainer video?

In addition to the general usage, the time of the last use of an explainer video was also determined. Here, similar structures emerged for both countries. Almost half of the users watched the last video during the previous 7 days. In contrast, there are significant differences of the users rating on their satisfaction with the video (scale from 1= very satisfied to 6 = very unsatisfied). The approvals (top-2 values) in Germany reach 60% and are more than 20 percentage points higher than in the US (39%). The mean score of 1.32 in Germany and 1.52 in the US are significantly different ( $p < 0.001$ ). In this case the age group does not play a crucial role.

When asked “Would you be interested to watch explainer videos in future?” 73% of respondents in Germany answered “Yes, of course” or “Yes, probably” (top-2), indicating that there is a considerable usage potential for explainer videos in the future. Again, Germany seems to be ahead of the US market (62% top-2). Furthermore, there is also a strong dependency on age. The intended future use of explainer videos decreases significantly over the three age groups (Chi-Square-tests;  $p < 0.001$  in Germany and  $p = 0.002$  for the U.S.). In addition, the intention of the future use is very much dependent on their current use of explainer videos. People, who have already used videos, reach top-2 values of 85%, people who have not yet watched explainer videos, reach less than 40% (Chi-Square-tests;  $p < 0.001$  for both countries). Overall, the main driver for the future use of explainer videos is the previous usage, not the age.

### 3.2 Importance and Usage of Explainer Videos

In addition to the descriptive analysis of the previous experiences with e-learning and explainer videos, a further step was used to evaluate preferences and attitudes towards the subjects on the topics of video and text information. Here, nine statements were assessed based on a rating scale (Table 4). The strong trend towards the use of YouTube videos is also explained in our empirical analysis. Overall, a strong preference to use video over text information can be detracted from the statement evaluations. The agreement to the statement “I often watch videos, for example on YouTube” is much larger (61%, top-2) than the rejection (21%, low-2). One out of two respondents expressed the opinion that he or she can remember video content better than text content. While the response structures in Germany and the U.S. are relatively similar, two statements result in highly considerable differences. This applies to the statements “If an explainer video is too long, I stop watching” and “If I’m searching for information, I often watch a video” (Table 4).

For some statements, as already described—strong age dependencies can be observed, which in Germany are more clear and concise than in the U.S. The statement “I prefer watching videos over reading texts” reaches 56% agreement (16% rejection) in the age group under 30 years, the corresponding value for the seniors is only 30% (rejection 33%). While this dependency in Germany is highly significant ( $p < 0.001$ ), however, no major differences between age groups are observed for the U.S. ( $p = 0.25$ ).

Based on the measured settings and preferences, segmentation was carried out with the aim of identifying as homogeneous groups as possible. Two out of three segments show a rather positive attitude towards video consumption: One segment with a higher proportion of seniors strongly prefers text information (“Text fans”). About 16% of the respondents are grouped and described as “Extreme video fans”. This segment has an exceptionally high share of males, younger people ( $< 30$  years), users of explainer videos in the past and heavy Internet users ( $> 3$  hours per day).

Table 4. Statements concerning the consumption of videos (% top-2 agreement)

Evaluation of statements based on a rating scale <sup>1)</sup>	Germany	U.S.
I often watch videos, for example on YouTube.	59% (2.52)*	64% (2.35)*
I can remember videos better than text content.	52% (2.55)	47% (2.63)
If an explainer video is too long, I stop watching.	52% (2.59)**	57% (2.39)**
I prefer watching videos to reading texts.	43% (2.74)*	38% (2.85)*
If I’m searching for information, I often watch a video about the topic.	39% (2.99)**	49% (2.67)**
I tend not to watch videos to the end.	31% (3.10)	31% (3.09)
I prefer to read texts to watching a video.	29% (2.99)	28% (2.99)
I often watch videos on my smartphone, because I can’t read texts as well on it.	23% (3.58)*	18% (3.72)*
I have already created videos myself and have uploaded them on the Internet.	15% (4.20)*	16% (4.02)*

1) Question: To what degree do you agree with the following statements? (Scale from 1 = I fully agree to 5 = I fully disagree). Mean values in (). \* indicates  $p < 0.10$ ; \*\* indicates  $p < 0.001$ .

