

Building brand value through technical instruction - a case study in the use of a qualitative analysis method

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The instruction manual is the primary document that enables inexperienced users to understand and operate unfamiliar technological products. This paper proposes that the manual is also a significant brand document and therefore part of the producer's communication with the new user. In practice, most current producers and suppliers of high technology consumer goods continue to ignore the user manual's brand communication potential. The manual has developed a reputation for unacceptably low levels of user comprehension and engagement and document retention.

Previous analytical methods for graphic instructions are inadequate to verify these deficiencies. They are limited through empirical methodology, restricted contexts and artificial analysis conditions. The primary aim of this paper is to demonstrate a qualitative analysis method based on broader graphic communication criteria. In application of this method, a case study of pre- and post-purchase brand documents will be analyzed and general principles drawn which both reinforce the importance of the user manual in the continuity of brand communication and demonstrate the validity of a qualitative methodology in identifying this.

1 INTRODUCTION: GRAPHIC DESIGN = FORM + CONTENT

In 1947 Paul Rand stated that graphic design is not good design if it does not serve as an instrument in the service of communication¹. While 'beauty' is essential, there must also be the 'idea', which is primary – an example of graphic design may fulfill aesthetic criteria, but it can be truly effective only if it appears meaningful and relevant to its audience. The design writer Adrian Forty has echoed this:

No design works unless it embodies ideas that are held common by the people for whom the object is intended².

In this paper I aim to demonstrate the relevance of these attributes of graphic design through analyzing pre- and post-purchase brand communication documents. I will describe a qualitative methodology that generates numerical and visualized data that is both rich and relevant to brand communication issues.

Through the application of this method, I want to show how brand confidence for new technical products can be extended from promotional documents (brochures and advertisements) to user manuals. The paper will introduce a case study from the history of technical instruction, which demonstrates graphical consistency in form and content from promotional documents.

2 SETTING THE SCENE - THE USER MANUAL IN BRAND COMMUNICATION

2.1 Why is the user manual significant?

The user manual plays an essential role in ensuring a positive 'out-of-the-box-experience' for the new user. It is a primary component of the delivery package of new technology into the home, whose value is more than simply interpreting the product's components and orienting the user. In addition, the user manual is needed to encourage, reassure and affirm the user, as well as guide through deeper function levels throughout the life of the product. The only alternative to the manual is a stochastic, experimental method, which can lead to dissatisfaction or malfunction. In 2004, Adobe identified the so-called 'digital distress syndrome'³ suffered by digital camera users who, unable to make sense of or engage with user manuals, make serious mistakes that have deep emotional implications, such as deleting whole image folders of personal family events.

2.2 The pre- and post-sales manufacturer-user relationship

The relationship between the manufacturer / producer / supplier and the purchaser changes dramatically beyond the point of purchase. Up to this point, the aim of the producer is to make a sale. They seek to persuade the audience to buy through a range of sophisticated visual/verbal advertising techniques. Once the exchange of consumer's cash for product has taken place, the producer's hard work of persuasion is over. Now there is the choice whether or not to maintain consistency in the quality of documents; quality in design which may support the user, retain their loyalty and help in the integration the new technology into everyday life.

2.3 The current context of pre- and post-purchase branded documents

2.3.1 The user manual as brand experience

Bullmore (2000)⁴ raises the problem of the user manual as part of a brand's total pre- and post-sales communication package, stating that the brand identity of the advertisement and the manual have nothing in common. Referring to the typical current design genre of the user manual, he highlights a missed opportunity for extended brand communication. Most producers

create post-purchase technical instructions, which, unintentionally, undermine brand identity, disengaging the user through graphic language that is unfamiliar, unattractive and unrelated to their context.

The advertisement understood the reader; the manual does not. In design and empathy, the brand of the advertisement and the brand of the manual have nothing whatever in common. For the purchaser, those first few moments of ownership are crucial. Critical faculties are on full alert; apprehension lurks; reassurance is anxiously awaited. And that's exactly when the dreaded manual strikes... Not only has the perfect opportunity been lost to confirm new users in the wisdom of their choice, but a perverse and willful act of brand mutilation has been committed. (2000:34).

Although a hitherto ignored source of brand reputation, Bullmore describes the user manual as a potential 'brand encounter'. His argument is that such communications *have* to happen – so they are within the company's control. However, because the manual is not considered as a strategic branded document, it is thought to have no effect over brand perception. The results of this ignorance are disastrous for both brand and user alike. A potential brand encounter has failed and has had a detrimental effect on the purchaser's experience.

