



**Taxonomies and design within the interactive documentary
genre:
a practitioner's research project**

By JiaNan Yang

An exegesis submitted to Auckland University of Technology in partial fulfilment of
the requirements for the degree of Master of Creative Technology.

Auckland, February 2018

Abstract

The evolution of technology has enabled the creation of many alternative modes of interaction. This has allowed the scope of interactive documentaries (i-docs) to extend far beyond simply altering the narrative structure of a linear story. I-docs are like many other emerging fields, where the lack of definitions and taxonomies not only confuse our understanding but also makes a systematic mapping of the field difficult.

Sandra Gaudenzi, a theoretical scholar of the i-docs genre, proposed four modes of interactivity to categorise i-docs which could expand to encompass both existing and future interactive platforms. To review her proposition from a practical and evidential perspective, this research has been undertaken based on a practitioner based research model, and aims to test the four modes model based on practice-based data from the actual creation of interactive documentaries. The creation and viewing of the final work allowed for a practical response to the interactive work allowing for a critique of the presupposition at the heart of the whole theory: the role of author and the function of the user in each interactivity mode, and the technical potential for applying this model to new technologies. The final result shows Gaudenzi's four modes model is valid. However, it lacks precision and contains the possibility of a need for a reframing of its categories. A final objective of the research project is to provide a practical and participant-orientated contribution to future studies on i-doc taxonomies.

Table of Contents

Abstract.....	2
Table of contents.....	3
List of figures.....	5
Attestation of authorship.....	6
Acknowledgments.....	7
 Chapter 1- Introduction.....	8
 Chapter 2 - Literature Review.....	16
2.1 Comparative literature.....	16
2.1.1 A brief conceptual evolution of the i-docs genre.....	17
2.1.2 Three perspectives of interactivity and Guadenzi's four modes.....	18
Technology	18
Experience.....	19
Communication.....	21
2.2 Research Direction.....	22
 Chapter 3 - Research Design.....	23
3.1 Research Questions.....	23
3.2 Methodology.....	24
3.3 Design of the Research.....	24
3.4 Participants.....	25
3.5 Methods.....	25
3.6 Ethics.....	26
 Chapter 4 - Projects and Findings.....	27
4.1 Introduction.....	27
4.2 Projects Design: Someday in Colab	27
Linear.....	27
Conversational mode.....	28
Hypertext mode.....	30
Participatory mode.....	31

Experiential mode.....	33
4.3 Findings.....	36
Question 1.....	36
Question 2.....	39
Question 3.....	40
Four Modes Modification.....	41
4. 4 Research Findings.....	43
 Chapter 5 – Discussion.....	44
5.1 Three perspectives of interactivity and Guadenzi’s four modes.....	44
Communication.....	44
Experience.....	45
Technology.....	46
 Chapter 6 – Conclusion.....	49
 Reference.....	51
Digital Works.....	55

List of figures

Fig. 1 - Modes of interaction in digital i-docs.....	10
Fig. 2 - Screenshot of <i>The Aspen Movie Map</i>	11
Fig. 3 - Screenshot of <i>JFK Reloaded</i>	11
Fig. 4 - Screenshot of <i>Journey to the End of Coal</i>	12
Fig. 5 - Screen shots of <i>Man with a Movie Camera: Global Remake</i>	13
Fig. 6 - Screen shots of <i>Rider Spoke</i>	14
Fig. 7 - A designed 3D Colab.....	28
Fig. 8 - The three 3D “Jenny” characters	29
Fig. 9 - The footage of “A small day”	29
Fig. 10 - The footage of “A special day”	29
Fig. 11 - The hint of the start of “Your day”	29
Fig. 12 - The path choosing design of the main page.....	30
Fig. 13 - The path choosing design.....	30
Fig. 14 - The design of the interactive narrative within a closed storyline.....	31
Fig. 15 - Design of the homepage of the Web.....	32
Fig. 16 - Design of the footage gathering interaction.....	32
Fig. 17 - Main Marker, the front door of Colab postgrads entrance.....	34
Fig. 18 - User can watch one of the stories as long as she finds and scan the right marker.....	35
Fig. 19 - Table: Key activities at each stage of a documentary.....	37
Fig. 20 - Table: The role of the author and the function of the user in the four modes of i-docs.....	41
Fig. 21 - The level of self-efficacy of being the user of 4 modes i-docs	45
Fig. 22 - Table: A techno-centric analysis of Gaudenzi’s four modes model.....	47

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Jia Nan Yang

Acknowledgments

I would first like to thank my primary supervisor Dr. Pete Rive of the Colab at AUT, for the continuous support of my master study, for his patience, motivation, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis.

I would like to thank my secondary supervisor Dr. Vijay Devadas, and Dr. Frances Joseph, for their insightful comments and encouragement, but also for the hard question which incited me to widen my research from various perspectives.

Last but not the least, I am grateful to my parents and friends overseas for their long distance support and encouragement along the way.

Chapter 1 - Introduction

Traditional documentary is a one-way communication medium which documents a non-fiction narrative and can be seen as a passive monologue between the author and the viewer (Galloway, McAlpine and Harris, 2007). Interactive documentaries (i-docs) are one of the more important media developments that have arisen in recent years. In particular, they have been an early adopter of new forms of technology. Rather than leaving the film to tell a narrative by itself, interactive documentary presents audiences with experiences that give them the power to control the narrative and ask the viewer to play an active part in telling the stories they are consuming.

Utilizing new technology i-docs have been able to dramatically extend the reach and scope of the traditional documentary. The evolution of technology has provided for the creation of many alternative modes of interaction. This has allowed the scope of i-docs to extend far beyond simply altering the narrative structure of a linear story. Many alternative forms of i-docs have arisen including web-docs, docu-games, cross-platform docs, trans-media docs, alternate realities docs and web-narrative docs. These are all forms of interactive documentaries but the various terminologies used to describe them are often used without any clear understanding of their differences. I-docs are like many other emerging fields, where the lack of definitions and taxonomies not only confuse our understanding but also makes a systematic mapping of the field difficult.

In a 2009 conference, the “I-docs Symposia”, the definition of i-docs was debated and the scope of the genre expanded to include any digital platform that allowed interactivity such as Web, DVD, smart phones, GPS devices and gallery installations. Earlier theoretical work on i-doc taxonomies had been limited by the lack of such scope. This acknowledgement of the expanding diversity of interactive platforms within which i-docs can exist has created the opportunity to relook at the theoretical construct of the genre.

As a result, it is now becoming imperative to provide the ‘i-docs’ genre with a commonly agreed feasible taxonomy or taxonomies which can be applied to both current and future digital interactive platforms.

A number of formal definitions and taxonomies of i-docs have been proposed during the past decade attempting to map the main changes experienced in the genre. Sandra

Gaudenzi, a theoretical scholar of the i-docs genre, extended earlier theory through case studying a number of existing artworks. She proposed four modes of interactivity to categorise i-docs which could expand to encompass both existing and future interactive platforms.

She claims that i-doc should be defined by the relations that it has enforced between the author, the user and the media because compared to linear documentary, interactive documentaries are relational artefacts that allow direct engagement with the reality that they portray - and that therefore create new epistemologies (Gaudenzi, 2013, P.37).

Her proposed 'four modes model' has raised significant attention and discussion from other peer scholars. Some scholars view Sandra Gaudenzi's four modes taxonomy as providing real insight into the way audiences access documentary content (Aston & Gaudenzi, 2012; Nash, Hight & Summerhayes, 2014). However, others believe the four modes model fails to fully reflect the complexity inherent in the i-docs genre (Aufderheide, 2015; Stogner, 2014). While Gaudenzi's four modes model has been promoted as a logical basis for understanding future i-doc taxonomies it is important to test the model for any possible supplement and/or correction.

Gaudenzi's classification system for i-docs is based more on the way she sees interactivity as a "condition of being" rather than a just a "delivery mechanism" since "the interactivity itself creates changes at all stages of production". This argument is at the heart of her work and is the presupposition upon which her proposed model operates. It forms her answer to the inherent dilemma between content and delivery found in the production processes required for creating interactive documentaries.

Gaudenzi's four modes basically describe interactive documentaries in terms of how creators and viewers are positioned at the different stages of interactivity design construction and consumption (refer to Figure 1 below).

	<i>Interactive documentary examples</i>	<i>Logic of interactivity (different sources)</i>	<i>Function of the user (Aarseth)</i>	<i>Role of the author</i>
Conversational mode (Metaphor = Conversing)	<ul style="list-style-type: none"> the <i>Aspen Movie Map</i> (1980) by MIT <i>Sim City</i> (1989) by Will Wright <i>JFK Reloaded</i> (2004) by Traffic Software <i>Gone Gitmo</i> (2007) by Nonny de la Pena 	Inspired by Andy Lippman's 5 corollaries: <ol style="list-style-type: none"> 1. interruptability 2. graceful degradation 3. limited look ahead 4. no default 5. impression of infinite database 	Explorative Role playing Configurative	To create a world, its rules and the user's agency
Hitchhiking / hypertext mode (Metaphor = Hitchhiking)	<ul style="list-style-type: none"> <i>Moss Landing</i> (1989) by Apple M.MediaLab <i>Forgotten Flags</i> (2007) by Florian Thahofer <i>Journey to the End of the Coal</i> (2008) by Honkytonk Films 	Inspired by Turing's algorithmic computation: <ul style="list-style-type: none"> • limited storage • computation is closed • behavior is fixed 	Explorative	To create possible paths within a closed database
Participatory mode (Metaphor = Building)	<ul style="list-style-type: none"> <i>Boston Renewed Vistas</i> (1995-2004) by Davenport <i>6 Billion Others</i> (2008) <i>Global Lives</i> (2009-ongoing) by David Harris 	Inspired by : <ul style="list-style-type: none"> • interruptability • evolving database 	Explorative Configurative	To create the condition to populate a database and decide what to do with the database
Experiential mode (Metaphor = Dancing)	<ul style="list-style-type: none"> <i>Greenwich Emotion Map</i> (2005-6) Christian Nold <i>Rider Spoke</i> (2007) Blast Theory 	Inspired by: interactive computation (or the Super-Turing computation) <ul style="list-style-type: none"> • interaction with the world • infinity of memory and time resources • evolution of the system 	Explorative Role Playing Configurative Poetic	To design experiences in a dynamic environment

Fig. 1 - Modes of interaction in digital i-docs (Gaudenzi, 2013, p. 71)

First, the conversational mode i-doc “is a digital artefact that simulates reality and that can have a game logic” (Gaudenzi, 2013, p.43), such as *The Aspen Movie Map* (1978) and *JFK Reloaded* (2004). These kind of artefacts have an alternative form between game and documentary, which is called “docu-game”.



