

Available online at www.sciencedirect.com**ScienceDirect**

Procedia Computer Science 100 (2016) 747 – 754

Procedia
Computer Science

Conference on ENTERprise Information Systems / International Conference on Project
MANagement / Conference on Health and Social Care Information Systems and Technologies,
CENTERIS / ProjMAN / HCist 2016, October 5-7, 2016

A Video is Worth a Million Words? Comparing a Documentary with a Scientific Paper to Communicate Design Research

Marlene Moura*¹, Pedro Almeida¹, David Geerts²

University of Aveiro, Campus Universitário de Santiago, Aveiro 3810-193, Portugal
KU Leuven, Parkstraat 45 Bus 3605, Leuven 3000, Belgium

Abstract

This paper reports on a study evaluating the value of a documentary as a key medium to communicate design research. We present information from the evaluation of a second screen application using video as well as a scientific paper, in order to assess how the efficacy and usefulness of using such a documentary for science communication is perceived when compared to a scientific paper. Techniques of a method called *Design Documentary*, developed to inspire design research teams through video, combined with science journalism were the basis of the production. Twelve researchers and students were shown the documentary and asked to read the paper in counter-balanced order. Our qualitative results show that the documentary as a complementary means of communication can bring benefits to research communication, since it delivers information the paper cannot provide. However, the fact the video is not suited for peer review might restrict its place when compared to the paper. On the overall, participants thought both formats are valuable and are complementary.

© 2016 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license
(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of CENTERIS 2016

Keywords: Documentary; paper; research; design, second screen application.

* Corresponding author. Tel.: +351914713545.
E-mail address: marlenemoura@ua.pt

1. Introduction

Video documentaries are a multidisciplinary medium used in multiple areas and can present information from many different disciplines. In research, videos were traditionally used as a way to collect data (in interviews and focus groups, for example), but today its use has expanded and it is already part of academia as an instrument of communication. According to De Valck et al. [4], video research can grab people's attention in a completely different way than traditional journal articles can, since video is “emotionally resonant and commanding of attention in a way that academic text seldom is”. Some conferences and journals however allow submitting videos as a complement to a paper, or as a separated category e.g. video demos, but not as a true replacement to convey scientific information. Since we live in the era of video and easily interact ‘audio-visually’, it is important to understand why we are still clinging to traditional formats and video is neglected as a means for publication of academic work.

The current study explores the informational value of a documentary specifically designed to present the results of scientific projects and the research of design teams. Furthermore, the aim was to develop a video documentary using a combination of techniques from Design Documentaries [12] and science journalism having the purpose to communicate the scientific value of the TV-Ring European research – which focus was to develop and test applications and infrastructures that will be the new profile of the future of television, with innovative content for the media industry. The documentary has the goal to present data with scientific accuracy. Thus, the work relied on the Design Documentary approach, mixing journalistic investigative techniques and cinema – that is, it integrated the filmmaker’s perspective – and researchers’ participation, for an effective communication of the research. Data was collected using interviews later analyzed with the qualitative data analysis software NVivo 10. For the study, twelve researchers and students were interviewed after watching the video and reading the paper, the order of which was counter-balanced.

2. Related work

Scientific discoveries are daily reported having impact on people’s world view and life habits, pushing the evolution of society. Quintela [10] considers it is essential to follow the way society looks at techno-scientific activity and absorbs its results, as well as its types of channels of information. The role of science communication is to bridge the gap that exists between science, or what the scientist develops in the lab, and society. Therefore, the communication of science establishes “the bridge between the scientific community and the rest of the world”.

2.1. Paper: A sectioned peer reviewed format

The legitimacy of papers is given by peer review. A good way to identify a refereed/peer-reviewed research article is by its format, according to the University of Illinois [16]. Even if the structure of some papers can be different, usually research articles follow a standard format. As an example, The International Journal of Design [6], a ‘peer-reviewed’ open-access journal in all fields of design, suggests the following sections on its templates: the compulsory title; the abstract, that summarizes the article and helps to determine its relevance; main keywords; an introduction with some background; the methodology, which describes the procedures for collecting data; the results analysis; the conclusion with recommendations or discussion of implications; acknowledgments; and the references (sources). The article may also include notes, appendices, tables, charts, figures or statistical data.