2.3.2 The user manual as brand consistency

Given Bullmore's observed contrast in pre- and post-sales branded documents, how is this disparity defined in terms of graphic design? Typically, pre-sales persuasion documents combine reasonable credibility (truths, or a truth relating to product performance) with desirable or aspirational connotations. In other words:

Persuasion does not have to be true; it uses that part of the truth needed to convince. (Doblin 1980:97)
Credibility is the basis of a message's persuasiveness. (Doblin 1980:107)⁵

and,

Publicity is always about the future buyer. It offers him an image of himself made more glamorous by the product or opportunity it is trying to sell. The image then makes him envious of himself as he might be. (Berger 1972:132)⁶

This combination of truth and desire is achieved through a semantically deep and seductive visual rhetoric, based on a synthesis of product-user benefits, and mediated through rhetorical tropes (e.g. personification, metaphor, irony, etc.), cultural contextualizing, semiotic value and connotations of social status. High graphic production values enhance the perceived integrity of the message. It demands a high level of cognitive engagement on the part of the user, and then bestows a reward through audience recognition and affirmation. Scott and Batra⁷ have commented:

Ads with tropes are more memorable and pleasant for consumers... because of the cognitive challenge

involved in resolving the initial incongruity of the trope. (Scott and Batra 2003:xvii)

By contrast, while the user manual must be clear, functional, objective and factually accurate, popular opinion supports the general view that users regard them as having low credibility. A genre of graphic design has evolved which typifies the *formal* properties of the user manual as single color (usually black), line drawings or poor-quality half-tone photographs and produced as cheaply as possible. *Content* is limited to explaining complex product functionality through an objective, detached tone-of-voice. Anecdotal evidence supports the widely held assumption that the manual is only consulted in an emergency, due to its lack of usability, unfamiliar and disengaging graphic design, poor production values and general contextual irrelevance. This is in complete contrast to the previously encountered advertising, which is seen as a relevant, rewarding, engaging and seductive visual experience. Therefore, the user manual brings considerable negativity into a previously positive brand experience.

3 LITERATURE REVIEW: RESEARCH METHODS FOR DOCUMENT EFFECTIVENESS - FROM EMPIRICAL TO EMOTIONAL

Having described the role and limitations of the typical current user manual as part of a brand's total communication, we now review the methods used to test and evaluate the effectiveness of the graphic language commonly used.

3.1 Previous analysis methods for visual effectiveness in the user manual

The effectiveness of the instructional graphic design in the user manual has been traditionally assessed using quantitative methods. Summarizing briefly, a typical quantitative process involves creating data representing efficiency based on the time taken to comprehend and execute a task, following hypothetical visual and verbal (image and text) instructions. These are either designed specifically for the research criteria or use a pre-determined professional context, rather than the general public. Examples include Booher (1975)⁸, Szlichcinski (1979)⁹, Carroll (1990)¹⁰ and Westendorp (2002)¹¹, the latter based on the work of Bieger and Glock (1984-6)¹². Although aiming to produce general design principles for instruction based on valid data and replicable methods, the limitations of such methods can be summarized as:

- the outcomes from the specific empirical study of test instructions may not produce widely applicable, generalized principles (Westendorp, 2002: 201);

- empirical testing is generally carried out in artificial ‘laboratory’ conditions, often with students, rather than with real users in a normal time-space context; therefore the graphic material tested cannot be representative of examples encountered in real use (Westendorp, 2002: 201);
- quantitative analysis is currently unable to measure the emotional response to a full range of graphic communication, including persuasion, depth of cognitive processing and connotative value;
- quantitative testing does not account for user attitude to instruction and falsely assumes compliance and willingness to learn.

In addition, preferred visual style is a significant factor in user engagement; testing for effectiveness becomes subjective and is influenced by strong personal views on what is ‘attractive’, what the user is familiar with and the prevailing fashion for graphic tastes. Empirical testing also ignores the significance of content and ideas underlying the visual language, pictures and text.

Wright, Creighton & Threlfall (1982)¹³ used broader, more qualitative and realistic criteria in testing real product instructions by asking a range of consumers to evaluate the factors most likely to influence reading instructions, although admittedly not accounting for users’ attitude to reading instructions in the first instance. Perhaps only Schriver (1997)¹⁴ has aimed to combine reader-centered empirical testing with a consideration of the wider contextual implications for users.

3.2 Research accounting for user context

Researchers are now beginning to account for users’ wider social and cultural contexts, as well as their emotional response to instructions. Carliner (2006:3)¹⁵ has defined communication design as that which describes readers’ emotional response to a text. As part of the wider research into ‘user experience’ (UX), readers’ emotional engagement with instructional texts is an area that requires much investigation, especially in the light of the current paradigm shift of design process to account for the cultural significance and semiotic value of technological products c.f. Krippendorf, Norman, Shedroff, *et al.*

Carliner (2006:14) has commented that the available research base for technical communication is limited and has holes (referring to the US Government’s usability.com), indicating that there is still a vast number of relevant topics to investigate, plus methods of researching them. He calls for a broader perspective, which can accommodate ‘different means of generating research-based knowledge’ about technical documents.

