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Writing through design, an active practice

Keywords

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Abstract

Stemming from a collaborative research project ‘designing, writing’, this article outlines preliminary findings to the various ways that design practices and design processes contextualize and explicate an intellectual proposition, i.e. how design contributes to advancing knowledge. The overall aim of the research investigation is to disseminate current understanding and best practice on the relationships between designing and writing and their mutual interest in speculation, expression and research. While most discussions around this topic adopt one of two (often polarized) distinct positions – the written text as sole authority and a design object’s capacity to be read as a cultural artefact – our investigation looks at various media of design articulation directly linked to design as a system of inquiry including but not limited to diaries, diagrams and choreographic notation and comics. These media expose a potential to ‘write’ through design and expand design research as non-linear, theoretical and yet practical tools.

Introduction

While our article recognizes the large and significant developments occurring globally on this topic of design research and its relation to textual discourse, it repositions that which has been articulated as 'design writing' to 'designing, writing'. This slight change shifts the emphasis from design as a form of writing or writing about design to designing as an active process of inquiry and hence, acquiring knowledge. Any tensions between design and text are dissipated by the elaboration of a cluster of notational media shown to be productive articulators operating explicitly within design's own domain. This article draws on terminology defined in specific ways by expert researchers in the field. 'Knowledge articulators' refer to the means by which information is shared through media (Weggeman 1997). The actual transfer of knowledge is within this context based on Pask's conversation theory (CT), as it implies a knowledge understanding from the perspective of effective communication (Thomassen 2007). In this case 'creative process' is defined by Csikszentmihalyi (1997) who defends it as a process that can enable change in a symbolic context, such as design, and this approach opens up understanding of the participatory aspects of design (and the designer) to an acceptance of the receiving field (field of application of design). This view of creative process is considered in relation to Friedman's view of 'design process' as goal-oriented process to solve problems, meet needs, improve situations, or create something new or useful (1997). Germane to our article's subject, Cross highlights 'design writing' as a conversation that can help conceptually construct design as research (Cross 1999: 8). In these terms, design writing is needed to support conversations within the discipline and across disciplines; it is the paradoxical task of creating an interdisciplinary discipline (Cross 1999: 8).

Knowledge

In writing about design articulation, there is a need to clarify the differences between knowledge, information and 'raw' data. This article distinguishes between data as merely figures, information as meaningful data, and knowledge as information which is part of a meaningful social context like a social group, a specific knowledge system or a culture (Weggeman 1997). Following this definition, knowledge cannot exist outside an individual or a group. As a consequence of this approach, knowledge itself cannot be stored or transferred between individuals. The only way knowledge can be exchanged is when knowledge is articulated into meaningful information. Articulation can be interpreted more broadly than just the codification of meaning into texts. Codification of meaning can occur by means of oral (speech, sounds, music), visual (body-movement, graphics) or even tactile codification. Information in digital form can be stored and manipulated as data. In comparison with other models, the CT model of Pask brings science into 'action' (Scott 2001), making this understanding applicable to design as well. The model of CT looks at knowledge as a form of 'coming to know' in terms of 'knowing why' and 'knowing how'.

In this regard, this article looks at different types of media that can support the exchange of knowledge and facilitate the storage of information. Moreover this article considers writing through design as a means to articulate tacit knowledge, i.e. knowledge that people can act upon, but cannot readily express in words (Polanyi 1964). The model below (Figure 1) illustrates how this research defines knowledge creation and exchange and how this study has been organized around the distinctions between knowledge, information and data.

Then, how do we articulate and analyze knowledge creation, and which inquiry system do we use in order to articulate and validate the knowledge created through inquiry? This article augments the philosophical research of Churchman. In his research, he elaborates on the foundations of inquiring systems, hence the system for rigorous research (1971). He proposes design as a means of inquiring and therefore, systematically creating and exchanging knowledge through the validating system of inquiry. The rigor of the creative design process is in knowing the method used to identify the creative act. Csikszentmihalyi (1997) argues that creativity is a process that can enable change in a symbolic context, such as design, and this approach opens up understanding of the participatory aspects of design (and the designer) to an acceptance of the receiving field, in this case, the field of design (Thomassen and Bradford 2009). Even though we cannot set up the creative design process beforehand as a fully clinical experiment, we can, through reflection, analyze it.

This article's focus on creation and reflection places less emphasis on the legitimacy of design as validated scientific research outputs. Therefore, the article agrees with understanding that design knowledge has three sources; 1) people; designing is a natural attribute of humans, 2) processes; of tactics and strategies of designing leading to methodology and 3) products; knowledge resides in products themselves (Cross 1999). This article will not attempt to overtake the textual discourse; it will merely provide an overview of other heavily used media.

