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Design Process and Organisational Strategy: A Storytelling Perspective

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This paper explores the relationship between design process and organisational strategy through a storytelling perspective by providing a literature review; firstly, in relation to society in general; establishing a contextual background to the research. Secondly, by relating this to a) how designers and design researchers examine storytelling within design process, and b) how organisational strategists theorise storytelling. Then finally, through comparing and contrasting the literature, unearth the relevancies of using a storytelling perspective and uncover opportunities for understanding how design process impacts organisational strategy. It is apparent that certain underlying principles in adopting a storytelling perspective when employing organisational strategy and design process coexist. Foremost are the human centred focuses; in particular building relationships and constructing identities. Concerning the approaches to storytelling, a shared desire to elicit emotional resonance with audiences exists in the use of characterisation. During collaboration between designers and organisations, stories resulting from the design process will incontrovertibly have the potential to impact that company's peoples. Examining collaborations between designers and organisations from the perspective of storytelling could lead to a deeper understanding of the impact design can have in an organisation, particularly along the themes of a sense of community, constructing meaning and affecting change within organisations.

Keywords: *Design Process, Organisational Strategy, Visualisation, Communication, Narrative*

Introduction

Our overall aim is to explore the relationship between design process and organisational strategy through considering their relation to storytelling simultaneously. Firstly, we will examine storytelling in relation to the context of society in order to establish a contextual background to the research. In this section we will focus on literature on Transformational Learning and Film Theory. By doing this we will aim to provide examples and approaches of storytelling within society that have particular analogous relevance to design process and organisational strategy.

Secondly, we will explore how designers use storytelling in a design process, and the theories and methodologies adapted by design researchers connecting storytelling to design process. We will suggest that the storytelling is most commonly related to design process either through verbal, written or visual communication or a combination of these modes of communication.

Thirdly, we will examine literature that relates storytelling to organisational strategy as it makes explicit reference to storytelling.

Finally, we will provide analysis aiming to outline potential implications when storytelling is used as a lens to understand the design process. Using this perspective, whilst comparing and contrasting literature that relates storytelling to design process, organisational strategy, and the general context of society, we will outline opportunities in developing the current knowledge surrounding the relationship between design process and organisational strategy.

Background

According to McDonnell, Lloyd and Valkenburg (2004:509) storytelling is a useful perspective to adopt when examining collaborative processes as stories represent 'a powerful and an accessible means of sharing knowledge and their value and pervasiveness in conveying knowledge is well-recognised'. Consequently, it stands to reason that during a collaborative process, such as during product development, storytelling will occur in some form during the conveyance of knowledge from one party to another (Leonardi & Bailey, 2008). In the context of this paper, knowledge is being conveyed between external designers and an organisation's employees whilst they engage in a collaborative design process.

When exploring literature that addresses the purpose of storytelling in detail, it is apparent why pervasiveness in sharing and conveying knowledge is attributed to storytelling. For example, Bruner (2002) lists the constituents of a story as follows:

- *Action directed towards goal*
- *Order established between events and states*
- *Sensitivity towards what is canonical in human interaction*
- *The revealing of a narrator's perspective*

These constituents can be described as follows; a story must be told with a purpose, it must state what has occurred and when, it will demonstrate accepted human behaviours in some form and it will deliver the perspective of the storyteller. With these constituents, it is apparent that storytelling is more than a simple representation of an event; it is the creation of an interpretation of an event with which an audience is able to engage (McDonnell et al., 2004). Therefore, in order to share a perspective, whether this is to highlight a problem, establish criteria or even to propose a design solution, an individual can use a story for these purposes. Consequently, it stands to reason that a multitude of

desired impacts and approaches exist with regard to storytelling across the areas of literature that this paper will examine.

Storytelling in Society

It has been argued that storytelling is a way of helping people to form worldviews, and that it is through stories which cultural beliefs in society are sustained (Hesselgrave, 1997). Two areas of literature that have documented impacts of and approach to storytelling in society are Transformative Learning and Film Theory. We will focus on these as they have particular analogous relevance to themes that emerge when examining impacts of and approach to storytelling within design process and organisational strategy.

