An Interpretation Design Pattern Language:

A propositional conceptual tool for interdisciplinary team members working on interpretation design projects.

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Abstract
Ideas and information about natural and cultural heritage are communicated through the designed interface of interpretation. Interpretation design has emerged as a new field of design as graphic designers work on complex, large-scale projects that communicate about natural and cultural heritage sites and objects. Research into designer’s contribution to interpretation projects indicates the need for a better dialogue between designers and other team professionals. This paper introduces a ‘pattern language’ methodology, which proposes a shared language for use by interdisciplinary teams working on interpretation. Interviews with designers and a synthesis of research findings from the fields of interpretation, education, visitor studies and psychology inform the construction of the pattern language. Articulating shared concepts from these disciplines as a common pattern language aims to strengthen the professional practice nexus between the fields of design and interpretation.

Keywords: communication design, graphic design, interpretation, natural heritage, pattern language, interpretation design

1.0 Introduction
Interpretation design has emerged as a new field of design, as graphic designers work on complex, large-scale projects that communicate about significant natural and cultural heritage sites and objects. Designers and other professionals collaborate on multi-disciplinary interpretation projects teams which may include
writers, scientists, historians, anthropologists, builders, artists, architects, rangers, researchers and bureaucrats. This paper draws on research that examines how the dialogue between these disparate professions can be better facilitated. As yet there is no integrative framework facilitating the fields of design, visitor studies and interpretation to work together. While reviews of visitor behaviour in museums and heritage places have been conducted (Patterson and Bitgood, 1990) no attempts have been made to integrate design and the related fields of visitor studies and interpretation (Moscardo, 1996; Ettema, 1997, p197). This research introduces a conceptual tool developed from architect Christopher Alexander’s ‘pattern language’ approach (Alexander et al., 1977) for use with team based interpretation projects.

1.1 Interpretation Design

The term interpretation, in museum, heritage and tourism contexts, is used in relation to the presentation of an object or place to an audience. Since the early 1980s, communication designers have been contributing to an emerging, yet relatively unexamined field of design, interpretation design. The emergence of interpretation design over the last decades of the twentieth century, as a hybrid of spoken and visual traditions of communication, positions interpretation design as a new field sitting at the intersection two professions; interpretation and design. Where interpretation originates from a background of spoken language, through narrative and storytelling, design comes from a background of visual language, communicated via graphics, images and text. This communication is multi-faceted, uses a range of communication platforms, is site-specific and presents objects and places of natural and cultural significance to mobile audiences in highly public and visited places. Interpretation design projects are typically concentrated in settings such as visitor centres, national parks, botanic gardens, historic sites, and museums. These projects have posed designers with new challenges beyond those of traditional graphic design projects. Interpretation design projects typify the practice of contemporary designers who work across media and disciplines, engaging with the content, issues and ideas at the core of the communication.
Taken as a whole, the design profession in the latter part of the 20th Century has transformed, redefining itself from a position of ‘occupying a well-defined, limited role in a production sequence, to a more comprehensive, richer and more challenging professional engagement’ (Friedman, 2000, p15). Design activity now operates within the knowledge or creative economy with an emphasis on research, strategy and systems, rather than objects. This type of professional practice is more collaborative and team-based than ever before, with designers working in complex situations determined by linked networks of multiple stakeholders. Design is no longer seen as a value-added extra, but is now recognised as a complete process, incorporating problem identification and solution strategies, project management, and production.

As an emergent field, interpretation design has attributes that clearly characterise it as a form of contemporary design practice. Diverse media platforms communicate complex messages that educate, raise awareness and provide experiences for visitors. These experiences are human-centred and fit into a larger system of knowledge relating to natural and cultural heritage. Typical projects are large-scale, complex and interdisciplinary, drawing on the expertise of a diverse range of specialists working in clusters and teams, as it is impossible for any one person to possess the breadth of expertise necessary.

Friedman describes a successful contemporary designer as ‘a leader who organises teams when one range of talents is not enough’ (Friedman, 2008, p11).