### 3.3 Experimental Design: Using the Topic of the U.S. Presidential Election

In order to introduce the topic of the U.S. presidential election to the interviewees and to grasp the subjective level of knowledge and interest at the same time, six statements were evaluated in the following part of the interview (Table 5). Based on the survey, the interest of the German population in the U.S. presidential election is even bigger than in the U.S. The agreement with the statement “The topic (U.S. presidential election) is interesting” is 66% in Germany and 57% in the U.S. Mean values of 2.36 (Germany) to 2.48 (United States) differ substantially ( $p = 0.05$ ).

In both countries the U.S. election system is perceived to be complicated (agreement 60% in Germany and 50% in U.S.). The global importance of the subject U.S. election in combination with the high interest is the cause of more than 50% of respondents receiving information about the topic during the last few weeks. Significant differences arise between Germany and the U.S. with respect to the personal involvement in the subject as well as the detailed knowledge about each step in the election process. Consequently, the level of subjective

knowledge on the topic U.S. presidential election is much higher in the U.S. (69%, top-2) compared to Germany (32%, top-2).

Table 5. Statements concerning the U.S. Presidential Election (% top-2 agreement)

Evaluation of statements based on a rating scale <sup>1)</sup>	Germany	U.S.
The topic is interesting.	66% (2.36)*	57% (2.48)*
I have a clear preference, who is the better candidate.	65% (2.20)	62% (2.23)
The election system is relatively complicated.	60% (2.35)**	50% (2.68)**
I often received information about the topic the last few weeks.	58% (2.52)	55% (2.51)
I have already intensely dealt with the subject of presidential elections.	37% (2.92)**	49% (2.58)**
I know the particular steps of the U.S. presidential election.	32% (3.05)**	69% (2.17)**

1) Question: In the following we would like to ask some questions about the U.S. presidential election. How much do you agree with the following statements? (Scale from 1 = I fully agree to 5 = I fully disagree). Mean values in (). \* indicates  $p < 0.10$ ; \*\* indicates  $p < 0.001$ .

### 3.4 Detailed Evaluation of Different Video Formats

The evaluation of the effectiveness and efficiency of explainer videos has a subjective and objective component. In the following, the subjective perspective will be investigated first. After the video was presented to the test group, respondents were asked to evaluate the explainer video in relation to 9 single dimensions and give a summarizing assessment (“Overall I liked the video”). As Table 6 exhibits, all video formats achieve a good rating level. Mean values range from 1.66 to 2.91. Almost four out of five respondents indicate that they liked the video that was shown to them. Results for Germany were higher (80%) than for the U.S. (73%).

However, there are no significant differences in the ratings, except for the perceived length. Here, the reference video is rated worse compared to the formats Mysimpleshow, Classic, and Whiteboard. The better rating corresponds to the different lengths of the videos. While the Classic format is the shortest video (203 seconds) the Explainity video was the longest format (340 seconds).

Although the rating profiles are very similar, there are strong differences in level between the 9 single performance characteristics. The dimension “The speaker was understandable” was particularly well rated (86% top-2 agreement), while the dimension “speaks to me emotionally”, received a mediocre rating (37% top-2 agreement).

Table 6. Statements concerning the video on the U.S. Presidential Election (mean values)

Evaluation of statements based on a 5 point rating scale <sup>1)</sup>	Explainity	Mysimpleshow	Classic format	Color format	Whiteboard
The speaker was understandable.	1.66	1.70	1.69	1.83*	1.68
I understand the content of the video.	1.79	1.82	1.87	1.94*	1.87
The video was technically made well.	1.86	1.91	1.93	2.05*	1.84
The didactic quality of video is good.	1.93	1.91	2.04	2.07	1.94
<b>Overall I liked the video.</b>	<b>1.96</b>	<b>1.97</b>	<b>2.05</b>	<b>2.09*</b>	<b>1.95</b>
I liked the style and making of the video.	1.97	2.02	2.04	2.09	1.97
The video has an easy to follow plot.	2.15	2.18	2.12	2.16	2.04
The length of the video is acceptable.	2.16	1.95*	1.91**	2.05	1.96**
The video was entertaining.	2.21	2.17	2.11	2.22	2.15
The video speaks to me emotionally.	2.88	2.78	2.79	2.91*	2.81

