52 . 2

practice research

ISSN 0022-2224

Published continuously
since 1967.

Visible Language

52 . 2

the journal of visual communication research

august 2018

52 . 2 Visible Language

the journal of
visual communication

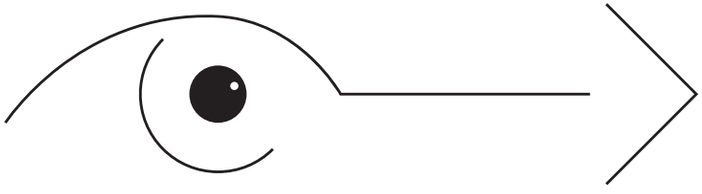
research theory

august 2018

Visible Language

52 2

the journal of
visual communication
research



Before there was reading there was seeing. *Visible Language* has been concerned with ideas that help define the unique role and properties of visual communication. A basic premise of the journal has been that created visual form is an autonomous system of expression that must be defined and explored on its own terms. Today more than ever people navigate the world and probe life's meaning through visual language. This journal is devoted to enhancing people's experience through the advancement of research and practice of visual communication.

Published tri-annually in April, August, and December

website:

http://visiblelanguagejournal.com

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August 2018

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Sometimes research creates breakthroughs that shatter paradigms. Sometimes research supports and affirms what's already known. Every journal hopes to publish a constant stream of breakthrough articles perhaps to the neglect of the necessary but less hair-raising articles that confirm, affirm, and probe what's thought to be known.

This issue presents three important articles that are closer to the latter than the former. Brian Switzer's nice study confirms the ways and means that design research contributes to complex problems in the mundane context of caring for the aging and dying. Hospice care called for help and Brian's designers brought their naive eyes and design research methods to bear and identified numerous possible interventions.

Rodrigo Ramírez's work affirms the usefulness of established comprehension testing protocols in the development of open-source icons for use in emergency situations. The nature of a crisis reinforces the need for designers to employ performance measures for supposedly "universal" icons.

Emma Fisher, Nicolette Lee, and Scott Thompson-Whiteside's study tests the assumption that design practitioners and design academics see research differently. Their conclusions confirm the original assumption in many ways while adding important nuance leading to proposals to advance collaborations between practicing designers and academic researchers.

Pino Torgu's challenge to conventional wisdom, that representational pictures of data enhance comprehension, probes Otto Neurath's Isotype and concludes that counting rows of pictograms is not as effective for reaching a total as reading an arabic number.

These studies confirm the usefulness of design research to practice and support their integration. The articles are another step away from glory in beautiful graphics alone to pleasure in the demonstrable integration of beautiful and useful work Paul Rand envisioned in his 1970 breakthrough *Thoughts on Design*.

One step, one study at a time, Design is passing from adolescence to adulthood.

Mike Zender

Same But Different:

A framework for understanding conceptions of research in communication design practice and academia

Emma Fisher

Nicolette Lee

Scott Thompson-Whiteside

Situation: There has been a growing emphasis on the importance of collaboration between the design academy and design practice, as well as research engagement by design practitioners in recent years. However, there is a lack of consensus about what constitutes research to support and inform these activities, particularly within communication design contexts.

Aim: This paper explores conceptions of research held within academia and practice in the communication design field in Australia, and aims to propose a speculative framework for understanding different conceptions of research that can be applied to enhance collaboration between the two sectors and engagement by practitioners.

Background: First, the background of this issue is summarized with a description of the growing value of research engagement and research collaboration, both in broad terms and specifically within the Australian communication design field.

Literature review: Second, the literature review discusses how research has been defined in the past including in general academic publications, literature from the design discipline, and mass-market media. An overview of past relevant studies that have explored conceptions of research by design practitioners is also presented.

The Australian Study: Following the literature review, key findings are presented from a study of how research is characterized in the Australian communication design field. Data collected via questionnaires and focus groups are reported, and differences and similarities between practitioners and academics' characterizations of research are discussed and compared with criteria for research found within the literature. Notable findings include that academics and practitioners characterized research similarly in some ways, yet differently in relation to underlying purpose and expectations for systematicity and empirical evidence.

Discussion: Finally, a speculative framework for understanding the differences between design practitioner and academics' conceptualizations

is presented including a proposal for how these conceptualizations may be managed during collaboration. Implications and recommendations for design academics and practitioners are outlined. Barriers and opportunities for collaboration are discussed in the interests of fostering long-term benefits and impact.

Conclusion: Recognizing that design practitioners and academics are likely to hold differing conceptions of research, particularly with respect to systematicity, appropriate types of data and expected outcomes, equips designers and researchers to enter collaborations with a greater awareness of aspects of the project that may require clarification, negotiation, and confirmation.

Keywords

design research
practice

Background:

The broader context for research collaboration and engagement

Collaboration between publicly funded research and private industry has been recognized as being of key importance to translating research into commercial outcomes (Australian Department of Education & Australian Department of Industry, 2014) and fostering innovation that supports national, international and global prosperity (OECD, 2013).

