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Environmental Colouration and/or the Design Process*
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Abstract: Environmental colour is multifaceted, playing a variety of roles in our everyday lives. However, is colour considered important in the design of our built environment by those who practice design, such as architects and interior designers? Prototypes and massing models for designs are often presented in white or monochromatic combinations, irrespective of the materials incorporated and the colours that may be applied in the final constructed building, interior, or object. Therefore, questions are raised concerning design professionals’ perceptions of the importance of colour in relation to space and form, and to the experience of place. The built environment is understood by the designers and design researchers generally in one of four contexts—as object, as product, as communicator, or as social domain (Smith, Architectural Experience: A Composition of Viewpoints, doctoral dissertation, Queensland University of Technology, Australia; 2000). Designers who consider place as an experience, or as part of a social domain, will address the design task differently than those who treat it as an object to be coloured. In addition, Franz (A Phenomenographic Study of Design in the Interior Context, doctoral dissertation, Queensland university of Technology, Australia; 1997) identified four conceptions of designing held by designers: experiential, structural, production, and retail. Therefore, designers’ conceptions of what it is to design in general are related to the manner in which they design in practice. In association with such conceptions, it is assumed that the integration of colour in the built environment is also influenced by these understandings. Explorations into environmental meaning, in addition to colour theory and decorative applications, are hypothesized to be important sources of information for designers involved in colouring the built environment. Discussions of environments in terms of signification and experience may broaden practitioners’ understanding of the role that colour plays in place formation. In addition, the findings of a study in which 16 Queensland architects and interior designers were surveyed to ascertain whether colour is considered an integral part of their design process are reported. The study is not conclusive, however; although further investigation is required, the study does identify differences and commonalities among participants that are of interest in light of the aforementioned issues.

Key words: colour; conceptions; signification; design process;
INTRODUCTION
The many facets of colour usage in the built environment have been studied by a number of researchers. For example, aspects such as surface colour, manipulation of space and form,1–4 urban and regional palettes,5–7 cultural meanings, 8–12 psychological and physiological responses,13,14 orientation and wayfinding,15 and colour appearance16 provide a wealth of theoretical knowledge available to designers. However, from my experience as a practitioner both of interior design and architecture, I hypothesized that, in general, designers tend to use colour in an ad hoc fashion, with little theoretical knowledge. Fashion or trends and/or the materials, samples, and/or paint company colour systems that are readily available often influence their selections. They appeared to give little consideration in their selections to the integration of the design concept or to colour theory. This observation was supported by others who have observed that “rarely is [colour] used to shape space, enhance and diminish volume, or assign position to an object in the visual field. While colour has a constructive aspect, it is added as a last decision in architectural praxis, often subjectively and arbitrarily.”1 Therefore, through a questionnaire distributed to a variety of interior designers and architects in Brisbane, I sought to gain insights into the position of colour as part of the design process in practice. By drawing initially on a theoretical understanding of interpretation, I also sought to understand how designers integrate colour into their design process and the creation of “place.” In conjunction with this, knowledge of the relationship between colour and design concepts may be developed through insights into the manner in which colour is incorporated into the designed environment, and therefore, how it is used as a design tool in the practice of designing. Questions about design professionals’ perceptions of the importance of colour in relation to space and form, and to the experience of place, are important to understanding this relationship—colour design in the design process. If design professionals aim to create a landscape, building, or interior that has a particular character or significance, a place, then explorations into environmental meaning, in addition to colour theory and decorative applications, are hypothesized to be important sources of information for designers involved in the colouration of the built environment. Environmental meaning is not about “the intention”;

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the meaning of an entity involves interpretation and has existence through the relationship of the interpreter—the viewer, including designers—and the coloured environment. Interpretation involves, therefore, the individual as a psychologically, physiologically, socially, and culturally situated being, and colour, with its inherent expressive nature across time and through space. Discussions of environments in terms of signification and experience may broaden practitioners’ understanding of the role that colour plays in place formation. It is within this context that I situate the findings of the study of practitioners’ stated conceptions of colouration as a practice. Therefore, I first describe a theoretical framework that may assist in understanding colouration as part of a design process before I discuss the study’s findings.

**THEORETICAL FRAMEWORK**

Although not necessarily exclusive, four aspects may inform an understanding of the practice of design in regard to the question “How does colour shape the environment?” or “Is colour an integral part of the design process?” These aspects are conceptions of designing, understanding the nature of the built environment, “place” formation, and the architectural experience and style, fashion, and the everyday discourse of environmental colouration (Fig. 1). Each is discussed in turn.