Transformative Learning

Storytelling can act as a driver for building understanding, critically reflecting and consequently, personal growth, which among many definitions constitutes Transformative Learning (Bleyl, 2007). To this end, Bleyl (2007) details several instances throughout history where storytelling has been used in the form of parables, fables, proverbs, anecdotes and short stories. For example, an early specimen of storytelling designed for Transformative Learning from Ancient Egyptian times (2450-2300 BCE) has been observed, where an advisor of the king named Ptahhotep wrote a book of short stories designed to pass down knowledge and wisdom to his son, key messages included:

- *Guard against the vice of Greed: A grievous sickness without cure [...]*
- *Kindness is a man's memorial [...]*
- *Do not boast at your neighbor's side. One has great respect for the silent man*

(Bleyl, 2007:48)

In spite of this clear attempt at storytelling to shape his son's character, it is not known how Ptahhotep interacted with his son; therefore the written word may only reveal part of this storytelling experience (Bleyl, 2007).

Turner (2008) highlights historical attempts of Transformative Learning that use storytelling in the form of theatre, dealing with the semiotic environments of performance as well as the written word (or script). An example of particular interest is the 'morality play' (Turner, 2008:68). The morality play was devised by the Catholic Church in the Middle Ages as a more explicit way, than the traditional mass delivered in Latin, of teaching the audience their religion's moral code (Turner, 2008). The morality play was delivered through the use of a central character whose journey, full of trials and tribulations, would demonstrate the necessary steps for the audience to take in order to lead a Catholic lifestyle (Turner, 2008). This represents a very early example of using a central character in the construction of a story; an approach theorised in literature addressing both design process and organisational strategy; in Madsen et al.'s (2010) descriptions of persona-scenario construction in design process, and in Denning's (2007b) description of how to tell an engaging story to an organisation's employees.

Film Theory

It is acknowledged that there exists a belief among some film theorists that films are worlds which are organised in terms of stories (Lapsley & Westlake, 1988). Subsequently, film theory holds great relevance when exploring the impacts of and approaches to storytelling, as it provides a context that has been engaged with by society in general (through television and cinema).

Of paramount relevance here, is the film theorists' preoccupation with reality. The underpinning idea that supports this exploration in film theory is the 'mirror-stage' of a humans development; this is the acknowledgement that during the life of a human there will be a stage where they begin to understand, often by looking in a mirror, that they are observing a reality in which they exist (Easthope, 1993). When observing a film, the story that is being related comes into being through individual interpretation, and once an interpretation has been constructed 'it has the ideological force conferred by its apparent representation of reality' (Lapsley & Westlake, 1988:130). Therefore, everybody that observes a film will own an individual interpretation of it, constructed through his or her individual relationship with reality. In particular, this acknowledgment exists within theory surrounding design process; for example, DeLarge (2004) suggests that design artefacts stimulate debates between individual interpretations, necessary for the development of a design solution. Each individual's interpretation will be different as a result of their differently developed relationships with reality, evolving from their 'mirror stages'. The debate that leads towards a design solution is in essence a debate about their interpretations of a reality.

An interesting tenet of filmmakers is the belief that films can be used as 'vehicles' for eliciting social change. It is recognised by film theorists that historically some films have been designed as strategic instruments for projecting 'national imaginaries' (Stam, 2002:19). For example, Tufts (1990) interviewed filmmakers Hood and Joy who use video and film to communicate difficult social-political situations in the hope of stimulating social change. One of their films *Creating Bridges* raised the awareness of refugee and immigrant women living in Canada, aiding their integration into the local community (Tufts, 1990). The 'power of art' in *Creating Bridges* is what Hood and Joy attributed to aiding this social change; the 'power of art' in this instance is explained as creativity within filmmaking (Tufts, 1990). A focus of certain organisational strategists is eliciting social change within organisations (Adamson, Pine, Steenhoven, & Kroupa, 2006; Denning, 2007a). Therefore, the 'power of art' may represent an approach to storytelling that could aid social change within organisations. The link between 'power of art', design and organisational strategy is explored further, later in the paper.

Design Process and Storytelling

Relative to a design process, storytelling is commonly addressed in terms of the visualisation that occurs throughout it and the verbal and written communication between the design team, and the designer and clients. With regard to visualisation, artefacts such as sketches, renderings and prototypes have been examined in order to extrapolate the stories embedded within them (Cross, 2006). With regard to verbal communication, design researchers have examined storytelling as a critical success factor in a design process's client-consultant relationship (DeLarge, 2004; Strickfaden & Rodgers, 2001).