2.0 Methodology

An outcome of this research is a conceptual tool developed as a practical aid, which draws on a wider base of knowledge beyond design and is for use in team-based collaborations. The conceptual tool is based on architect Christopher Alexander’s pattern language (Alexander et al., 1977) and aims to bring together diverse of bodies professional knowledge. Alexander’s pattern language was initially developed in the 1970s as a critique of modernism. Practically, the tool aims to develop a shared language which has a relational and multi-pathed approach to the type of problems encountered in interpretation design. I am proposing that a pattern language approach is suited to a more postmodern form of practice such as interpretation design, requiring a relational, recombinant approach and is complex and multi-voiced rather
than universal and linear. This propositional tool aims to further orient interpretation designers towards future ways of working.

2.1 Grounded Theory

The research methodology used in this work is aligned with the process of Grounded Theory, a methodology that has evolved over four decades since its inception by American sociologists Barney Glaser and Anselm Strauss in 1967. Grounded Theory originated from American sociology in the 1960s as a reaction to extreme, abstract empiricism. In contrast to abstract theory, Grounded Theory, as the name implies, is ‘grounded in data which have been systematically obtained by social research’ (Abercrombie et al., 2006, p174). In using this approach, cycles of research occur, new questions emerge and further research is conducted. This research is grounded in the practice of leading designers, seeking to generate some broad explanatory principles that help toward the practice of interpretation design.

Where the methodology is most closely aligned with Grounded Theory is in the process and the sequencing of the investigation through a series of iterative cycles through which theory was generated. Where the methodology differs from Grounded Theory is in the grouping and coding of the data. This research does not adhere to the same coding process of grounded theory, instead a range of diverse data, was analysed and sorted through searching for common patterns of problems, issues and themes. As much of design research and design practice focuses on a ‘problem finding’ and then a problem solving approach, a pattern finding methodology emerged as an appropriate and suitable method to group and sort data. Thus pattern finding, grouping and sorting, intrinsic stages of the investigation, are embedded in the larger cycles and loops of investigation. This investigation follows a non-linear path, the stages of which are illustrated in the diagram below.
A conceptual thematic framework emerged from literature reviews, interviewing designers, analysing artefacts and sites, identifying patterns and problems and investigating how designers collaborate. From this program of research, a theoretical position emerged and a conceptual tool for use in interpretation design was developed as a practical outcome of the research. The tool, an interpretation design pattern
language was based on findings from two research methods, a survey of designers and a synthesis of multi-disciplinary research.

2.1 Pattern Language

Architect and mathematician, Christopher Alexander and his colleagues developed a conceptual tool called a ‘pattern language’ in the 1970s in response to his growing disenchantment with the formal methods used in architecture and urban design. Alexander and his colleagues in the seminal book *A Pattern Language* (Alexander et al., 1977) propose the pattern language methodology to be used in architecture, building and urban design. A significant motivation in Alexander’s philosophy, expressed throughout his work, is to capture what Alexander refers to a ‘quality without a name’, which was present in buildings that fulfilled the needs of their occupants but was difficult to define, formalise or prescribe. Their aim was to encapsulate certain commonly occurring problems observed cross-culturally in the planning and building of houses, communities, and regions. In response ‘patterns’ were developed as approaches to fulfil the real needs of people who lived and worked in buildings. Alexander’s patterns rather than being fixed prescriptive solutions were generalisations that could be adapted and extended for locally appropriate settings. Despite criticism of Alexander’s work, particularly from within the field of architecture (Protzen, 1980; Dovey, 1990) the pattern language approach has been widely adopted by many other disciplines including the field of software development (Griffiths, 2004; Lea, 2003), industrial design (Junestrand et al., 2001), education (Jessop, 2004), organisational management (Salingaros, 2004) and landscape architecture (Kaplan et al., 1998). As well as a conceptual tool that can be applied to many contexts, the pattern language approach is particularly well suited to interdisciplinary projects where a diverse range of professionals need to share concepts, constructs and ideas while working towards common project goals. Erickson (2000) argues that Alexander’s methodology is well suited for any project where multi-disciplinary teams need *a lingua franca*, or shared language, to be able to communicate with each other. The research in this paper uses multidisciplinary interpretation design projects as the professional domain to develop a pattern language to encourage and facilitate dialogue.
between team members from overlapping disciplines. While this research spanned a number of stages outlined in Figure 1 the pattern language was developed from (a) data gathered from interviewing designers and (b) from a synthesis of research findings in related disciplines.