I identified four ways that the built environment is commonly understood. These environmental understandings identify the built environment as an object, product, communicator, and/or social domain. Depending on the particular framework, the relationship between the person and the environment shifts and, in association, the way the designer may approach the design task. For example, the environment as object is seen as a “thing” to be created that is an entity in its own right, or a form of self-expression. It may be removed from cultural norms or accepted societal expectations. In contrast, as a product, the environment is understood through the discourse of economics, and its creators may strive to satisfy market trends or demands, or may aim to lead the market in some way to achieve an economic advantage. As communicator, the environment is believed to represent societal standards or to signify for the interpreter particular meanings. The object is not understood in isolation but in relationship with the person. The fourth framework, the social domain, has two dimensions: first, as backdrop to activities that are influenced by hegemonies and ideologies; and second, as an extension of the self through an interdependent relationship. As a social domain, the environment is understood as integral to contextualized person–environment relationships, and colour is an integrated part of that phenomenon.

Four conceptions of designing are proposed by Franz: 18
experiential, structural, production, and retail. Designers’ conceptions of what it is to design in general are related to the manner in which they design in practice. To summarize briefly, the experiential conception portrays design as “the development of a framework incorporating both people and their environments” and that designing is “a way of being-in-the-world for the designer.” In contrast, the structural conception refers to design as the “generation of an environment for supporting interaction within that environment” and “the need for the environment to meet the demands of the designers, clients, and primary users.” The production conception refers to design as predominantly a business or job (within the context of the design professions), in which the prime concern is “the clients’ espoused requirements and their accommodation” by the building. The outcome is an aggregate of discrete parts. In contrast, the outcome of the retail conception is an object or environment for accommodating specific functions. The focus of design practice is on making a living, rather than the project. In addition, designers are not concerned with the broader professional context. What do these conceptions imply about colouring the environment? I assumed that the integration of colour as part of the built environment would also be influenced by these understandings.

So far, I have raised the conceptions of the activity of designing and the understanding of the environment that are the result of this activity as two dimensions of what it is to practice. In association is a third, “place” formation and the architectural experience. I described the architectural experience as a composition of viewpoints, that is, the integration of various forms of the person–environment relationships. Place, therefore, is seen to exist through the shifting state of these relationships. Colour plays a role in the way people engage with and withdraw from these relationships with the environment and/or other people. Place as a semiotic reality—a state that comes into being through the relationship of the person with the environment—involves colour as a dimension. The interconnectedness with place occurs through an interpretive foundation—albeit through varying frameworks. This is the basis of the experience and sense of place.

The context of our design decisions, and of client and user expectations or responses, includes the concepts of style, fashion, and the everyday discourse of environmental colouration. Therefore, we may ask: How does the “everydayness” of colouration influence environmental meaning? Crook states that since the disintegration of the classical traditions in architecture, designers are faced with choices in image, codes, systems of design, and styles, which he has
termed the *dilemma of style*. Style is defined by Stuart Ewen\textsuperscript{21} as information (or dis-information), and he states that the power of style is its influence in closing the universe of discourse, and because style has become increasingly ubiquitous, other ways of knowing, alternative ways of seeing, have become scarce. Although style—in relation to design—is often referred to in negative terms, McAllister\textsuperscript{22} poses an alternative position for style in general. The pursuit of style “engenders a radical and healthy community of creators.” In his discussion of Nietzsche’s genealogy and construction of values in “our style,” he states that people understand the product by “approaching it as an interpretation, having a certain style and constructed out of a viewpoint.” A style originally is generated “out of difference,” and Hebdige’s work on subcultures has demonstrated how subcultural groups construct or appropriate styles as a representation of identity and values.\textsuperscript{23}

The struggle between different subcultures, different definitions and meanings within ideology is therefore always, at the same time, a struggle of signification: a struggle for possession of the sign which extends to even the most mundane areas of everyday life. Our task becomes, like Barthes’, to discern the hidden messages inscribed in the code on the glossy surfaces of style, to trace them out as “maps of meaning” which obscurely re-present the very contradictions they are designed to resolve or conceal.

Over time, a style can become mundane because that style is adopted into the everyday experience of the general populous or a wider subgroup. In fact, Ewen states styles are facades that are ever-changing, often incoherent, something to be used up. In fact, part of a style’s significance in a contemporary world is that they will lose significance.