According to Nature magazine [8], “the traditional system of ‘peer review’ entails careful scrutiny of each submitted article by at least two experts in the field”. Papers published in scientific journals usually represent a reliable source of information, because each work is ‘peer-reviewed’ by at least two subject-specialists before being accepted for publication, so the likelihood of information being wrong is considerably reduced. Through peer review is how grants are allocated, papers published, academics promoted, and Nobel prizes won. However, Smith [14] indicated that the peer-review system is not infallible, since there is little evidence of its effectiveness. Moreover, there is no definition of what a good study is and “it is not a reliable method for detecting fraud”. Smith exposed that to review raw data is difficult, takes lots of time and the cost is very high. Yet it is probable that it will remain central to science and journals, since there is no good alternative to it.

2.2. Video documentary: a means of scientific communication

Scientific studies are supported by relevant reliable sources – reviews, statistical data or cause-and-effect relations –, disclosed, for example, through articles in scientific publications. Even if scientific advances are broadcasted via video documentary, this format is not directly accepted as a valid source of scientific content, just as a source that contains scientific information. There is nevertheless a growing interest in scientific communities. Camargo et al. [3] explained that dissemination should work as an instrument able to inform and encourage the dialogue between laboratories and the public, but it is important to take into consideration the language used and the context in which the information is disseminated. Its study, carried out in Brazil, had the aim to find out if the preview of a documentary would increase prior knowledge about Aids, given that one of the videos focuses on a scientific approach and the other is closer to the general public, i.e. uses a popular approach. The study showed that the video with a scientific approach brought additional information and increased knowledge about Aids, and the video which presented the information in a more popular approach, was more appealing to emotions, but did not substantially increase knowledge about the disease. Thus, documentaries can be powerful tools for learning, to raise awareness for important topics, and adding a scientific approach makes it possible to deepen knowledge about the world. Kim et al. [7] also used the production of a video documentary that portrays the daily life of scientists in the laboratory context to critically evaluate the ability of video as a tool for education and science information within the natural sciences. The authors suggested that it is important for the public to have an in-depth understanding of surrounding science and scientific methodology, in order to make informed decisions on issues science related. After watching the documentary, the researchers asked students to describe elements related to aspects of science. Students acknowledged that they understood scientific methods presented throughout the documentary and watching the video facilitated the understanding of the facts. In conclusion, Kim et al. thinks that a documentary can be an important educational instrument about science.

2.3. Related work: from documentaries about design to the Design Documentaries

According to Nichols [9], video documentaries are marked by a commitment to the exploration of reality. Documentaries are a representation of the world that we already know, but they depend on the singular vision of who tells the story, "if they are mere replicas of what one has witnessed; they must be both less (selective for the purpose) and more (providing an analysis, expressing an attitude)", as sustained Solano [15]. As a director, a documentary filmmaker must be aware that he or she is the one who makes the more significant decisions: what to shoot, how to film it, what to include and how to include it effectively [11]. Nevertheless, it is important to note that the documentarist only exists as a triad element, including the audience or spectators and the social actors [9].

Documentaries and videos have been used differently in the design area. According to Ylirisku and Buur [17], video is a tool that helps to bring aspirations together with the process of building an understanding of design, but it is also a vastly participatory media, where participation and categorical engagement has to be invested to make sense of the material. Video documentaries are to most designers an appreciated input to the design process and many user centred design groups have included videography in their projects [2]. «Design & Thinking» [5], by Mu-Ming Tsai, is a film that looks at design in a critical way and shows what businessmen, designers, social change-makers and individuals have in common when facing the 21st century. The documentaries go beyond the intention to inform and entertain, since they approach social issues and, at the same time, try to understand users' point of view on topics, how they interact with objects and how design makes changes in the surrounding world.