Visualisation

Firstly, with regard to the visualisation that occurs during a design process, it is important to acknowledge that as well as the more traditional artefacts such as sketches, renderings and models, there has also been a growing frequency of using media presentations including film, photography and video. This phenomenon has been explicated as a societal shift responsive to a more visually rich world (Cross, 2006).

The embedded stories in artefacts resulting from the design process have been defined on many planes. Firstly and most obviously, how visualisation is used to tell the story of how a design proposition is built and how it works, vitally important to the client and even the end user (Cross, 2006). Perhaps more interestingly however, the embedded stories

of multiple artefacts, such as sketches, have also been described as a critically reflective dialogue between designers, showcasing the evolution of a design solution (Schön & Wiggins, 1992). This story correlates with the context of Transformative Learning, desiring the promotion of personal growth through critical reflection.

Concerning designers' approach to visualisation, there has been much exploration of which particular interest is in the comparisons made between designers' and other disciplines. Strickfaden and Rodgers (2001) suggested that the approach of design and scientific communities are closely linked in their use of futuristic language. However, upon further investigation it has been found that designers and scientists approaches to visualisation can be quite different. In reflecting on an experiment where designers and scientists were asked to visualise the arrangement of 3D blocks into possible constructs, Cross (2006) observes an analytical approach employed by scientists, where all possible iterations were explored, and a synthesising approach employed by designers, where solutions were presented and then reiterated. Two reasons are offered for favouring synthesis in the design approach; firstly due to design education where practicable results are demanded within specific time limits, secondly, due to the nature of design problems, where all the necessary information to provide a thorough analysis is rarely available (Cross, 2006). Should an organisation with a scientific community face such design problems, there may be much to gain from employing the use of a designers' synthesising approach.

Verbal and Written Communication

The design team uses verbal communication during a design process to explicitly communicate stories. More recently design research has examined storytelling during design process through recorded protocols of designers in the laboratory and work settings (Lawson, 2006). Varied conclusions have resulted; DeLarge (2004:77) suggested that during a design process 'stories are used most beneficially to build trust, achieve shared understanding, simplify what is complex, and offer examples and models between members of the design team and between the design team and the client. However, Lawson (2006) places greater importance on the ability storytelling has in cementing the design team together during a design process.

One specific type of written communication employed within design process is the persona-scenario. Although no mutual definition exists for what a scenario exactly is, it is in no dispute that scenarios are stories. The persona element of a persona-scenario is simply a fabricated user, often constructed using data from user research (Madsen & Nielsen, 2010). Madsen and Nielsen (2010) claim that there is a theoretical gap between what a persona-scenario is and what it should consist of. To address this gap Madsen and Nielsen (2010) developed a tool that uses the principles of Narrative Theory; the study of story or narrative, written or otherwise. Their aim was to help with the construction of design orientated persona-scenarios. Despite an inconclusive outcome when analysing cases of the tool deployment, Madsen and Nielsen (2010) proposed that more research is required in this field based on a closer inspection of Narrative Theory. This provides a detailed example of an instance where storytelling is seen as integral to a design process, yet there exists a lack of understanding in its application.

Organisational Strategy and Storytelling

Primarily, research undertaken relating storytelling to organisational strategy focuses on two aspects: management and leadership strategy, and marketing and branding strategy (Christensen, 2001; Herskovitz & Crystal, 2010). Observing key theories established in

these areas will allow a direct comparison of the impacts of and approach to storytelling currently theorised by organisational strategists and design researchers.

Management and Leadership Strategy

Similar to Tufts (1990) discovery that certain filmmakers aim to aid social change with their films, certain organisational strategists aim at causing social change within organisations, most prominently within management and leadership strategy theory (Adamson et al., 2006; Denning, 2007a). Both Adamson, Pine, Steenhoven and Kroupa (2006) and Denning (2007a) agree achieving social change is aided if the storytelling develops an emotional connection with its audience. As Tufts (1990) filmmakers assert that this can be achieved through the 'power of art', it comes as no surprise that there is a long standing belief that within organisations the dissemination of information should be diverse, with the visual semiotic environment being highly appreciated (Saunders & Stewart, 1990). However, Denning (2007b:xxi) is careful to explain that storytelling in itself is not 'a panacea for eliciting change in organisations. It can only be as good as the underlying idea being conveyed. If that idea is bad, storytelling may well reveal its inadequacy'. Information disseminated through visual means within organisations, compares to the production of visual artefacts during design process. Therefore Cross' (2006) notion of embedded stories may be an interesting perspective to apply to this facet of organisational strategy in determining the suitability of visual artefacts.