Four Exemplar Media

The four media have been prioritized on their level of operability during the act of design, and as ways to communicate design thinking and strategies. In their ability to approach design as a process of synthesis, they emphasise notation during construction of the design process rather than as a merely illustrative tool. Each media is shown to support and enable a range of outcomes and inquiry at various steps within the design process; they are thinking tools used while designing with a context. Dourish (2004) states that a context is a relational property. Its features include dynamic development and growth, each differing from the other. Context is a heavily used term and in within this article, it is being used to denote all factors that influence the experience of a design (Sleeswijk Visser 2005).

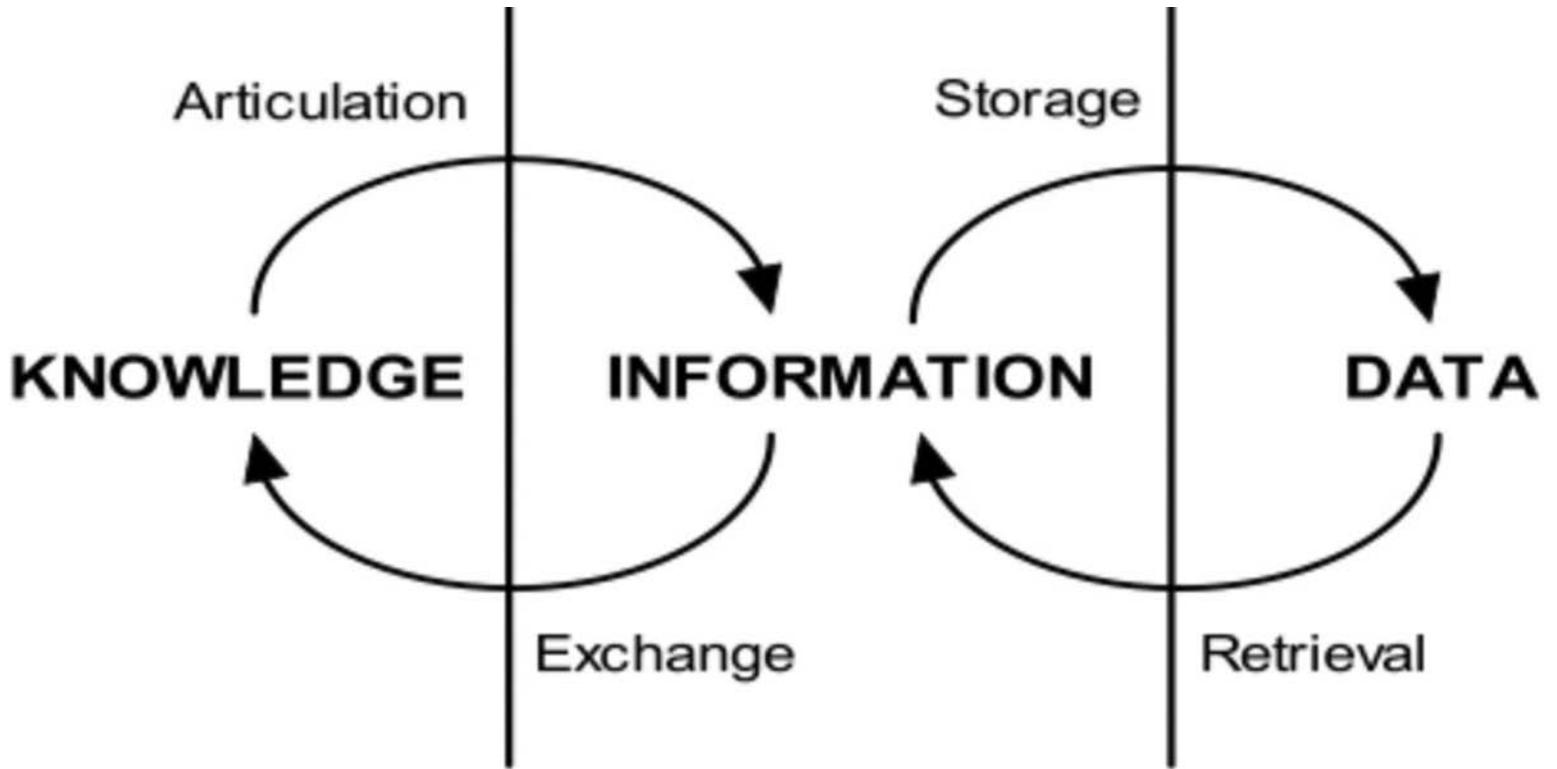


Figure 1: Knowledge creation diagram. (Thomassen, 2002).

Diaries

Ethnography and, in particular, auto-ethnography, use the diary as a means for understanding a specific discipline or culture (Reed-Danahay 1997). They connect the personal to the cultural and thereby place the self in a social context. Such media usually adopt a first-person voice and include dialogue around emotions and self-consciousness as relational and institutional stories affected by history, social structure and culture.

