Personality of Interaction: Expressing Brand Personalities Through Interaction Aesthetics

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ABSTRACT
Practicing designers must usually relate to branding in some manner. A designed artifact must support the brand in a constructive way and help establish positive brand experiences, which in turn have strategic value for the brand's institution. While there is obvious application of visual branding knowledge to the visual form of interactive artifacts, interviews with expert practitioners reveal a lack of systematic means to craft an interaction aesthetic to support a brand.

Our empirical study relates attributes of interactive experience to that of 'brand personality', a common way of quantifying how a brand should be perceived. We show that particular attributes of interactivity, such as whether an interaction has a *continuous* rather than *discrete* flow, are related to particular brand traits. Our empirical results establish a clear commercial significance for deeper, systematic ways of analyzing and critiquing interactive experiences.

Author Keywords
aesthetics; branding; interactivity; design; experience

ACM Classification Keywords
H.5.2. Information interfaces and presentation: Interaction styles.

INTRODUCTION
Brands are one of the most significant cultural phenomena of modern society [7, 23] - almost every object we interact with on a daily basis is branded in some way. It is clear from a commercial perspective that it is important to consider branding when designing products [3, 12, 17]. For some design disciplines, notably visual design, there are well-established practices and knowledge on how to develop and incorporate branding into their mode of expression. Yet there is little knowledge on how interaction designers can meaningfully relate branding to the interactive experience, even though its importance is widely recognized [9, 12, 17, 21, 22]. In this paper, we begin to explore this relation, providing practical empirically-grounded results for practitioners, and suggesting a promising path for further interaction design research.

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BACKGROUND
The fundamental notion of branding is that our behavior toward an organization is affected by how we perceive their brand [19, 22]. Our choice of buying a product or service, identifying with an organization, seeking employment with an organization and so forth is all affected by our perception of their brand. For commercial and non-commercial organizations alike, branding is important to their success, and measuring and seeking to shape brand perception has clear strategic importance [6, 22].

A well-developed notion in the field of branding is that brand perception can be described according to human personality traits [1, 4, 6, 13, 22]. Aaker's "Dimensions of Brand Personality" [1], a widely used framework for analyzing brand personality, draws heavily from the "Big Five" model of human personality traits. In this framework, brands have five distinct personality traits supported by personality facets. For example, the trait of *ruggedness* is supported by the facets of *outdoorsy* and *tough*. Aaker describes a total of fifteen perceptible facets supporting brand personality across the five traits.

Interaction design researchers have had a similar interest in frameworks for articulating experiential qualities of use. In this paper we use "interactivity attributes" [15] for unpacking the experience or 'feel' of interaction. Interactivity attributes are a set of axes that an experience can be broken down by. *Proximity*, for example, can be thought of as a descriptive axis that is *direct* at one extreme and *indirect* at another. We hold that interactivity attributes are subjective qualities of an experience rather than objective properties of an artifact.

RELATED WORK
Despite the arguable commercial significance of branding in the design of interactive products, relatively few papers have been published on the topic. Bolchini et al. [5] present a technique to extract brand values (in the form of personality traits) from websites, and evaluate whether the traits are adequately communicated. They neglect the

interactive experience, and only analyze the content of the artifacts. In a later study, Yang et al. [23] investigate how aspects of usability affected brand perception, finding that visual guidance and consistency affect perceived brand personality traits. While this work has significance for the design of interaction, it is primarily focused on visual appearance rather than behavior, much alike the large body of work on branding in visual design. Al-Shamaileh et al. [2] report that brands have a 'halo' effect on the perception of usability: positive brand perception gives better perception of usability. There is little guidance however on how to support brand perception through interactivity.

INTERACTION AND BRANDING IN PRACTICE

We first conducted semi-structured interviews with five expert practitioners working with branding and interaction design to understand their perspective and practice. All participants were senior professionals with 12-18 years of experience and therefore considered experts in their respective fields.

Well-written brand personalities were seen by all the participants as essential for designing branded interactions. These are usually part of a 'brand book', which expresses how a brand should be communicated through different media. None of our participants – including two that have each worked with over 100 brand books in their career – had encountered interaction aesthetics forming part of a brand expression.

Participants considered interactive artifacts as an important channel for expressing a brand, and that inappropriate aesthetics would be detrimental to the brand experience. One expert noted that if the user experience does not 'fit' the brand, everything else is insignificant. What constitutes 'fit', or how to establish 'fit' from the basis of a given brand personality is in practice a fuzzy affair.