Fig. 2 - Screenshot of *The Aspen Movie Map*

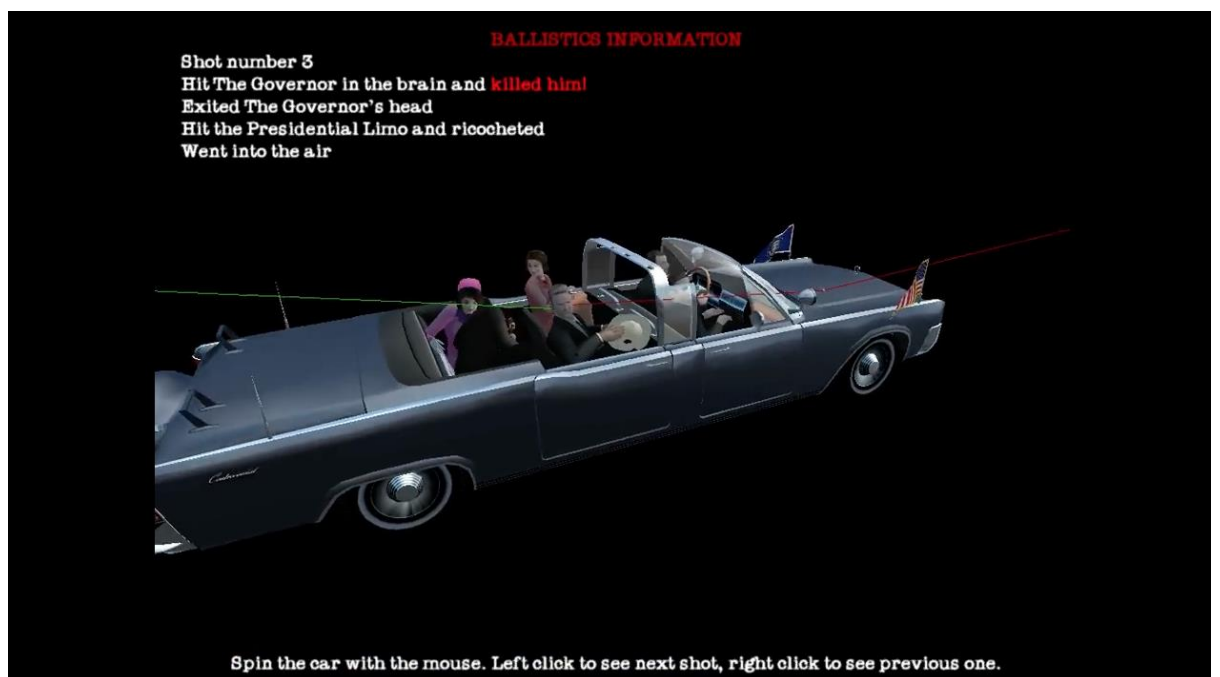


Fig. 3 - Screenshot of *JFK Reloaded*

The content of a docu-game should be a fact which the rules and the settings have been authored by a game designer, but the facts that are portrayed are rigorously documented and factual (Gaudenzi, 2013). It might be perceived as a game by its user, but it uses documented facts to simulate a real event and put the interactor in a situation or re-enactment (Gaudenzi, 2013, p. 45). Gaudenzi (2013) also emphasised that it is only when a factual game or narrative tries to simulate reality through a designed 3D world that she will consider it a conversational documentary. Her assumption about this

interactivity mode is that to interact with a world is like conversing with it: it gives the illusion of endless possibilities and both the user and the environment react in real time to each other (Gaudenzi, 2013).

Second, the hypertext mode i-docs such as *Moss Landing* (1989) and *Journey to the End of Coal* (2009), all attempt to portray a factual reality through a unextendable database and exploration is enable by using hypertext (a word, a drawing, a picture or a moving image) (Gaudenzi, 2013). Thus the metaphor of this mode is hitchhiking ‘where one starts a ride with someone and continues with another one’ (Gaudenzi, 2013, p.47).

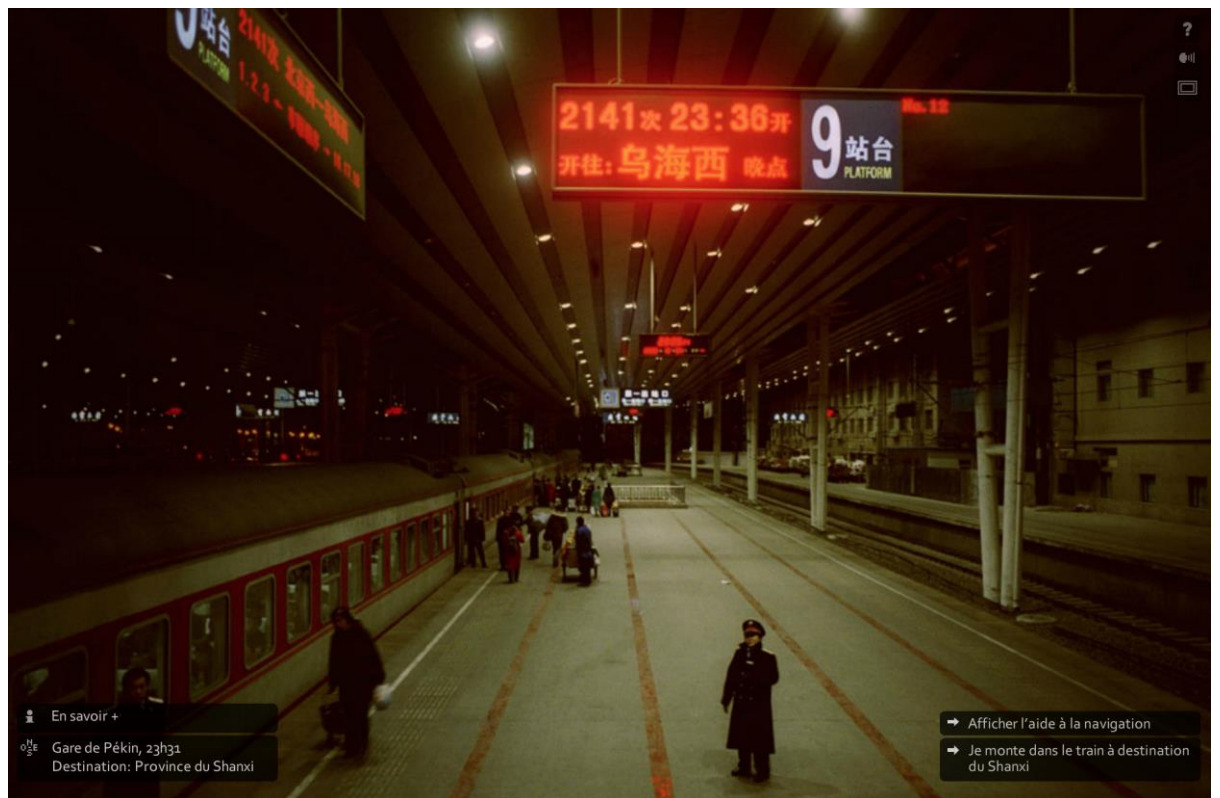


Fig. 4 - Screenshot of *Journey to the End of Coal*

In this mode, the user can only explore predetermined paths, but cannot change nor add to the narrative. The role of author is to imagine branching narratives and rules of linking within a set database of materials.

Third, the participatory mode i-doc such as *Man with a Movie Camera: Global Remake* (2007-2014) is described as being participative as it counts on the participation of the user to contribute to the evolving database (Aston & Gaudenzi, 2012). The metaphor in this case is “building”, since the author decides on the tools and rules and lays down the first layer of bricks and leave rooms for collaboration and expansions form the uses.

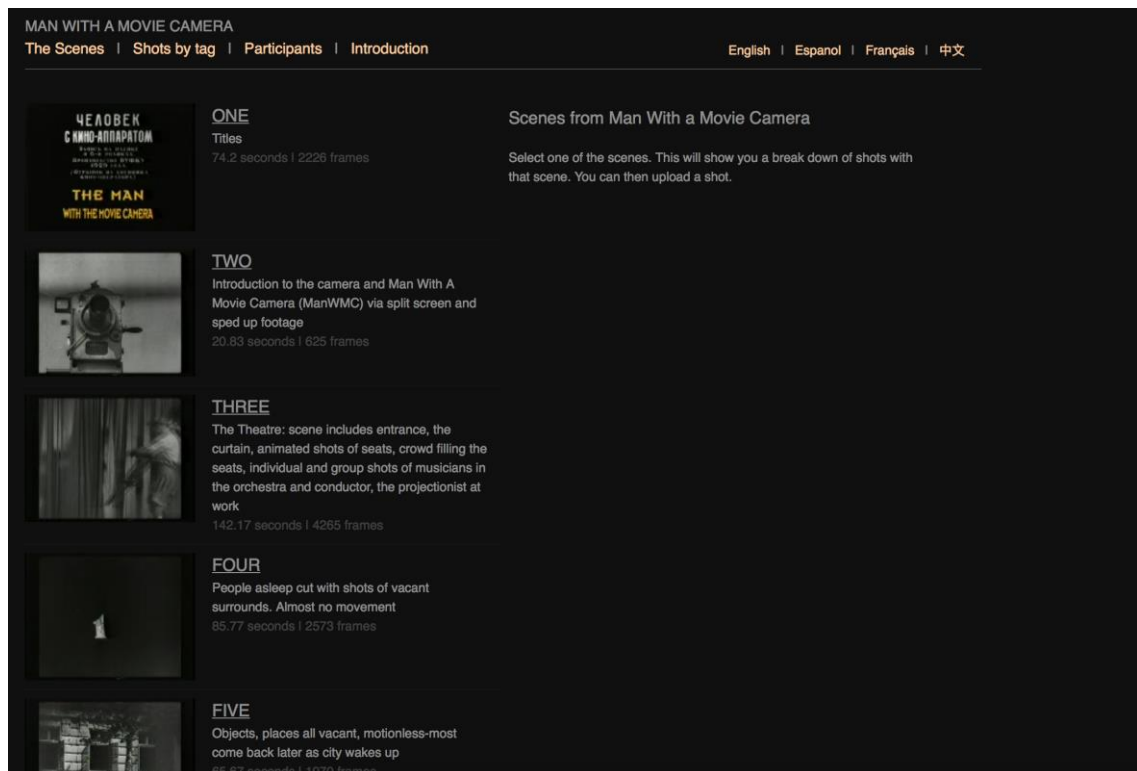


Fig. 5 - Screen shots of *Man with a Movie Camera: Global Remake*

Participatory interaction assumes that the interactor can add, change or circulate content and therefore transform the artefact itself (Gaudenzi, 2013, p.57). The action of the user is not about selecting paths (as in the hypertext mode) or simulating situations (as in conversational mode) but instead about contributing to a constantly evolving whole, that might never be finished (Gaudenzi, 2013).

The experiential mode i-doc project such as *Rider Spoke* (2007), allowing users to move through an interface that is a physical embodiment and a situated knowledge, and are constantly elaborating new situated meanings (Aston & Gaudenzi, 2012). The metaphor in this case is “dancing” since this experience is similar to dance: more than moving in space but a way to create space and body through movement; it is an embodied communication mode that depends on the environment, that needs movement, and that counts on the presence of others (Gaudenzi, 2013, p.68).



Fig. 6 - Screen shots of *Rider Spoke*

The experiential mode has the peculiarity of adding layers of data to physical space: it involves interaction with an external environment of the computation in real time. The interactivity is seen as the two-way feed-back loop that allows both the system and the environment to adjust to each other (Gaudenzi, 2017).

Gaudenzi's intention appears to be to define an interactivity system for i-docs which can be applied to both existing and future digital interactive platforms. The applicability of her model to encompass future technology therefore needs to be tested through the lens of recent leading edge technology. To review her proposition from a practical and evidential perspective, research has been undertaken based on a practitioner based research model. This aims to test the four modes model based on practice-based data from the actual creation of an independent interactive documentary.

To facilitate this critique, a creative work has been produced that applies the four kinds of interactivity delineated in Gaudenzi's theoretical model. Considering that Gaudenzi's model looks to encompass both existing and future interactive platforms, the practical component of the research project has been undertaken using the latest widely used technologies available to the author.