Brockmann (1998)¹⁶ has made a case for technical communicators to learn from the perspective of

historic genre of instructions, providing a context for solving current communication problems and maintaining standards in education and practice. His proposal explored the idea that historic case studies represent real phenomena with the buying public as subjects. Consequently, the results of research, although part of a still wider picture, can be both valid and generally applicable to the current context. He has quantified and compared individual and groups of technical documents using such criteria as readability, relative quantities of images to text, pages containing different instructional modes, consistency to defined genres, and grammatical and syntactic properties.

3.3 Recent research in document design relating to brand continuity

Only recently have researchers in technical communication linked pre- and post-purchase branded documents. Waller and Delin (2003)¹⁷ have shown the importance of all brand communication channels ‘cooperating’ in maintaining customer loyalty and a positive post-purchase relationship. Referring to the product-design language of Donald Norman, even traditional paper-based documents require ‘affordances’ or perceived interaction triggers, which will facilitate and encourage audience engagement.

Delin, Searle-Jones and Waller (2006)¹⁸ have described the visual attributes of utility bills for service brands as examples of post-purchase brand communication. They observed that customer retention, through reinforcing the idea of a brand in the user’s imagination, is a recent activity of marketing departments. Their research echoes Bullmore in stating that branding affects every aspect of an organization’s multi-modal communication, not restricted to the obvious graphic language of logos and corporate identity, nor tone of voice. The idea of ‘deep branding’, which goes under the skin of consumers, is not only more likely to create satisfied users, but also, more importantly, to lead to repeat sales of other branded products or personal recommendation to new potential purchasers.

Other recent research, such as Hogan (2001)¹⁹, Kowalski (2001)²⁰ and McMurtrey (2001)²¹ has demonstrated that improved ‘out-of-the-box-experience’ (OOBE) for computer products will not only lead to more satisfied customers but also deepen brand loyalty. While OOBE is encouraging better manual design for computer products, high-technology consumer durables such as digital cameras and mobile phones still languish behind.

There are some good-practice exemplars: Apple and Dyson are brands that place a high premium on the OOBE, customer retention and repeat-purchase loyalty, with a corresponding high standard of user manual design. However, the fact that they are so well known in this respect, serves to confirm their status as exceptions to the norm.

4 RESEARCH METHODOLOGY - DESIGNING THE PROCESS

Having established the user manual as an integrated element of brand communication, and the limitations of a quantitative method in analyzing such documents, I now propose an alternative, qualitative process, applied to a case study of historic brand literature.

4.1 Graphic design and qualitative content analysis

According to Bauer (2000)²², qualitative content analysis is a ‘hybrid’ research methodology, which ‘bridges statistical formalism and the qualitative analysis of the materials’ (2000: 132). It is a naturally reductive and simplifying process. It aims to be systematic, procedurally explicit and replicable. Referring to further texts, Bauer has summarized the following characteristics of qualitative analysis:

- the objective, systematic and quantitative description of the manifest content of communication (Berelson, 1952: 18)²³;
- making inferences by objectively and systematically identifying specified characteristics of messages (Holsti, 1969: 14)²⁴;
- information processing in which communication content is transformed, through objective and systematic application of categorization rules (Paisley, 1969)²⁵;
- making replicable and valid inferences from data to their content (Krippendorf, 1980: 21)²⁶;
- utilizing a set of procedures to make valid inferences from text: these inferences are about senders, the message, or the audience of the message (Weber 1985:9)²⁷.

In other words, qualitative content analysis is well suited to material that is not only complex and diverse in nature, but also significant in meaning and content.

4.1.1 Advantages for graphic design research

Applying these general principles, content analysis is useful for researching graphic communication for the following reasons:

- 1 It has a natural focus on *audience* and can help to describe the seductive forces that exist within a document. It is for this reason that content analysis methods have been favored by and developed for social science research²⁸.
- 2 Secondly, because qualitative analysis focuses on *content*, rather than visual *form*, the diverse graphic modes of text and image are united through message and meaning - in other words, Paul Rand’s ‘idea’ which is central to effective graphic design. Graphic

communication research fuses image-based and text-based analysis into one integrated and inter-related process.

- 3 In contrast to a small quantitative survey, a broader qualitative study can observe and analyze graphical ‘data’ from *different types of document*. It can compare rich and diverse visual/verbal characteristics using a common criteria set.

For the graphic design researcher, therefore, qualitative content analysis offers a comprehensive and broad-ranging methodology that encompasses form and content, icon and idea, medium and message.

4.2 Designing and visualizing the process

In order to evaluate documents for pre- and post-sales graphic communication, I constructed two models or ‘coding frames’ for qualitative content analysis: one for persuasive design representing pre-purchase and the other for instructional design representing post-purchase communication. The process used followed that recommended by Bauer (2000).