Dairies offer two distinct but related benefits to writing through design practice. Diaries provide a designer a vehicle to carry out self-reflective modes of inquiry and analysis as well as include subjective, associative, automatic dialogue with the process. They are also a medium that binds design creation and design intention. Generally regarded as private explorations of everyday life, including emotional and psychological ponderings, diaries are considered a conversation unfettered by editing and socially constructed boundaries of appropriateness. Journals, sketchbooks and workbooks, all variations on the diary, figure prominently in art and design studies as the repository of emerging ideas and forms, often blending the diary with the scrapbook. Such pages reinforce the influence of one's hand and handwriting as a form of visual expression, and capture a space of time, usually chronological, but importantly, the space of design reflexivity (Figure 2).

Reed-Danahay (1997) outlines that auto-ethnography is constructed by a design process revolving around three interlocking elements; 1) graphy (e.g. research), 2) ethnos (i.e. culture) and 3) auto (i.e. self). Because of its ability to articulate the stages within the design process more fully, auto-ethnography has the capacity to advance design as a process and as a form of research input. Tierney (1998: 66) writes, 'Auto-ethnography confronts dominant forms of representation and power in an attempt to reclaim, through self-reflective response, representational spaces that have marginalized those of us at the borders.'

Found to be suitable for practice-led research, the diary is effective in eliciting specific elements of a design activity comparable to verbal expression (Pedgley 2007). Design as a process involves connecting the subjective to the social cultural objective. The process of arriving at the end-design might be formatted in an auto-ethnographic approach as it will enable elaboration and openness of the trajectory. Auto-ethnography enables the 'writer' to articulate the personal journey through text and visuals; it is an attempt to bring the reader into 'his' inner world (Holt 2001). However, in order for dairying to be considered as a means for design articulation, rigor needs to be applied to the reflection process. Such rigor can be established through coding of data, for example, categorizing the result according to how it relates to previous experiences. With regards to Cross's sources on design knowledge, we see that diaries are used in multiple ways; 1) people; diaries support the reflexive part of the design cycle, 2) process; diaries can be a source for studying design as an activity, and finally, 3) products; as discussed in this section, auto-ethnographic research tools such as diaries are vital for studies grounding new theories. It is important to acknowledge that auto-ethnography, and in particular, keeping a diary, does



Figure 2: Example of journal writing. (Bradford PhD project, 2009).

not necessarily require following qualitative guidelines that lead to verifiable research outputs. Rather, these forms of media look at constructing reality and then evaluating that reality.

Diagrams

The existing literature around this category suggests that there are profound differences between how various design disciplines apply diagrams and what purpose they serve. Evidence of this variety can be found in the significant work of the Writing PAD project and their internet site MADD (Matters around Art and Design Dissertation) based in the UK (Edwards 2004). Kokotovich (2008) draws from the comparison that Restrepo and Christiaans (2003) make between concept-mapping as an open and generative problem-seeking activity and mind-mapping as a typically linear and hierarchical problem-solving process. Understood as two-dimensional maps, diagrams are known for their ability to order complex scenarios with an abstract and graphic clarity capable of conveying the essential nature of the subject at hand. Their power lies in their ability to draw out relationships between and amongst concrete entities and abstract notions, a characteristic that often reveals the 'emergence of contradictions, paradoxes and gaps in information' (Kokotovich 2008: 59). According to David Wang (2007), diagramming serves as an analytical tool capable of bridging research nomenclature across disciplines. 'Far from taking anything away from the design process, the use of the diagramming tool strengthens design itself as a form of inquiry. In short, the diagramming tool not only integrates design with research, it also promotes a more systematic interdisciplinary understanding of the design process' (Wang 2007: 33). While Wang advocates the use of diagrams as a vehicle to prevent the researching designer from getting lost, Kokotovich champions context-mapping as a non-hierarchical cartographic form of diagramming that seeks questions rather than leaping too quickly to form-driven responses. Context-mapping highlights a greater probability for true innovation as it registers a deeper ill-structured design inquiry (Kokotovich 2008: 59).

Like most design media, the formal structure of one's diagramming practice influences the findings. Yin et al. (2005) point to five different key concept-mapping structures: (1) Linear issues and ideas that are sequentially linked together; (2) Circular issues and ideas that are sequentially linked together with the ends joined; (3) Hub or Spoke issues and ideas that derive from a central concept; (4) Trees or linear chains of issues and ideas that have branches attached; and (5) Network or Net, a complex set of interconnected issues and ideas. The network structure is seen as non-hierarchical and considered the most complex (54). Despite the chosen diagramming structure, diagrams grapple with 'big picture' ideas and phenomena at the same time that they engage minute details (Kokotovich 2008: 67).