1) Question: You will now see an explainer video, which explains the U.S. presidential election. Please take time to watch the video and answer the following questions. How do you rate the video on a scale from 1 = I do totally agree to 5 = I do totally disagree. \* indicates  $p < 0.10$ ; \*\* indicates  $p < 0.001$  (Explainity is the reference video).

### 3.5 Knowledge Test on U.S. Presidential Election System

Both the subjective levels of knowledge (statement “I know the particular steps of the U.S. presidential election”) as well as the knowledge level determined by the pre-test measurement do not differ strongly across test groups (ANOVA  $p = 0.93$ , respectively  $p = 0.33$ ). Regardless of the test group there is a major improvement of respondent’s knowledge due to the presented video ( $p < 0.001$ ). The average score increased from 3.25 points to 4.75. The improvement in knowledge level was bigger in the German sample (from 2.33 points to 4.12) compared to the U.S. sample (from 4.30 points to 5.45). These differences are highly significant (ANOVA  $p < 0.001$ ).

Table 7 reveals that the improvement of the respondents’ knowledge differs across the video formats tested in the experiment. Compared with the original format (Explainity), three out of four alternative videos reach better results than the original video (reference), while the result for the Color format is worse than for Explainity. In absolute terms the Classic format shows the best results. Here, the average improvement of respondents’ knowledge amounts to 1.68 points, overtopping Explainity’s results ( $M = 1.28$ ) significantly ( $p = 0.07$ ).

Table 7. Results of the knowledge test (Videos explaining the U.S. Presidential Election)

Mean values (Standard Deviation) <sup>1)</sup>	Explainity	Mysimpleshow	Classic format	Color format	Whiteboard
Knowledge level before video (Ø points)	3.49 (3.2)	3.26 (3.2)	2.99 (3.3)	3.32 (3.5)	3.25 (3.2)
Knowledge level after video (Ø points)	4.77 (3.7)	4.88 (3.8)	4.67 (3.6)	4.55 (3.7)	4.86 (3.3)
Difference (Ø points)	1.28 (3.3)	1.63 (3.3)	1.68 (3.1)	1.23 (3.3)	1.61 (3.0)
Significance (Reference: Explainity)	---	$p = 0.17$	$p = 0.07$	$p = 0.85$	$p = 0.17$

1) Question: We will now ask you some questions about the topic U.S. presidential election presidency. Comparison of average scores (knowledge test) before and after the video. Mean values are shown (standard deviation)

Figure 2 illustrates further insights into the results of the knowledge test. The share of test subjects who have watched the video completely ranges from 24% (Whiteboard) to 66% (Classic format). At the same time the Classic format achieves the highest share of respondents who improved their personal score. Overall, the learning effect increases with the time the respondents spend to watch the video. While in case that the video was watched less than 1 minute the knowledge effect is close to zero, the biggest improvement was gained when the video was watched more than 3 minutes.