The Design Documentary genre differs from the concept of science documentary or documentaries about design in general, although the aim is to communicate design research. According to Raijmakers [13], the booster and creator of this concept, documentaries are an opportunity to show scientific research projects, especially the ones related to design fields. The production of this type of film begins like the one of a regular science documentary, but its language goes beyond the simple recurrent use of video to register. What this type of documentary adds to the current documentary, as we know it, is the fact that it shows the participants in their natural environment, trying to discover what is important for society; being able to begin a dialog and to create empathy with the visual language to communicate and opening a space for design, through a set of techniques. Design Documentaries appropriated three ideas for research: "film is like reality", which is concentrated in the diversity and the ambiguity of the everyday life of researchers; "film is like a language", where the language and aesthetics of the film can express ambiguities and

perspectives developed during the study; and the idea that the “film is like a conversation” is used, precisely, to create conversations in design research. Those three ideas allow clarifying the essence of this type of documentary and what is its contribution for research. Disseminating scientific research can be a complicated process, but Raijmakers circumscribes the proceeding to four stages, which makes a Design Documentary an advantageous media format - observation, compilation, intervention and performance are considered an inspiring box of tools. Design Documentaries are a way to handle research data (text, video, audio, photography and illustrations) compiled in a short video to inspire dialogue and to open "possibilities for exploration" [13].

3. Project Goals and methodology

The purpose of the current project was to develop a science documentary – based on some of the premises of Design Documentaries – to present the evaluation of a 2nd screen application for a reality TV show, integrated in the TV Ring project. The goal of the documentary was to follow the research activities and each step of the researchers involved in the project, and to document the whole process. The aim of this study is to assess and understand the potential of this kind of documentary to support the presentation of scientific studies within design research teams and its perceived efficiency when compared to a paper – the traditional format used to present scientific studies. To that purpose, the video documentary was compared to a paper, about the same project and with the same title: “The User Experience Evaluation of a Multi-Screen TV Show”. The structure of the documentary followed the main sections of the paper: abstract, introduction, methodology, results and conclusion. Besides including the main interviews, the storyline follows the researchers on their way to do field research as well as their everyday activities in the lab.

The TV-Ring project is a European research including testbeds for Connected TV services using HbbTV. The project shelters three pilot countries (Spain, Germany and The Netherlands), where different services are tested. In the Dutch pilot three applications were developed and evaluated: a streaming application requiring DRM (Digital Rights Management), a recommender application and a second-screen application. The current study and documentary emphasizes the last stage of the Dutch pilot: the evaluation process of the second screen application developed for the reality TV show “De Rijdende Rechter” – a show running on the television channel NPO. The pilot target is to understand how an HbbTV app can act as central interface for a social second screen application, in a home network. The evaluation involved online questionnaires, interviews and observation in households.

The data was collected through two semi-structured interviews, organized around a set of predetermined open-ended questions, complemented with other questions emerging from the dialogue between interviewer and interviewees – when appropriate –, trying to clarify unclear answers or helping to redirect the context of the interview, whenever participants rambled around the topic [1]. Twelve participants were divided in two groups and both included researchers and students. Group I first received a short paper and Group II the video documentary about the evaluation phase of a second screen application. Both groups’ participants were interviewed individually after they had read the paper or seen the video. After the first interview, each group received the other format and after watching or reading got interviewed. In total, 243 minutes of interviews were audio recorded and then transcribed.

To recruit participants for the study, a Google form was created and a call for participation including brief information about the study was sent by e-mail to a database which included students of the post-graduation courses Usability Design and Human-Computer Interaction, from the KU-Leuven. The students and researchers were interviewed individually in the usability lab of the research centre – a space decorated as an ordinary living room, with a television area and an office home computer area. For the two-page paper, the participants were given 5 to 10 minutes for the reading, before the researcher came back to the usability lab; and for the documentary they were given around 15 minutes, so they could have the time to go back in the video, if some information was misunderstood.

The 12 participants (with Master degrees and Ph.D.) included 6 researchers (participants 3, 7, 9, 10, 11 and 12) and 6 students (participants 1, 2, 4, 5, 6 and 8), divided in two groups. Both groups were constituted by a mix of students and researchers – participants 1, 2, 3, 4, 5, 6 and 7 were in Group I and participants 8, 9, 10, 11 and 12 were in Group II. Considering the fields of study, researchers were essentially from Human Computer Interaction and User Experience Design, with the exception of one from Computer Sciences; the field of study of students were various – Robotics, Neurosciences, Information Management, Communication Sciences, User experience Design and Internet Computing. Participants were 9 male and 3 female between 25 and 40 years old.