3.0 Results and Discussion

3.1 Interpretation designers survey

Eight Australian interpretation designers were interviewed representing a broad cross section of projects including those projects for national parks, local councils, interpretive trails, zoos, forestry, private forest industry, sporting organisations, conservation organisations, indigenous heritage and historic sites. The designers represented have worked on projects in Australia spanning 1991 to the present. Many of these projects cover major visitor centres for heritage management clients including national parks. Survey responses were collected, grouped and coded according to the particular issues they raised, the question to which they were responding and the identity of the designer. Several patterns emerged that related to common issues and themes for these designers. The responses were grouped around these issues:

- Complexity and the interdisciplinary nature of interpretation projects.
- Experience of collaboration.
- Challenging aspects of interpretation projects.
- Skills needed for interpretation projects.
- Design management and project management.
- Ideological commitment.

The majority of designers agreed that interpretation projects differed significantly from more traditional graphic design projects, with designers identifying interpretation projects as being more complex technically, spatially and from a project management perspective. Designer’s comments also revealed the interdisciplinary nature of interpretation projects, with this approach having the potential to enlarge and extend the designer’s repertoire. One designer responded:
Also in some cases there is the creative melding of other professions; architects, interior designers, writers and artists into the process that can stimulate and offer another way of viewing which takes it beyond the normal scope of work this designer does in the every day (Designer 1).

The increased inter-disciplinarity of interpretation projects led to observations about collaboration. The designers interviewed in this study all recognised the importance of good collaboration in interpretation projects. The strengths of working collaboratively were described as stimulating, creative, and ‘achieving an integrated dynamic’. Responses also acknowledged the difficulties of collaboration, including working with inexperienced team members, lack of co-ordination between team members, dominating egos, and personality problems. The designer’s responses indicated that successful collaboration was not a given, it requires skill, patience, good communication and time management.

3.2 Collaboration

The designers interviewed all recognised the importance of good collaboration in interpretation projects and acknowledged the increased need for collaboration and team work. The positive aspects of working collaboratively were described as stimulating, creative, and ‘achieving an integrated dynamic’. The comments of the following designers sum up the strengths of working collaboratively and highlight the increasingly blurred boundaries between disciplines:

Coming up with the initial concepts as a member of a team has been a great experience of my professional life; I guess if you have the right people together it is a very creative milieu. With the people I was involved with, we didn’t stick rigidly to our areas of expertise, and felt able to contribute ideas across the board. It worked very well (Designer 2).

Evidence both from the literature and from designers found that that the fields of interpretation and design lack dialogue and an integrative framework that brings the fields together (Moscardo, 1996; Ettema, 1997, p197). This issue is not limited only to interpretation design. Good collaboration is a critical issue facing designers and others attempting to solve pressing problems. The current literature on collaboration can be summarised with the following observations. Firstly, there is an emphasis that collaboration is critically dependent on communication and finding ways for stakeholders to negotiate shared meanings and understandings (Cross & Clayburn Cross, 1995; Sonnewald, 1996; Chiu, 2000). Secondly in the absence
of well developed models, the literature is forward-looking, predictive, and searching for new models and ways of working (Conklin et al., 2007; Thacker, 2006, 2007). Thirdly, the literature offers useful conceptual constructs already in existence that can be adapted to encourage new ways of working in interpretation design (Nigten 2007; van Dijk 2007).

3.4 Interdisciplinary research findings

A second strategy leading to the development of the pattern language came from conducting a literature search which yielded a large body of relevant professional and academic knowledge under-utilised in interpretation design. Research findings from the fields of education, psychology, tourism studies, museum studies and visitor studies as well as literature about the professional practice of interpretation were examined to establish common problems and patterns in interpretation settings. Findings were synthesised and built on an existing review of literature by Paterson and Bitgood (1998) also extending a framework developed by Moscardo (1999). While this research comes from diverse discipline perspectives it was evident that certain grouping and patterns were emerging. The patterns form a cluster particularly suited for interpretation design problems, but the same patterns may also be relevant or apply to other communication design problems and other design disciplines. The patterns are human-centred in that they are predicated on participation and it is anticipated that they will be added to and adapted. The first group of patterns (1–7) are led by the research findings from the disciplines visitor studies, museum studies, psychology and education.