The data gathered throughout the research has been analysed in a qualitative manner focusing on three important questions. The answer to these sub-questions has then formed the basis for determining whether Gaudenzi's four modes model presents a well-defined and future-proof taxonomy for the genre.

A final objective of the research project is to provide a practical and participant-orientated contribution to future studies on i-doc taxonomies.

Chapter 2 - Literature Review

This literature review starts with a brief historical review of previous studies of i-doc taxonomies and then focuses on the various arguments and discussions around Gaudenzi's proposed four modes model. In doing so, arguments about the four modes model defined by the concept of three 'perspectives of interactivity' will be identified and discussed.

The purpose of this comparative literature review is to provide a more critical understanding of Gaudenzi's four modes model, to identify any gaps within her study and to provide clues for preparing the following chapter on research design and methodology.

2.1 Comparative literature

Traditional documentary is a one-way communication medium which documents reality (a non-fiction narrative) and can be seen as a monologue between the author and the viewer (Galloway, McAlpine & Harris, 2007). In recent years, documentary has taken on some of the characteristics of new media, and is increasingly operating in a networked interactive space. Rather than leaving the documentary to represent reality wholly by itself, interactive documentary presents audiences with an experience that gives them opportunities to co-construct the reality that they are interacting with.

"Interactivity is mutually or reciprocally active, involving the actions of a user, especially relating to a two-way electronic communication system that involves a user's order or response" (Eichner, 2014, p. 53). This definition makes it clear that the act of a viewer's interruption of an event without receiving feed-back from the digital system is not considered an "interaction". In other words, the interactivity in i-docs refers to the ability of the user to be able to physically "do something" with the artifact and gain feed-back from the digital system (Gaudenzi, 2013).

Since the interactivity offered by i-docs has a strong relationship with where the interactivity takes place, we can see that there is a clear evolutive relationship through taking a technological historical approach to closely examine the various taxonomies of i-docs.

2.1.1 A brief conceptual evolution of the i-docs genre

Early attempts at defining i-docs treated them as a hypertext narrative form strongly linked with a video base (Gifreu, 2010). However, some other theorists argued that i-docs did not need to rely on the conventions of the traditional mode and that interactivity could go well beyond basic choice making (Galloway, McAlpine & Harris, 2007; Whitelaw, 2002).

From 2007, i-docs have rapidly spread towards mobile, social and networked media and there has been a fast growth in their production. In 2009, at the I-docs Symposia the definition of the genre was expanded to include any digital platform that allows interactivity, such as Web, DVD, mobiles, GPS devices and gallery installation (Aston & Gaudenzi, 2012). Since then, a number of formal definitions of i-docs have been proposed that attempt to map the main changes experienced in the genre.

One approach was to return to earlier theoretical formulations of documentary to develop the basic grammar and syntax of the interactive form. Interactive documentary specialist Gifreu (2011) adapted authoritative documentary academic Bill Nichols' (2010) "triangle of communication" model to analyse the genre by highlighting the characteristics of the web-doc from the viewpoint of the author, narrative and viewer. In addition, media lecture Kate Nash (2012) highlighted the interactive collaborative structure of the documentary.

It is reasonable that i-docs as a new genre of documentary should exist in its own right but without undermining the fundamental principles of documentary. In this regard the contributions Gifreu and Nash have made to the debate only extend to web-docs which tend to be platform specific. Galloway et al. (2007) put possible interactivity and more broadly platform into consideration and have proposed a new definition and taxonomy for i-docs through user-centric approach: "any documentary that uses interactivity as a core part of its 'delivery mechanism' can be called an interactive documentary".

Opposing this idea, Gaudenzi (2013) argues that the interactivity of i-docs is the "condition of being" rather than the "delivery mechanism" since the interactivity itself creates changes at all stages of production. This argument can be seen as a presupposition running through all of her studies. She has proposed four interactivity

modes through a techno-centric approach for defining i-docs. This approach generalises i-docs, in their many diverse forms, based on the logic of interactivity, the function of the user and the role of the author. Gaudenzi's four modes model has attracted significant attention from other researchers.

2.1.2 Three perspectives of interactivity and Gaudenzi's four modes

Judith Aston (Aston & Gaudenzi, 2012) largely agreed with Gaudenzi's four proposed modes and thinks her approach "draws upon some key understandings of interactivity" and argues, "that different understandings of interactivity have led to different types of digital artifacts" (p.126). Thus, it is clear that a comprehensive understanding of interactivity is particularly important to the study of the i-docs genre.

Much research and theorizing on interactivity focuses on the technique-based characteristic of the medium, on the characteristic of the communication process, and on cognitive and emotional activities of the recipients' perception (Eichner, 2014). It is possible to map an emerging field like i-docs in terms of the three dimensions of interactivity that have emerged in the context of new media scholarship: interactivity as a feature of technology, as a communicative dynamic and as a kind of participant experience (Nash, Hight, & Summerhayes, 2014).

Technology

Interactivity from the technological point of view is based on the degree to which the medium can react to information from users (Heeter, 1989). "React" here refers to the media's potential ability to let the user exert an influence on the content or form of the mediated communication (Jensen, 1998). The work of Nash, Hight, & Summerhayes (2014) sees Gaudenzi's four modes taxonomy as providing real insight into the way audiences access documentary content:

"The hitchhiking mode includes documentaries in which interaction takes the form of choosing content from a database. The conversational mode in contrast describes more flexible, interruptible and changeable forms of interaction in which the system is more responsive to user input. In participative interaction users have the option of expanding the database through collaborative or social activities. Finally, the experiential mode describes those works in which the physical environment becomes the site of interaction by virtue of the use of locative based media" (p. 53).

The above quotation defines the key interactions occurring in each of the four modes, and matches these with interactions that can be achieved based on existing technology. Pat Aufderheide (2015) suggests the four modes and their interaction are essentially describing interactive documentaries in terms of how users interact in three different degrees of freedom of database: semi-closed, semi-open and open. In semi-closed database design the user can choose what material to browse, a mode commonly known as an interaction in the hypertext mode. In semi-open database systems, users can add material but not change the underlying structure, which means the interaction can fall into the participatory mode. Finally in the open database system, the system is supposed to adapt to all its inputs. ‘Suppose’ here describes an ideal status for future interaction: limitless input and infinite reactive capability.

As Gaudenzi (2013, pp. 40-41) points out, the conversational mode is meant to have “no default”, “impression of infinite database” and “reaction in real time”. This kind of interaction is limited because the viewer is “trapped” in an authored system but is supposed to “not feel trapped”, just like the simulated virtual world system in the movie *The Matrix* (Wachowski & Wachowski, 1999). Furthermore, though real time reaction can be considered as interactivity with a very fast response time it requires advanced technology to be realised. An infinite reaction system means the response time can react in synchronous time i.e. instantly.

Potentially, Gaudenzi’s conversational mode could be moved into a database category which is more suitably named as “quasi-open”. The experiential mode is potentially positioned as an open data base design based on its “infinity memory and time resources” and “evolution of the system”. The word “memory” may be seen as a perception of reality, which is the essence of documentary, or as the content or input into i-docs. Thus, the experiential mode i-doc can be seen to have an “interaction system that adapts to all inputs”.

Experience

The experiential dimension focuses on the question of how users perceive interactivity. Eichner (2014) discusses this and other scholars’ related works in depth:

“..interactivity is not marked by outer characteristics but by inner processes, the processes of activity on the side of the recipients have been conceptualised as perceived interactivity, which refers to the feeling of being able to interact...The feeling of being able to interact matches the very basic idea of obtaining the general ability to perform actions, to matters of control and to self-efficacy...interaction is a specific form of social action that needs the presence of another individual... for a successful interaction process, it is necessary to employ the perspective of the other participant via role taking” (pp. 54-64).

In others words, interactivity in i-docs effects how the user interprets or comprehends the “reality” which the documentary intends to construct through providing a level of control authority to the user within an agency. As Gaudenzi (2013) and Gifreu (2011) have noted, it is very necessary in i-docs to allow the user to be able to do something to “interfere” with the artifact. This is how i-docs go beyond the mental act of interpreting the “real” that is the norm in traditional documentary.

Each of Gaudenzi’s four modes maps a different level of “user’s interference”. Gaudenzi has taken and applied Aarseth (1994)’s ‘active feed-back functions’ within her four modes as a way to analyze users’ reaction from their experience about each certain interactivity. Maggie Burnette Stogner (2014) argues that the modes Gaudenzi identified can fall into three user-centric categories which can cover the different levels of interfering experience. In her opinion, Gaudenzi's hypertext mode and participatory mode can be viewed as collective interactivity since the experience involves participation within a structure; conversational mode is more participatory interactivity because it is an entirely distributed and mostly unstructured experience; and experiential mode is where participation is often overlaid on the physical world and experiences come from within mobile interactivity.

From Stogner’s point of view, there is an overlap between hypertext mode and participatory mode. Indeed, when we take a closer look at Gaudenzi's four modes these two types of interactivity both feature interruptibility (choice-making or source-input) within a pre-determined interaction structure. Offering a choice is a fundamental function of interaction that can occur in all modes. Thus, the hypertext mode becomes unnecessary to stand alone as an individual mode. In this context, it is reasonable to assume that Stogner’s non-exclusive categories are a much neater model.

Communication

When interaction is applied with documentary, interactivity can be treated as a process-related characteristic and refers to the communication settings of a mediated environment (Weber, Behr, & DeMartino, 2014, as cited in Eichner, 2014). Issues include whether the communication process is linear or non-linear, what kind of participant relationships are being developed, to what extent the roles of sender and receiver are exchangeable and to what extent messages are reciprocally dependent (Eichner, 2014). According to the conceptual framework presented here, the participant relationships in i-docs are non-linear human to human communication via machine, and sometimes the roles of sender and receiver are exchangeable.

One important contribution for identifying interactive documentary from a communication perspective is an earlier work from Galloway et al. (2007). Their work views interactivity in i-docs as a major delivery mechanism, as a two-way flow of information and a reciprocate activity. Gaudenzi (2013) argues that since interactivity changes all the stages of creation it would prove more useful to consider interactivity as a “condition of being” rather than a “delivery mechanism”. In Gaudenzi’s work on the four modes model, she has analysed the role of author and the function of the user and uses the concept of “Metaphor” from earlier theory to define the communication relationship between them.

“Metaphors help us understand things in terms of how they look or feel; they establish a likeness that involves our own physical or experiential encounter with a situation rather than our knowledge of a standard dictionary definition. Metaphors draw on basic forms of personal experience like physical orientation (up, down, above, below) to assign values to social concepts” (Nicole, 2010, p.108).

The reason interactivity may be defined as “Metaphor” is the way it involves physical orientation to create the watching experience and understanding about the documentary content. It stands as a communication relationship between author and viewer. It links to the comprehension of the viewer and the intention of the author.

There has been little criticism or discussion from other scholars on Gaudenzi’s “Metaphor” concept or the lack of any practical test of her model. However, it needs to be noted there is one participant that seems missing in Gaudenzi’s work. According to the earlier documentary theory “triangle of communication” Nicole (2010), every

documentary has at least three participants that intertwine in this communication: the filmmaker, the film itself, and the audience. To build a more complete understanding of taxonomies for i-docs, documentary content needs to be included in the discussion.

