

## **Introduction**

The importance of design to society has surfaced at different points in the recent history of the Western world. In Britain in the 1830s and 1840s, with the advent of mechanization, design was seen as an issue of political importance and was the subject of three Parliamentary Select Committees.[1] During the 1930s, it represented the forces of social reform in Germany, an association for which it earned the antagonism of the Nazi government.[2] In the United States, during the 1940s and 1950s it played a key role in the representing the values and ideologies of the emerging American ethos.[3] In the 1990s, its strategic role within the emerging Information Society in the United States, was highlighted in a workshop sponsored in 1997 by the National Science Foundation.[4] During this time, its pivotal role in configuring the virtual dimension was pointed out by the Canadian theoretician Derrick de Kerkchove. He labeled it “the skin of culture.”[5]

Yet in spite of the role it may have had in promoting values and ideologies, there is still the pragmatic facet to design. As the practice concerned with the conceptualization and creation of artifacts, design touches every aspect of our human existence. The artifacts of culture created through the process of design can reflect not only the collective knowledge, but also the darker values of a given culture. And issues such as accessibility are as much related to ethical questions regarding fair distribution and opportunity, as they are to the benefits associated with the creation of new markets.

The concept of innovation and its function in the creation of novel artifacts is related to both the ideal and practical aspects of design. Innovation is defined as the introduction of the new. However, distinguishing between the new artifact that brings joy, and the unknown object that is the source of fear and frustration is a delicate task. It requires knowledge, experience, and understanding. Klaus Krippendorff has described this as an understanding that does not stop at the surface, but rather penetrates deep into the interior to reveal what is meaningful.[6] It is an understanding that requires knowledge of the interaction between form, surface, and volume. It is concerned with the ways in which people understand and identify these factors. It demands knowledge of the function of artifacts, not only of what they are made, but also, how they operate, as well as their effect on the environment. It desires a context, an identity, and a history. Bringing delight into novelty should be a matter of most serious concern in development and research agendas.

The desire, as well as the need, to find a way to integrate theory and practice, to bridge the gap between the ideal and the material realms, is not only a concern of design. It is the subject of an

intense search by many of the disciplines involved in the creation of infrastructure and services in the Information Society. This is a task that is complicated by the fact that, as Michael Polanyi pointed out, 'knowing' is more than what can be described through language.[7] An object of knowledge is personal, as well as collective. As objects of knowledge, design artifacts not only operate as recipients of the ideas and values of the community and culture that produces them, but also, as pointers. The artifacts of design are indices to spaces brought forth through the gestures of their makers, as well as of those who come to own them, cherish them, and in a certain sense, define them.

In spite of the significance and contributions of design to society, the institutionalization of the discipline is in its early stages. Though designer and artist have always engaged in some form of research, design research through academic venues is rare and limited to a few institutions worldwide. As a practice, itself, design research is a young newcomer struggling to develop a sense of identity as well as methods that can be consistently implemented within the activities of the discipline. Though, as part of their work, designers make use of data generated by social scientists, current research suggests that the application of this information to the conceptual and problem-solving aspects of the discipline is limited.[8]

Design itself can be described as being at a juncture. An evolving paradigm highlights the need for developing discourses and vocabularies that outline the boundaries of the discipline and cogently define the matter of design.[9] Like cognitive science, design is most concerned with ontology and epistemology. Whereas the former pertains to the realm of description and quantification, the latter deals with how we know what we know. The act of design, however, always goes beyond the quantitative to apprehend the qualitative dimension. In this realm it deals with dialogue, negotiation and the understanding of differences. Design knowledge is significant because it is a type of second-order knowledge through which theories and ideas re-enter the material realm via the artifacts produced.[10]