1. Control – Visitors need to be given control over their experience.
2. Comfort – Visitors need to feel safe in an environmentally comfortable setting.
3. Personal connection – Communication needs to connect with visitor’s personal experience.
4. Challenge/curiosity – Communication should challenge, intrigue and encourage questions from visitors.
5. Participation/interaction – Interactive and participatory experiences and exhibits, lead to high levels of visitor attention and recall.
7. Flow – Interpretive settings can be personally enriching, rewarding and restorative enabling people to have ‘flow’ experiences. (Csikszentmihalyi, 1990)

A second set of patterns (8-10) assist designers and teams to find a common language and sense of place for the local project site. These patterns relate to place-based interpretation.
8. Reading Place – Creating a inventory of the visual and sensory elements of place records a non-verbal language of place
9. Lexicon for Place – A lexicon of place acknowledges the different ways people view the same location
10. Visual metaphors – visual metaphors of place can assist a team communicate about place.

This group use designer-led approaches to the site itself and are to be used to enable team members to respond to place and establish a communicative vocabulary of both text and image. These patterns assist in generating a visual language for the project, a common language between interpreters and designers using a human-centred approach. Primarily, the patterns focus on the visible dimensions that visual communicators or communication designers work with; however, as designers are engaged in designing wholistic experiences, the patterns may also include non-visual aspects such as sound, taste, touch and smell.

3.5 Pattern language development

The interpretation design pattern language was developed in 3 stages:

1. Summary of findings.
2. Problem identification.
3. Design responses to the problem.

Firstly, findings from the literature review and designer’s responses were summarised to identify ten patterns. To illustrate the pattern development process, the stages of development of the first pattern CONTROL are outlined in detail below. This table details the process of creating the patterns.

Stage 1 – Problem identification

The first stage of the pattern is to identify and name the problem. The findings from literature search were grouped according to commonly occurring themes and patterns.
Next, the pattern is phrased as a problem. In this case *Control* when phrased as a problem becomes *Lack of control*. When visitors encounter a lack of control in visitor and tourist settings, researchers have documented negative experiences including a passive distancing from the meaning of exhibits (Tyler, 1995) insecurity (Kaplan et al., 1998) incompetence (Olds, 1990), mindlessness (Moscardo, 1996), anxiety (Olds, 1990; Pearce, 1998; Pearce & Black, 1984) fatigue (Gilman, 1916; Robinson, 1928) and a general sense of being overwhelmed by the amount of information to process.

Following Alexander’s system this can now be named as the problem statement.

**Problem**: *People can feel overwhelmed by and distanced from information in museum and interpretive settings.*

**Stage 2 – Design strategies**

Within the interpretation design pattern language framework, design strategies that deal with the problem *Lack of control*, include *Visual hierarchy and Layering*. Following Alexander’s model, these are not fail safe, prescriptive solutions; but can be read as generalised strategies that can be customized for specific local projects and settings.

**Design Strategy - Visual hierarchies**

Hierarchies are a design strategy used to deliver information in a gradual manner. This principle is utilised in many design systems found within interpretation design. Using systems of hierarchies to regulate the pace of information helps to reduce the effect of overwhelming visitors with information. Designers
develop systems of visual hierarchies to prioritise certain information, and to give order to the remaining
detail. For example, hierarchies regulate the layout of type and image on a page, the composition of a sign
or poster, the navigational space on a website or computer interactive as well the physical layout of an
architectural space. One interpretation designer explained a strategy used in his practice to give a
hierarchy to information. Devising three levels of information according to the amounts they believed
people could comprehend. In interpretation settings, they coined the terms:

- **Headline** – for a short grab of text to emphasis basic themes and encourage a return visit.
- **Bus stop** – for the amount of text one would absorb on a bus shelter panel, while waiting for a
  bus and includes easy to read brief explanations so the sense of the message is gained readily.
- **Novel** – the amount of text people would read if they were really interested in the topic and
  wanted to study it in more depth.

These levels of text have a corresponding visual form, which is easy to envisage in printed format (as a
headline, bus stop or novel), but they could also translate into web form as a browser link (headline), one
to two screens full of text (bus stop) or a .pdf article (novel). The same strategy can be ‘designed into’ a
3D space, where the visitor is gradually revealed more detailed information as they interact with an
exhibit.