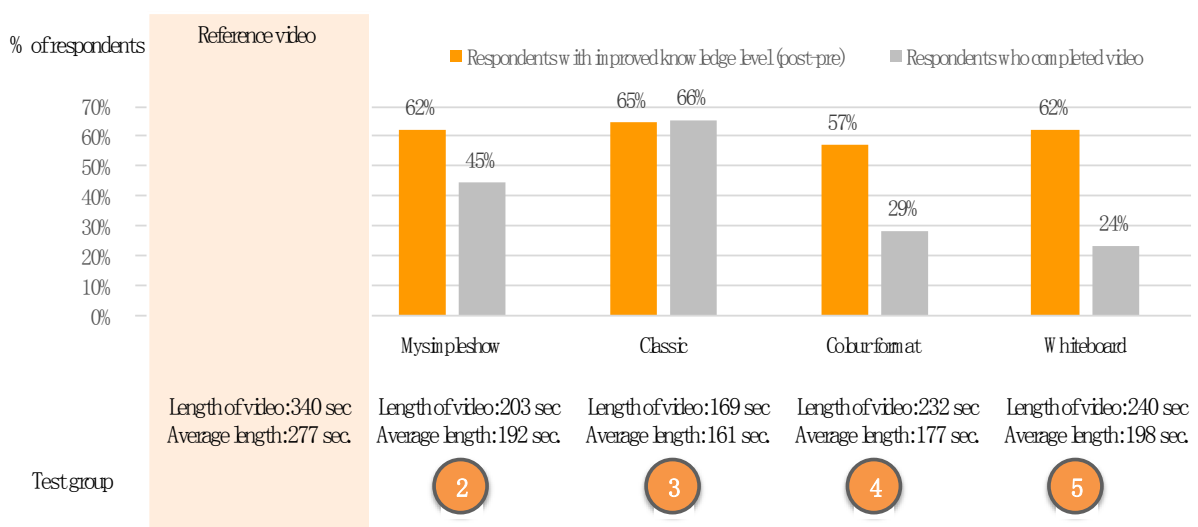


Figure 2. Knowledge improvement and video completion according to test group



### 3.6 Input/Output-Ratios and Drop-Out-Rates

The results so far confirm that in all test groups a significant improvement in the knowledge level of subjects was achieved when presenting the explainer videos during the interview. However, it is also necessary to take into account the time required to achieve this effect. As Table 8 shows, the Classic format not only gains the strongest knowledge improvement, but also achieves this with minimal time effort. The ratio between input (time spent to watch the video) and output (improvement of knowledge level) is particularly favorable in this case. In other words: the efficiency of the knowledge transfer is particularly high.

Table 8. Knowledge improvement related to time spend to watch the video

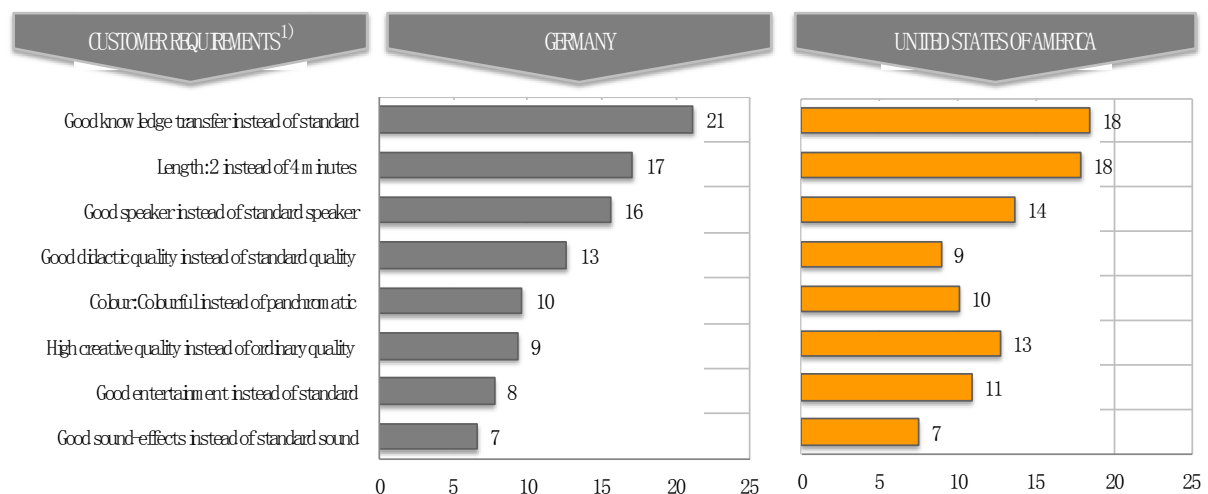
Mean parameters	Explainity	Mysimplideshow	Classic format	Color format	Whiteboard
Difference in knowledge level (Ø points)	1.28	1.63	1.68	1.23	1.61
Time spend to watch the video (Ø sec.)	277	192	161	177	198
Efficiency index <sup>1)</sup>	0	67	100	40	60

1) Index = 100 for most efficient video (improved knowledge level in relation to time spend to watch the video (sec.); 0 = least efficient video.