At the same time, the growing complexity and infrastructure of the Information Society has increased demand for design knowledge. As part of large multidisciplinary efforts, such as in the creation of information repositories, designers find themselves working alongside professionals from other academic disciplines. In this arena, design can offer invaluable assistance to the task of what Krippendorff has referred to as the understanding of the theoretical and practical basis of material culture.[11] As form-giving, design is concerned, not only with the shape of the object, but also with the context into which it is deployed, the meanings of which emerge from its interaction with the world. I may add that form, is not solely the realm of the visual. Textual artifacts, such as myth, oral narratives, and stories also have form. The role of design in this area

is only beginning to surface, as the new interactive technologies have made us aware of this issue. There is an acute need for tools, methods, and literary sources that ensure that the contribution of the designer will be communicated, reflected on, understood, and valued. There is a need to bridge the gap between the thinking-as-doing of design, and the describing of design.

These are some of the issues related to the main research question in this document: How can design knowledge be defined, articulated, and represented within the space of an academic collaborative endeavor? In the context of such a broad inquiry, the present work does not attempt to provide an all-encompassing answer. It is one example that includes the interaction of a designer, who is also an artist, with a community of archaeologists. In the context of this study, the question was elaborated initially through the work done in a professional project, and subsequently through this theoretical work that makes use of models and terminology from Activity Theory to describe how the object of knowledge is fashioned within the different disciplines that were involved in the project.

## **PROJECT DESCRIPTION**

*Illuminating History: Through the Eyes of Media*, is a collaborative design research project that was conceived as an academic endeavor. The agenda of the project is outlined in the original proposal that is included in the Appendix section of this document. The original objectives were based on the idea of creating a project in which archaeologists from the University of Turku, and artists and designers, from the Media Lab, would engage in active collaboration. Within this framework, the project proposed to utilize the work being done as an opportunity to investigate the different modes of representation available to humanists through the use of new media and design. The project also proposed to examine areas of intersection between the Arts, as exemplified by disciplines such as Design, and the Humanities, as seen through the point of view of the discipline of Archaeology.

These objectives coalesced in a relatively ambitious joint proposal that was submitted to the Academy of Finland for the first phase of the Research on Information program. The final outcome, or objectives realized through the professional project, however, were not as had been projected, in the form of a CD-ROM, but rather, in that of a hypermedia archive. This archive primarily contains materials gathered by archaeologists during the course of excavations in a late Iron Age site in Southwestern Finland. Insofar as the archive reflects the activities and lives of those who engaged in its creation, it may say more about the practices of archaeology and art and design in Finland at the end of the 20<sup>th</sup> century.

The making of the digital archive from the materials of the excavation at the Mulli site was the practical component of the project. Among the reasons that the designer chose the format of an archive and the World Wide Web (WWW) as a method for delivery included a desire to provide media representations of archaeological materials that are closer to the concept of data. The objective of the designer was to use media to document, without imposing any overall narrative strategy or superseding, the labor of the archaeologists. Therefore, the format of an archive, with its emphasis on records created as the result of human activity, seemed like a natural choice.

The proposal included the necessary conditions to facilitate a robust multidisciplinary effort from all parties. Among the collaborative aspects included were joint educational programs that would facilitate a transfer of knowledge. The designer would impart education in areas related to digitalization and hypertext scripting. In return the archaeologists would contribute to the education of the designers and artists in areas such as archaeology, folklore, and history. Efforts to realize such collaboration were to a large extent handicapped by the fact that only the Media Lab portion of the proposal received funding. By curtailing Turku's possibility for involvement, the decision by the funding authorities had a deep impact on the overall structure of the project, as well as the feasibility of attaining the proposed objectives. As a result, a project that had been designed to operate as a large-scale collaborative effort was transformed into an individual project, in which the possibility to actually do work together occurred only at certain points in time. This individual project formed the platform from which the current doctoral dissertation was elaborated.