The two figures below illustrate dominant types of diagrams used in design practices. Figure 3 approaches diagramming as a set of formalized relations whose order has been established hierarchically, i.e. the diagram represents a process of inquiry that has already occurred.

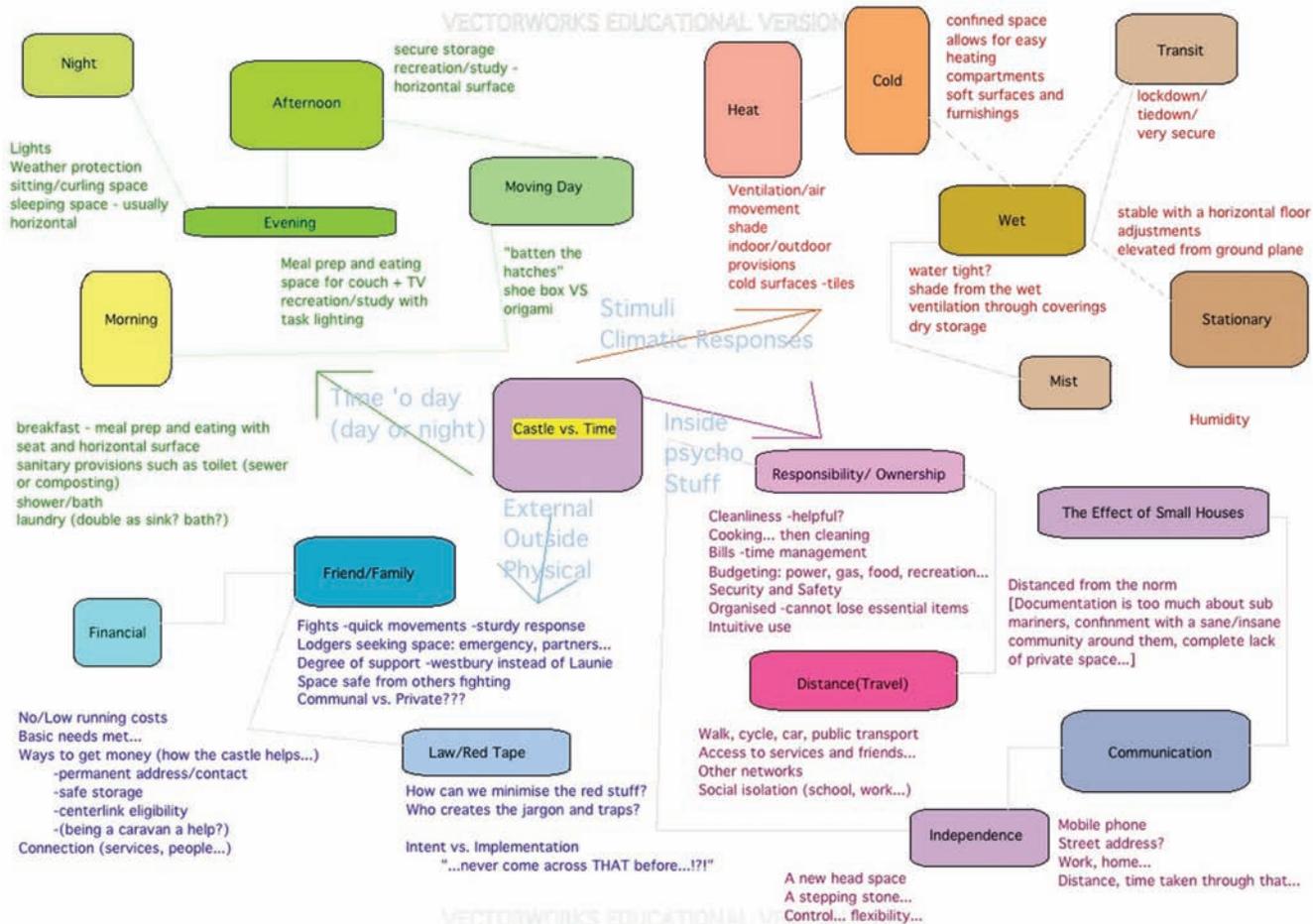


Figure 3: Mind-mapping diagram charting a building design exercise. (Richard Burnham, Kristy Han, Alison Draper, 2009).