### 3.7 Customer Expectations: Relevant Video Characteristics

To identify the key performance features of a video, a design was chosen, containing two steps. At the beginning ten decision criteria were presented. These attributes were explained by incremental changes in the characteristics, which have been referred to as improvements. Respondents were asked to identify the most important feature from their point of view. Then they were asked to distribute a total of 100 points according to the importance of the individual attribute. This 2-steps-approach was developed to ensure a realistic decision-making including typical trade-offs (Netzer & Srinivasan, 2007). The authors have successfully implemented this approach in other research fields (see Kalt, Bongaerts & Krämer, 2013; Krämer & Böhrs, 2015).

Dimensions such as knowledge transfer (20 points), time (17 points) and speaker (15 points) are key requirements for creating explainer videos (Figure 3). Two of the top ranked features by the respondents clearly relate to the core competencies of explainer videos: to convey complicated topics and contexts within a short time. Yet, the meaning of the speaker has not been documented in the academic literature in this form. This underlines that the effects of the explainer videos are not exclusively visual.



1) We would like to ask some questions about "Explainer videos" and their important elements. (a) In the text below you will find different suggested modifications of the video. Please rate the connections (1=important connection/8=irrelevant connection). (b) Please distribute 100 points among the 8 modifications, according to which modification is the most important from your point of view.

Figure 3. Weighted main video characteristics according to country

In both countries respondents allocated on average 10 points for the performance dimension color (“colorful instead of panchromatic”). In addition, interviewees were also asked directly to state their visual preferences. Although more than half of the respondents are indifferent (53% in Germany, 55% in the U.S.), there is a slight tendency to prefer colored formats (31% in Germany, 32% in the U.S.). Furthermore, color preference is significantly depending on age group (Chi-Square-test: Germany  $p = 0.04$ ; U.S.  $p = 0.01$ ). While 42% of respondents in the age group  $< 30$  years in the U.S. indicated to prefer colored formats, the corresponding value for seniors (60+ years) is only 24%. Overall, the evaluation of key characteristics and the stated color preferences are consistent.

When clustering subjects according to the individual weighing of key characteristics it becomes obvious that the preference structure within the sample is fragmented. For example, there is one robust segment that accounts for 13% of the interviews and is very time sensitive (average allocation for 2 minute vs. 4 minute videos is 73 points). Other clusters indicate a strong relevance of either the speaker or knowledge transfer. Again, there are differences depending on the past use of explainer video: For non-users the dimension “length of video” is most important. This effect is particularly strong in the U.S.

#### 4. Discussion

The study results show that the use of explainer videos has become popular among the population and is not only a subject for academic training. Both, first a relatively high degree of customer satisfaction and second a high intention to use explainer videos generate a substantial growth potential in this market segment. Explainer videos fit particularly well into the changing structure of media consumption in which visual aspects play an increasingly important role. Therefore, it is not surprising that the intention to use it in the future is firstly very much dependent on age and secondly on the use of explanations in the past. In addition, new fields of application arise, for example, as elements in e-mail marketing (Hampel, Hammon, & Hippner, 2013) or as essential parts of an online course (Krämer & Böhrs, 2015).

The high interest of the German population identified in the study is consistent with other study results covering the international awareness on the U.S. presidential election. In May 2016, CNN published results of a worldwide survey, which indicated a huge interest amongst international audiences for the U.S. election. 85% of people view the election as important for the world at large, with 73% of respondents saying they are personally interested in U.S. election news. Since the topic of the tested video is very up-to-date, the question arises as to which learning effects would result from a study with a different topic (potentially lower involvement).