Style, fashion, or design trends may lead to pressure for designers to conform, or induce laziness by “following” an external norm rather than integrating the design concept. Consequently, environmental sameness may result, or an environmental context may arise that does not address issues that are any deeper than the surface appearance of the entity.

What can combining these concepts tell us about the practice of design in relation to colour? An entity comes to have meaning for someone through a process of signification.\textsuperscript{24} The interpreter’s field of interpretation is merged with the potential of an environmental situation “to produce” a particular understanding within that particular context. In a discussion concerning design, this involves the field of aesthetics; that is, the environment is experienced by the occupant or viewer not simply as a visual interpretation but as a bodily experience (which does incorporate each of the senses to a greater or lesser degree), and this involves
the environment as a trigger for interpretation. The designer, however, is predicting what that meaning could be—or should be—as part of the design. The design therefore, could be described as constructed meaning. The four dimensions identified would, therefore, be aspects of the generation of such a “construction.”

THE STUDY
My objective in this investigation was to ascertain practicing designers’ impressions of the perceived need for designers to be educated in colour prior to joining a design practice, the integration of colour work into the design practice, and the way colour is used in an individual designer’s work. The study involved a cross section of interior design and architectural firms selected from the telephone book on the basis of reputation; that is, they were known “around town” for their work. I contacted the companies and obtained the names of the key interior designer and key design-architect (if they existed), if I did not already know them. Each was sent a questionnaire. Of the 26 questionnaires sent, 16 were returned. Of these, 6 were from architects, 8 were from interior designers, and 2 from persons who labeled themselves as both. The questionnaire was divided into three sections—educational relevance, organizational practice, and personal practice. The key findings to date are outlined in Tables I, II and III. Generally, the data indicated that colour is an aspect to be considered in designing, and it is discussed predominantly at the sketch design and/or design development stages. Although there is some variation in the importance of colour with regard to particular aspects of the built environment, most designers listed colour as being relevant to highly relevant (Table III). The majority of designers indicated that it was relevant for the perception of space, building form, way finding, ambience, and image. There were differences with regard to the importance of colour for particular building types. Only four designers indicated that equal consideration should be given to the colour design of any environment. Those designers who differentiated between building types focused largely on the importance of the colouration of health care facilities, with some reference to institutional or public buildings over and above others. The respondents were also asked to select a series of adjectives that described their colour work and, similarly, for that of their organization. It was presumed that there would be a perceived variation between the individual designer’s work and nature of the colour work of the designer’s colleagues. Some variation between the description of organizational and personal colour usage occurred; however, this did not occur in all cases (Tables II and III). Both organizational and personal practices were listed as being
context-sensitive by the majority of designers. In addition, for organizational practice, adjectives that were not identified by any of the interior designers or architects included avant-garde, flamboyant, and conservative. The highest-ranking adjective was context-sensitive, followed by end-user sensitive and thoughtful. In contrast, relative to designers’ personal practice, adjectives that were not identified by any of the interior designers or architects included predictable, driven by available samples, in organizational style, flamboyant, and conservative. The highest-ranking adjectives were similar for both groups and included innovative, context-sensitive, end-user sensitive, and thoughtful.

Although respondents indicated that designers should be educated in colour, colour work was seen to be a task that “junior designers” or new graduates could undertake and, in some instances, was stated to be the aspect in which they could be free to express themselves. It is also of interest that most of the respondent-designers designed “in colour”; most did not visualize the colours clearly.

When asked to describe some examples of their colour work to demonstrate how colour was incorporated into the designed environment, respondents discussed the finished work in terms of colour usage, the colour selection process, and practices. Little reference was made to the experience of the user or the concept of place. Issues of interpretation, and therefore environmental meaning, were not implied in the responses given.

**DISCUSSION**

Overall, did this study support the impression noted initially as:

1. Colour is used in an ad hoc fashion with little theoretical knowledge;

**TABLE II. Organizational Practice.**

Percentage of 16 respondents who noted that within their organization:

- Colour is an integrated design tool: 88
- Colour is integrated at:
  - Design concept/idea generation: 44
  - Sketch design: 1
  - Schematic design: 56
  - Design development: 19
  - Prior to schedules in specification: 1
  - Not finalized till spec/tender period: 13
- Colour and material selection is concurrent: 81
- Responsibility for selection lies with:
  - Team captain: 31
  - Other members of staff: 25
  - Both: 19
- Organization’s colour work is:
  - Context-sensitive: 12
Thoughtful 50
End-user sensitive 44
Innovative 38
Climate-sensitive 38
Successful 38
Driven by taste 38
Theoretical 31
Minimal 31
Adventurous 31
Beautiful 25
In organizational style 25
Cost-effective 25
Functional 19
In fashion 13
Signature of company 13
Well trialed 13
Safe 13
Driven by available samples _1
Predictable _1
Client-driven _1
Based on exemplars _1
Flamboyant 0
Conservative 0
Avant-garde 0