However, reports on the levels of co-operation between the public research sector and private industry in Australia vary significantly. While reported as particularly low by some OECD measures (Australian Department of Education & Australian Department of Industry, 2014; Department of Industry Innovation and Science, 2015)[1] , a recent report concluded that research collaboration between Australian universities and industry is strong (IP Australia, 2017), and Australia has been found to perform well on other measures such as research productivity and research excellence (Australian Department of Education & Australian Department of Industry, 2014).

In an effort to increase translation of research into commercial outcomes in Australia, a range of government initiatives have been put into place. Research funding has been strategically adjusted to incentivize cooperation between academia and industry (Australian Department of Education & Australian Department of Industry, 2014), and the 2017/18 Excellence in Research for Australia (ERA) ratings will include an assessment of impact and external engagement via assessment methodologies that are currently being pilot tested (Howard, 2017). While there is variation in emphasis between collaboration and impact, these financial and academic incentives consistently aim to foster translation of research findings into commercial outcomes and thereby facilitate greater impact on economic, social and cultural domains.

Encouragement to publish impactful research across all sectors is also evident outside Australia. In the British *Research Assessment Framework 2014* (REF2014), 20 percent of the assessment was dedicated to research impact – research that benefits industries, policies and society, outside of higher education (Higher Education Funding Council for England, Scottish Funding Council, Higher Education Funding Council for Wales, & Department for Employment and Learning, 2014a). Many of the submitted impact statements involved collaboration with external stakeholders such as industry, government, and communities.

1. in 2013 the OECD ranked Australia 29th out of 32 countries in terms of the percentage of firms that engage in collaboration on innovation (OECD, 2013), and ranked Australia last of 33 counties in terms of the percentage of firms collaborating on innovation with higher education or public research institutions (OECD, 2013).

It is worth noting, however, of 6,975 case studies submitted by UK universities to the REF2014, only 44 were related to *Design Practice and Management* (Higher Education Funding Council for England, Scottish Funding Council, Higher Education Funding Council for Wales, & Department for Employment and Learning, 2014b). This suggests that despite academic and financial incentives, current levels of research collaboration within design fields are low.

Research collaboration and engagement in communication design

While the boundaries of the field are contested, communication design is generally held to have evolved from and to include, commercial art, graphic art, visual communication design, and graphic design. Increasingly strategy, branding, experience design and consultancy service have also become the domain of the communication designer (Buchanan, 2001; Frascara, 2004).

The perspective of design academics

As practical, industry-related research collaboration is being encouraged in both international and Australian universities, design faculty find themselves under increasing pressure to produce research that is relevant to two cohorts: industry (being commercial clients) and design practitioners (Robertson, 2011, 2014).

The expectation for academics to produce impactful research that is relevant to clients from industry as well as design practitioners is particularly challenging in Australia for two reasons. First, the population of Australia is relatively small (around 25 million people (Australian Bureau of Statistics, 2017)) and consequently the potential audience of commercial clients and design practitioners[2] is also small. Second, communication design has only entered higher education in Australia relatively recently, in the early 1990's when technical colleges and institutions that trained designers first moved to university status (Young, 2005) as part of major national education reforms (Croucher, Marginson, Norton, & Wells, 2013). Varying levels of research literacy exist within the academy and design profession, presenting additional challenges to research collaboration and dissemination (Barron, Zeegers, Jackson, Barnes, & Taffe, 2010).

The perspective of design practitioners

While there are many financial and professional incentives for academics to initiate and participate in collaborative projects with industry, there are also some emerging arguments for practitioners to collaborate with researchers, and to engage with research more broadly.

Two forms of research engagement are typically discussed in the literature as important for designers: conducting research and reading research. Collaborating with academic researchers could possibly involve either form of engagement. It is also possible for a designer to conduct or read research independently – that is, without collaborating with academic researchers – although this is arguably less likely due to limited historical research training and literacy in design education (Barron et al., 2010).

Many authors have also discussed the importance of designers working with research experts or personally conducting their own investigations to inform their design decisions (Bennett, 2006; Boulton, 2014; Frascara, 1995; Hanington, 2003; Heller, 2006; Nini, 2006; Sanders, 2006; Throop, 2006). Some authors have argued that it is important for designers to use research without specifying exactly how (Davis, 2010; Lunenfeld, 2003). Others have argued for the importance of design practitioners reading published research findings to draw on knowledge beyond their own experience (Friedman, 2000; Robertson, 2014).

Supporters of research engagement by designers argue that reading research, conducting research, or collaborating with researchers offers many benefits, including increasing the efficiency of processes (Wong, Lam, & Chan, 2009); gaining a deep understanding of the end user, client, or problem (Hanington, 2010; Jönsson et al., 2004; Nini, 2006); improving the effectiveness of design outcomes (Chu, Paul, & Ruel, 2009; Cooke, 2006); providing a base of knowledge not possible for an individual to gain through personal experience alone (Friedman, 2003); fostering creativity (Storkerson, 2006); meeting the complex challenges of the knowledge economy (Friedman, 2003); and raising the professional standing of the communication design specialism (Bennett, 2006). Some authors have been particularly critical of design practitioners' engagement in research as they perceive it. For example, Poggenpohl has maintained that

> *Looking through trade magazines for inspiration is not research. Asking one or two people for their opinion about what you are designing is not research. Fooling around with some design element in order to get a better idea or result is not research.*
> (Poggenpohl, 2010, 3:30).