*Design Strategy – Layering*

Layering, revealing and staggering are further ways to create visual hierarchies, whereby the physical
structure of the communication is revealed in a gradual manner. The visitor may be required to interact
with a three-dimensional structure to reveal all the segments of a story or layers of meaning; or
information could be made available through audio visual information delivered at different points. The
strategies of **Visual Hierarchies** and **Layering** are not limited just to this pattern and **control** is one pattern
belonging to a larger framework. Similar to Alexander’s methodology, each pattern can be cross-
referenced with other patterns to form ‘a language’ to address a particular design problem. Other patterns related to giving audiences control are:

3. Personal Connection

4. Participation/interaction

6. Variety/multi-sensory

The scope of this paper only allows detailed discussion of one of the set of patterns that together form a language as a group. Following Alexander’s layout each pattern is laid out with an interpretation design example to illustrate and follow up references (Figure 2.).

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**Pattern 1: Control**

**Problem:**
People can feel overwhelmed by information in museum and interpretive settings.

**Design strategies:**
- Create a balanced environment that reveals structured information in a way that is easy to read and allow audiences to control the flow and pace of information.
- Use a ‘Visual hierarchy’ to define information in a structured and graded way.
- Use graphic or textual information in a staggered way.

**Therefore:**
Using the design strategies of Visual hierarchy and Layouting, audiences can feel more in control, as they can actively participate in the interpretation of information by selecting what they want to see, rather than simply being overwhelmed by a mass of information. The design example outlined below illustrates this concept and includes a detailed discussion of the interpretation design example to illustrate and follow up references (Figure 2.).

**Visual hierarchy**

The use of visual hierarchy as a strategy to deliver information through the use of information that is organized in a way that helps to reduce the effect of overloading the visual system with information. For example, developing an interpretation design example that shows how to use visual hierarchy to reveal certain information, and to give context to the meaning of this information. For example, the composition of a picture or image can be used to guide the eye to the most important information.

**Creating:**

Layouting, visual mapping, and visual mapping are further ways to create visual hierarchies, whereby the physical structure of the communications is revealed in a visual manner. The visual hierarchy may be used to guide the visual path through the visual hierarchy.

**Examples:**

**Marina Island Coffee Palace**

![Image of Marina Island Coffee Palace](image)

The Marina Island Coffee Palace provides a unique experience in a visually engaging environment. The design elements include the use of visual hierarchy to guide the visual path through the visual hierarchy. The Marina Island Coffee Palace offers a unique experience in a visually engaging environment. The design elements include the use of visual hierarchy to guide the visual path through the visual hierarchy.

**Figure 2. Layout of Pattern 1 Control**
4.0 Conclusion

In the spirit of Alexander’s original pattern language set, these patterns have been written for use by all participants in the design process—for designers, interpreters other team members, collaborators and stakeholders, not necessarily at an ‘expert’ design level, but devised in such a way that makes the language open and accessible. At the risk of simplifying complex concepts there are references included in each pattern for further investigation.

Articulating shared concepts from the fields of interpretation and design as a common pattern language aims to strengthen the professional practice nexus between the fields of design and interpretation. The patterns and strategies here are not new or ground breaking. What is new is the synthesis of design and interpretation wisdom into a practical form. The patterns described developed from this research are a starting point, with more patterns to be added over time with use on particular projects. At present the pattern language remains a conceptual tool, however the next stage of applying the tool to an interpretation project will test its relevance and potential to strengthen collaboration and communication among interpretation project teams.

The Interpretation Design Pattern language is designer-led, initiated by a desire for better collaboration between designers and other professions. The patterns are grounded in a search for recurring themes in literature and research as well as listening to professional commentary from designers. The pattern language does not provide ready made solutions or answers, but rather offers insights from an extended range of disciplines that may trigger strategies in interpretation. It is motivated by exploring the territory beyond and between the different professions, less interested in differences, yet still being respectful of other disciplines. The intention is that in harnessing a richer resource of experience, knowledge and professional wisdom from disciplines other than the fields of design and interpretation individually, interpretation design will continue to strengthen as a field, be agile and adaptive to change, future-focused and evolve as a significant contributor to the discourse about Australia’s natural and cultural heritage.
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References