Within management and leadership strategy, storytelling is related most closely to verbal communication. Of particular interest are the theories constructed for the performance of a story. It is suggested that the ownership of performance is key in mastering formal storytelling, meaning that the audience should understand that the story relates to the storyteller and is delivered with the confidence necessary to reinforce this (Denning, 2007a). Turner's (2008) commentary on Transformational Learning within theatre relates to this consideration of storytelling performance. A binding principle is that in both literature on Transformational Learning and organisational strategists' discussion of storytelling performance, importance is placed on the use of central characters with which the audience empathises, as it proves effective in engaging audiences (Denning, 2007b; Turner, 2008). This relates to Madsen and Nielsen's (2010) exploration of adapting Narrative Theory for the better use of persona-scenarios, as a persona-scenario is essentially placing a central character in a story. Therefore, adapting Narrative Theory may also hold relevance for developing theory surrounding storytelling performance within organisational strategy.

Marketing and Branding

Similarly to but more prominently than management and leadership strategy, branding strategy also theorises an approach to storytelling involving the use of a central character that identifies with the audience (Herskovitz & Crystal, 2010). Similarly again, this strategy is adopted in an attempt to strengthen the emotional connections of storytelling, as Herskovitz and Crystal (2010:21) assert that storytelling 'requires a clearly understood central character with which people can identify and create a long-lasting emotional bond: the brand persona'.

Internal marketing strategy realises an importance for the management and employees of an organisation to tell one another who they are in relation to the organisation, building an identity for themselves (Christensen, 2001). Christensen (2001) details successful examples of this identity construction stressing the importance of storytelling; in particular he outlines stories that existing employees delivered to new recruits and the visual translation of these stories on recruitment tools such as company websites. This notion of storytelling for the purpose of identity creation strongly correlates to the historical

examples that Bleyl (2007) outlines in his exploration of Transformational Learning, the only difference being that in his examples people were building identities within society rather than an organisation or sub-society.

For example, Juniper Networks, a global IT company used a three-part storytelling initiative in an attempt to impart a deep understanding of company culture, uniting its employees (Ohara & Cherniss, 2010). Firstly, sessions where employees presented to one another were organised, secondly, the best stories were selected against a set of criteria and filmed, and thirdly, a website was designed as a story repository tool so that the entire company had access to the stories. In summarising this internal brand exercise, Ohara and Cherniss (2010) proclaims that success was achieved due to the harnessing of storytelling's power, inspiring commitment and action among employees.

Implications

We propose that a multitude of relevancies in adopting a storytelling perspective relate to design process, when attempting to understand the potential impacts it can have in an organisation.

Generally, this is apparent when looking at Bruner's (2002) list of the constituents of a story detailed in the introduction; a story must be told with a purpose, it must state what has occurred and when, it will demonstrate accepted human behaviours in some form and it will deliver the perspective of the storyteller. In a design process, seeking a design solution gives purpose to the verbal, visual and written communication between the design team and client. As the design solution will have a user, this will ensure a demonstration of human behaviour in this communication. Therefore, it stands to reason that storytelling will occur during a design process.

More specifically, with regards to visualisation in design process, is the notion of embedded story (Cross, 2006; Schön & Wiggins, 1992). With the acknowledgement that design artefacts encompass stories, whether these are describing the way in which designs are constructed, how designs work or as Schön and Wiggins (1992) suggest that the reflective dialogue a design team has, it is undeniable that the interpretation of these stories will affect the development and impact of the design. However, even though the exploration of embedded stories may be exhausted regarding certain design artefacts, with evidence of the growing frequency of design solutions in the form of new media presentations, it stands to reason that there will be unexplored embedded stories within them.

Secondly, in terms of communication in the design process, importance has been placed on examining the verbal storytelling that occurs between designer and client (Lawson, 2006). Yet, as suggested earlier, there seems to be no shared understanding regarding this examination. This would indicate that further investigation is needed with regards to this form of storytelling within collaborative design process.