Nonetheless, consensus on the importance of research for design practitioners is far from evident. Several authors have argued that using research findings (derived from literature or developed from original inquiry) to inform design practice can be ineffective (Zaccai, 2013), restrictive (Heller, 2006; Raisanen, 2012a, 2012b; Throop, 2006), impractical or unnecessary (Norman, 2011).

Despite these arguments about research collaboration and engagement in design, the nature of research activity in the communication

2. The Australian communication design industry is relatively small compared with other countries, generating less than 2.5 per cent of global revenue for the communication design sector (IBISWorld, 2011)

design field is largely assumed and what distinguishes research from other investigative activities remains unclear. As a result, arguments for increased research activity in either the academy or design profession are stalled, and research conducted by both design academics and practitioners remain vulnerable to claims of superficiality. When we examined the arguments for and against research engagement, we found that nearly all were based on opinion, practitioners' personal experiences, or individual case studies of design projects (Fisher, 2015). This pointed to a lack of substantial evidence (scientific empirical or otherwise) to support either side of the debate of the efficacy of research for improving design practice and aligns with other authors' findings (for example, So and Joo (2017)).

Common criteria for research in the literature

To seek a clearer understanding of which criteria are used to recognize different types of research, we conducted a systematic literature review based on the approach employed by Hemsley-Brown and Sharp (Hemsley-Brown & Sharp, 2003). Scholarly literature, reference dictionaries, qualitative and quantitative research design texts, and design research publications were searched (Fisher, 2015). A range of definitions, discussions, and criteria for research were collected and reviewed. The most common criteria in the general literature on research methods were also reviewed (for example those discussed by Patton (2002), Lincoln and Guba (1985) and Denzin and Lincoln (2011)). These criteria were then compared with criteria discussed in design contexts specifically.

Most definitions state that research is systematic in nature, from the *Oxford English Dictionary* (OED) (Research, 2011) to Archer's famous declaration that "research is systematic enquiry whose goal is communicable knowledge" (Archer, 2012, p. 6). To be systematic, research must be conducted following a methodical, thorough and careful process in the interests of ensuring the validity and reliability of findings. Systematicity is a key distinction that is commonly drawn between research and less formal or rigorous forms of investigation. In academic contexts, this expectation is clearly universal. In design practice, however, systematicity may not be essential. For example, Gaver, Boucher, Pennington, and Walker (2004) have argued that conducting research methods in an intentionally unsystematic way can generate new ideas and foster empathy.

To qualify as research, it is widely accepted that investigations must also produce knowledge that is valid, meaning "well founded and fully applicable to the particular matter or circumstances; … against which no objection can fairly be brought" (Valid, 2013). Or, in Krippendorff's words, "in short, validity concerns truth" (Krippendorff, 2009, p. 356).

Research is also widely expected to produce knowledge that is reliable. That is, the data and findings are stable over time and are thus trustworthy. In Krippendorff's terms; "In short, validity concerns truth; reliability concerns trust" (Krippendorff, 2009, p. 356). This requirement is also logical considering it's difficult to think of a situation in which untrustworthy knowledge would be useful.

The requirement for findings to be transferable (that is, generalizable in quantitative inquiry or suitable for informing other situations in qualitative inquiry (Guba & Lincoln, 1989)) is a common criterion for research in academic contexts yet is required far less in design practice.

To be confirmable, knowledge produced by an inquiry must be clearly grounded in evidence outside the researcher as opposed to being based purely on the researcher's own opinion (Guba & Lincoln, 1989) or individual experience (Poggenpohl, 2010). This requirement has been attributed to the Enlightenment model of positivism (Denzin & Lincoln, 2011) that aspired to unbiased knowledge in the interests of achieving validity and reliability.

Some definitions of research found within the literature imply or specify that research requires a search for fundamental new knowledge, as distinct from knowledge that is related to one specific case. For example, the OECD's *Frascati Manual* explicitly disqualifies activities of investigation that test for diagnostic purposes within routine professional practice from qualifying as research, stating that "general purpose data collection… [including] market surveys" (OECD, 2002, p. 31), and "feasibility studies" (OECD, 2002, p. 31) should be excluded from qualifying as R&D. The requirement for research to generate original, novel or new knowledge (as distinct from identifying or discovering existing knowledge) is a common prerequisite for academic research.

Types of research discussed in design contexts

A variety of different types of, and criteria for, research have been discussed since the emergence of research within the design field around the 1960s (Cross, 2001). The diversity of understandings of what constitutes research in design practice was acknowledged by Fulton Suri when she wrote that "for some people it connotes 'data collection' – looking to the past and present but not to the future; for others it's simply a required step before coming up with ideas; for yet others it's a filter that rejects promising ideas before they've had a chance to evolve" (Fulton Suri, 2008).

In the context of design fields, Buchanan and Friedman discuss the appropriate contexts and applications of three types of research: basic, applied, and clinical research (Buchanan, 2001; Friedman, 2000, 2003) .

Both authors describe basic research as an activity conducted by academics or other researchers to seek new fundamental knowledge and develop theory and first principles without necessarily having any particular application in mind (Buchanan, 2001; Friedman, 2003; OECD, 2002).