2.2 Research Direction

Different perspectives on defining interactivity have led to varied understandings of interactivity in interactive documentaries. This has then extended out into differing definitions and taxonomies. These are not mutually exclusive but can reflect the different scopes of technology platforms.

Since the I-Docs symposia conference in 2009, the conceptual evolution of i-doc theory has been to find a feasible definition and taxonomies which is able to categorise the past and be applied to any future interactive platforms. Thus, any feasible theoretical work should start with a wide scope of definition and then drop down into neat taxonomies.

Gaudenzi's four modes model is not the only approach that could be "right". Her study stands as one possible direction for future i-doc research. As a new breakthrough, her proposed modes have raised plenty of attention and discussion from other peer scholars. However, it is necessary to test her model for possible supplements and correction.

The following research first tries to find an answer to her argument that "interactivity changes all the stages of creation" and that it is more useful to consider interactivity as a 'condition of being' rather than just a 'delivery mechanism'.

Gaudenzi's chosen approach for analysing the role of author and viewer is through case study, but there is a lack of practical data for critically defining these roles. Thus, the following question requiring consideration is what are the core roles of author and viewer in an i-doc production?

Considering her objective was to define an interactivity system that can be applied to both existing and possibly future digital interactive platforms the final question focuses on whether the four modes are applicable with the latest interactive technology.

Chapter 3 – Research Design

3.1 Research Questions

The aim of this research project is to provide a contribution to the identification of the most appropriate definitions and taxonomies for the classification of interactive documentaries, both now and into the future. The research itself focuses on Gaudenzi's proposition of four modes of 'interactivity' as the basis for classification of the 'i-doc' genre.

A research programme has been designed to find an answer to the question, how applicable is Gaudenzi's four modes model to the classification of i-docs? The programme tests if the 'pre-supposition' that underpins Gaudenzi's four modes model is valid, tries to identify what is the role of author and the function of viewer in each interactivity mode, and explores how applicable the four modes are to new technology.

3.2 Methodology

Gaudenzi's classification model is based on the way she sees interactivity as a "condition of being" rather than just a "delivery mechanism". She argues "interactivity itself creates changes at all stages of production". It is this argument that underpins her proposed four modes model. However, it appears that a lack of practical data for this fundamental 'pre-supposition' is available. Thus, validation that interactivity does create change at all stages of production needs to be discerned from the practical application of the production process of i-docs.

One of the gaps identified earlier in this paper was Gaudenzi's overly theoretical approach to studying the different roles of authors and viewers. Her approach seems to lack practical field data about the production of interactivity for critically testing the four modes she has identified.

I-docs, as an emerging form of art is constantly breaking new ground and the use of technology is often as much a part of the creativity of the final work as the concepts and visions that drive the creative process in the first place (Candy, 2006). Studying the interactive experience and seeking new paths to knowledge often requires a deep level

of understanding of the medium which requires systematic and prolonged research (Candy, 2006).

The role of practice is a valid approach to bringing evidence-based knowledge into the theoretical realm. It can provide a more systematic understanding of how people interact with works of art through enhancing personal effectiveness and conscious individual reflection (Candy, 2006; Crooke & Olswang, 2015).

This research uses practice-based knowledge to provide a means to explore i-docs that extends from understanding the creative process behind producing an interactive work on a personal level to contributing to a wider understanding of interactivity from the perspective of the viewer and participant.

The methodology used for this type of research is known as, ‘participant action research’ (Cochran-Smith & Lytle, 2009). It aims to test the four modes and to gather a practice-based data set, which can be used to partially fill the gap in practical data required for a critique of Gaudenzi’s work. As scholars point out, action-based research is an appropriate strategy when there is a commitment to a process of research in which there is a problem involving people and tasks (Cochran-Smith & Lytle, 2009). Likewise it requires an evaluation of the impact of practice as part of an ongoing cycle of research (Cohen, Manion & Morrison, 2007; Denscombe, 2014; Ferrance, 2000; Kemmis, 2009; Rory O’Brien, 1998; Sagor, 2000). More specifically, action-based research aims to improve the rationality and justice of the researcher’s own social or educational practices as well as the researcher’s understanding of these practices and the situations in which these practices are carried out (Kemmis & McTaggart, 1988).

3.3 Design of the Research

In Gaudenzi’s published work she discusses important questions arising from the impact of the new technology revolution. She often backgrounds these issues with the use of case studies. Case study, similar to other qualitative methods, can play an important role in understanding Human–Computer Interaction: in requirements gathering, in acquiring an understanding of the situations in which technology is, or could be, used and in evaluating how technologies can be practically used (Blandford, Furniss & Makri, 2016).

Gaudenzi’s four modes essentially define interactive documentaries in terms of how viewers and makers are positioned differently in the interactivity design. To test the

modes, the use of qualitative design was identified as the most appropriate approach because “the objective of the research can overlap with what the qualitative approach focuses on: to understand, explain, explore, discover and clarify citations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people” (Kumar, 2011, p.104).

In contrast, quantitative research gathers analytical data and its great strength is to provide a broader and more representative sample to overcome the narrow focus of novel insight. Of course, the opportunity for others to apply a quantitative approach to this field of research is available and valid.

3.4 Participants

Generally, participant action research is a collaborative undertaking in order to collate the critically examined actions of individual group members (Elliott, 1998). There is evidence that practitioner based research can be conducted by an individual (Cochran-Smith & Lytle, 2009; Stenhouse, 1975) and does not necessarily have to happen in collaboration with others (Cohen, Manion & Morrison, 2007; Groundwater-Smith & Mockler, 2005). It works as long as it maintains dialogue with the sympathetic but critical community through which one can test out ideas, question the values which underpin the shared practice, seek solutions to problems, invite observation of one’s practice, suggest alternative perspectives and interpretation of data (Stenhouse, 1981).

Whilst acknowledging both the benefits and limitations of having a single participant, this research has been conducted by a solitary practitioner who has relevant technical skills and theoretical knowledge of video production including documentary making and interaction creation. For the research project, she will act both as the documentary maker as well as the viewer throughout the whole production process to provide a diversified perspective and collate data to form a whole coherent motif.

The research data/outcome presents firstly the practitioner’s own reflections upon the creative process and the artifact outcome, and secondly an understanding of the experience as the interactivity creator and the critical viewer of the work.

3.5 Methods

Since this research places a heavy emphasis on design practice and reflection, techniques for data collection have been taken from Gray and Malins (2004), Brightman

(2003) and Allett, Keightley, & Pickering (2011). These techniques include a reflective journal and a series of self-interviews.

A consistent journal was kept during the complete production period, allowing the researcher to keep a note of her actions, experiences and reflection as a documentary maker (Blandford, Furniss & Makri, 2016). The written journal keeps in a casual way with her most familiar language, the important data is grangerized as paragraphs and tables in next chapter.

For each of the modes, a follow-up self-interview was conducted with the researcher herself acting in the role of the viewer to record herself responding to each particular interactivity (Allett, Keightley, & Pickering, 2011). Also the data represent researcher's own personal values, feelings and perceptions as a reflective record.

3.6 Ethics

The research methodology that was adopted for this thesis paper does not require ethics approval as it is primarily a practice based, reflective approach. No data needed to be collected from any third party and the main participator of this research was the researcher herself. With guidance from the AUT Ethics Committee, there are principles the researcher must follow: respect for persons, beneficence, and justice.

Chapter 4 – Projects and Findings

4.1 Introduction

Referencing Gaudenzi's i-doc theory, five separate documentaries have been created by the author to test Gaudenzi's proposed four modes of interactivity of i-docs. These projects represent the five different modes of documentaries previously identified: a traditional linear documentary, a conversational mode i-doc, a hypertext mode i-doc, a participatory mode i-doc, and an experimental mode i-doc. These documentaries were created using the latest widely used technologies available to the author. A consistent record and reflective diary notes are organized and presented in this chapter reflecting the role of the author as both creator and viewer of each documentary. These notes provide the answers to the questions asked by this exegesis.

4.2 Projects Design: Someday in Colab

Considering the documentary is a representation about real people, an actual moment and something that actually happened (Nicole, 2010) these documentary projects utilise different interactive forms using a combination of video records from four specific sub-topics: i) Jenny's day in Colab, ii) A small day in Colab, iii) A special day in Colab, and iv) Your day in Colab. The intention of these documentaries is to show the audience that the Colab facility is an engaging learning environment. To do this, the documentaries present both the working environment of the Colab-postgraduate workplace and what a Colab postgraduate student actually does in the facility.

Linear

The linear documentary is a video based project. Different from the interactive format the traditional documentary presents a principle of linearity and the order of discourse cannot be changed, whereas within the interactive field this order can be affected and modified through some type of physical participation (Gifreu, 2011).

Conversational mode

Interactivity

Gaudenzi (2013) defines a conversational documentary as a digital artefact that

simulates reality through a designed 3D world. This world can, but does not necessarily have, a game logic. It requires the artefact to provide a user experience that is able to “feel free to improvise movement at any moment and the software has to smoothly respond to such decisions” (Gaudenzi, 2013, p.40).

Technology

This documentary was built with “Unity 2017”, a cross-platform game engine which is used to develop both 2D and 3D video games and simulations for computers, consoles, and mobile devices. Unity supports building to 27 different platforms, including Virtual Reality and Augmented Reality. It is a powerful multi-platform game engine which encompass the latest technology.

Design

To realise this mode, a game based project was first created with a simulated 3D Colab (Fig. 7), allowing the user to explore freely using first person view. The user can get to know the story of “Jenny’s day” through three 3D designed “Jenny” characters’ with specific outlook and movement, plus a dialogue system (Fig. 8). The user can also watch footage of “A small day” (Fig. 9) and “A special day” (Fig. 10) shown on a 3D computer’s or 3D TV’s screen. The final way a user can explore within the 3D Colab environment is the story of “Your day” (Fig. 11).

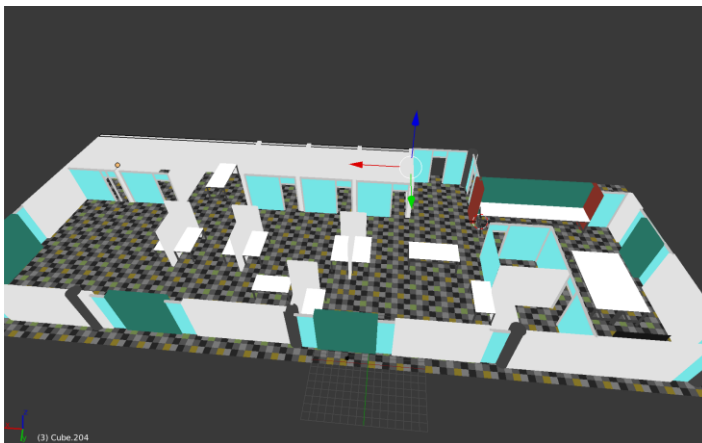


Fig. 7 - A designed 3D Colab



Fig. 8 - The three 3D “Jenny” characters



Fig. 9 - The footage of “A small day”

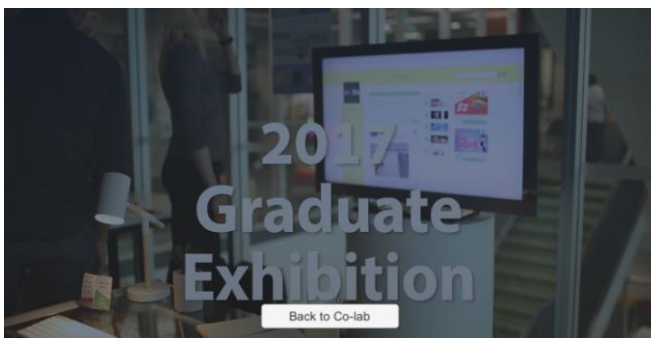


Fig. 10 - The footage of “A special day”



Fig. 11 - The hint of the start of “Your day”

Hypertext mode

Interactivity

In the hypertext mode, the user is able to decide on selected paths to follow through choice making, but can neither change nor add to the narrative (Gaudenzi, 2017).