- 1 Published research and texts defining each subject context were identified and reviewed. For the instructional model, this included information design, instructional design, document design, pictorial instructions, technical communication and instructional writing; for the persuasive model – principles of graphic design, visual semiotics, visual rhetoric, persuasive imagery, discourse analysis, visualization of social conventions and psychology of advertising²⁹.
- 2 Common themes, principles and recommendations were then synthesized and distilled into analysis criteria or ‘codes’. Each code is defined through a defining word (see *Figs. 1* and *2*), a primary one-line descriptor, an expanded referenced definition, cross-references to related codes and a summarizing quote. The instructional coding frame has 40 codes, the persuasive model has 41.

I decided that each coding frame should not simply be a collection of textual references and data, but also visualized in diagrammatic form. In this context visualization is a sophisticated process that is well-suited to qualitative content analysis because it translates complex multivariate data into a simple and accessible visual metaphor³⁰. This enables visual, as well as statistical, analysis to be made for the identification of patterns, trends, consistencies and deviations.

Individual codes were clustered into themed ‘frame categories’ or ‘modules’. Five instructional modules (groupings of eight codes each) relate to:

- *manufacturer* - graphic information that represents the message sender’s intent and communication,
- *tool* - graphic information that relates directly to the product being described and used,

- *technology* - graphic information that describes and explains the technology the tool uses,
- *task* - graphic information that applies the tool to tasks beyond its immediate functions,
- *user* - graphic information that relates to the user in understanding, interpreting, applying and contextualizing the instructional content.

These codes and modules are non-hierarchical and were given equal weighting. They were visualized as the five points of a pentagon, creating a ‘star glyph’, where each analyzed document is represented by a star, each spike represents a frame category or module as a variable and the length of spike indicates the total value of codes in each frame category. The map or sequence of spikes illustrates their inter-relationships, as shown on the ‘pentamap’ diagram (Fig. 1).

| | | | | |
|---------------------------------|------------------------------|--------------------------------|---------------------------------|---|
| manu 1 persuasive | manu 2 direct | manu 3 warnings | manu 4 index | manufacturer code module & values(categories) |
| manu 5 pictures | manu 6 readability | manu 7 gestalt | manu 8 text–image | |
| tech 1 description | tech 2 benefits | tech 3 accessible | tech 4 skills | technology code module & values (categories) |
| tech 5 mental model | tech 6 pictures | tech 7 text | tech 8 diagrams | |
| tool 1 identification | tool 2 quantity | tool 3 configuration | tool 4 orientation | tool code module & values (categories) |
| tool 5 function | tool 6 comparison | tool 7 direction | tool 8 representation | |
| task 1 application | task 2 minimalist | task 3 sequence | task 4 emphasis | task code module & values (categories) |
| task 5 demonstrator | task 6 language | task 7 pictures | task 8 chunking | |
| user 1 familiarity | user 2 knowledge | user 3 quantity | user 4 emphasis | user code module & values (categories) |
| user 5 relevance | user 6 application | user 7 attractive | user 8 pictures | |

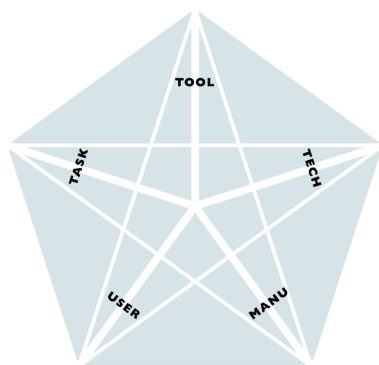


Figure 1: Instructional coding frame and star glyph generator (pentamap)

On the persuasive analysis diagram, the 41 codes were mapped on a ‘lattice auto-glyph’, a visual format ideally suited to binary attributes such as whether or not there is significant evidence of a particular attribute. Each cell of the lattice signifies one code or attribute of the total data set. The code cells were

arranged around hierarchical criteria axes of ‘more real’/‘more challenging’ and ‘more attractive’/‘more involved’. (Fig. 2).

Two further groupings of the codes relate to;

A: ‘denotative’ criteria (quality of document design, indicated by cool colors) at the center of the lattice,

B: ‘connotative’ criteria (B, cultural meaning and relevance to audience, indicated by warm colors) towards the edges of the lattice.

Again, persuasive codes were grouped into subject modules or frame categories relating to:

- *A1 quantity of information* - volume and editing of graphic information;
- *A2 quality of information* - craftsmanship, character and coherence of graphic information;
- *A3 recognition–attraction* - graphic information intended to stimulate audience response;
- *A4 a familiarity–new scale* - variable relationship between accessing graphic information through the familiar and the surprise of the new;
- *B1 depth of information* - graphic information that requires more cognitive processing from the audience to engage and stimulate;
- *B2 identity significance* - significance of the visualization of the audience social and cultural context;
- *B3 personal significance* - significance of the visualization of audience representation;
- *B4 interactive significance* - variables in subject position in the field of vision as an indicator of imagined social relations and audience engagement;
- *B5 narrative significance* - graphic information that indicates the involvement of the audience in real time scenarios.