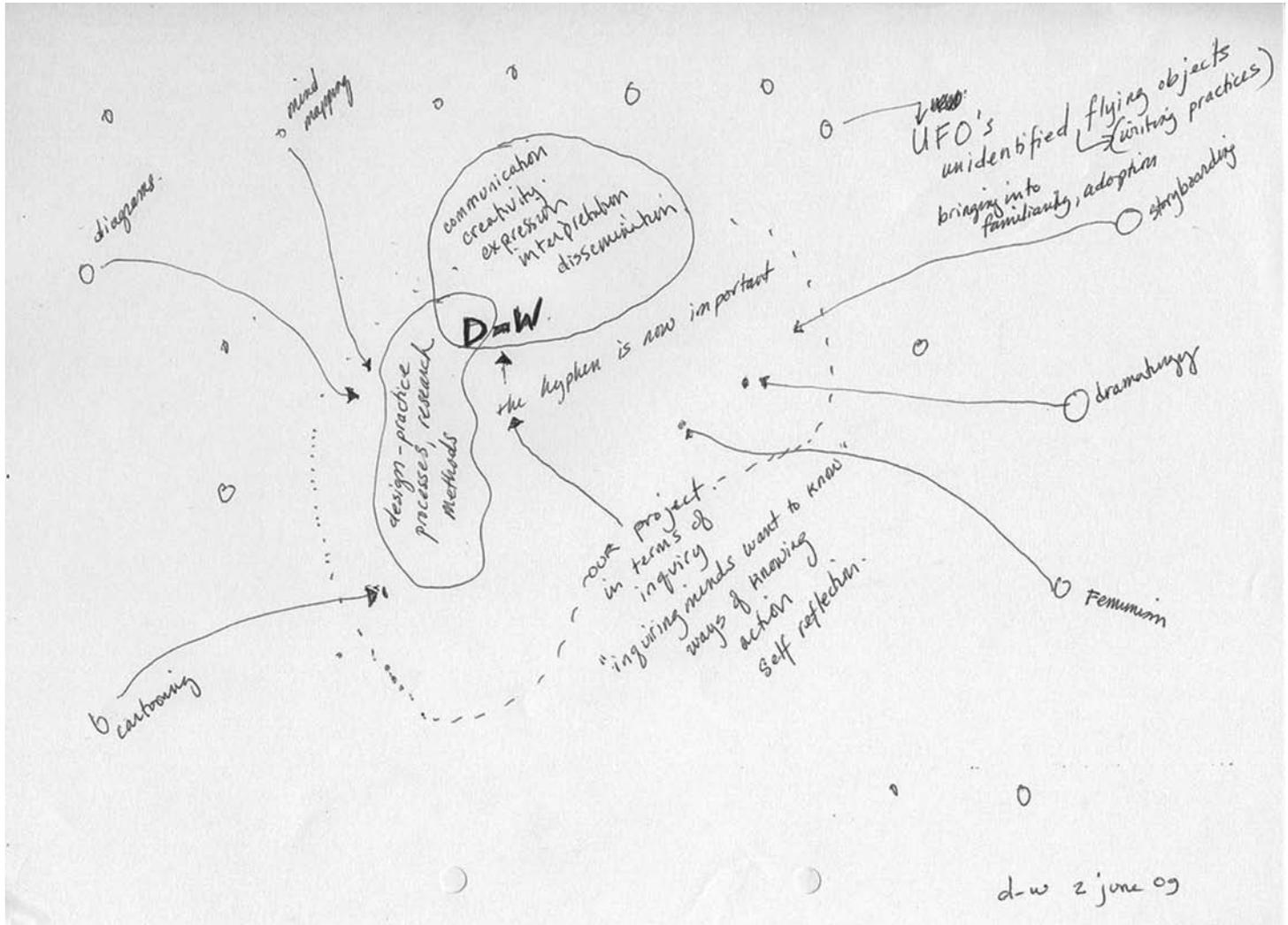


Figure 4: A diagram generated by the authors in the course of developing this paper. (Preston and Thomassen, 2009).

While Figure 4 appears to record an ensuing conversation (with one's self or amongst a group of design stakeholders), it demarcates a certain degree of complexity amongst a field of factors. In this case, the diagram reflects a network structure of a second degree as it embraces time and captures the idiosyncratic and unedited nature of 'thinking about thinking' (Negroponte 1975: 4). While we may be unable to 'read' the diagram exactly, it divulges a field of concern, a context, that speaks strongly of symmetry, sequence from one zone to another as well as top to bottom and a condensation of data interfaces. In this case, intelligence is defined 'as a property that is ascribed by an external observer to a conversation between participants if, and only if, their dialogue manifests understanding' (Negroponte 1975: 7–8).

Diagrams provide a means for analysing and discovering aspects of design complexity. Stappers and Sanders (2005) reminds us that

design problems are too complex and multifaceted to be captured in a single, complete, theory ... Experiences always depend on the person and situation involved. A map to these experiences, and sufficient leads towards its interpretation, often proves more valuable than a seemingly complete theory that operates only within a narrow perspective.

(Stappers et al., ID-Studiolab)

We find alignment between diagrams and the three sources of knowledge outlined by Cross: 1) people; an emphasis on constructing and communicating relational attributes between things, events and people, 2) processes; links made between tool and intent and, 3) products; diagrams constitute a holist overview of a situation which, in itself produces a synthetic interpretation or reordering of the context.