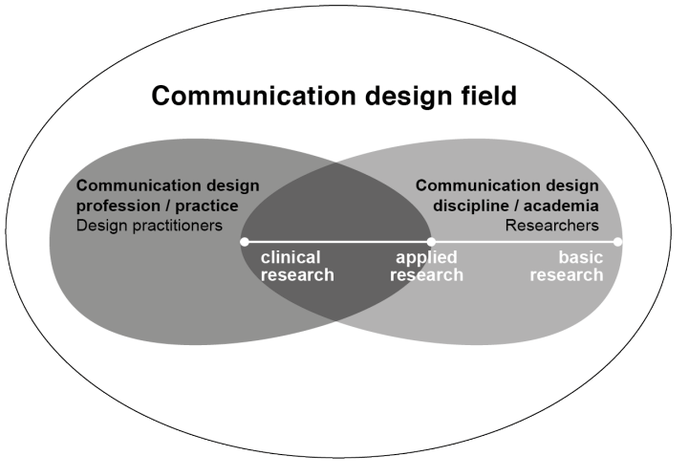


FIGURE 1

Types of research in the communication design field

Buchanan and Friedman discuss applied research as being most relevant to academics and researchers and somewhat relevant to practitioners, as it deals with broad categories or classes of problems to also seek fundamental new knowledge, yet with a specific purpose or application in mind (Buchanan, 2001; Friedman, 2003). And finally, clinical research is described as typically an investigation conducted by practitioners about or for individual projects. (Buchanan, 2001; Friedman, 2003)[3].

Buchanan and Friedman's descriptions of how basic, applied and clinical types of research relate to different cohorts within design fields can be mapped onto a diagram to illustrate the types of research that are typically expected to be conducted by design practitioners and researchers (*see figure 1*).

While academics may need to engage with any of the three types of research described by Buchanan and Friedman, only clinical, and sometimes also applied research are considered relevant to design practitioners and useful for supporting design practice (Buchanan, 2001; Friedman, 2003). Aside from basic, applied and clinical types of research, a number of other useful categorizations have been discussed in relation to research in design fields.

Two of the most widely cited categorizations in design are Frayling's 1993 distinction between research *into design*, *through design,* and *for design* (Frayling, 2012), and Archer's very similar 1995 discussion of research *about practice*, *through practice*, and *for the purposes of practice* (Archer, 2012). While these categories come from a particularly arts-oriented perspective and have been interpreted in very diverse ways in the absence of clarification by the original authors, they remain popular in design literature. These categories distinguish types of research on the basis of their method or purpose, with *research for design* and research *for the purposes of practice* being discussed as most relevant for design practitioners to conduct, while the other four types are typically discussed as most relevant to academic researchers' work.

3. Both authors are credited with development of this concept within this paper because it is unclear from the publication dates and citations within these pieces of literature, whether Buchanan or Friedman was first to publish the distinction between basic, applied and clinical research within design.

Other types of research discussed within the design literature include Hanington's categorization of research methods as *traditional* (such as focus groups, surveys, market research and archival searches), *adapted* (such as variations on ethnographic and observational research), and *innovative* (such as design workshops, visual diaries, and card sorting) (Hanington, 2003).

The recognition of more unconventional methods included within Hanington's innovative category aligns with the emergence of practice-led approaches to academic research within design as well as other disciplines (Barrett & Bolt, 2007; Grocott, 2012; Smith & Dean, 2009). Conversely, there is growing evidence of research-led practice, which typically involves collaboration between academics and industry (Kuys, Thong, Kotlarewski, & Thompson-Whiteside, 2014). The growing credibility of these creative research methods is reflected in the Australian Research Council's recognition of creative outputs as Non-Traditional Research Outputs since 2009 (Australian Research Council, 2017).

The lack of evidence of designers and design academics' opinions

Despite extensive discussions by individual authors about what research is in design, very little empirical evidence has been collected about what design practitioners and the broader population of design academics believe research is, particularly in communication design.

We identified only one study that sought to understand conceptions of design research by those involved. The investigation was conducted by *Metropolis Magazine* in the United States of America and surveyed 1,051 designers, educators, and academics from six design disciplines (Manfra, 2005). Within a range of questions about research activities, the survey asked respondents to give a definition of design research via an open response space. While only limited details of the methods and results were published, the authors concluded that understanding varies substantially within the design field of what constitutes research; ranging from highly formal, rigorous methods to everyday activities that are clearly contentious to claim as any type of investigation, such as travel or "selecting color swatches" (Davis, 2008, p. 74).

Overview of the Australian study

In light of the unclear nature of what research is understood to be in design contexts, in 2012, we carried out a study of the research engagement activities and attitudes of Australian Communication designers and academics (Fisher, 2015).

A mixed methods approach was adopted, using an explanatory sequential research design (Creswell & Plano Clark, 2011). This approach was chosen for its recognized ability to identify common behaviors and attitudes, then investigatingthe reasons behind them in more depth (Creswell & Plano Clark, 2011). In accordance with Creswell and Plano Clark's approach, first quantitative data were collected via online surveys with Australian communication design practitioners and academics to gain a broad understanding of common conceptions of research. Then, qualitative data were collected from members of the same cohorts via focus groups to explore the reasons behind their beliefs. The findings from the quantitative and qualitative data analyses were then compared to arrive at final conclusions.