Technology

This project was built with Klynt 3, an editing and publishing application catered to interactive storytellers. It was first designed by the same team who working on ‘Journey to the End of Coal’, which is considered as the exemplar of hypertext mode i-doc.

Design

To achieve this level of functionality, a web based project was made with selection buttons (Fig. 12) and footages (Fig. 13), allowing the user to explore the story within a closed storyline (Fig. 14).

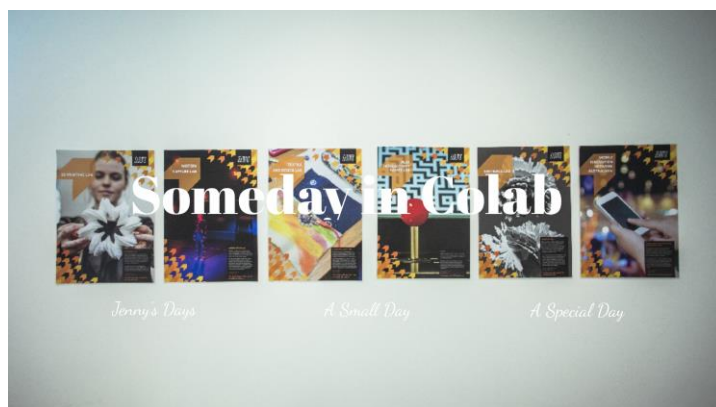


Fig. 12 - The path choosing design of the main page

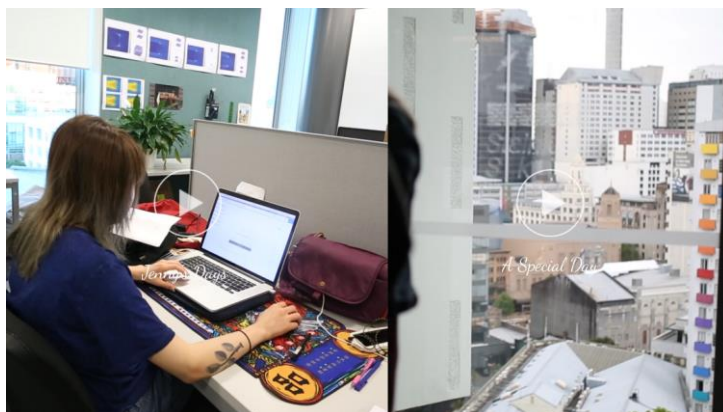


Fig. 13 - The path choosing design: the user can choose the footage she wants to see through the selection of buttons

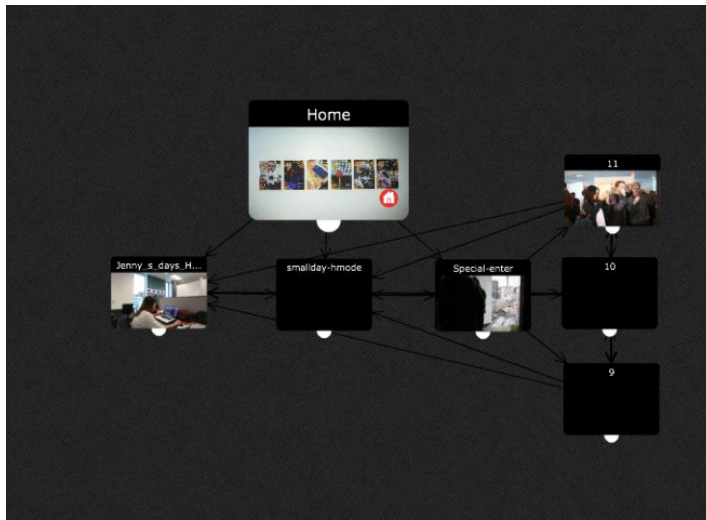


Fig. 14 - The design of the interactive narrative within a closed storyline

Participatory mode

Interactivity

Participatory interaction assumes that the user can add, change or circulate content of the documentary (Gaudenzi, 2013).

Design

A web- based project has been built that allows the user to explore the content they are interested in (Fig. 15) and to gather footage from other users about this specific topic (Fig. 16). This footage is then edited by the author to create a linear form (Gaudenzi, 2013, p. 59).

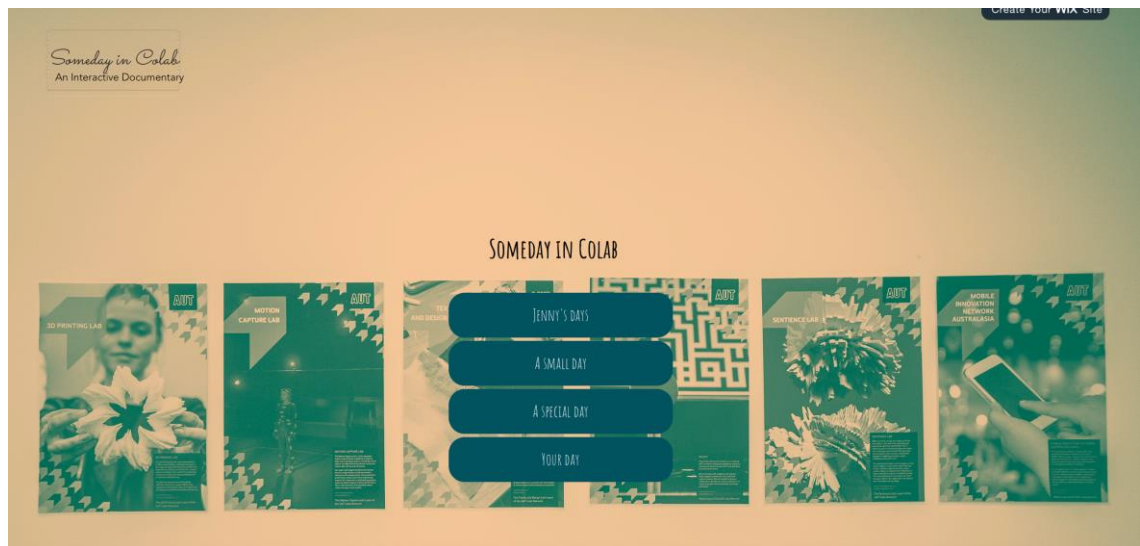


Fig. 15 - Design of the homepage of the Web: user has freedom to choose the part of the story she interested

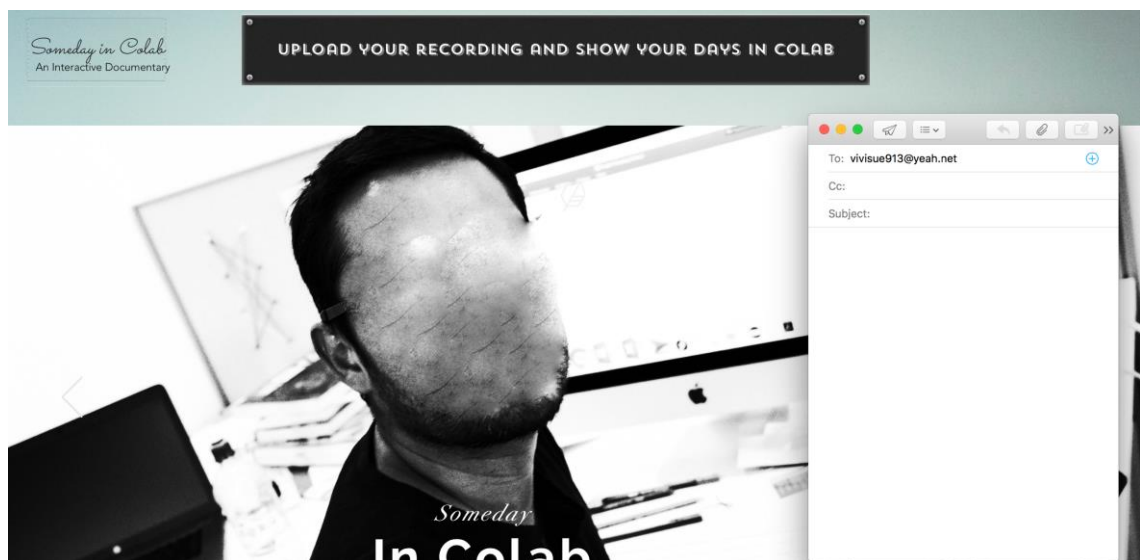


Fig. 16 - Design of the footage gathering interaction: user can send the file through mailing to the author

Similar to participatory i-docs, e.g. the *Man with a Movie Camera: Global Remake* (2007-2014), there is a website developed for the project at <http://dziga.perrybard.net>, for gathering and viewing shots. The user has two main choices to make: i) exploring the content only but not contributing to the content; or ii) actively participate through contributing content. When the user does not participate in the act of contributing content, the project effectively remains in a participatory mode, because the user is offered a choice to effect the content.

Experiential mode

Interactivity

This mode involves interaction between the external world and the environment of the computation world. It has the peculiarity of adding layers of data to physical space and by moving through this new constrained space, one can generate new understandings, and new forms, of both the environment and the participant (Gaudenzi, 2013).

Technology

An AR (augmented reality) based project has been made to realise this kind of interactivity as described by Gaudenzi. Augmented Reality is a new technology, which some of the leading commentators think will make the biggest waves in the future of the immersive film industry (New Zealand Herald, 2017). It is a technology which takes digital or computer generated information, whether it be images, audio, video, and touch or haptic sensations and overlays them on a real-time environment (Kipper & Rampolla, 2013). This technology allows the user to see the real world with virtual objects superimposed upon it, and can be thought of as the “hybrid space” (Sousa & Silva, 2006) between a computer generated environment and the physical environment. AR has a real-time interactivity that combines both actual data and virtual information, and can be operated and used in a 3D environment (Kipper & Rampolla, 2013). Accordingly, it appears to be an ideal technology for realizing the experiential mode.

Design

The experiential project was created using “Plattar” software. The user is required to search for “Plattar” in an application store and then download it. The user is also required to physically visit Colab to engage in this experience.

There are four markers that can be found in the physical place and are designed as the triggers for this project. The user first needs to scan the front door of Colab to obtain information about the rest three remaining markers (Fig. 17). Then the user will have an explorative experience in Colab and find the other triggers. As long as the user finds one of them and scans it with a “Plattar” mobile terminal, she can watch a part of the stories about Colab (Fig. 18).

The way a user is able to explore within the “hybrid space” will generate a unique and

individual understanding about Colab and the experience then becomes the user's own "Your day in Colab" story. Even though the user's pathway and interactions are not recorded for later use, the project can still be considered an experiential one because it affects the perception of physical space and therefore transforms it for the user (Gaudenzi, 2013, p. 65).