Choreographic notation

As a form of scripting, choreographic notation is language that communicates spatial orientation in a fourth dimension of time. Within the discipline of dance, choreographic notation evolved as a practical teaching tool used to record and document body movement and posture.

The requirements of an efficient tool were first and foremost simplicity, a fine degree of accuracy, and a capacity to cope with any possible problem. It must be economical in paper space, rapid in reading and writing, and easy to learn.

(Benesh 1956: 5)

Traditional choreographic notation methods reveal a representational alignment and supplementation to musical notation. In the Benesh Method, the body is viewed orthogonally, divided into four equal horizontal zones and described as a staff (Benesh 1956: 10). (Fig 5) Movement is recorded in short

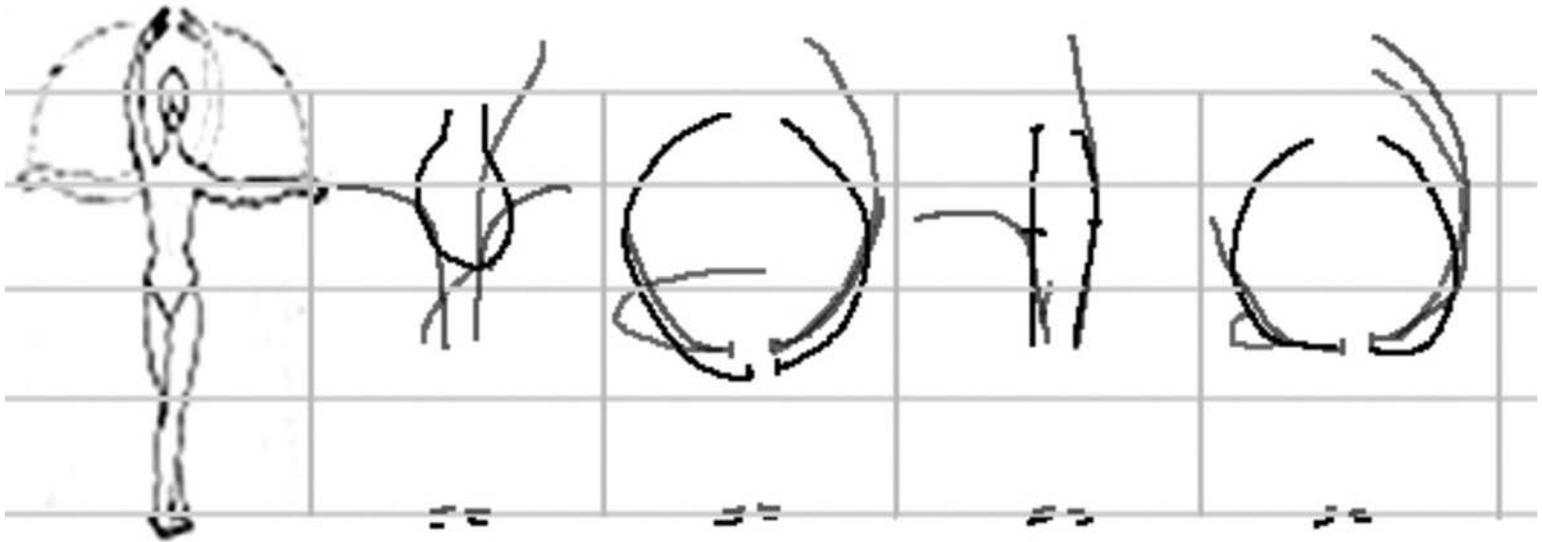


Figure 5: An illustration of the body stave according to the Benesh notation method generated with guidance from online resource <http://www.youtube.com/watch?v=XqRc073QCq8>. (Preston, 2009).

quick measures plotted against musical scales. In most established choreographic notation models, the body is considered in isolation of other bodies and mapped orthographically in plan and elevation. Notational marks tend to be pictorial in nature and keyed to body parts such as head, torso, legs, arms and feet.

Contemporary discourse on choreography joins body movement and computer software technology in an attempt to resolve the multivalent nature of movement and the seemingly impossible task of describing a fluid body state. According to Brightman (1990), 'The complexity of movement is very difficult to render in symbols, such as those used in music notation. Dance has no 'literature' to be studied, except for the pallid, incomplete renditions provided by films and videos, or the scores that exist in Labanotation and in other invented languages, such as Sutton Movement Shorthand or Benesh', (2004: 393). Critiquing these early forms of notation for the manner in which the shape of motion (existing as duration) is driven by shape as movement (parametric and graphic representation), Brightman's analysis of the potential in a dance: computer technology merger are resoundingly similar to the attributes of knowledge creation, such as the act of research:

1. Replication: To record existing dance movements in complete detail, in order to be able to reconstruct later a convincing model of the original. (Record and repeatable)
2. Multi-Media Performance: To intersect, influence or alter dance movements with the aid of computer technology to form a new artistic entity. (Innovation)
3. Generation: To create new movement ideas, or new movement configurations, for later performance. (Advance or aesthetic refinement)

A prime example of this new technologically infused choreographic media can be found at EBOMAN: http://www.youtube.com/watch?v=rxnFbU6-_eU&feature=related.