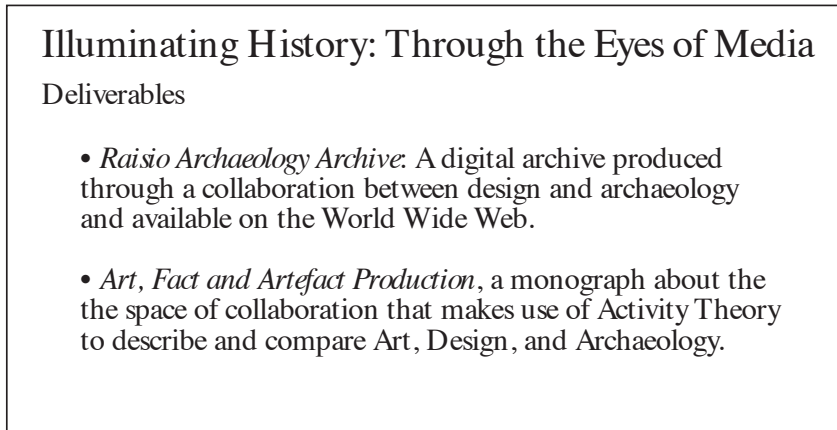


Figure 1: The results of the project *Illuminating History: Through the Eyes of Media*.

In the end, the cooperation between the archaeologists, as content producers, and the designer was facilitated by the involvement of the municipality under whose jurisdiction the archaeology site of Mulli is located. From its inception, the education department at Raisio city hall became involved in the project. Aside from providing the funds that enabled the archaeology students to perform the excavations in the years 1994 to 1996, they also funded a series of scholarships that allowed the students to do the research to write the narratives included in the archive, and to work on the classification system. In the summer of 2000, Harkko, a museum and cultural institution that features an archaeology section, opened in Raisio. The digital archive created in this project is an integral component of the archaeology exhibition. The archive is expected to serve as a platform for the development of educational materials that can be used in secondary-level instruction.

## DESCRIPTION OF THE STUDY

Figure 2, below, illustrates the structure of this study as well as the different themes that are covered in it. The current chapter presents some of the larger issues involving the design-research and the production of artifacts. It also includes a description of the project that served as platform for this study, as well as a description of this document itself.

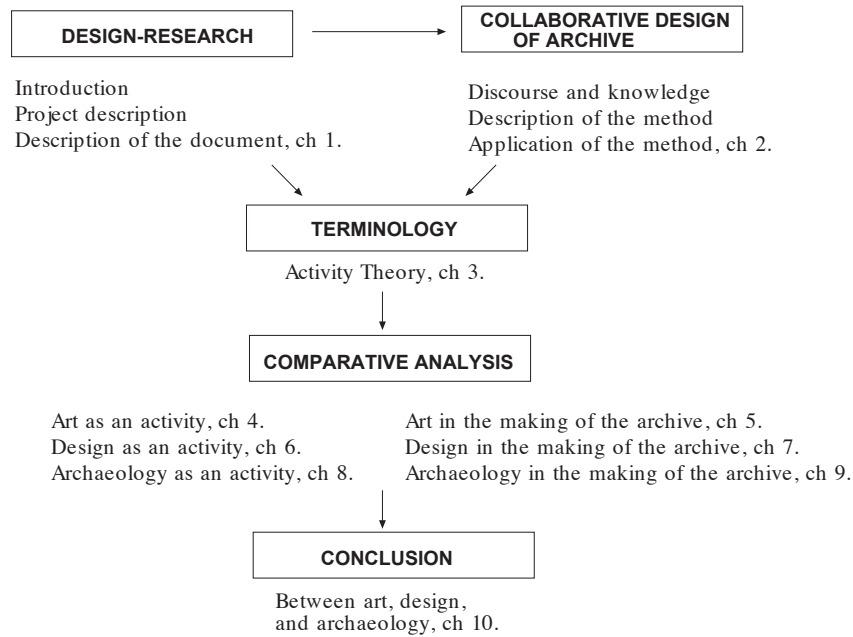


Figure 2: The Structure of the Study.