Finally, in relation to both written and verbal communication, certain methodologies adopted during a design process closely relate to storytelling, as demonstrated by Madsen and Nielsen (2010), when relating persona-scenario building to Narrative Theory. However, when testing this hypothesis, Madsen and Nielsen (2010) conclude that further research is required, suggesting there is a lack of understanding in the application of this method.

Conclusion

In conclusion of the implications discussed regarding the relation of design process to storytelling, it can be seen that a deeper level of understanding is obtainable.

With regard to the notion of embedded story; as technology, and societies relationship with new technologies, is in continual development, so too will options for the presentation of a design solution, whether this be a better working prototype, digital story and so on. Therefore, understanding the way new artefacts embed story should also be in continual development.

Concerning the specific employment of approaches with regard to storytelling, there appears to be several opportunities in the relationship between design process and organisational strategy.

Firstly in relation to leadership and management strategy, in achieving organisational changes a plethora of approaches are available, however there exists a mutual understanding in the preference of visual storytelling (Denning, 2007a; Saunders & Stewart, 1990). As organisations adopt these strategies, the knowledge encompassed by design process theorists could provide more robust storytelling exercises, particularly those who focus on visualisation, specifically the embedded stories within visual artefacts produced during design process (Cross, 2006). Certain challenges that face organisations during periods of transition are likely to favour a synthesising approach akin to the design discipline, as future world scenarios cannot be predicted with certainty (Cross, 2006).

Storytelling methodologies using central characters, in particular persona-scenario, exist to some extent in both design process and organisational strategy literatures dealing with communication and marketing and branding strategy respectively (Denning, 2007a; Madsen & Nielsen, 2010). With a united desire to conjure emotional resonance with audiences, a mutual gain could be achieved through comparing and developing strategies surrounding this approach. Building on Madsen and Nielsen's (2010) development of an adaptive Narrative Theory for persona-scenario creation could present an interesting opportunity here.

As well as these specific opportunities, the potential for more general benefits can be observed when documenting the mutual impacts desired when using storytelling in approaching design process and organisational strategy. The following paragraphs will summarise these mutual desired impacts as discussed throughout the content of this paper.

Firstly, predominantly noted in the context building literature on Transformational Learning and Film Theory is a humanitarian focus; storytelling delivered to benefit cultures of people (Bleyle, 2007; Tufts, 1990; Turner, 2008). Similar focuses exist in design process and organisational strategy literature. For example, Lawson's (2006) claim of achieving a cemented design team through verbal storytelling in communication and Christensen's (2001) proposition of storytelling to aid identity construction within internal branding and marketing strategy. Therefore, it would seem that a common desired impact is to encourage a sense of community.

Secondly, there is a focus on storytelling's capability of helping people to construct meaning across organisational theory, design process literature and storytelling in society. As demonstrated when discussing visualisation in the design process, Cross (2006) suggests that sketches hold a personal dialogue with designers, used to interpret sets of criteria for problem solving. Similarly, DeLarge (2004) suggests that design artefacts stimulate debates between individual interpretations, helping to resolve a design problem. Here, the end goal is a shared understanding, but differences in interpretation

are seen as a necessary part of the journey. As discussed previously, this is paralleled in Christensen's (2001) discussion of brand strategy where he relates storytelling to the construction of personal identity, or personal meaning, within the organisation. Within the broader context of storytelling in society, Easthope (1993), Lapsley and Westlake (1988) and Stam (2002) all proclaim that film theory, of which theorises a universal format for storytelling, is primarily concerned with how individuals interpret a reality presented to them.

Finally, a powerful desired impact linking organisational theory and design process literature to storytelling in society is transformation or the ability that storytelling has in achieving or aiding change. Denning (2007a) is an advocate of this attribute when it comes to theorising leadership strategy for affecting cultural change within organisations, however he proclaims that it can only aid, not elicit a change. Ohara and Cherniss (2010) believe a storytelling approach fostered a cultural shift, crucial to a specific organisation's survival. DeLarge (2004) documents a similar instance where design process was used in achieving cultural shifts through narrative, improving a service design consultancy's operations. When contextualising these observations against the backdrop of Bleyl's (2007) historical accounts of how society is changed through storytelling, it is paramount that storytelling's power to affect change is a well-respected notion that all fields discussing storytelling in relation to impact acknowledge.