Online surveys

Survey data collection methods and samples

We conducted two online surveys: one to collect responses from professional communication designers and another to collect responses from communication design academics in Australia. The surveys were open for 112 days and collected full responses from 218 communication design practitioners and 56 design academics.

While the number of responses was insufficient for broad generalization according to Krejcie and Morgan's guide (Krejcie & Morgan, 1970), the sample size compared favorably with other past surveys of research engagement attitudes in other disciplines such as those by Borg (2007, 2012). Responses were received from nearly half of the estimated population of communication design academics in Australia (Fisher, 2015) and overall, included a broad enough range of members from the Australian communication design profession and discipline to support useful insights. The sample of respondents included: a reasonable representation of gender (males: 34 percent, $N = 116$; females: 66 percent, $N = 222$); a range of age groups, (approximately normal distribution of data, ranging from participants in their twenties up to participants over 60 from both cohorts); a range of experience levels from less than five years of experience, up to those holding more than 26 years' experience in their field; participants holding qualifications from all levels of Australian tertiary education, including no formal qualifications, associate levels (diplomas, certificates, etc.), bachelor, masters and doctorate qualifications, and; design practitioners from varying sizes of organization ranging from individual self-employed designers (26 percent, $N = 55$), up to designers working in studios of more than 20 people (24 percent, $N = 51$).

Survey data analysis and key findings

Within the online surveys, communication design practitioners and academics were asked to respond to the question, "In your opinion, what is research?" via an open response space. The responses were thematically coded and tabulated to identify the most common qualities. The responses of practitioners and academics were then compared to identify similarities and differences.

The results of the data analysis suggest that conceptions of research are diverse in both cohorts, with practitioner and academic respondents referring to many different themes in their responses of (47 and 35 different themes respectively).

Within the themes mentioned, some key similarities and differences are evident between practitioners and academics.

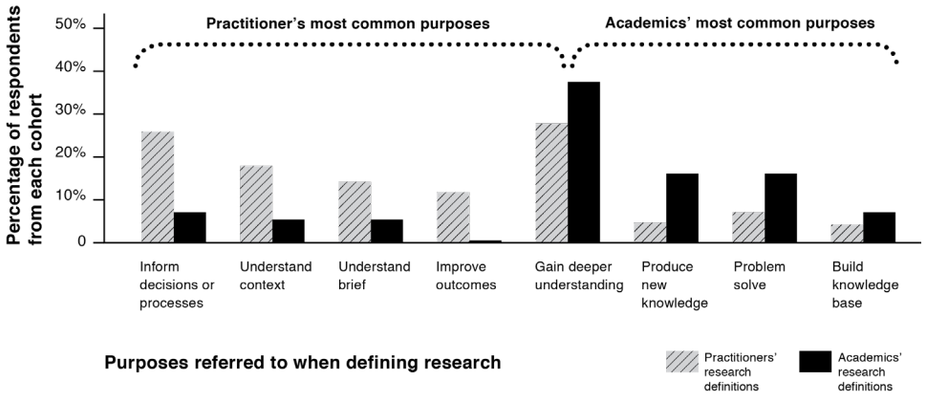
In terms of similarities, most respondents from both cohorts referred to research as an activity; that is a verb (83 percent of practitioners, $N = 176$, and 94.6 percent of academics, $N = 53$), rather than a noun such as a product or output.

Research purposes

Differences were evident between the purposes of research that academics and practitioners mentioned, with practitioners most frequently describing project-oriented outcomes, while academics referred to general knowledge-building or problem-solving. As shown in Figure 2, gaining deeper and more accurate understanding was the most common purpose of research referred to by both cohorts (27.8 percent of practitioners, $N = 59$, and 37.5 percent of academics, $N = 21$).

FIGURE 2

Comparison of academics and practitioners' references to purposes when defining research in online survey