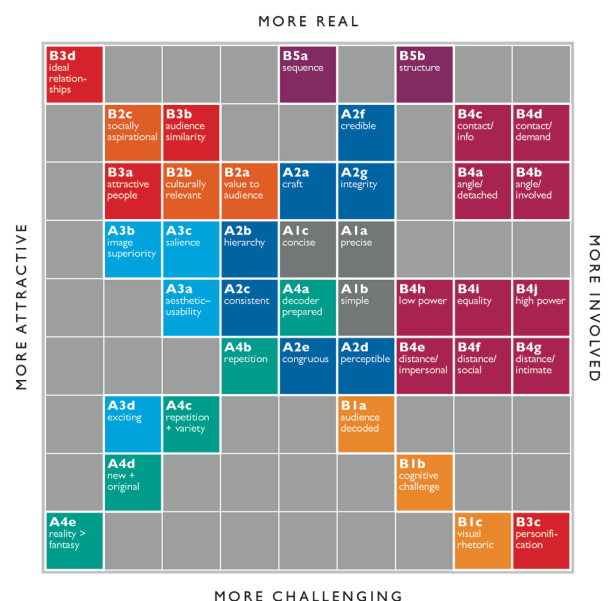


Figure 2: Persuasive coding frame and lattice auto-glyph generator

5 RESEARCH METHODOLOGY - APPLICATION AND TESTING

To test the qualitative coding frames and generate meaningful data, a case study of pre- and post-sales brand documents was identified which, through an initial visual survey (see Section 5.2 below), appeared to demonstrate greater consistency than the current material described in Section 2.

5.1 Identifying a brand communication case study

The current technology that new domestic products, such as digital cameras, mobile phones, audio-visual devices, etc., have in common is *electronic*. In a similar way, during the first half of the twentieth century, *electrical* technology introduced transformed and unfamiliar product types into the hands of ordinary users. From the wide range of new equipment introduced then, two were identified that were, firstly, new product types, displacing existing processes through technology and, secondly, rapidly becoming mass-market products and establishing their manufacturers as household brands. These were electric cleaning products (marketed mainly to women) and the electric shaving products (aimed mainly at men).

There are significant parallels between these two different product contexts in terms of;

- traditional, everyday tasks becoming transformed through technology,
- the need to overcome audience uncertainties to do with an unfamiliar and invisible technology,
- the need to create market demand for new product types,
- new product types that not only have novel, specific operational functions but also desirability, acquisitional status and a socio-semiotic value.

I identified sixteen product ‘case studies’ for which ‘before-and-after’ promotional and instructional documents could be sourced. Although small in number, these case studies represent mass-market products indicating thousands (in some cases, millions) of product-purchases and user experiences. Most of the manufacturers were medium-sized, family-owned manufacturers at the start of their rise to commercial success, market domination, international recognition and household brands (Hoover, Electrolux, Remington, Sunbeam in North America and Europe, plus some smaller national brands such as Air-Way, Chilton and Goblin).

In total 37 documents were used in the analysis process: for five of the 16 product case studies, three documents could be identified – pre-sales brochure plus advertisement, and the user manual.

5.2 Initial review of brand consistency characteristics

An initial review of the promotional and instructional material showed a high level of brand consistency between pre-sales and post-purchase documents.

- Firstly, there was consistency in *form*: a level of quality maintained across both documents through photography, typography and print production.
- Secondly, however, and more significantly, there was consistency in *content*: information, ideas and meaning communicated through the semiotic/semantic of visual/verbal rhetoric and genre.

For example, although the main function of pre-purchase promotional documents was to persuade the audience, this was being visualized through demonstrations of product set-up and operation, using an intentionally attractive and socially aspirational demonstrator in a correspondingly desirable home location.

Similarly, the primary aim of post-purchase user manuals to explain function and application was mediated through user-directed, affirmatory and persuasive language, contextualized in an aspirational domestic setting with the familiar, attractive demonstrator.

5.3 Generating comparative data sets

The two qualitative analysis models were used for a comprehensive analysis of the case-study documents to establish the level and type of communication features as well as to identify specific patterns and traits.

Through a systematic observation of each document and reference to the criteria descriptors, significant evidence of each content code was identified, generating data. For each case-study product, pre- and post-sales documents were analyzed using the two models, producing four data sets for each product.

The data was then visualized on the corresponding diagrammatic frame, resulting in two unique glyphs for each document and four for each product. Each glyph is therefore a simple but information-rich representation of the instructional or persuasive content and characteristics of a specific document.

In addition, for each document analysis, the identified positive codes were added as statistics, producing simple numerical as well as visual outcomes for each document.