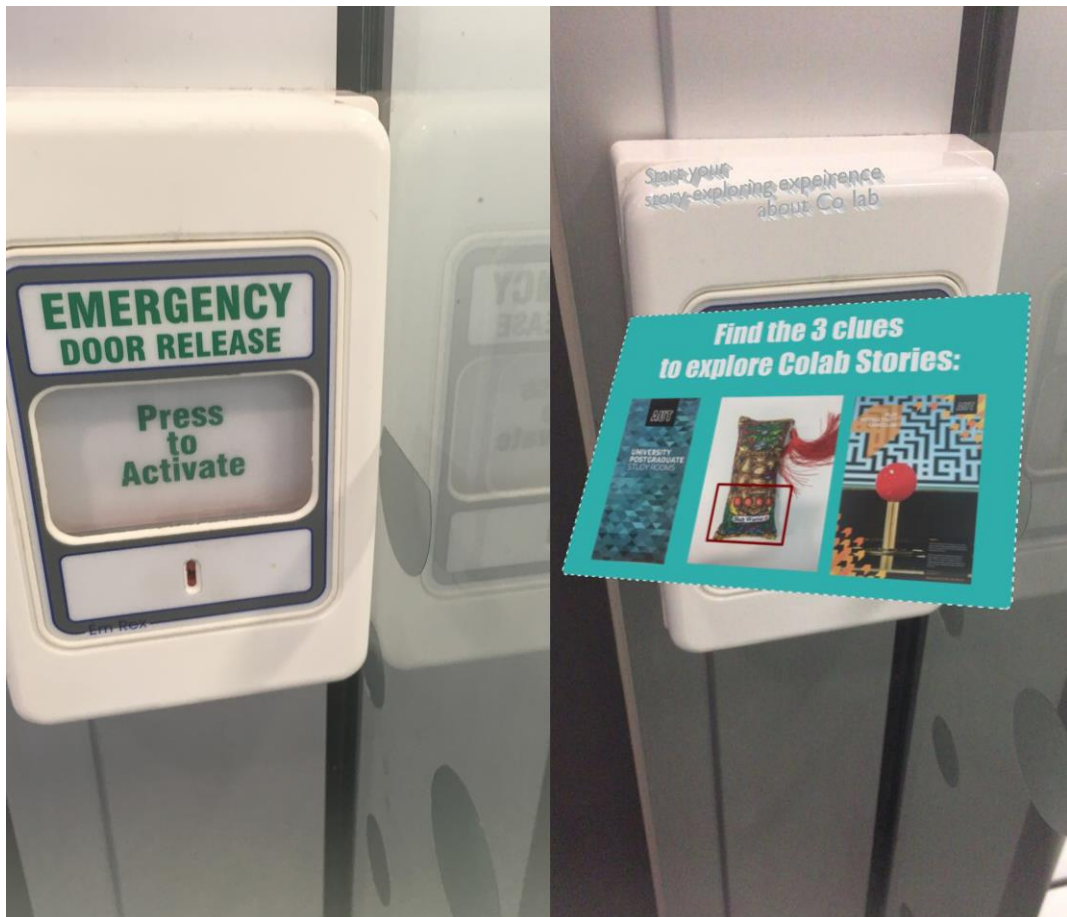


Fig. 17 - Main Marker, the emergency door release of Colab postgrads entrance (WG building, 10F): the user can find the hidden information in this hybrid space



Fig. 18 - User can watch one of the stories as long as she finds and scan the right marker

Critically, the markers designed as the triggers for the project are in practice unstable and mutative. In particular, the outlook and the position of the triggers have unpredictable changes. Thus, this experiential project has a short validity period.

4.3 Findings

Question 1: Does interactivity create change at all the stages of the production of i-documentaries?

“The production process refers to the stages required to complete a media product, from the idea to the final master copy” (Mediacollege.com, 2017). Normally, there are three main stages of development of any media project included in traditional linear documentary: pre-production, production and post-production (Camp, 2013; TV PRODUCTION 101, 2017). The pre-production stage involves designing the message of the documentary and thinking about how to show and send this message to the audience. The production stage is concerned with creating/collecting the documentaries’ content and post-production is focused on constructing the content into a final presentable work. Furthermore, there is an additional after-production stage which involves the work of the viewer, which is when the viewer perceives the content through the specific interactivity. Thus, following these four stages, the key activities of each stage during the life of different interactive documentaries are set out in Table 1 below to show how they fit to each mode of the documentary.

	3 stages of the creation process			
	Pre-production (content design)	Production (content collection)	Post-production (content construction)	After- production (content perceiving)
Linear (None interactive)	Author: Design of the message and its delivery form. (Message delivered through storytelling)	Author: Capture the story	Author: Editing the story	User: View
Conversational	Author: Design of the message and its delivery form. (Message delivered through a virtual space allowing an undetermined story to happen)	Author: Create a simulated world for the story to take place and the rules for exploring in it.	User: Explore in this space via role taking	

	3 stages of the creation process			
	Pre-production (content design)	Production (content collection)	Post-production (content construction)	After- production (content perceiving)
Hypertext	<p>Author: Design of the message and its delivery form.</p> <p>(Message delivered through several divided and closed storylines)</p>	<p>Author: Capture the story</p>	<p>Author: Editing the story and creating the paths to view.</p> <p>User: Choosing the paths.</p>	<p>User: View the contents of the chosen paths.</p>
Participatory	<p>Author: Design of the message and its delivery form.</p> <p>(Message delivered through creating conditions allowing population of the related message)</p>	<p>Author: Create the condition for collecting data/ materials</p> <p>User: Populate related data</p>	<p>Author: Set up the platform and decide how to present the material.</p> <p>User: Choosing the paths.</p>	<p>User: View the contents of the chosen paths; populate related data.</p>
Experiential	<p>Author: Design of the message and its delivery form.</p> <p>(Message delivered through an experience that computational environment and physical world effect to each other.)</p>	<p>Author: Creation of the interactivity drive experience and recording users' data.</p> <p>User: Experiencing</p>	<p>User: Having an experience in physical space</p>	

Fig. 19 - Table: Key activities at each stage of a documentary

Rather than a static finite product, Gaudenzi treats i-docs as relational entities whereby all the components are interdependent in dynamic systems, and where one change in the

system has repercussions on all its components (Gaudenzi, 2013). For her, interactivity not only changes the documentary itself, but also changes what is part of its ecosystem such as the user, the author and the interface. Similarly with Nichols, documentary is a process of documentation that allows the contestation and change of reality because of the encounter between the author, the viewer, and the content (Nichols, 2010).

In comparison to none-interactive documentaries, all the four modes of i-docs are more fluid, layered and changeable; they cannot exist by being independent and stand-alone. In Conversational mode, the author in cooperation with the system, creates a 3D space allowing the narration to take place. The narration of the i-doc fully depends on the action of the user. The artefact is changing with the user's exploration, sometimes triggering the next scripted space on the screen, sometimes triggering a dialog with a character. In Hypertext mode, the i-doc allows the author to control the interactive narrative of the artefact, but the structure of the artefact varies every time it is accessed by the user. The user affects the i-doc to adjust to the user's choice, therefore to reshape itself, and demands a new adjustment of the user's view. In the Participatory mode, the transformation of the artefact depends on the inter-action of the user: they can either add, change or circulate the documentary's content. The open web documentary itself keeps changing and expanding through time and the users' participation. The collaborative contribution of the documentary's content means one user's point of view might affect another user's point of view and even the author's point of view. In the Experiential mode, the mixture of the augmented space, with reality, allows the user to mix the physical to create a new hybrid reality. By moving through this space, both the participant and the environment can generate a new understanding, and new forms: they are mutual co-constituting. The users in this mode are the creators of their own particular artefact, and the artefact will change the users' perception about the space around them.

Table 1 lists the author and viewer's activities at each stage of the production of different interactivity mode documentaries. We can see that different interactivity change the thoughts, actions, and roles of the author and the viewer. It would appear from the analysis and the table that different modes of interactivity do create change at all the stages of production of i-documentaries.

Question 2: Is interactivity considered a “condition of being” rather than just a “delivery mechanism” during the creation process?

It seems clear from Table 1 that for the production of i-docs in each of the different modes, each stage needs certain specific and different thoughts, actions, and roles. In hypertext mode, the author designs several divided and closed storylines and the viewer can choose between them. In participatory mode, the author designs conditions allowing the viewer to populate the i-doc with related data. In conversational mode, the author creates a virtual world to allow the viewer to explore it. In experiential mode, the author creates an interactivity led experience to let the viewer explore a physical space.

Interactivity in the pre-production stage is treated as a way of design thinking to express or present the documentaries’ content (applicable to all four modes). Interactivity created during the production stage may be a tool to assist material collection (applicable to the participatory, conversational and experiential modes). In the post-production stage, interactivity stands as a form of construction and a way to present all material as a coherent content (applicable to all four modes).

No matter what kind of mode of documentary, the main purpose of it is to convincingly communicate either a story or statement from the portrayed event. From the point of view of being the author, interactivity is a technical communication tool, especially a message delivery logic to assist in communication with the viewers in an effective way. Interactivity can be considered as a ‘delivery mechanism’. From the viewer’s point of view, all the interactivities stand as a hint to announce it is an interactive artifact so that the viewer can respond. As the user, once I know it is an interactive artifact, interactions within the project feel like the settings are logical, and I can understand them from previous experiences so that I can decide what to do with the user interface.

Interactivities is, therefore, only a delivery mechanism when the user does not interact with the i-doc except through the delivery of the content provided by this mechanism. Since this delivery mechanism requires that the viewer be ‘involved’: otherwise the message is blocked and the content does not carry any meaning if the viewer does not participate. Thus, interactivity should be considered as both a ‘delivery mechanism’ and a ‘condition of being’.

Question 3: What is the role of author and the function of the user in each mode?

Gaudenzi adopted Aarseth's "active feed-back functions" to analysis the role of the user in the four modes of i-doc. According to Aarseth when a user is faced with a non-linear narrative their interaction with the project can fall into one of four categories. Aarseth identified these as i) the explorative function (the user decides which path to take within pre-set options), ii) the role-playing function (the user assumes strategic responsibility for a character in a world described by the text), iii) the configurative function (the user can create or design part of the narrative), iv) the poetic function (the user's actions, dialogue or design are aesthetically motivated) (Aarseth, 1994, as cited by Gaudenzi, 2013, p. 46). These active feedback functions are used to analyze the function of the user in this research.

In the conversational mode, the author creates a simulated 3D world, provides an agency to the user and designs the rules and provides motivation and hints for user to explore. Thus the role of author in this mode can be defined as a virtual world creator. The user perceives the documentary's content through exploration in the simulated virtual world, and has the function to take on a character, be motivated, decide a forward path and contribute to the narrative. The user also perceives the illusion of an unlimited database and therefore endless world.

In a hypertext i-doc, the author is the person who has overall authority for designing the documentary's content, collecting the content and creating the path to view the content. The user takes the role of perceiving the documentary's content through choosing a path. Therefore, the author in this mode can be defined as the path maker. The user perceives limited possibilities and has to decide which path to take within the pre-set options.

In the participatory i-doc, the author has authority to decide the tools and rules for collection of all related materials and decides the way those materials are used for constructing the documentary's content. Users take the role of perceiving the content and are motivated or encouraged to contribute content and to view the presentation of the content. The author in this mode can be defined as a database designer, and the user has the function of contributing to the content with an optional function of viewing the content or just selecting content.