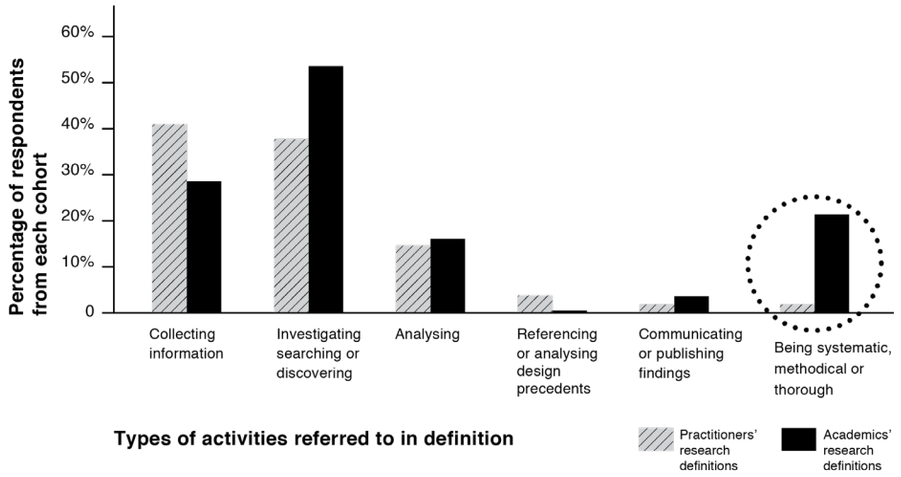


Research activities and criteria

Similar percentages of both cohorts described research as involving collecting information, investigating or analyzing. However, as shown in Figure 3, there was a much stronger emphasis on understanding and production of knowledge within the academics' responses. The biggest difference between the characterizations of research by the two cohorts was in relation to defining research as systematic, methodical or thorough. While very few practitioners mentioned being systematic (1.9 percent, $N = 4$), around a fifth of academics did (21.4 percent, $N = 12$), suggesting academics had a greater expectation for research to be systematically conducted.

FIGURE 3

Comparison of academics and practitioners' references to types of activity when defining research



Focus groups

Following the online surveys, five focus groups were conducted to explore and explain the survey findings further and gain a more in-depth understanding of the conceptions of research held by academics and practitioners.

Focus group data collection methods and samples

Two focus groups were conducted in Sydney and three in Melbourne, reflecting the largest populations of communication design businesses in Australia (Allday, 2016). These two cities also have the most concentrated university populations in the country, with ten institutions primarily located in New South Wales and eight in Victoria (Universities Australia, 2016). The focus groups involved a total of 11 communication design academics and 18 communication design practitioners.

Among a number of topics covered in the sessions, what constitutes research was discussed to explore the diverse range of conceptions collected during the online survey. An activity was developed inspired by Borg's use of scenario ranking (Borg, 2007, 2009, 2012) to help participants reflect upon and articulate their opinions about what is and is not research. During the activity, each participant was given ten hypothetical scenarios that may or may not be regarded as constituting research, and was asked to decide whether each was: definitely not research; probably not research; probably research; or definitely research (*see Appendix A*). The scenarios were intentionally written to include or exclude the various criteria for research found within the literature (as discussed earlier in this paper) so that inferences could be drawn from the participants' rankings to deduce what they believed research to be.

Participants' responses were collated during the session and discussed as a group to further explore conceptions of research and reasons behind rankings. Data were collected via transcribed audio recordings of discussions as well as posters of the participants' collated scenario, and were analyzed quantitatively and qualitatively.

Focus group data analysis and key findings

The 29 individual participants' scenario rankings and the rankings of the two cohorts were compared in multiple ways. This included analysis on a two-category (positive and negative rankings) and a three-category (definitely positive, uncertain – consisting of both probably categories – and definitely negative) basis.

To complement this quantitative analysis, transcriptions of the conversations that took place were analyzed using Krueger and Casey's *classic analysis strategy* for qualitative data (Krueger & Casey, 2009). This identified important responses by the: frequency, extensiveness, specificity, and the level of emotion with which they were offered. The responses identified as important via this method were collated into a spreadsheet, themes were identified and the data sorted to seek patterns that revealed how participants within the sessions characterized research and how the perceptions of the two cohorts compared with each other.

As was the case in the online survey findings, a very diverse range of opinion about what qualifies as research was revealed. Seven out of the ten scenarios were rated across all four categories of research legitimacy within one or more of the sessions.

Research criteria

With regard to what research is, the question of how important it is for research to be systematic within design practice was discussed at length by a number of practitioners. Overall it was evident that practitioners did not consider being explicitly systematic or formal to be a high priority for their own research, which aligned with the survey findings. A range of reasons

for this were raised during the focus groups, including: it is not necessary for designers' research to be systematic to be valid; designers are sufficiently systematic at an intuitive level already; and reading or conducting systematic research is only appropriate during a few stages of the design process such as strategy or pre-design market analysis.

Within academic groups, several participants voiced concerns that unsystematic investigations lacked the necessary rigor and depth of process to be reliable and useful, which also aligned with the survey analysis findings. While the academic groups clearly favored research as being systematic, there was also some acknowledgement that systematic investigations may not necessarily be useful for designers, with one academic arguing,

"I'm yet to meet someone who works as a designer who can charge more because they do codified research than if they just did what they did."

Overall, reflection alone (conceived as thinking based on internal processes exclusively rather than thinking based on external evidence or testing) was not considered to constitute research by either academics or practitioners, with nearly three times as many comments arguing that research must go beyond personal reflection and include external data, compared with those that asserted opinion alone was sufficient. Surprisingly, though, quantitative and qualitative analyses led to the conclusion that practitioners often held a stronger belief that research requires external data, and cannot be based on internal data (such as pure reflection) alone. One practitioner participant explained, "anything outside of your brain is research".

In contrast with practitioners' high expectation for external data, a number of academics noted that if reflection were combined with other things such as "severe testing", an explicit investigation, articulation, or triangulation to improve rigor, analysis of internal data such as personal reflection could constitute research.

These comments appeared to suggest that the academics typically held more unconventional conceptions of research that are more inclusive of approaches that involved purely internal data, such as auto–ethnography (Patton, 2002) that are emerging in academia. Practitioners, in contrast, typically expressed a greater expectation for research to involve the collection of external data for confirmability, suggesting they held relatively conventional conceptions of research.