5.4 Creating the consistency value

By combining the statistics generated for each product’s documents, two figures were produced: the total number of criteria codes *identified* across pre- and

post-sales documents (out of a maximum of 41 criteria codes for the persuasive model and 40 for the instructional) and a total number of codes that were *common* across the documents. The percentage of *common* against *identified* codes therefore represents the level of graphic consistency across pre- and post-purchase documents, regardless of the actual number of codes identified. This is a measure of consistency across documents, rather than value or quality.

graphic communication consistency (%) =

$$\frac{\text{no. of common codes across documents}}{\text{total no. of identified codes across documents}} \times 100$$

Four separate consistency percentage values were created for;

- 1 persuasive criteria, sub-divided into persuasive/denotative (A) and
- 2 persuasive/connotative (B) criteria;
- 3 instructional criteria.

In addition, an *overall* consistency value (4) across both criteria models was generated for each product–document set. This was created from the same formula – totals of the *common* codes as a percentage of the total *identified* codes – rather than an aggregate of the percentages.

5.5 Visualizing the consistency value

The consistency values for each product–document set were then positioned on a scatter diagram (*Fig. 3*) with axis X = instructional consistency and Y = persuasive consistency, on a scale of 0 – 100% consistency. Two extended, additional nodes were plotted, based on data for the consistency of persuasive/denotative (A) and persuasive/connotative (B) criteria, a connecting line indicating the differential between these two communication levels, see *Fig. 3*.

Each of the 16 groups of three nodes were identified by linking to the original product–document glyphs clustered in an inset (promotional document/s on the left, user instructions on the right, indicating the natural sequence of the user’s experience, see *Fig. 3*). This enables visual comparison between the glyph patterns, simultaneous with the statistical consistency value on the scatter diagram, thereby identifying two separate channels to evaluate consistency:

- 1 *percentages* indicating consistency *value* and,
- 2 *glyph* profiles indicating *criteria* consistency.

6 RESULTS

6.1 Consistency in value

The objective of using the qualitative content analysis for this exercise is to identify the *consistency* of pre-

sales and post-purchase brand communication documents, not their intrinsic *quality*. For example, the general quality of literature of one case study, the Hotpoint 500, is significantly lower than the others (as shown on the glyphs in *Fig. 3*), but its literature demonstrates an observable level of consistency.

From the aggregate consistency value, three case studies have exceptionally high level, or even near-identical, consistency profiles across both criteria, on a range of 80–100% consistency. These are the 1937 Electrolux XXX, 1952 Electrolux Z55, 1954 Hoover *Constellation*, the latter being across three documents - advertisement, brochure and instructions.

There is a range of 43–91.5% for all 16 case studies, this also being the range for the female-targeted cleaning products. The range of 50–71% for male-targeted shaving products sits within this. Seven products demonstrate a consistency of 70% or higher. A further seven are 50–69% consistent. A further two products are 43% and 47% consistent.

There is greater consistency across persuasive criteria with a range of 54-93% consistency. Instructional criteria consistency is more variable with a range of 14-94%. However, instructional consistency across documents for electric shavers as a group is within a range of 45-55%.

Four products have 100% consistency across the persuasive/denotative (A) criteria: 1947 Remington razor, 1937 Electrolux XXV cleaner (three documents), 1938 Sunbeam *Shavemaster* razor and 1952 Electrolux Z55 cleaner. Five further examples show consistency over 90%.