Notably lacking was a vocabulary for aspects of the interactive experience; only notions of *responsiveness*, *flow* and *feedback* were familiar. Participants reported it was increasingly common to use interactive sketches and prototypes within the design team as a way of communicating branding and aspects of the experience. While this is undoubtedly useful, it has limited application for unpacking the experience without a conceptual framework.

Several practitioners considered interaction aesthetics to be synonymous with sophisticated, or even challenging interactions. Although there was general agreement that interactive experiences should leverage interactive qualities, there was a clear reluctance from some informants to overstep basic usability expectations.

ATTRIBUTE STUDY DESIGN

The attribute study aimed to probe in to the relation of interactivity attributes and brand traits. As there is no existing work which explores this relation, we scoped the study broadly to see whether further investigation is required. Drawing from existing work on interactivity attributes [8, 11, 14–16], we constructed an attribute subset that seemed most relevant to practitioners: *responsiveness, proximity, precision, pliability, flow, feedback, expectedness, consistency* and *concurrency*.

Each of the interactivity attributes were investigated as a series of web-based studies, presented in random order. Each sub-study consisted of a web page with instructions, description of the attribute, a prototype embodying each extreme of the attribute, and a set of questions asking participants to indicate which of the two extremes related most with each of the brand and emotion attributes. Both prototypes were shown at the same time on the left and right of the screen, and labelled with the attribute axis (eg 'continuous' and 'discrete'). Participants indicated relation using a scale of 1-7, where 1 indicates 'highly agree' the given value relates to the prototype shown on the left, 7 indicates 'highly agree' the given value relates to the prototype on the right, and 4 indicates uncertainty as to which is more related. In-between values indicate weaker relations. Thus, each page probed how two expressions of an interactivity attribute's extremes related to a set of brand and emotion attributes. The study design of making relations within attribute expressions limits some forms of result analysis, but was useful in reducing the number of questions participants had to complete.

Probing Relations

The scales served three purposes. The first set of scales inquired as to which attribute value seemed to express a particular notion of branding. Similar to the first set of scales, the second set inquired as to the emotional response participants experienced for each attribute. In the final study we used Damasio's model of six emotions, following [18]. The third set of scales asked participants whether they experienced the prototypes as being different and to what degree they thought each prototype expressed the extreme of the attribute. This was to validate the design of the prototypes and attune participants to their experience.

Embodying Interactivity Attributes

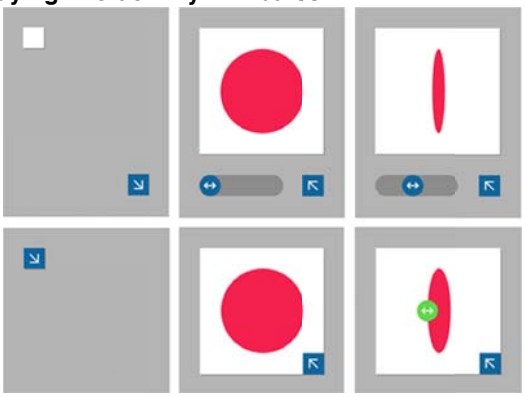

Figure 1. *Proximity* embodied as indirect interaction (top row), and direct interaction (bottom row). Refer to video figure.

Each interactivity attribute was presented as a pairing of

	Responsiveness			Proximity			Precision			Pliability			Flow			Feedback			Expectedness			Consistency			Concurrency		
	Responsive	|	Non	Direct	|	Non	Precise	|	Non	Pliable	|	Non	Continuous	|	Discrete	Suggestive	|	Non	Expected	|	Non	Uniform	|	Divergent	Concurrent	|	Sequential
Sincerity	56	34	10	52	23	25	66	24	10	77	10	13	72	20	8	71	22	7	88	11	1	82	10	8	36	36	28
Excitement	43	39	18	69	18	13	49	21	30	49	26	26	76	16	7	30	30	39	23	30	47	38	19	43	51	32	17
Competence	61	23	16	55	12	33	79	14	8	77	15	8	82	11	7	82	14	4	88	10	2	94	4	1	65	22	12
Sophistication	42	36	22	54	32	14	53	33	15	54	18	28	82	14	4	32	43	25	51	33	16	57	31	13	52	37	11
Ruggedness	62	26	12	45	26	29	61	24	15	56	31	13	76	11	13	68	18	13	68	20	12	69	22	8	63	26	11
Surprise	23	45	31	38	38	24	23	35	43	47	22	31	22	47	31	8	34	58	2	7	90	1	7	92	57	31	12
Anger	10	32	57	15	63	21	5	40	55	65	14	21	1	36	62	8	41	51	2	19	79	3	11	86	10	42	48
Anxiety	4	70	26	14	74	12	3	79	19	21	27	53	2	67	31	4	67	29	4	58	38	3	58	39	9	78	14
Disgust	5	56	39	8	75	17	9	70	21	17	68	15	1	49	49	7	59	34	4	37	59	3	46	51	11	65	23
Sadness	4	57	39	6	81	13	6	71	23	15	51	33	0	59	41	7	67	26	4	58	38	4	60	36	6	77	17
Joy	52	34	14	39	38	23	50	35	15	6	63	31	72	24	5	53	30	17	59	21	20	64	18	18	60	30	10