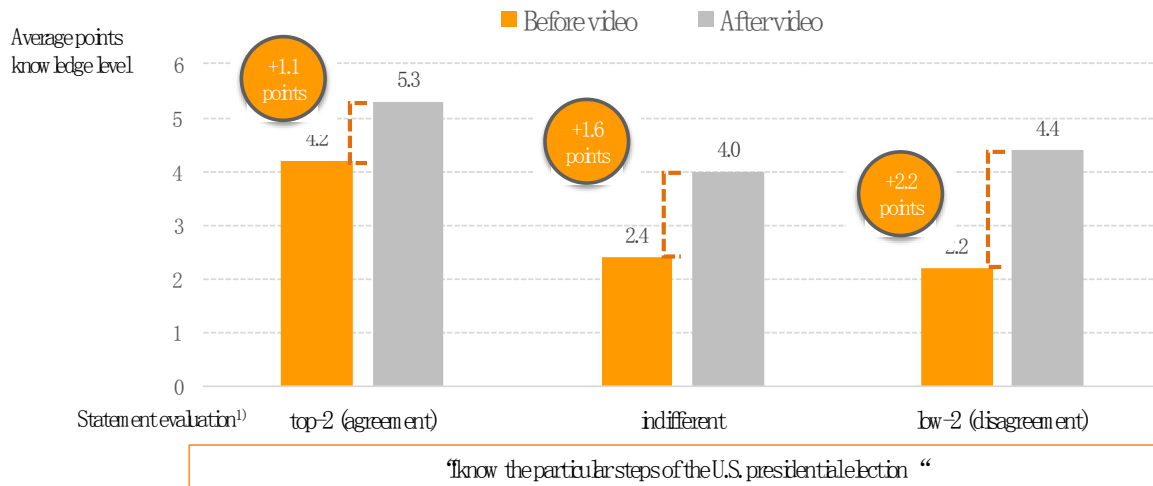
In an older study Peterson (1976) examines and summarizes the findings of recent research literature on the effects of color versus black and white learning materials on academic achievement. A preference for colored stimuli was explained by the fact that because the cognition of younger children is impulsive they respond to a vivid, dominant color cue more readily than to a subdued or neutral cue. Today, there is no dominant preference for colored video formats. Concerning the measured learning effect, the color format achieves the smallest improvement of all five tested video formats.

#### 5. Implications

The most important findings for the future use of explainer video are: (a) the chance to transfer knowledge in case of a comparatively low knowledge level of users, (b) the need to reduce drop-out-rates and (c) focus on the input/output-ratio of explainer videos.

##### *5.1 Opportunity for Knowledge Transfers in Case of a Comparatively Low Knowledge Level*

From the authors' point of view, a particularly far-reaching result from the study is that consumers show particularly good positive knowledge effects using explainer videos when they have a low degree of involvement on the subject and a low level of subjective knowledge. This relationship is demonstrated in Figure 4. The weaker the respondents' interest (expressed by the subject's knowledge), and the lower the objective knowledge (which shows that most respondents do not have a completely distorted self-image) the stronger the effect of knowledge improvement was. For the marketing and sale of explainer videos this is an important point. In many cases, these videos are used especially in areas where either the knowledge base is at a very low level, or the involvement of consumers is rather low. Based on these results, it is expected that the knowledge improvements in other areas could be even more substantial than in the test (the majority of respondents were very interested in the topic). Furthermore, in case the interest is low potential users of explainer video only have a limited willingness to spend a longer time to watch the video. This emphasizes the crucial role of a short video time.



<sup>1)</sup> Question: We will now ask you some questions about the top 2 U.S. presidential election. Comparison of average points before and after the video.