Research types

With regard to what research is for, focus group participants rarely—if ever—explicitly discussed the kinds of activities referred to by survey respondents (*see figure 3*). Instead, practitioners and academics frequently referred to three distinct types of research: academic, market and informal creative research, and thereby implied that research is for academic, marketing and creative purposes. Of the three types of research discussed, informal creative research was clearly regarded to be the most common kind conducted by design practitioners. This type of research was described as usually less scientific, explicit or systematic, yet still valid and appropriate for the purposes of professional design practice.

Discussion

The conclusions from the Australian study identified that communication design practitioners and academics held some similar conceptions in terms of research:

- Being predominantly an activity (rather than an output or product);
- Mainly involving collecting, investigating and analyzing;
- Having the purpose of gaining deeper understanding; and
- That the context or purpose of an inquiry determines which kinds of investigation and criteria are appropriate to employ.

The consensus that context or purpose informs what constitutes research in different circumstances aligned with Buchanan and Friedman's discussion in the literature that certain types of inquiry (namely clinical and applied research) are most appropriate for design practitioners to conduct, while basic forms of research were relevant to academics alone.

The study findings also suggested several key aspects of research about which communication design academics and practitioners held different opinions. In particular:

- Expectations for systematicity differed, with academics having a higher expectation for research to be systematically conducted;
- Requirement for external data differed, with practitioners having a higher expectation for research to involve the collection of external data as opposed to academics who regarded internal data from personal reflection to be sufficient in some situations; and
- Aside from gaining a deeper understanding, the other purposes or outcomes of research referred to by the two cohorts differed, with practitioners commonly referring to project-based outcomes, and academics referring to knowledge building and general problem-solving.

The key differences found between academics and practitioners' conceptions of research further suggest that the context of an investigation is important for determining what criteria are most appropriate for achieving the desired outcomes of the investigation.

These differences can be diagrammatically mapped as a framework, with the type of data (external or internal) on the y-axis, systematicity

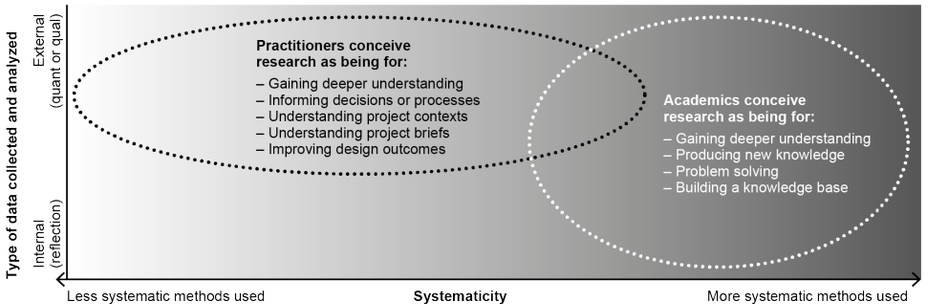


FIGURE 4

Speculative framework for understanding the differences between communication design practitioners and academics' concepts of research

on the x-axis, and the practitioners and academics' conceptions of research and outcomes or purposes overlaid (*see figure 4*).

The analysis indicates that the areas most likely to require clarification and deepening shared understanding prior to and during a collaboration are those of systematicity, location of data and expected scope of outcomes. While both groups are concerned with deeper understandings, practitioners are likely to have more direct concerns in relation to immediate sourcing of external data and particular project outcomes. These may well also be subject to the pressures of delivery in a commercial context. Exploratory and reflective research approaches intended to gather new but abstract knowledge are less likely to resonate, and more likely to lead to frustration.

Similarly, differing conceptions of the need for systematic methods are likely to be a cause for concern. Systematic research employing all the tools of validation do not clearly align with practitioner understandings. This difference in perspective suggests that the depth and length of preparation and formal management of research is likely to require negotiation. As the purpose or context informs what types of research are appropriate for a given situation, identifying the different research outcomes that academics and practitioners wish to achieve at the commencement of any collaborative project offers a logical starting point for establishing dialogue and planning investigations that can serve the purposes of all stakeholders. Once the desired research outcomes of all parties are clearly articulated, appropriate criteria, type of data, and level of systematicity can be more easily discussed and decided.

Conclusion

If, as discussed in the background section of this paper, collaboration between those undertaking research in academic and design practice contexts is to increase, and if design practitioners are to engage more with research to improve design outcomes, a shared language of research will be increasingly needed within the communication design field.

The nature of what research is in design contexts is unclear at present, as evidenced by the diversity of definitions of research identified during the literature review. Many common criteria for research have debatable relevance to design contexts, indicating a limited and unstable foundation for research engagement and collaboration between design practitioners and academics.

As found in this study, concepts of research held by design practitioners and academics are similar in some ways (such as the activities involved, main purpose of research and that context determines what is appropriate), but significantly different in others. In particular, academics expected research to be more systematic than practitioners did and, surprisingly, practitioners had a greater expectation than academics for research to involve external empirical data, suggesting that practitioners held a generally more conservative view of research than academics.