Figure 2. Relation between interactivity attributes (*x* axis) and brand traits and emotions (*y*). Shading and percentages indicate frequency of participant selection. Significant (95% confidence level) relations shaded green. N=72-85 varying per attribute.

two interactive prototypes designed to express both extremes of the attribute. For example, the attribute *proximity* had prototypes embodying direct and indirect behavior (Figure 1 and video figure). Our prototypes were deliberately designed to be more familiar, concrete and complex than those of earlier work [15]. A significant effort was spent on iteratively designing a set of prototypes which are relatable to participants and best embody the particular dimensions of the attribute. We also surveyed design guidelines for different operating system platforms and attempted to make a neutral design familiar to everyday users.

As is the case for a design-oriented research program, our own design practice heavily influenced this work. Most participants "highly agreed" (mode) that the two prototypes of each attribute were experienced as being distinct, and that they expressed the given attribute.

RESULTS AND DISCUSSION

After a pilot with 28 participants, we recruited 85 participants, consisting mostly of personal and professional acquaintances with a roughly even gender balance for the final study. The average age bracket of participants was between 30 and 40 years old. Participants were asked, but we were unable to require, completion of each sub-questionnaire, leading to between 72-85 responses per attribute for the final study (mode 81).

The pilot promisingly suggested a relation between interactivity attributes and brand facets, including attributes our experts did not describe, such as *proximity, pliability*, *consistency* and *concurrency*. Because of overlapping results and reported questionnaire fatigue, we switched to using higher-level brand traits and a simpler model of emotion to reduce the quantity of questions for the final study. We also substantially revised the prototype design to reduce ambiguity of their expression.

Perception of brand traits and interactivity attributes are subjective and enmeshed in the particulars of our prototype embodiment and cultural context of our participants. Our study has a modest number of participants sharing a roughly similar culture. Consequentially, we present summarized results as a heat map to provide an impressionistic and rich picture supporting multiple interpretations.

An overview of results is presented in Figure 2, showing the aggregate relation between interactivity attributes (*x* axis) and brand traits and emotions (*y*). For presentation simplicity, we have aggregated responses, counting all agreement ratings equally as a vote for one of the two attribute expressions, with the numbers showing the percentage of all responses for that attribute-trait/emotion pairing. Statistical significance (to 95% confidence level) was calculated using a simple binomial test between the two attributes, with 'unsure' results evenly distributed. Insignificant relations are shaded off-white, while significant relations are shaded green.

For example, if we look at the results for the attribute of 'concurrency', 65% of participants experienced its *concurrent* expression as competence, while 12% experienced its *sequential* expression as competence, and 22% were unsure which expression of 'concurrency' was experienced as competency. This was a significant result, while for example, clear conclusions cannot be drawn on the relation between concurrency and sincerity.

Uncertain or neutral relations appear in the middle of each scale. We can thus read, for example, that the attribute *proximity* seems to relate mostly to brand traits in its *direct* expression rather than *indirect*. Polarization toward a single expression is even more extreme in the other attributes, particularly for *flow* in which *continuous* is clearly preferred over *discrete* expressions for all traits.

Some tensions present themselves in combinations of brand traits. For example, if a brand has the traits of sincerity and excitement, our results suggest that the designer should be careful when considering *consistency* and *expectedness*, as both brand traits 'pull' in different directions.

Emotion

In general, participants' emotional response tends to be neutral or diffuse. Joy tends to be associated with what we would generally consider the 'positive' expressions of each attribute, with the exception of *non-pliability*. Positive expressions are shown in the first column of each attribute, and are generally associated with good design practice.