In this new vision of choreographic scripting media there is a focus on action, what Jeschke calls 'body activity' (1999: 4). When action is the centre of attention, and not body movement as image or postures, but understood as 'natural language' (Brightman 394), Jeschke claims that traces of non-literary performative knowledge can be realized through such notation systems in their resemblance to theories, descriptions and iconographic sources. Their ability to transfer concepts is employed as they divulge evidence of appearance, an attribute that shifts choreographic notation's relation to writing from writing as documentation, as memory, and/or discourse to 'an act of choreo-graphing, to the structural relation between knowing, writing, and inventing body movement in space' (Jeschke 1999: 4). This dramatic shift reveals a greater potential for these new forms of notation to be employed in other fields of design where spatial issues of temporal inhabitation are paramount. Once again, Cross' three sources of knowledge are located within a

designing, writing media whereby 1) people; both traditional and technologically mediated forms of choreographic notation engage a moving body or animate set of actions, the latter form inclusive of a fourth dimension of time, 2) processes; the trace of systematic strategies to describe complex spatial events and, 3) products; the development of representational systems that both document and facilitate the extension of performative design.

Comics

The last media, comics, is fundamentally different from the other ones; it provides support in different stages of design. It is as much an outcome as it is a strategy for visualising design. It has the potential to be used by individuals and groups, mono-disciplinary or multi-disciplinary. Comics enable an intimate relationship between the process, the creator and the reader. Whether it is an individual process or a collective journey, many designs occur in isolation, and remain internal to the specific team of designers. Textual discourse has enabled explication of the particular process, however, the textual forces the process in a manner that causes the designer to drift away from the design process. 'All medium communication are a by-product of our sad ability to communicate directly from mind-to-mind' (McCloud 1993: 194). Comics convert the personal experience (mind) to hand drawing on paper back to the eye and into the mind. Understanding the experience (or the author) is what comics aim to establish. The usage of comics as a notational system during the course of design specifically applies to designing narratives. Digital media, animation, games and interaction designers use the comic style of notation as abstractions that allow for projection (McCloud 1993: 31). For example, games require the user to be into the circle of magic of play, which requires abstraction for a user to accept its avatar/player, but also a level of realism for the visual design of the game environment.

While there is a wealth of comic books at hand to illustrate this section, this article focuses on McCloud's (1993) use of comics as the most appropriate media to explain comics. McCloud discusses six founding design principles that can be seen as six different sequential design steps, which are:

1. The idea/purpose can be perceived as the first impulses of the work's content. When starting off with this foundation, the designer sets out in a linear and sequential pathway that works towards a goal.
2. The form will complement the idea of a notion of what it will be; will the idea be materialized in a song, a book, a sculpture, amongst others?
3. The idiom provides the designer with a genre that can embody different styles of art and aesthetics but also different styles of gestures. For example, the manga idiom differs from the western approach.

4. The structure outlines how to compose the narrative, how to arrange the narrative, what to include and what to leave out. These are just basic concepts of structuring the narrative.
5. The craft gives the design refinement through the application of skills and practical knowledge. It triggers an invention that leads to problem-solving.
6. The surface can be compared to the last steps in both a generative and evaluative phase of designing. It embodies the refinement of the aesthetic layer of the design, the production and the finalisation.

This sequence can be followed in different ways, depending on various factors that influence the start of creating outputs. The six different steps add value to the field of design. McCloud's steps are transferable to a field wider than comic books (Figure 6).

Many applications of interaction design, such as mobile applications, require multi-disciplinary group work. Within that context, the six steps of comics provide the designers a means of communicating and tracking the flow of design associated with an expected outcome without having to overly explain each other's parts of the design. The design and usage of a mobile application benefits from the narrative style of designing the roadmap of the application. In particular, McCloud's concept of closure is pivotal to these types of designs: the user can fill in certain gaps during the course of interaction, without explicitly explaining it to the user and disrupting the flow of interaction.