The second chapter, Discourse and Knowledge, reviews some of the discursive formations that have shaped, and continue to influence disciplines as producers of knowledge. Particular attention is focused on the notion of artifacts, not only as material but also as ideal entities. The material aspects of artifacts, the networks of relations that interact in their creation as well as their distribution, is important to both design and archaeology. Describing, understanding, and making them is of principal interest to design. In the case of archaeology, depending on the school of thought, the identity and presence of the maker, the hypothetical function of the item, the context in which it was found--as well as that in which it may actually have existed—can be of importance. The chapter also reviews some of the conflicting discourses in design with regard to the notion of knowledge. Is design science, or art, or both? Why is it important to think about this? The importance of how this translates into design practices is related to how, in a pragmatic discipline such as design, theoretical frameworks re-enter the practice in the form of artifacts. Designed artifacts can be fashioned to accommodate a multiplicity of users. As the result of hegemonic agendas designed artifacts can also obscure diversity and promote consensus.

The third chapter provides the reader with an overview of the vocabulary and concepts of Activity Theory, as well as with an introduction to the three-tiered hierarchy of artifacts proposed by Marx Wartofsky. The emphasis is on the diffracted view of the activity and its components that is afforded through the use of the models developed by Yrjö Engeström and Kari Kuutti. The use of these models as sighting devices allows for a systematic comparison of three distinct fields of practice, namely art, design, and archaeology. This type of comparison could not have been possible without the theory, given the differences that exist between these three areas of human activity. Because it allows us to elaborate on the different roles, as well as the tools utilized, this type of comparison can be helpful in establishing the space for multidisciplinary collaboration. The three-tiered hierarchy can be useful in managing the design of complex information artifacts that embody the multiple practices of those involved in their creation.

The fourth chapter, The Activity of Art, provides an analysis of the practice of art from the point of view of this framework. There are several reasons why this approach has been selected. One of the goals is to compare disciplines that in the real world exist quite apart from each other. The hope is that this will lead to a better understanding of the elements and forces that exist in the space of collaboration. Another important objective is to highlight art as a facet of design that deals not only with issues of aesthetics, but also with cognition, as well as ethics. An attempt is made to sidestep culturally and historically situated definitions regarding the meaning of art, and focus on the form of the activity itself. It is argued that the term of art, how it is used, and by whom, has changed throughout history. However, the basic activity of art as one concerned with the act of expression has remained the same. The terms of *expressive artifacts* and *artifacts of expression* are introduced as a typology that can allow us to speak about the collective as well as the personal aspects of artifacts that are also art objects.

It is clear that the approach used here is, to a certain degree, reductive. Nevertheless, it represents an attempt to try to understand how knowledge is created in fields that are heavily involved with what has been labeled as tacit knowledge. A practical approach, such as the one advocated in this study, can allow one to begin to clear the space and enable a discussion about the *form* of the design practice in general. This is not always possible when the discussion is centered on the potential meaning and interpretation of art, aesthetics, and design.

The Art in Illuminating History, the fifth chapter, introduces a new format in the style of the document. In sections of the text, the typeface changes to indicate a shift in the exposition from a narrative to a reportorial style. In this section, information is supplied about concepts, methods, and artistic approaches that influenced the creation of the different components of the Raisio

Archaeology Archive. Among the concepts discussed is that of the notion of page format as comprising a 2D space and how this is challenged through the use of new media technology. The use of hypertext and hypermedia as a way to gather together diverse information formats in one artifact of knowledge, or information repository, is also presented. How the information objects in the archive can be arranged in a continuum between documentation and interpretation is discussed. The tension that exists between interpretation and documentation is explored, via the objects of the archive and how they have been organized in separate sections. This is a separation that reflects assumptions regarding how different disciplines develop specific practices when dealing with matters of interpretation and description of the objects of research. Still, it is maintained that there is always a certain amount of pre-processing, and the distinction between documentation and interpretation refers more to an ideal rather than to a real practice.