TABLE I. Colour Education.
No. of Respondents Total 16
% educated in colour 81
% for whom colour was a major consideration when a
beginning designer 69
% who, at that stage, employed colour for
Colour concepts, colour selections, also presentation _1
Presentation/perspectives _1
Final task left to students 44
Finished selection and colour schemes _1
An area in which young designers have free range;
given to new designers; easy for graduate to do 19
% who would include colour unit
In architecture courses 94
In interior design courses 94

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2. that designers tended to be influenced by fashion or
trends; and for
3. their selections were often influenced by the materials,
samples, and/or paint company colour systems that
were readily available?
From the respondents’ replies, it would seem that most
designers had some training or education in colour; they
were not overtly receptive to fashion or trends; and, rather
than being limited to the materials available, they strove to
integrate and to respond to colours in association with
materials in a reciprocal manner.
In addition, I had asked respondents whether consideration was given to the integration of the design concept or to colour theory, and about the importance of colour in relation to space and form, and to the experience of place. In this study, colour was seen as relevant to the perception of space and form, but the relationship to the design concept was not clear. Only two respondents noted their own or their organization’s work as being theoretical. The experience of place was similarly omitted as a major concern. To address this deficiency, an exploration into environmental meanings, in addition to colour theory and decorative applications, are hypothesized to be important sources of information for designers involved in the colouration of the built environment. By understanding the process of the interpretation and the role of the built environment (and particularly in this context, colour) in meaning making, environmental colour can be understood to have an important role to play in the person–environment relationship and our experience of place.

Therefore, to gain insight into the design practitioners’ conceptions of colour as a key component of their design work, one question is relevant to this study: “How is colour integrated into the design process?” rather than “What is its potential role?” Indirectly, the answer is an indication of how colour is understood as a design tool as it is “practiced” rather than “spoken about.” From the data to date, I would propose that the practice of colouring the built environment is part of the design process for the selected practitioners. In summary, colour is believed to be relevant to the design of the built environment; or it could be inferred that colouration is not considered to be a difficult task requiring experience. Designing with colour seems to be separate from, although connected to, design development and resolution. The activity was often “farmed-out” to others who are more expert, or to young graduates or interior designers, to resolve (although the work might involve the entire building), and then be approved by senior designers or design architects. It would also seem that, for many, it is difficult to visualize accurately the colouration of the building or interior while designing. However, the conceptions of the individual designers can only be identified upon closer scrutiny, through methods such as interviews.

Relative to the designers’ organizations and within their own personal practices combined (32 responses), only 2 were listed as being in-fashion, 6 as having an organizational-style, and 8 as a reflection of personal-taste in total. With regard to cited examples of their finished work, colour is spoken about, as if colour were an indicator of a variety of environmental variables, such as theme, function, built form, location, and direction. However, “constructed” meaning (the designer’s interpretation) was not considered
in depth. Visits to these sites with (or without) the designers may reveal unexpressed intentions and/or could be the basis of future research.

To reflect on these findings, I now return to the theoretical model discussed earlier that involved four dimensions of practice—the nature of the built environment, conceptions

TABLE III. Personal Practice.