Figure 4. Results of knowledge test according to subjective knowledge status of respondents

### 5.2 Need to Reduce Drop-Out-Rates

With regard to the requirements of the potential benefits to the design of online courses, it becomes evident that a special sub-segment, in particular, expects short videos. Since video content is easy to understand and learners often retain more by watching a video than by reading a document (Abeer & Miri, 2014), the explainer video format is one option to compress content in order to reduce the length of an online course. Further examining the possibilities of use and the learning efficiency of explainer videos help in identifying a rule of thumb: shorter videos are more engaging than longer videos. Hence, it is crucial to make the content as concise as possible to achieve the highest engagement. The longer the video, the higher the drop-out rates (Hornung, 2014). However, this relationship is not linear. Usually higher drop-out rates arise when thresholds are exceeded: 2-3 minutes, and 10 minutes, respectively (Ruedlinger, 2012). Our own study confirms this rule, as we found that only 42% of the respondents have watched the explainer video until the end. This share is above average in Germany (46%) and below average in the U.S. (37%). There is clear evidence that the drop-out-rate is positively correlated with length of the video. If the video lasted between 1 and 3 minutes, the drop-out-rate is 12%, increasing to 57% when the video lasts longer than 3 minutes.

### 5.3 Focus on the Input/Output-Ratio of Explainer Videos

Against the background of the fact that an extended video length significantly increases the risk of drop-out, the video length has a special role when creating an explainer video. The shorter the video, the more likely the video will be viewed completely. As our study results indicate, the positive learning effect was almost twice as big for subjects who have seen the video to the end compared with respondents who did not complete the video.

If the provider succeeds in achieving a significant knowledge improvement in a short time, this has two implications: First, the compressed content of a short video makes learning easier; the effort for the user is reduced. Secondly, the amount of resources required to create the video can also be reduced. However, this requires a competency with regard to didactics and storytelling. The future acceptance and use of explainer videos will essentially depend on the efficiency of the video, i.e., to create a knowledge transfer in the shortest possible time. In this regard, the examined video formats show a very different performance.

## 6. Conclusion

Explainer videos as a means of explaining complex facts have not yet been intensively studied, but in practice they are gaining in importance, whether it is to explain products or services to potential customers (B2B), to provide consumers with information via video (B2C) or as an element within an online course. Our study provides clear evidence that explainer videos not only improve the knowledge level of the users, but also increase consumers' involvement and activation potential. These effects are presumably dependent on the topic and should be further investigated. Results from this paper suggest that further research is needed to investigate the full educational potentials that explainer videos provide to all subject areas.

## Acknowledgments

The authors are grateful to Rogator AG, Nuremberg, for the provision of survey software, the programming of the questionnaire and the entire data management as well as Susanne Schmidt and Fendi Choi from simpleshow for substantive input to the study.