Interestingly, McCloud also discusses the relation words and images have within comic books. (1993: 153) He defines seven different types of combinations:

1. Word specific combinations; words dominate the panel and pictures are used to support the word. They illustrate the text and therefore create an extra layer.
2. Picture specific combinations; words are used to illustrate the visual meaning, in most cases, providing a sound bite to the image.
3. Duo specific combinations; pictures and words deliver the same message to provide an additional explanation to both entities.
4. Additive combinations; both words and pictures support each other in a panel to either amplify and/or elaborate their meaning and vice versa.
5. Parallel combinations; words and pictures are both used in the panel but they follow an independent and divergent course; they do not intersect each other.
6. Montage combinations; words are treated as integral part of the picture.
7. Interdependent combinations; both words and pictures rely on each other to convey an idea. This is the most common used combination. However, the balance between picture and word

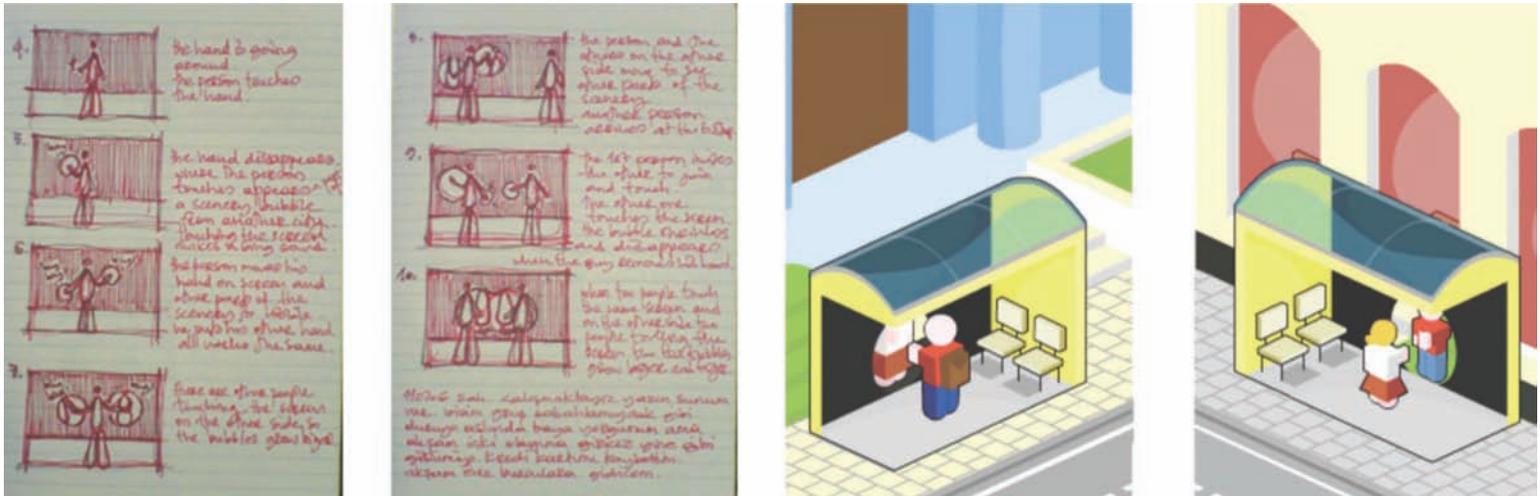


Figure 6: Six steps of comics. (Thomassen, Student work of European Interaction Design Summer Course in Istanbul, 2007).

may not always be in equilibrium; they may remain interdependent of each other. In games, for example, the user's interface consists of many elements that may not use words, but communicate concepts relating to its avatar. The HUD (Head-Up-Display) provides visual statistics on the state of the avatar and helps the player to be more into the flow of the game.

Overall, these combinations can be helpful for a designer to understand the different aspects of the design process as such. They also provide a tool for the articulation of the design itself. Looking back at Cross and the three sources of design knowledge, we see that 1) people; comics provide a style of narrative that is particularly applicable for the field of games, animation and interaction, moreover in cases that involve multi-disciplinary group work, 2) processes; comics provide an opportunity to tell stories (of design) while framing an idea and the development of using words and pictures into a sequence that enables time and space to happen within one frame. And finally, 3) products; comics and, in particular, the different steps and combinations of the content within the panels, have the possibility to support the articulation of writing through design. Comics are a tool to help construct the process instead of evaluating the process, an attribute that is considered to be an integral part of design framed within a specific context.

Conclusion

This article puts forward four design media to exemplify a potential to 'write' through design research. Our discussion of this issue lies outside of the debate around whether or not design research outputs are different from textual discourse. And we acknowledge that, to qualify as research, there must be reflection by the practitioner on the work, and communication of some re-usable results from that reflection (Cross 1999: 9). As part of a larger set, these four media further interpret Churchman's research on inquiring systems towards the articulation of knowledge of creative processes. In this case, the four media are not simply representations of a design ideation but instead, they are information storage sites, residual traces and operational tools for its own making; an active thinking while doing. While coming from different established design fields, each media includes an agreement on how to read the outputs; they are transferable and communicable. As systems of inquiry they give presence to the synthetic collection of reflection and innovation and therefore, in concert with Cross' three sources of design knowledge, we can consider these as possible output types for knowledge of the design process, its products and the social context in which it resides.

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