4. Results

The interviews targeted the research question “What is the perceived efficiency of a documentary as a means of scientific communication when compared to a paper?” It was expected that the results provided hints to understand what would be the features that could provide a higher efficiency of the video when compared to the traditional format, according to students and researchers. The qualitative analysis was carried through the NVivo 10 software. Data analysis intention was to reveal important relations between the formats (paper and video). Each information source received an empirical reference (code name) for the description of the results (e.g. participant 1 was coded as P01).

3.1. Research: media preferences

Following the first part of the evaluation, participants were asked about which media format they look up when doing research. The main preference they mentioned was papers, since all participants acknowledged looking for it. Videos were the second source with highest demand with 9 participants referring looking for videos on YouTube, if the video has “*no more than 15 minutes*”, as P03 underlined. Besides papers and videos, 4 participants used books and 7 of them other media and formats, like SlideShare presentations, posters or Wikipedia. One participant also added blogs, popular articles and even twitter to keep track of what people think about some topic.

One of the main advantages of the video, stated by participants, is the fact that it shows the context where the research was carried. Furthermore, since the study is about design work, “*a video is better to show a prototype than a picture in a paper*”, because “*you have visual resources to rely on*” (P06). Similarly, P09 stated: “*things about design are very visual or have to be*”. The documentary can show how people interact with the app and it is “*nicer to watch*”, “*the music keeps you focused*” on what is happening and “*you see what a second screen application looks like*” (P04). P03 believes that another benefit of the video is the fact that “*is easier to understand*” and the viewer can get “*more information using more senses*”: it is possible to see “*body language*”, “*to hear the sound and to differentiate the tune if they want to stress something else*”. P08 added the video shows the “*opinion of people in their own voices and gestures and in the context*”.

The paper main advantages include the fact it gives the possibility to visually scan the sections, so the reader does not need to read everything, and it comprises references and sources. P04 stressed out that “*the paper is suited to peer review*”, as a big value, and suggested: “*the fixed format is clear to everybody*”. Another plus is the fact it is printable and possible to underline or to make notes on it, for later reference. Researcher P10 expanded: “*it is easier to go back to find the information you want and to refer to it in your own publications*”. Participants indicated as well that the paper is more objective, as it has “*more specific data*”, since “*it gives numbers, about the 6 questionnaires and mentioned the skype interviews*” (P12). Regarding the limitations of the paper, participants pointed that they wanted “*more technology*” in the descriptions or “*more images*”. According to P05, the data in a paper “*can be reproduced more interactively and attractively in a video*”. Furthermore, P06 stated that “*it is easier to pull something out in a video*”, since we are “*visual learners and cognitive processors*”. About the limitations of video, participants stated the length as a minus, since they thought it should be shorter as the paper took only around 5 minutes to read; the introduction was too long and “*some information is not needed*” and “*distracting*”, specified P03. They mentioned that some information is in the paper and not in the video, for example, information about the questionnaires.

Considering the ability to present scientific content, P04 noted that “*a paper is the best format to give details of the methodology*”. P07 believes that “*if you want to present the results of a study in a scientific way and what exactly did you do*”, the paper would be the best choice. In a written paper, P10 expects very specific information, like “*exactly how many participants there were*”. The arguments against the paper stated that it is “*very old fashioned, since we have technology now, to provide more interactive things*”, so it is “*not efficient anymore*” (P03). P06 agrees and said that “*the scientific society is a bit lacking in progress*”, since “*there are better ways to present scientific data*” than the paper. P05 underlined that papers can be long: “*they are not easy go through*” if they have “*a length of 12 or 30 pages*”. Regarding the video, only one participant believes it is not possible to extract scientific information from the documentary, justifying that “*it shows the procedure but not formally*” (P02). P01 shared that it is “*definitely possible*” to extract scientific content, and there is even a “*prize that awards the best video about artificial intelligence*” and “*watching the video you can instantly have an overview of the research*”. P09 added that presenting a video is like presenting a paper and “*when you present it, nobody is questioning the results of your paper, or if it is*

scientific". Globally, participants stated the potential of video and suggested it may bring added value to research.