During collaborative design processes between designers and organisations, a design story will incontrovertibly have the potential to impact that organisation; therefore it is important to foster a deep understanding of how a story does this in order to achieve better practice. Achieving a sense of community, aiding in the construction of meaning and aiding change or transition within organisations are all impacts that developing the understanding of storytelling approaches in design can benefit organisations the most, as it is in these spaces where mutual desires are highlighted in design process literature and organisational strategy. Therefore, a close examination of collaborations between designers and organisations from the perspective of storytelling will help to build this understanding.

References

- Adamson, G., Pine, J., Steenhoven, T. V., & Kroupa, J. (2006). How storytelling can drive strategic change. *Strategy and Leadership*, 34(1), 36-41.
- Bleyl, M. F. (2007). Becoming Wiser Through Proverb and Story: Transformative Learning Across Centuries and Cultures, *Transformative Learning Conference: Issues of Difference and Diversity* (pp. 47-52). Albuquerque, New Mexico: University of New Mexico College of Education.
- Bruner, J. (Ed.). (2002). *Making Stories: Law, Literature, Life (1st ed.)*. New York: Farrar, Straus, and Giroux.
- Christensen, J. H. (2001). Company Branding and Company Storytelling - Corporate Branding, Storytelling and Image Recruitment in a Reflexive Network Society, *Senders and Recievers. New perspectives on market communication* (pp. 26-58). Frederiksberg: Samfundslitteratur.
- Cross, N. (2006). *Designerly Ways of Knowing*. London: Springer.
- DeLarge, C. (2004). Storytelling as a Critical Success Factor in Design Processes and Outcomes. *Design Management Review*, 15(3), 76-81.
- Denning, S. (2007a). *How Leaders Inspire Action Through Narrative, The Secret Language of Leadership*. USA: Jossey-Bass.
- Denning, S. (2007b). *The Springboard: How Storytelling Ignites Action in Knowledge-Era Organizations*. USA: Butterworth-Heinemann.
- Easthope, A. (1993). *Contemporary film theory*. Harlow: Longman.
- Herskovitz, S., & Crystal, M. (2010). The essential brand persona: storytelling and branding. *Journal of Business Strategy*, 31(3), 21-28.

- Hesselgrave, D. J. (1997). Worldview, Scripture and Missionary Communication. *International Journal of Frontier Missions*, 14(2), 79-82.
- Lapsley, R., & Westlake, M. (1988). *Film theory : an introduction*. Manchester: Manchester University Press.
- Lawson, B. (2006). *How Designers Think*. Oxford: Architectural Press.
- Leonardi, P. M., & Bailey, D. (2008). Transformational Technologies and the Creation of New Work Practices: Making Implicit Knowledge Explicit in Task-based Offshoring. *MIS Quarterly*, 32(2), 159-176.
- Madsen, S., & Nielsen, L. (2010). Exploring Persona-Scenarios - Using Storytelling to Create Design Ideas. *International Federation for Information Processing*, 316(2010), 57-66.
- McDonnell, J., Lloyd, P., & Valkenburg, R. C. (2004). Developing design expertise through the construction of video stories. *Design Studies*, 25(5), 509-525. doi: 10.1016/j.destud.2004.05.005
- Ohara, S. C., & Cherniss, M. (2010). Storytelling at Juniper Networks Connects a Global Organization to the Values and Behaviours of Success. *Global Business and Organizational Excellence*, 29(5), 31-39.
- Saunders, R. G., & Stewart, R. W. (1990). Failure of communication in research and development. *Project Management in R&D*, 8(2), 71-78.
- Schön, D. A., & Wiggins, G. (1992). Kinds seeing and their functions in designing. *Design Studies*, 13(2), 135-156.
- Stam, R. (2002). *Film Theory An Introduction*. Oxford: Blackwell.
- Strickfaden, M., & Rodgers, P. A. (2001). 'Scripting' DESIGNED ARTEFACTS, NARRATIVE, metaphor and FILM, *Design Pedagogy: basic and academic experiences* (pp. 1-12). Barcelona, Spain: Napier University.
- Tufts, H. (1990). Filmmakers Robin J. Hood and Penny Joy. *Canadian Woman Studies/Les Cahiers de la Femme*, 2(1), 94-96.
- Turner, T. C. (2008). Researcher-playwright and the research-play. *Journal of Artistic and Creative Education*, 2(1), 67-87.