As was done earlier with art, Activity Theory is used in chapter six, *Design as an Activity*, to provide an analysis of the activity of design. An attempt is made to describe the role of the designer and the tools that are used in the production of design artifacts such as design representations. This is done from the point of view of the designer as one concerned with pre-visualization and translation. Translation here not only involves a transfer between diverse representational formats such as textual and visual, but also communication, interpretation, and negotiation. The connection of design with art is again discussed. It is argued that the link is important if design is to develop and maintain an identity as the field of knowledge concerned with a dialogical understanding of material culture, or of artifacts that are physical as well as ideal entities. The object of the activity of design is presented as a communal artifact. This artifact is shared by all of those—including the designer—that have a stake in the outcome of the activity. Because of this notion of stakeholders, it is argued that the designer operates at several levels that include the fashioning of objects not only in the material realm but also in the realm of ideology.

*Design in Illuminating History* constitutes the seventh chapter and, like the earlier chapter on the application of art elements in the creation of the *Raisio Archaeology Archive*, it introduces a new format in the style of the document. In sections of the text in this chapter, the typeface has been changed to indicate a change of expository style from the form of a narrative to that of a report. In this section, information is presented about the different components of the archive and how they have been assembled.

Following the same process applied to earlier sections on art and design, the eight chapter, *Archaeology as an Activity*, uses Activity Theory to describe the practice of archaeology. The chapter is not meant to provide an all-encompassing account of the practice of archaeology, but rather one that is based on the work of one particular designer involved in a collaborative



endeavor with a particular community of archaeologists. The extent of this interaction was defined by the scope and objectives of the project, as well as by the identity of the parties involved. This is reflected in the materials presented as well as by the limited view of archaeology that focuses on aspects, such as excavation. In the following chapter, *Archaeology in Illuminating History*, the participation of the archaeologists in the creation of the materials in the Raisio Archaeology Archive is described.

As a conclusion to this study, the tenth chapter *Between Art, Design, and Archaeology*, attempts to bring together diverse aspects from the three disciplines examined. The objective is to highlight differences and similarities with the hope that by examining these, one can outline the diverging paths as well as the intersections that hold promise of potential integration and multidisciplinary cooperation.

#### **Notes to chapter one:**

1. A. Forty, Objects of Desire, Design and Society since 1750 (London: Thames and Hudson, 1986), 58.
2. J. Willett, The Weimar Years, A Culture Cut Short (New York: Abbeville Press, 1984), 77.
3. Forty, 245. Forty argues that: “No design works unless it embodies ideas that are held in common by the people for whom the object is intended.” According to Forty, designs help to build markets by striking a chord in the psyche of the target groups for which they are intended.
4. K. Krippendorff, ed. Design in the Age of Information: A report to the National Science Foundation (NFS), Design Research Laboratory, North Carolina State University, 1997.
5. D. de Kerkchove, The Skin of Culture: Investigating the New Electronic Reality (London: Kogan Page Books, 1995).
6. Krippendorff, “Product Semantics: A Triangulation and Four Design Theories,” in Proceedings of the Product Semantics Conference in 1989, S. Väkevä, ed. (Helsinki: University of Art and Design Helsinki/UIAH, 1990), 4.
7. M. Polanyi, The Tacit Dimension (Gloucester, Mass.: Peter Smith, 1983).

8. J. Melican, “Describing User-Centered Designing: How Design Teams Apply User Research Data in Creative Problem Solving” Ph.D. diss., Illinois Institute of Technology, 2001.

9. Krippendorff, “Redesigning Design: An Invitation to a Responsible Future,” in Design – Pleasure or Responsibility? P. Tahkokallio and S. Vihma, eds. (Helsinki: University of Art and Design Helsinki/UIAH, 1995). This essay is a call and proposal for the development of discourses and vocabulary that is explicitly pertinent to design.

10. Ibid., “A Second-order Cybernetics of Otherness,” in Systems Research, Vol. 13, No. 3 (1996): 312.

11. Ibid., “Redesigning Design,” 3–4.