3.2. Main conclusions in each Group

One of the reasons of dividing participants into two groups was to understand how much of the research results they could remember (with each format). Briefly, the four main results of the second screen evaluation presented in the paper and the in video are: expectations on second screen applications are very much influenced by similar other applications, laptops are distracting from the TV program than tablets, people are interested in being aware of the scores of other households and users expressed the need for textual inputs (like twitter) on the statements.

In Group I, concerning the topic about what are the main results they remembered after reading the paper (which they received first), only one of the participants (P04) was able to remember all 4 results. Four of the participants could not remember the detailed results, just the overall conclusions like there was a limited response and some problems with the screen. They mostly remembered only one of the results: that the experience was based on other second screen experiences or that laptops might distract more than tablets. After watching the video, their knowledge of the results increased. Three participants remembered the same results, but with more details and the others remembered more results, at least one or two more and they were able to list them.

Group II watched the documentary before the paper and most of them remembered that there were four results, although they could not list them all. Participants stated that the vignettes that appeared on the video, while the researcher was listing the outcomes of the study, helped to remember. For instance, P09 mentioned: *"I remember that the first one [vignette] was pastel and the second in a purplish colour. Maybe, I will remember about the other two in a bit"*. Most of them remembered two or three of the results. About the paper, which they read after, participants of Group II, mostly remembered the same results from the video they watched before, being unable to remember other results. P11 said *"I remember there are four findings, because of the texts boxes on the screen"*. The second result – laptops are more distracting than other devices – was the one most of participants remembered.

3.3. Information about the project

Five of the participants considered that both formats equally allowed getting information about the project by referring that either the information *"is repeated"* or they learnt *"different things"* with each one. P12 considered that the methodology was simpler to learn with the paper, *"but the conclusions might have been easier to understand with the video"*. In contrast, seven participants considered that the video allows learning more information. However, some participants were not able to choose just a format. P03, P05, P07, P08, P09 and P11 were more driven towards the video, but with some restrictions. P09 said the video was complementary to the paper. P08 stated *"the documentary was more complete"*, since it shows *"the opinion of people in their own voices and gestures"* and the context where the study was carried out, but the paper helps to keep *"focus"* on the research. Additionally, P011 would prefer the paper for research purposes but the video to learn general information about the study. On the other hand, P01, P10 and P12 preferred the paper, because it allowed getting information in a shorter time and with a more critical approach. P02, P04 and P06 were also tending to the video, since it carries visual information and sound.

To track the relevance of each format as a complementary source of the other, in Group I, we aimed to understand if the video would be enough or if the paper would be important as a complementary information source. Only P05 said the video was enough. Other participants believed the paper is an important source of information, besides the video. P01 said that the paper contains references and additional information; furthermore, *"papers can ultimately provide more in depth information"*. P06 and P07 stated they would always read the paper for scientific purposes, even after the video. *"A video doesn't make results less scientific", but "people are used to have a scientific perspective and it's really dry"* (P06). P07 said to feel the need *"to look at the references they used"*. P02, P03 and P04 considered that the combination of both would be better, since both have advantages and some details were in one of the formats and not in the other. In Group II, the aim was the same but considering the paper as the first source. P09 and P12 stated they would probably stay just with the paper. P12 added that with the paper it is possible to *"decide if you want to read the whole paper or not"* or just to look at the *"abstract and conclusions"*. On the other hand, P08 said *"the video would be enough"*. P11 chose the video as well, because, it *"provides other kind of information"* and shows *"how an interview goes"*. For P10 the paper would be enough for a study, but the video provides *"other kind*

of visual information that a paper cannot". On the overall, participants thought they are complementary.