Where significant relations were found for anger, anxiety, disgust and sadness, they were all with the 'negative' expression of each attribute, with the exception of *pliability*, found to relate to anger. *Unexpectedness* has a strong relation

to the experience of surprise and anger, but also to the brand trait of *excitement*, suggesting some care is needed in execution. The only positive expression significantly related to surprise was *concurrency*.

Supporting branding with interactivity

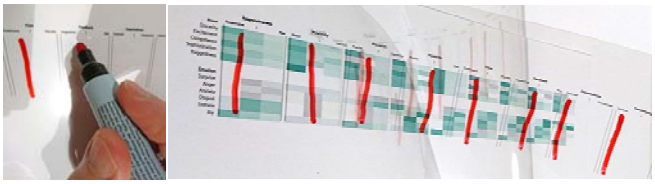

Figure 3. Attribute-oriented experience analysis. "Where we are" (left) "where we might want to be" (right).

How then do our findings help the practitioner? Firstly, our empirical results suggest a relation between particular expressions of an interactivity attribute and brand traits. This calls for a more systematic approach to designing the interactive experience, with attention to interactivity attributes. The few attributes that we found practitioners are aware of is not enough. The attributes we used in the study, along with the embodiments created, might be a useful way for practitioners to broach this topic.

Specific findings for each brand trait can be used by the designer as the basis for reflection and critique in their design process. Designers working for a bank with brand traits of sincerity, competence and sophistication, may also want to produce a moment of surprise and joy in a fund transfer interaction. The team might reflect on the experience they've designed, and draw a line relative to each attribute axis (shown in red in Figure 3, left). In and of itself, this sharpens the perspective on interactive experience. The second act is to overlay relevant brand traits and emotions on to the drawn lines (transparency, Figure 3, right). The designers might then discuss whether a little *unexpectedness* could be introduced to encourage surprise, yet be aware that their brand traits and the emotion of joy is contingent on its opposite *expectedness*.

The map might also be used earlier in the design process, when envisioning a set of working design principles, or in engagements with end users. The process and result of making this diagram is one of critical reflection and the opportunity and tensions of interaction aesthetics – it does not suggest how to 'solve' the design, nor does it suggest prescriptive changes to make uncritically.

FUTURE WORK

While our findings have immediate import for practitioners and researchers, further work would be beneficial. Traits and attributes are experienced in relation to the context of the embodiments we created. For example, although *unexpectedness* related to anger, it may well be that a different contextualization and embodiment of that attribute instead elicits joy, if it were presented in a gaming context. We would also like to revisit our embodiments of *consistency* and *expectedness* as their expressions are too similar. This self-critique is further validated by the experience of participants, with both attributes producing similar results.

In this initial study we sought primarily to establish whether there is a relation between interactivity and branding. We would like to investigate surprising and inconclusive relations with further design explorations. Subsequent studies should also investigate how designers can constructively integrate these findings into their practice, and what value it provides.

CONCLUSIONS

Companies and institutions, for the most part, have defined brands and it is strategically important for the organization's brand to be expressed with clarity across a variety of media [1, 4, 5, 10, 13, 17, 20, 22]. Traditionally, the values and requirements for a brand are articulated in a 'brand book', which commonly include brand personality traits and graphic design placement, such as how much whitespace should surround the logo when used in print.

Lacking is an understanding of how branding relates to interactive artifacts, particularly in terms of interaction aesthetics or user experience. In professional practice, according to our findings, designers have difficulty articulating aspects of the interactive experience. Being unable to distinguish these qualities limits the ability to critique and identify design opportunity. Moreover, although there is well-established usage of frameworks to articulate how a brand should be expressed, there is no guidance on how these translate to the medium of interactivity.

We do not wish for the relations we report on to be taken as prescriptive guidance for designers. Rather, we see them as precise ways of reflecting on a designed experience, broadening perspective and giving pause to question how it might be otherwise. For example, the results depicted in Figure 2 show that the brand trait of *competence* relates to interactivity differently – and in particular ways - to *sophistication*. On designing interactivity, the designer might use these results to differentiate finer-grained aspects of interactivity and have some perspective on how this relates to the perception of brand personality.

The contributions of this paper are manifold. Extending prior work, we created more complex and familiar embodiments of interactivity attributes and found participants were able to discern the differences between their expressions. In a novel application, we report empirical findings of relations between interactivity attributes and a widely-used brand personality framework. In doing so, we establish the industry relevancy of theoretical models of interaction aesthetics, including some interactivity attributes which were not known by our expert designers.

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