In experiential i-docs, the author is the one who is adding layers of data to the physical space therefore creating a hybrid space which Gaudenzi (2013) describes as “a space of affective experience”. The author’s role can be defined as that of a hybrid space maker or affective experience maker. The user perceives content by moving through the space and generate new understandings and new forms for both the environment and the user. The user who takes part in this experience has functions of path-choosing, role-taking, content contributing and motivation.

Four Modes Modification

Comparing the records from this research with the user’s functionality of each mode which identified by Gaudenzi (Figure 1), there appears two parts of data against Gaudenzi’s. The words highlighted in red text in Table 2 identify the findings which differ from Gaudenzi’s four modes theory. The arguments focus on the question whether the user’s interaction is encouraged by a designed motivation, both in conversational mode and participatory mode.

Firstly, the author argues that the use of conversation mode i-doc can have a poetic function. Conversational documentary is a digital artifact that simulates reality and that can have a game logic, e.g. the docu-game, as illustrated by Guadenzi’s review of the game, *JFK Reloaded* (2004). The nature of a docu-game still remains within the scope of gameplay and keeps the key characteristic of a game (Galloway, McAlpine & Harris, 2007; Papazian & Sommers, 2013). It is ‘usually working towards some goal’ (Brand, 1988, as cited in Gaudenzi, 2013, p. 39) which can be seen as a motivation system to encourage the user to take the next step to explore content in some circumstances, but not necessarily.

Secondly, participatory mode should have a designed motivation for the user to encourage participation in contributing content to the work, e.g. an issue raised specific topic. As Gaudenzi (2013) says: “In the participatory documentary, the user is expected to influence the processes of documentary production in one way or another” (p. 56). If the user is not motivated to participate in the “action” the participatory interactivity cannot be fulfill.

	Role of the author	Function of the user (Aarseth, 1994)
Conversational	Virtual world creator	Explorative Role playing Configurative Poetic (optional)
Hypertext	Path maker	Explorative
Participatory	Database designer	Configurative Explorative Poetic
Experiential	Affective experience maker	Explorative Role playing Configurative Poetic

Fig. 20 - Table: The role of the author and the function of the user in the four modes of i-docs

4. 4 Research Findings

In this practitioner's research, the author has identified the key characteristics of each mode of i-doc identified by Gaudenzi, and realized these characteristics into five separate practical projects using the latest widely used technologies available to the author.

The findings of this practical study firstly prove that the presupposition inherent in Gaudenzi's work appears valid. Different interactivity does create change at all the stages of production of i-docs. Interactivity in i-docs proves to be suitable when considered as both a 'delivery mechanism' and 'condition of being'.

Secondly, the work undertaken raises some arguments around the function of the user in the conversational and participatory modes. It implies some modification or redefinition is required to some specific details of the four modes theory.

Nonetheless, most key parts of the Gaudenzi's four modes model do appear to successfully meet the taxonomy required to describe the technical elements of interactive documentaries and can effectively cover an expanded scope of i-doc. Given that the genre is rapidly expanding, it should be acknowledged that this model does inevitably lack a degree of precision in its particulars which will need further refinement and consideration in the future.

Chapter 5 - Discussion

This chapter draws upon the previous research findings to provide context to a discussion on what has been described as the three perspectives of interactivity. The three perspectives were discussed in the literature review and they provide a logical framework for further analysis of Gaudenzi's four modes taxonomies and the prospects for future i-doc development and any associated new related taxonomies.

5.1 Three perspectives of interactivity and Guadenzi's four modes

Communication

Undertaking practitioner research provides a point of view of being the author of an i-doc. The primary concern of the author in the creation process is how to convey the statement you want to the user through a presentation of reality. According to John Grierson's definition of documentary (1966), one of the largely agreed definitions for documentary is "the creative treatment of actuality" (as cited in Eitzen, 1995).

Interactivity in this case, applied to documentary gives an artistic, aesthetic treatment to make the representation of the actuality more attractive. The option to use different interactivity modes provides a way of design thinking: how can one use a certain kind of interactivity to represent reality?

However, this representation of actuality is not the real purpose of a documentary or the prime intention of the author. Nicolas (2010) suggests documentary seeks to persuade the audience. It can be understood as a representation of the actuality in a way to communicate with the audience, to convince, persuade, or predispose them to a particular view of the world. Nathan Smith & Jenny Rock (2014) propose that "a documentary may be understood as a series of visually and/or audibly expressed statements connected by narrative, and communicated from the author/authors to the viewer with the intention that it be received as fact" (p.58).

This suggests the representation of the actuality is the message delivery mechanism of the documentary. Different kinds of interactivity in i-docs are only used as tools which have different characteristics that refer to the communication settings of the mediated environment to convey the statement to the user in an effective and affective way. It is

reasonable to conclude interactivity in i-docs is both the “delivery mechanism” and the “condition of being”.

While the use of interactivity in i-docs is primarily to assist communication between author and user, the measure of the interactivity’s effectiveness is preferentially through the quality of the message delivering. According to Eichner (2013), interactivity can prove to be inadequate and misleading. This raises the thought, the use of different kinds of interactivity contain different kinds of persuasiveness.

The study of the power of persuasiveness of different forms of interactivity may provide real insight for defining the role of communication in i-doc taxonomies. From the records kept during the i-doc creation process, it is clear there are different exchangeable forms for the roles of message sender and receiver. This is another issue for further consideration for the study of i-doc taxonomies.

Experience

The research findings about the function of the user in conversational mode and participatory mode ends up in an argument about whether the user has been motivated. According to psychological studies, all human behavior is driven by a motivation (Evans, 2015). When going back to Aaresth’s four user functionalities (1994), there is a lack of specific explanation and description about how to define “aesthetically motivated” within the poetic function, which confuses the study and makes it difficult to provide clear data for the research question 2.

Interaction designer and psychologist David Hogue (2012) points out that the most successful experiences and interactions are those where people are intrinsically motivated, which means their behavior is driven by internal factors such as curiosity, competition, or being helpful. It can be consistent with achieving a goal or getting an external reward. Thus, “aesthetically motivated” in this research is understood as the user being engaged with the artifact with a larger degree of feeling in control and less a feeling of being controlled.

As such, an approximate measure of the willingness and pleasure when author herself taking the action to interact with the four modes project are organized as the chart below shows.

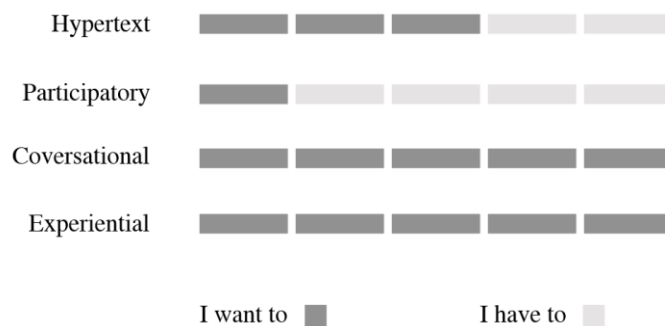


Fig. 21 - The level of self-efficacy of being the user of 4 modes i-docs

The findings imply the use of unfamiliar technology for the user herself can enhance motivation in some way. The reason is very likely because of a sense of freshness arousing a user's curiosity. However, this sense of freshness is temporary before the user of the technology becomes accustomed to it.

From another perspective the poetic function keeps a certain relationship with each of the specific interactivities and the other three selective functions that each of the interactivities provides to the user. When we take a close look at the four active feedback functions, there are areas of overlap that each area contains. For example, when the role-playing function, the configurative function and the poetic function are provided, the explorative function has to be synchronously provided. When the role-playing function is provided the configurative function has to be synchronously provided. It can therefore be assumed that the four feedback functions which Gaudenzi applied to her model have limitations to fully expound the function of the user of i-docs.

There are numbers of recipient-oriented approaches used in interactivity studies that focus on the feeling of being able to interact. This matches the very basic idea of obtaining the general ability to perform actions, to effect matters of control and to self-efficacy (Downes & McMillan, 2000; Eichner, 2013; Kiouss, 2002; Wu, 2005). These three actions could form the basis of future studies to extend the understanding of the functions of the user in the i-doc world.

Technology

Compared to previous techno-centric studies, Gaudenzi's model, following the expanded scope of i-doc which discussed in 2009 conference of "I-docs Symposia", and

adapted to new technology, such as locative media, then provide a new possible interactivity for future i-doc, in which computer-generated environments and physical environments interact with each other in another reciprocal way.

Recent technological trends such as Virtual Reality (VR) and Augmented Reality (AR) meet this reciprocating relationship between computer-generated environment and the actual world. In sociology, interaction is a specific form of social action that needs the presence of another individual (Eichner, 2013). Jonathan Steuer (1992) as one of the pioneers of techno-centric VR research, conceptualises presence in a mediated environment to combining the factors of vividness and interactivity which is largely agreed with by other scholars:

“Vividness means the representational richness of a mediated environment as defined by its formal features; that is, the way in which an environment presents information to the senses... Interactivity is the extent to which users can participate in modifying the form and content of a mediated environment in real time” (Steuer, 1992, pp. 81-84).

Interactivity from the technological point of view, only refers to the medium’s ability to let the user influence the content or form of the i-doc (Heeter, 1989; Jensen, 1998; Steuer, 1992). Augmented Reality as a way using technology to superimpose information on our physical world, “involves interaction with an external world or the environment of the computation” and its interactivity drops into the experiential mode which has “two-way feed-back loop that allows both the system and the environment to adjust to each other” (Gaudenzi, 2013, p. 63).

In conclusion, Gaudenzi’s four modes model has great potential to address future technical trends and covers the expanded scope of i-docs. As a new theory, this model inevitably lacks precision in its particulars and requires further discussion. However, the volume of debate about her model provides a new possibility for future i-doc taxonomies study.

From the techno-centric approach of this study, the relationship between computer-generated environment and the actual world can be analyzed as Table 4 for further research’s consideration.

Interactivity Mode	Content	Form	Time	How interaction take place
Hypertext	Selection of computer-generated content	Unchangeable form	Real time	Physical action in real world effecting the computer-generated environment
Participatory	Expanding computer-generated content	Unchangeable form	Real time	Physical action in real world effecting the computer-generated environment
Conversational	Exploring computer-generated content	Changeable form	Real time	Physical action in real world effecting the computer-generated environment
Experiential	Making physical content in actual world	Changeable form	Real time	Computer-generated environment and physical environment in real world effecting each other

Fig. 22 - Table: A techno-centric analysis of Gaudenzi's four modes model

Chapter 6 - Conclusion

This exegesis discusses a ‘practitioner based’ research programme that has been undertaken to test Gaudenzi’s four modes model of interactivity within the interactive documentary genre. The programme has been based on the production of interactive documentaries which have specifically used some of the latest software and technologies. The results of the project and the practical feedback recorded by the author during the production process has provided a practical basis for this critique of Gaudenzi’s theory.

The research focused on the creation of an actual interactive documentary. The creation and viewing of the final work allowed for a practical response to the interactive work allowing for a critique of the presupposition at the heart of the whole theory, the role of author and the function of the user in each interactivity mode, and the technical potential for applying this model to new technologies.

The programme tested if the ‘pre-supposition’ that underpins Gaudenzi’s four modes model was valid, explored how applicable the four modes are to new technology from both a creator and viewer perspective and tried to identify what is the role of author and the function of viewer in each interactivity mode.