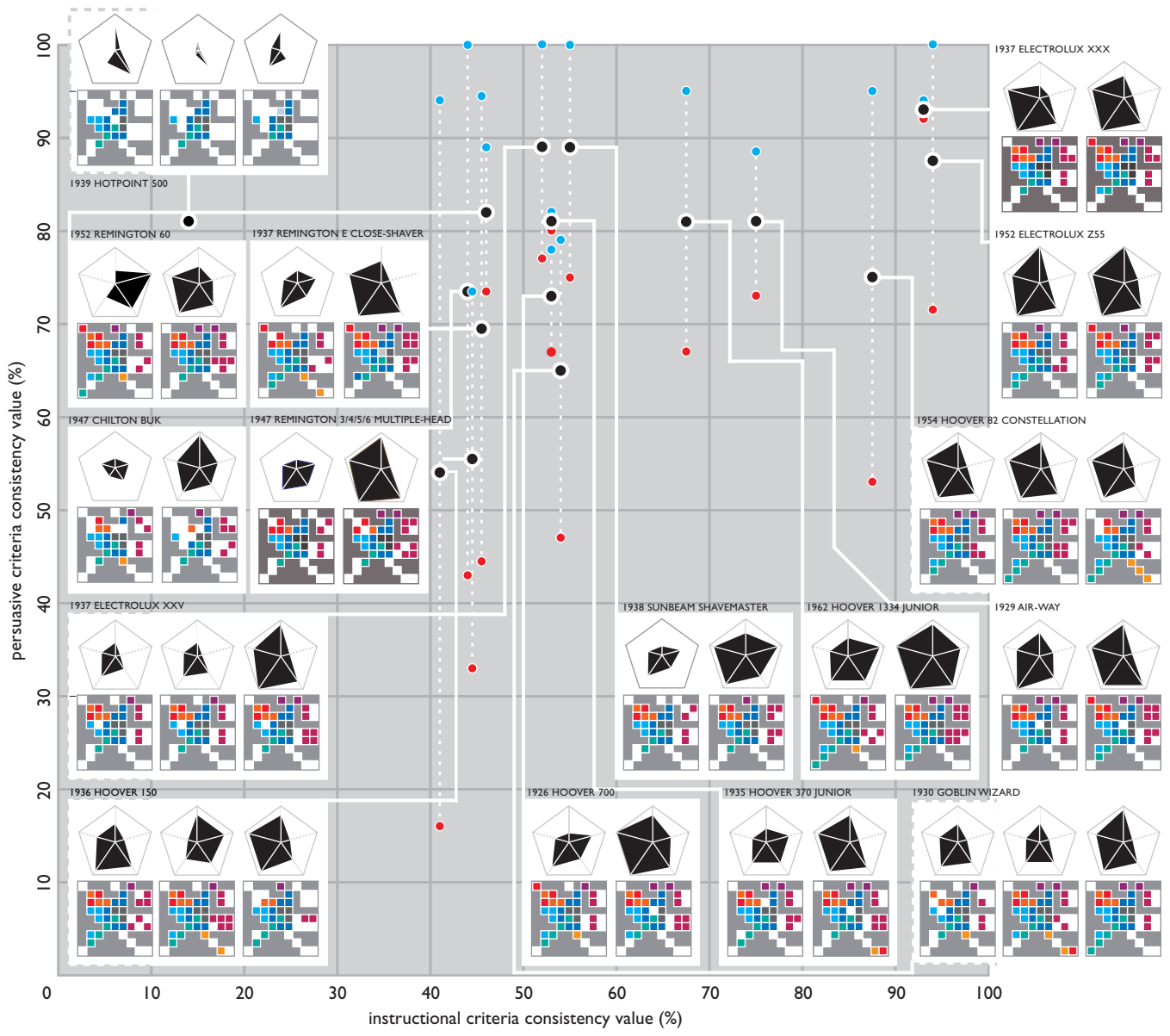
Persuasive–A criteria consistency is considerably higher (range 73-100%) than persuasive–B (16–92%), showing a considerably higher consistency in the general quality of the graphic communication than in meaning, engagement and relevance. However, 9 of the 16 case studies still have a persuasive–B consistency of over 65%.

Electrical cleaning products (female-targeted) demonstrate a higher level of consistency than shaving (male-targeted) across both instructional and persuasive criteria, although the overall range is greater (14–94%).

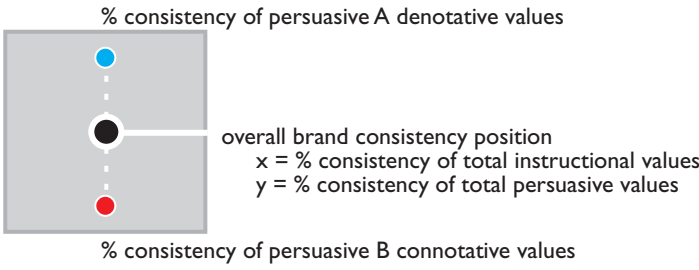
6.2 Consistency in criteria

Some case studies have a low consistency value, but a similar glyph profile, showing a general trend toward *criteria*, rather than *value* consistency (e.g. 1930 Goblin *Wizard*, 1937 Electrolux XXV, 1938 Sunbeam *Shavemaster*).

From observing the glyphs, it can be seen that user manuals have at least as high a level of persuasive criteria as promotional documents. Manuals tend to demonstrate a higher level of engagement with the user (persuasive/‘more involved’). They also tend toward



Key to plot points



Key to glyph clusters

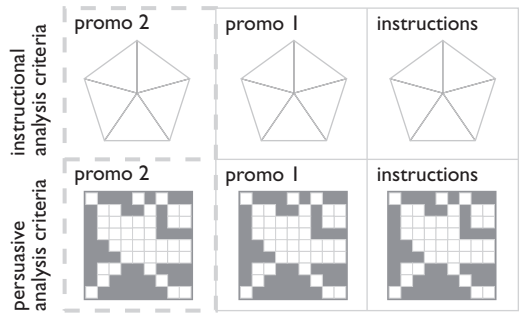


Figure 3: Scatter diagram showing % consistency of graphic criteria for instructional and persuasive communication across pre-sales promotional documents and post-sales user manuals, linked to criteria glyphs from individual document analysis

‘more real’ persuasive criteria through sequential and narrative imagery.