3.4. Researchers versus students

Researchers prefer the paper because it *"is good for details"* (P09) and you always find *"the expected information to generalize results"*, as P010 stated. Its structured form makes it easier for researchers to find *"sources to enrich"* their *"own research"* and it is possible to be printed to add some notes, as observed by P07. Besides, it is possible to *"just look at the abstract and the conclusions"* and then *"decide if you want to read the whole paper or not"* (P12). Conversely, a video had *"a lot of value"* in User Experience Design, since it showed how an app works and provided more context, with the plus of providing it to more senses (P03); furthermore, *"papers are old fashioned"* in a technology era, because they *"lack in visual content"*. Nevertheless, P03 also agreed that the paper is still needed and cannot be replaced. Generally, researchers considered that the video was suitable for communicating design research, but incomplete, since some information regarding the methodology was not in it. Thus, the paper was more critical and gave *"more specific data"*, stated P10, and the video had distracting information. However, the video is better suited *"to present the app itself"* (P12), plus the paper has visual restrictions (P09). Generally, it was considered that they complement each other, since the video shows interaction; and the paper the hard information and references.

The duration of the video was a disadvantage for some students, since they preferred it shorter. The paper is more efficient, direct and quicker, it has more raw data and details, according to the students, with the exception of P05, who stated that the paper only *"gives an idea"* and, the video is *"more complete"* and easier to understand. For P04, a Ph.D. student, the fact that the paper is suited for peer review is very important. Yet, all students preferred the video for the presentation of the study, even if they would read the paper as well. P08 who liked both equally stated: *"If I had to choose, I would choose the video and it would be enough"*. P01 considered that videos can be *"high quality and informative"*. However, the fact that the video provides context and shows how an interview is conducted is a very significant point for students. It is interesting *"to see how people interact with the prototype"* and *"to have the opinion of people in their own voices in the context"*, noted P08, adding that *"the video is somehow like a paper, but you have visual resources to rely on"*. Regarding both statuses, most researchers pointed out more limitations to the video; on the other hand, students designated limitations mostly to the paper.

4. Discussions and conclusions

Strengths and weaknesses of the documentary and the paper for communicating design research are fairly balanced and complementary. Some of the main weaknesses pointed out in the paper are the fact it lacks in visual content and it is unable to show creative work through words. On the other hand, the fact that the video contained superfluous information (not needed or distracting) and that it was necessary to watch the whole video to locate information is considered a minus as well. The paper is considered a clear format to everybody and it gives the possibility to visually scan the sections. The fact the paper is suited for peer review was important for some participants, because it can be recognized by the scientific community. Researchers find its structure very comfortable, since they know what they will find in it. On the other hand, the video has visual resources and sound as a big strength. To sum up, the paper has preserved its status well, especially because it is settled in the scientific community. All 12 participants admitted they look primarily for papers, but 9 look for videos as well.

The big majority (11 of the 12 participants) considered that the video is as suited for scientific content as the paper and even more suitable to communicate design studies, since it can bring an extra value. All participants considered that in User Experience Design projects, the documentary can be a significant communication improvement compared to the paper. Seven participants considered to learn more with the video and the other five said to learn different things. When they were asked about the format to be more informative about the study, none of the participants pointed out only the paper, i.e., they considered mostly the combination of both or claimed learning more watching the video. In brief, participants pointed out more advantages in the video as they mainly preferred to learn through the video. Nevertheless, they considered that paper and video should be complementary to fully provide information and context.

Considering the ability to recall information, during the first interview, Group II, who watched the documentary as a first source of information, remembered more and provided more details about the main conclusions of the study than Group I who read the paper first. Globally participants could recall more results after watching the documentary

and with more details. The information is more visual and the titles and the vignettes helped to consolidate the memory.

Concerning the formal presentation and structure, researchers mainly preferred the paper as they value the structure of the paper and the fact they can have a glimpse into it without reading everything, but recognized its value in design research and said visual content enriches the research and having people in their own voice is pertinent. Students preferred to learn with visual content, finding videos easier to understand.

The documentary as a complementary means of communication can bring benefits to research communication, since it delivers information the paper cannot provide. However, the fact the video is not suited for peer review might restrict its place when compared to the paper, even if there is little evidence on the effectiveness of the peer review system, according to Smith [144]. Although the video tends to raise interest and to fill the gaps with visual information, the paper has its high place guaranteed as a reliable source for a research study, even if considered not that efficient anymore. However, the documentary presents significant added value for the design research, since the communication is more efficient if the prototype can be seen and explained with visual content and context, but as a complement to the paper. In conclusion, the study shows that in design studies a paper by itself is not enough anymore; people need more visual and interactive information.