## References

- Abeer, W., & Miri, B. (2014). Students' Preferences and Views about Learning in a MOOC. *Procedia-Social and Behavioral Sciences*, 152, 318-323. <http://dx.doi.org/10.1016/j.sbspro.2014.09.203>
- ARD/ZDF. (2016). *ARD/ZDF-Online studie 2016*. Retrieved from <http://www.ard-zdf-onlinestudie.de/index.php?id=568>
- Bonk, C. J. (2008). YouTube anchors and enders: The use of shared online video content as a macrocontext for learning. In *American Educational Research Association (AERA) (annual meeting)*. New York.
- CNN International. (2016). *CNN US Election Global View Study*. Retrieved from <http://www.onlinemr.com/toluna-conducts-cnn-us-election-global-view-study-on-behalf-of-cnn-international/>
- Derouin, R. E., Fritzsche, B. A., & Salas, E. (2005). E-learning in organizations. *Journal of Management*, 31(6), 920-940. <https://dx.doi.org/10.1177/0149206305279815>
- Forbes, C. (2014). Information literacy instruction. *LIBRARY HI TECH NEWS*, 10, 1-5. <https://dx.doi.org/10.1108/LHTN-10-2014-0093>
- Fozdar, B. I. (2015). Open and Distance Learning (ODL): A Strategy of Development through its Potential Role in Improving Science & Technology Knowledge. *iJET*, 10(2), 9-16. <http://dx.doi.org/10.3991/ijet.v10i2.4176>
- Graham, B. (2015). *Power up Your PowToon Studio Project*. Packt Publishing Ltd.
- Hampapur, A., & Jain, R. (1998). Chapter 9: Video data management systems: Metadata and architecture. In *Multimedia Data Management*. McGraw-Hill.
- Hampel, S., Hammon, L., & Hippner, H. (2013). Eine experimentelle Studie zur Wirkung von Videos im E-Mail-Marketing auf ausgewählte Konstrukte des Konsumentenverhaltens. *Marketing ZFP*, 35(1), 58-74. [https://dx.doi.org/10.15358/0344-1369\\_2013\\_1\\_58](https://dx.doi.org/10.15358/0344-1369_2013_1_58)
- Hornung, Y. (2014). *The optimal length for video marketing content? As short as possible*. Retrieved from <http://thenextweb.com/socialmedia/2014/05/02/optimal-length-video-marketing-content-short-possible>
- Kalt, M., Bongaerts, R., & Krämer, A. (2013). Value-to-Value-Segmentierung im praktischen Einsatz. *Planung und Analyse*, 40(6), 21-24.
- Krämer, A. (2016). *Experimental-Designs als (neue) Basis der Marketingforschung*. Präsentation auf dem Rogator-Kudentag.
- Krämer, A., & Böhrs, S. (2015). Experiences and Future Expectations Towards Online Courses—An Empirical Study of the B2C and B2B Segments. *Journal of Education and Training Studies*, 4(1), 23-31. <http://dx.doi.org/10.11114/jets.v4i1.1104>
- Lee, D. Y., & Lehto, M. R. (2013). User acceptance of YouTube for procedural learning: An extension of the Technology Acceptance Model. *Computers & Education*, 61, 193-208. <http://dx.doi.org/10.1016/j.compedu.2012.10.001>
- Litt, M. (2014). How online video is changing the way B2B marketers engage and convert prospects. *Journal of Brand Strategy*, 3(2), 129-134.
- Mayer, R. E. (1997). Multimedia learning: Are we asking the right questions? *Educational Psychologist*, 32(1), 1-19. [http://dx.doi.org/10.1207/s15326985ep3201\\_1](http://dx.doi.org/10.1207/s15326985ep3201_1)
- Ruedlinger, B. (2012). *Does Length Matter?* Retrieved from <http://wistia.com/blog/does-length-matter-it-does-for-video-2k12-edition>
- Schmelzle, J. (2014). *5 Rules for explaining things simply*. Retrieved from <http://simpleshow.com/de/whitepaper/>
- Shifman, L. (2011). *An anatomy of a YouTube meme*. New Media & Society. <http://dx.doi.org/10.1177/1461444811412160>

- Simpleshow and Infotainweb. (2014). *Erklärvideo-Markt: Potential liegt bei über 250 Millionen Euro*. Retrieved from <http://simpleshow.com/de/pressemitteilungen/erklaervideo-markt-potential-liegt-bei-ueber-250-millionen-euro/>
- Statista. (2015). *YouTube-Statista-Dossier, Hamburg*. Retrieved from <http://de.statista.com/statistik/daten/studie/207321/umfrage/upload-von-videomaterial-bei-youtube-pro-minute-zeitreihe/>
- Tu, D. L. (2015). *Feature and Narrative Storytelling for Multimedia Journalists*. CRC Press.
- Wright, K. (2004). *Screenwriting is storytelling: Creating an A-list screenplay that sells!* Penguin.
- Zhang, D., & Nunamaker, J. F. (2003). Powering e-learning in the new millennium: An overview of e-learning and enabling technology. *Information Systems Frontiers*, 5(2), 207-218. <https://dx.doi.org/10.1023/A:1022609809036>
- Zhang, D., Zhou, L., Briggs, R. O., & Nunamaker, J. F. (2006). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. *Information & management*, 43(1), 15-27. <http://dx.doi.org/10.1016/j.im.2005.01.004>

### Notes

Note 1. Since the recruitment of respondents relies on online access panels, there is a particular risk that interviewees show an above average Internet usage, and hence a potential bias for the study topic is given. Therefore, Internet usage was weighted based in available statistics and secondary information.

Note 2. The specifications refer to the main content of the video. Regarding the length of the video, no guidelines were made. The reason was that the teams should not be limited in their creativity. The reference video (Explainity) was presented to the teams at the beginning of the project.

### Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).