Nine case studies demonstrate consistency across instructional criteria in the ‘user-task’ category zone. All but two user manuals demonstrate a bias toward ‘user-task’ instructional criteria, as opposed to ‘tool-technology-manufacturer’ criteria. Two documents show a bias toward ‘tool’ criteria (1947 Chilton *Buk* and 1939 Hotpoint 500). By way of contrast, promotional documents show a variety of instructional criteria bias from user (1929 Air-Way) to tool (1952 Remington 60). One case study, the 1929 Air-Way/Pneumode, has a higher instructional value for the promotional advertisement than the manual in the ‘user’ category.

While criteria values across persuasive/denotative (A) criteria are very consistent (73–100%), there is also a very high level of consistency across criteria relating to social and cultural relevance.

The very few examples of persuasive criteria representing cognitive challenge (‘more challenging’) are found in both promotional and instructional documents.

7 CONCLUSION

Graphic design is a complex discipline embracing form and content, medium and meaning, image and text. It uses material and concrete visual ingredients to trigger personal, cultural and emotional responses through a sophisticated and varied rhetoric.

This paper has demonstrated that qualitative content analysis, using criteria grounded in subject-specific principles, can attempt to encompass this range. It can be argued that this provides a more realistic and comprehensive set of criteria for determining the effectiveness of graphic design.

Across the 16 product–document case studies in this application, all but two are at least 50% consistent, across all documents and all criteria. Given that this represents a range of manufacturers, two different product types aimed at two audiences and a time-span of over 30 years, this demonstrates a significant level of consistency in branded documents.

Persuasive criteria is the most consistent across all documents. It is also the as evident in user manuals as promotional literature. This defines a totally different instructional design genre for new technological consumer goods in the early–mid c20th to current, early c21st equivalent. Manufacturers consistently used the aspirational rhetoric of social and cultural relevance to engage readers in demonstrating operation and application of new technology. This continued from promotional to instructional documents. Manufacturers were keen to maintain the customer relationship, post-purchase. This is especially true of the female-oriented products, demonstrating the

highest levels of consistency in graphic communication.

Instructional criteria are well-evidenced in the manuals, with a bias toward user-centered content, but less consistent in promotional documents. However, there are still a few outstanding examples of very high levels of consistency here.

8 LIMITATIONS

- 1 The qualitative process used here has limitations in that it cannot be completely and comprehensively qualitative. At some point in the observation–gathering process, evidence has to be simplified, counted and quantitative data generated.
- 2 The observation process results in binary data: significant evidence is indicated on the coding frames. It does not account for variables of size, quantity or quality within a specific code. For example, one image evidencing social relationships is given the same weighting in one document as several similar images throughout another.
- 3 The instructional and persuasive glyphs differ in that the separate codes are visualized on the persuasive glyphs but not on the instructional, which only shows frame-category profiles. This is a result of the content-driven process of generating the two coding frames: each one tailored from a separate process of synthesis, organization and translation of different codes and content categories.
- 4 Although the documents analyzed represent hundreds of thousands of products and user experiences, the range of appliances produced in either category means that the same research process could have been applied to a completely different set of documents representing other product types.
- 5 Although the process and criteria focus on real users, actual effectiveness of graphic communication can only be by implication, based on the fact that the brands involved became more popular and established. Effectiveness of the manual is part of a wider range of factors, not the least being user satisfaction with the actual product, in which, of course, the manual plays a major role.

9 RECOMMENDATIONS

Clearly there is an important distinction between the roles of the pre-sales promotional literature and post-sales instructional literature. This paper does not promote the idea that instructional clarity and objectivity should be sacrificed for branded graphic consistency. Nor is it appropriate that the more cognitively challenging and semantically complex advertising rhetoric be applied to user manuals. However, in observing the consistency of an historic case study of pre- and post-sales literature, and as an

outcome of the application in this paper, some practical principles for the design of user manuals for new technology products can be summarized as follows:

- *user recognition*: familiarity with brand graphic language from pre-purchase communication design;
- *user regard*: higher levels of attractiveness and quality to increase value perception and encourage reading, reference and retaining;
- *user relevance*: visual evidence of the user's personal world as a context for instruction and application. This graphically communicates 'this is for you too';
- *user reassurance*: use of aspirational graphic language to affirm purchase, encourage positive use and remove any doubts over the value of the investment.

By implication, the advantages of brand consistency through graphic design for manufacturers and producers are potentially:

- *cost*: users more likely to engage with the manual reducing set-up and operational errors, mistakes and returns costs;
- *credibility*: users more likely to believe that the manufacturer is interested in their product's performance and effectiveness after sales;
- *commitment*: a positive relationship is maintained and the user is more likely to become a positive and loyal ambassador for the brand.

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