Acknowledgements

The authors are thankful for the support of the Centre for User Experience Research – a research group of the Institute for Media Studies of the faculty of Social Sciences at the Katholieke Universiteit Leuven and part of iMinds.

References

1. Berg, B. L. (2001). *Qualitative research methods for the social sciences*. Fourth Edition. Boston: Allyn and Bacon.
2. Buur, J., Binder, T., & Brandt, E. (2000). Taking Video beyond 'Hard Data' in User Centred Design. In Participatory design conference. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.89.3499&rep=rep1&type=pdf>.
3. Camargo, B., Barb  ra, A., & Bertoldo, R. (2010). The Influence of Documentary Videos on the Scientific Diffusion of Knowledge about Aids. *Psicologia: Reflex  o e Cr  tica*, 21(2), 179-185. Retrieved May 22, 2015 from http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-79722008000200003.
4. De Valck, K., Rokka, J., & Hietanen, J. (2009). Videography in Consumer Research: Visions for a Method on the Rise. *Finanza, Marketing et Produzione*, 27(4), 81-100.
5. Design & Thinking (2012). Retrieved August 5, 2015, from <http://designthinkingmovie.com/>.
6. International Journal of Design (2015). Online Submissions. Retrieved September 2, 2015, from <http://www.ijdesign.org/ojs/index.php/IJDesign/about/submissions>.
7. Kim, S., Yi, S., & Cho, E., (2013). Production of a Science Documentary and its Usefulness in Teaching the Nature of Science: Indirect Experience of How Science Works. *Science and Education*, Springer. Volume 23, Issue 5, 1197-1216. doi: 10.1007/s11191-013-9614-5.
8. Nature (2006). Systems: Online frontiers of the peer-reviewed literature. The Internet is allowing much more interactive science publishing. Retrieved from <http://www.nature.com/nature/peerreview/debate/nature05030.html>. doi:10.1038/nature05030.
9. Nichols, B. (2001). *Introduction to Documentary*. Second Edition. Indiana University Press.
10. Quintela, J. (2011). *A utiliza  o do v  deo para a divulga  o de atividades de I&D&I*. (Master's thesis, Faculdade de Engenharia da Universidade do Porto, Porto, Portugal). Retrieved from <http://repositorio-aberto.up.pt/bitstream/10216/62104/1/000149654.pdf>.
11. Rabiger, M. (2004). *Directing the Documentary*. Fourth Edition. Oxford: Focal Press, Elsevier.
12. Raijmakers, B., Gaver, W. W., & Bishway, J. (2006). Design documentaries: inspiring design research through documentary film. *Designing Interactive Systems*, 229. Retrieved from <http://dl.acm.org/citation.cfm?id=1142441>.
13. Raijmakers, B. W. J. J. (2007). *Design Documentaries - Using documentary film to inspire design*. (Doctoral thesis, The Royal College of Art, London, U.K.). Retrieved from <http://www.stby.eu/wp/wp-content/uploads/2008/12/phdthesi.pdf>.
14. Smith, R. (2006). Peer review: a flawed process at the heart of science and journals. *Journal of Royal Society of Medicine*. Volume 99, April 2006; 178–182. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1420798/>; doi: 10.1258/jrsm.99.4.178.
15. Solano, E. A. (2013). *Filme Document  rio sobre os Imigrantes dos PALOP no Grande do Porto*. (Master Dissertation, Faculdade de Letras da Universidade do Porto, Porto, Portugal). Retrieved from <http://repositorio-aberto.up.pt/handle/10216/72725>.
16. University of Illinois at Urbana-Champaign (2014). Using Refereed/Peer-Reviewed Research. University Library. Retrieved from http://www.library.illinois.edu/learn/research/peer_review.html.
17. Ylirisku, S. & Buur, J. (2007). *Designing with video: Focusing the user-centred design process*. London: Springer.