<table>
<thead>
<tr>
<th>Percentage of 16 respondents who have</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Ability to visual colour while designing</td>
<td>88</td>
</tr>
<tr>
<td>Yes</td>
<td>31</td>
</tr>
<tr>
<td>No</td>
<td>44</td>
</tr>
<tr>
<td>Sometimes</td>
<td>13</td>
</tr>
<tr>
<td>b. Clear colour image</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>44</td>
</tr>
<tr>
<td>Generally</td>
<td>38</td>
</tr>
<tr>
<td>Percentage of 16 respondents who consider</td>
<td></td>
</tr>
<tr>
<td>a. Colour important to interior design? to</td>
<td></td>
</tr>
<tr>
<td>architecture? [on 5-point scale]</td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>53</td>
</tr>
<tr>
<td>4</td>
<td>43</td>
</tr>
<tr>
<td>Neutral</td>
<td>13</td>
</tr>
<tr>
<td>b. The relevance of colour is</td>
<td></td>
</tr>
<tr>
<td>Irrelevant</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>33</td>
</tr>
<tr>
<td>Highly relevant</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>33</td>
</tr>
<tr>
<td>Highly relevant</td>
<td></td>
</tr>
<tr>
<td>Decoration</td>
<td>25</td>
</tr>
<tr>
<td>Safety coding</td>
<td>25</td>
</tr>
<tr>
<td>Perception of space</td>
<td>03</td>
</tr>
<tr>
<td>Building form</td>
<td>13</td>
</tr>
<tr>
<td>Wayfinding</td>
<td>13</td>
</tr>
<tr>
<td>Ambience</td>
<td>13</td>
</tr>
<tr>
<td>Image</td>
<td>13</td>
</tr>
<tr>
<td>c. Their individual colour work is</td>
<td></td>
</tr>
<tr>
<td>Context-sensitive</td>
<td>69</td>
</tr>
<tr>
<td>Innovative</td>
<td>56</td>
</tr>
<tr>
<td>Thoughtful</td>
<td>56</td>
</tr>
<tr>
<td>End-user-sensitive</td>
<td>50</td>
</tr>
<tr>
<td>Climate-sensitive</td>
<td>38</td>
</tr>
<tr>
<td>Beautiful</td>
<td>25</td>
</tr>
<tr>
<td>Successful</td>
<td>25</td>
</tr>
<tr>
<td>Minimal</td>
<td>25</td>
</tr>
<tr>
<td>Adventurous</td>
<td>25</td>
</tr>
<tr>
<td>Driven by personal taste</td>
<td>25</td>
</tr>
<tr>
<td>Theoretical</td>
<td>25</td>
</tr>
<tr>
<td>Functional</td>
<td>19</td>
</tr>
</tbody>
</table>
Cost-effective 13
In fashion 13
Avant-garde _1
Client-driven _1
Well trialed _1
Based on exemplars _1
Signature of the company _1
Safe _1
Driven by available samples 0
In the organizational style 0
Conservative 0
Flamboyant 0
Predictable 0

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of designing and style, and formation of place. The theoretical description of practice provided above described practice as an integrating process in which the four dimensions may merge and by which a “constructed meaning” comes into being. In light of these findings, how could colour be integrated into the process with more insight? The built environment is discussed as a communicator—something that is coloured to communicate a meaning to the users. Those aspects drawn from the data include the expression of a “theme,” demarcation of zones and associated uses, corporate identity, elements within the space or the broader context, linkages between elements and/or ideas, and an appropriate image. All of these aspects imply a predetermined attitude toward the resultant environmental meaning.

People live their lives in thought25 or through interpretation. An environment, including the way it is coloured, is the brute object that provides endless possibilities for interpretation, yet simultaneously potentiates a field of interpretations in relationship with a person—the interpreter. How the environment is experienced involves the integration of the signification process—the process by which an understanding or interpretant evolves. This involves the interpreters’ striving toward a point of provisional belief or a point from which they will act based on that understanding. Semeiosis is the term Peirce introduced to describe this propositional sequence.

Why is this concept important in light of the data from this initial study? In the descriptions of projects, and in response to the questions posed, the designers only mentioned experience once and mood or ambience twice. This implies that the significance given to the colouration lies in communicating “something,” and not with environmental experience. It is essential to understand that these two aspects are not separate components that may or may not be brought together. Instead, they are interwoven as dimensions of the same thing, and it is how we—as interpreters—
live in the world.
Practice, as an integrating process, combines in some way the four dimensions discussed. Practice is a process by which the designer’s meaning comes into being and is represented within a tangible entity—the design. This entity is coloured. People construct ‘meaning’ through colour-in-context, and never alone. Because we experience our world through semiosis and ‘in thought,’ colour forms one of the elements for interpretation. Colouration therefore, can be seen to be an integral dimension of this context. Designers may need to give additional consideration to its role, and as a result, its integration into the design process because of its link with the interpretative processes and meaning making.

Further studies that allow the qualitative nature of designing to be embraced are the logical next step to understanding colour use in practice and the sensitivity of designers—interior and architectural—to the role it may play. Although it can be said that environmental meaning is only one aspect of environmental colour design, the creation of the built environment as a generation of place gives particular relevance to this aspect for practice.

13. Oberascher L. Luminos 3—a new tool to explore colour and light in 3D in AIC: The 9th Congress of the International Colour Association