The findings of this research firstly prove the presupposition of her proposed modes appears valid in a practical sense. The idea that interactivity changes all the stages of the creation of i-docs is supported by the results of the study. Interactivity in i-docs proves to be suitable when considered as both a ‘delivery mechanism’ and ‘condition of being’. Secondly, there appears to be some adjustment required and arguments surrounding the function of the user in the conversational and participatory modes. Nonetheless, most key parts of Gaudenzi’s four modes model do appear to successfully meet the taxonomy required to describe the technical elements of interactive documentaries and can effectively cover an expanded scope of i-doc.

In conclusion, Gaudenzi’s four modes model stands as one possible model for defining future i-doc taxonomies study. It successfully meets the technical trends in new technology such as Virtual and Augmented Reality and covers the expanded scope of i-docs. However, it lacks precision, particularly about its theoretical foundation and contains the possibility of a need for a reframing of its categories.

From three perspectives of interactivity studies, Guadenzi's four modes model has real potential for further exploration, extension and adjustment. Particular focus should be applied to the study of the interchangeable roles of the author and user, the user's self-efficacy and the relationship between a computer-generated environment and the actual world.

Finally, this research is not considered comprehensive, it does however provide a means to further explore the field.

Reference

- Aarseth, E. J. (1994). Nonlinearity and Literary Theory. In: Landow, George ed. *Hyper/Text/Theory*. Baltimore: John Hopkins University Press, pp. 51-86.
- Allett, N., Keightley, E., & Pickering, M. (2011). *Using Self-Interviews to Research Memory*. Loughborough University.
- Arora, G., & Palitz, A. (2016). *My Mother's Wing*. Retrieved from <https://with.in/watch/my-mothers-wing/>
- Aston, J., & Gaudenzi, s. (2012). Interactive documentary: setting the field. *Studies In Documentary Film*, 6(2), 125-139. http://dx.doi.org/10.1386/sdf.6.2.125_1
- Aufderheide, P. (2015). Interactive Documentaries: Navigation and Design. *Journal Of Film And Video*, 67(3-4), 69-78. <http://dx.doi.org/10.5406/jfilmvideo.67.3-4.0069>
- Blandford, A., Furniss, D., & Makri, S. (2016). *Qualitative HCI research*. San Rafael, Calif.: Morgan & Claypool.
- Brightman, J. (2003). Mapping methods for qualitative data structuring (QDS). In *IOE Conference*. London: Banxia Software Ltd. Retrieved from http://www.banxia.com/pdf/de/map_for_qual_data_struct.pdf
- Camp, Nigel. (2013). *Three Stages To Every Project – Pre-Production, Production and Post-Production*. Retrieved 9 November 2017, from <http://www.thevideoeffect.tv/2013/06/26/video-pre-production-and-post-production/>
- Candy, L. (2006). *Practice Based Research: A Guide*. Creativity & Cognition Studios, University of Technology, Sydney. Retrieved from <http://www.creativityandcognition.com>
- Cochran-Smith, M., & Lytle, S. (2009). *Inquiry as stance: Practitioner research for the next generation*. New York: Teachers College Press.
- Cochran-Smith, M., & Lytle, S. (2011). Commentary: Changing Perspectives on Practitioner Research. *LEARNing Landscapes*, 4(2), 17-23. Retrieved from <http://www.learninglandscapes.ca/index.php/learnland/article/view/381>
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Sage.
- Crooke, P., & Olswang, L. (2015). Practice-Based Research: Another Pathway for Closing the Research–Practice Gap. *Journal Of Speech Language And Hearing Research*, 58(6), S1871. http://dx.doi.org/10.1044/2015_jslhr-l-15-0243
- Denscombe, M. (2014). *The Good Research Guide : For Small-Scale Research Projects*. Open UP Study Skills. Maidenhead, Berkshire : Open University Press.
- Downes, E., & McMillan, S. (2000). Defining Interactivity. *New Media & Society*, 2(2), 157-179. <http://dx.doi.org/10.1177/14614440022225751>

- Eichner, S. (2014). *Agency and media reception*. Wiesbaden: Springer VS.
- Eitzen, D. (1995). When Is a Documentary?: Documentary as a Mode of Reception. *Cinema Journal*, 35(1), 81. <http://dx.doi.org/10.2307/1225809>
- Elliott, J. (1998). *The Curriculum Experiment. Meeting the Challenge of Social Change*. Open University Press: Milton Keynes.
- Emspak, J. (2016). *What is Augmented Reality?*. *Live Science*. Retrieved 31 May 2017, from <https://www.livescience.com/34843-augmented-reality.html>
- Ergürel, D. (2016). *The story behind the making of 360 degree video documentary on Chernobyl. Haptical*. Retrieved 17 February 2017, from <https://haptic.al/the-story-behind-the-making-of-360-degree-video-documentary-on-chernobyl-b5b641d9d168>
- Evans, P. (2015). *Motivation and emotion* (2nd ed.). Hove [U.K.]: Psychology Press.
- Ferrance, E. (2000). *Action research*. Providence, RI: LAB, Northeast and Island Regional Education Laboratory at Brown University.
- Galloway, D., McAlpine, K., & Harris, P. (2007). From Michael Moore to JFK Reloaded: Towards a working model of interactive documentary. *Journal Of Media Practice*, 8(3), 325-339. http://dx.doi.org/10.1386/jmpr.8.3.325_1
- Gaudenzi, S. (2013). *The Living Documentary: from representing reality to co-creating reality in digital interactive documentary* (Ph.D). University of London.
- Gifreu, A. (2010). *The interactive multimedia documentary. A proposed model of analysis* (Ph.D). Department of Communication: Universitat Pompeu Fabra.
- Gifreu, A. (2011). The Interactive Documentary. Definition Proposal and Basic Features of the Emerging Genre. *McLuhan Galaxy Conference Proceedings*, pp. 354-365.
- Gray, C., & Malins, J. (2004). *Visualizing Research A Guide to the Research Process in Art and Design*. Ashgate Publishing.
- Groundwater-Smith, S., & Mockler, N. (2005). *Practitioner research in education: Beyond celebration*. Paper presented to the Australian Association for Research in Education Focus Conference, Cairns. Retrieved from <https://www.aare.edu.au/data/publications/2005/gr05007y.pdf>
- Heeter, C. (1989). Implications of New Interactive Technologies for Conceptualizing Communication. In *Media Use in the Information Age: Emerging Patterns of Adoption and Consumer Use* (pp. 217-235). Lawrence Erlbaum Associates.
- Hogue, J. (2012). *Understanding need and motivation*. Retrieved from <https://www.lynda.com/Dreamweaver-tutorials/Understanding-need-motivation/82822/97986-4.html>
- Jensen, J. F. (1998). Interactivity – Tracking a New Concept in Media and Communication Studies. *Nordicom Review*, 19(1), 185–204.

- Kemmis, S. (2009). Action research as a practice-based practice. *Educational Action Research*, 17(3), 463-474.
- Kemmis, S., & McTaggart, R. (1988). *The action research planner* (3rd ed.). Victoria, Australia: Deakin University Press.
- Kiousis, S. (2002). Interactivity: a concept explication. *New Media & Society*, 4(3), 355-383. <http://dx.doi.org/10.1177/146144402320564392>
- Kipper, G., & Rampolla, J. (2013). *Augmented reality : an emerging technologies guide to AR* (1st ed.). Massachusetts: Elsevier Science.
- Kumar, R. (2011). *Research methodology* (3rd ed.). Los Angeles: SAGE.
- Mateer, J. (2017). Directing for Cinematic Virtual Reality: how the traditional film director's craft applies to immersive environments and notions of presence. *Journal of Media Practice*, 18(1), 14-25. <http://dx.doi.org/10.1080/14682753.2017.1305838>
- Mediacollege.com. (2017). *The Production Process*. Retrieved 9 November 2017, from <http://www.mediacollege.com/glossary/p/production-process.html>
- Morton, J. (2017). *New realities: How will we see the future?*. *NZ Herald*. Retrieved 31 April 2017, from http://www.nzherald.co.nz/technology/news/article.cfm?c_id=5&objectid=11849461
- Nash, K. (2012). Modes of interactivity: analysing the webdoc. *Media, Culture & Society*, 34(2), 195-210. <http://dx.doi.org/10.1177/0163443711430758>
- Nash, K., Hight, C., & Summerhayes, C. (2014). *New documentary ecologies*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.
- Nasr, A., & Mendes, J. (2016). *Kabul Portraits*. Retrieved from <http://kabulportraits.nfb.ca/main.html>
- Nichols, B. (2010). *Introduction to Documentary* (2nd ed.). Bloomington : Indiana University Press.
- O'Brien, R. (1998). *An overview of the methodological approach of action research*. Retrieved from <http://www.web.ca/~robrien/papers/arfinal.html>
- Papazian, G., & Sommers, J. (2013). *Game on, Hollywood!*. Jefferson, North Carolina: McFarland & Company, Inc., Publishers.
- Rondao Alface, P., Macq, J., & Verzijs, N. (2012). Interactive Omnidirectional Video Delivery: A Bandwidth-Effective Approach. *Bell Labs Technical Journal*, 16(4), 135-147. <http://dx.doi.org/10.1002/bltj.20538>
- Sagor, R. (2000). *Guiding school improvement with action research*. Alexandria, Va.: Association for Supervision and Curriculum Development.
- Smith, N., & Rock, J. (2014). Documentary as a statement: defining old genre in a new age. *Journal Of Media Practice*, 15(1), 58-62. <http://dx.doi.org/10.1080/14682753.2014.892698>

Stenhouse, L. (1975). *An Introduction to Curriculum Research and Development*. London: Heinemann.

Stenhouse, L. (1981). What counts as research?. *British Journal of Educational Studies*, 29(2), 103-114.

Steuer, J. (1992). Defining Virtual Reality: Dimensions Determining Telepresence. *Journal Of Communication*, 42(4), 73-93. <http://dx.doi.org/10.1111/j.1460-2466.1992.tb00812.x>

Stogner, M. (2014). Searching for Aristotle in the Digital Age. *The International Journal Of New Media, Technology And The Arts*, 8(1), 11-21. <http://dx.doi.org/10.18848/2326-9987/cgp/v08i01/36316>

TV PRODUCTION 101. (2017). Retrieved 9 November 2017, from <https://prezi.com/u2zophgcjzx/tv-production-101/>

Wachowski, L., & Wachowski, L. (1999). *The Matrix*.

Whitelaw, M. (2002). *Playing Games with Reality*. Retrieved from: <http://creative.canberra.edu.au/mitchell/papers/PlayingGames.pdf>

Wu, G. (2005). The Mediating Role of Perceived Interactivity in the Effect of Actual Interactivity on Attitude Toward the Website. *Journal Of Interactive Advertising*, 5(2), 29-39. <http://dx.doi.org/10.1080/15252019.2005.10722099>

Digital Works

Aspen Moviemap. (1978). [Interactive documentary] by the MIT.

Global Lives Project. (2010). [Cross-media documentary] initiated by David Evan Harris.

JFK Reloaded. (2004). [Game] created by Traffic Software.

Journey to the End of Coal. (2009). [Online interactive documentary] directed by Samuel Bollendorff, produced by Honkytonk Films.

Man with a Movie Camera: Global Remake. (2007-2014). [Interactive documentary] created by Perry Bard.

Moss Landing. (1989). [Interactive documentary] produced by The Multimedia Lab.

Rider Spoke. (2007). [Locative project] produced by Blast Theory.