Mapping the key differences between academics and practitioners' conceptions of research as a framework highlights the areas that could be useful to recognize, negotiate and accommodate for effective research engagement and collaborations to unfold. Designing an inquiry around achieving what may be disparate desired outcomes could avoid valuing any particular kind of research over another. Rather, it allows participants to respect the diverse concepts of research that exist within the communication design field, acknowledge the valid distinction between the academic and professional sectors in terms of their internal needs, recognize that different types of research are appropriate for different purposes, and capitalize on the variety of methodologies as a resource that can support more effective collaborations.

Armed with knowledge from the speculative framework presented in this paper, academics and design practitioners could initiate research collaborations with a clearer understanding of how their own conception of research may differ from other stakeholders, that is: most likely in terms of expected systematicity, requirement for external data and envisaged purposes or outcomes.

Further, by starting with clear identification of desired outcomes from the proposed inquiry, collaborators can plan investigations that effectively meet all stakeholders' needs. Individual design project objectives can be met while the wider impact of research can also be achieved to support the broader goals of national, international and global benefit.

References

Allday, A. (2016). IBISWorld Industry Report M6924. *Specialised Design Services in Australia*. (M6924). Retrieved from http://www.ibisworld.com/

Archer, B. (2012). The Nature of Research. In S. Grand & W. Jonas (Eds.), *Mapping Design Research* (pp. 109–121). Basel, Switzeralnd: Birkhäuser. (Reprinted from: Co-design, interdisciplinary journal

of design, 1995, January, pp. 6–13).

Australian Bureau of Statistics. (2017). *Population clock*. Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/0/1647509ef7e25faaca2568a900154b63?opendocument

Australian Department of Education, & Australian Department of Industry. (2014). *Boosting the commercial returns from research*. Australian Government Retrieved from https://www.education.gov.au/news/discussion-paper-boosting-commercial-returns-research-released.

Australian Research Council. (2017). *State of Australian Univeristy Research 2015-2016, Non-Traditional Research Outputs*. Retrieved from http://era2015.arc.gov.au/s1-9_non-trad-research-outputs.html

Barrett, E., & Bolt, B. (Eds.). (2007). *Practice as Research: Approaches to creative arts enquiry*. London, UK: I B Tauris & Co.

Barron, D., Zeegers, M., Jackson, S., Barnes, C., & Taffe, S. (2010). *The role of Honours in promoting research literate graduates for, and with, industry.* Paper presented at the 2nd International Conference on Design Education (ConnectED 2010), Sydney, Australia. http://hdl.handle.net/1959.3/93972

Bennett, A. (2006). "The Rise of Research in Graphic Design." In A. Bennett (Ed.), *Design studies: theory and research in graphic design* (pp. 14-23). New York: Princeton Architectural Press.

Borg, S. (2007). Research engagement in English language teaching. *Teaching and Teacher Education*, 23, 731-747.

Borg, S. (2009). English language teachers' conceptions of research. *Applied Linguistics*, 30(3), 355-388.

Borg, S. (2012). University teacher educators' research engagement: Perspectives from Saudi Arabia. *Teaching and Teacher Education*, 28, 347-356.

Boulton, E. (2014). *Bringing Design and Research Closer Together. 24 ways to impress your friends.* Retrieved from http://24ways.org/2013/bringing-design-and-research-closer-together/

Buchanan, R. (2001). Design Research and the New Learning. *Design Issues*, 17(4), 3-23.

Chu, S., Paul, N., & Ruel, L. (2009). Using eye tracking technology to examine the effectiveness of design elements on news websites. *Information Design Journal*, 17(1), 31-43. doi:10.1075/idj.17.1.04chu

Cooke, M. (2006). Design Methodologies: Toward a Systematic Appraoch to Design. In A. Bennett (Ed.), *Design Studies* (pp. 130-146). New York: Princeton Architectural Press.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research (2nd ed.)*. Thousand Oaks: Sage.

Cross, N. (2001). Designerly ways of knowing: design discipline versus design science. *Design Issues*, 17(3), 49-55.

Croucher, G., Marginson, S., Norton, A., & Wells, J. (Eds.). (2013). *The Dawkins Revolution: 25 Years On*. Melbourne, Australia: Melbourne University Publishing.

Davis, M. (2008). Why Do We Need Doctoral Study in Design? *International Journal of Design*, 2(3), 71-79.

Davis, M. (2010). *Work smart and prepare for a changing practice.* Retrieved from http://www.aiga.org/davis-work-smart/

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage Handbook of Qualitative Research (Fourth ed.)*. Thousand Oaks: Sage Publishing.

Department of Industry Innovation and Science. (2015). *Boosting the commercial returns from research.* Retrieved from https://industry.gov.au/INDUSTRY/INDUSTRYINITIATIVES/Pages/Boosting-the-Commercial-Returns-from-Research.aspx

Fisher, E. (2015). *A profession in transition: Practitioners' research engagement in the Australian communication design field.* (Doctor of Philosophy), Swinburne University of Technology, Melbourne, Australia.

Frascara, J. (1995). Graphic Design: Fine Art or Social Science? In V. Margolin & R. Buchanan (Eds.), *The Idea of Design* (pp. 44-55): MIT Press.

Frascara, J. (2004). *Communication Design: principles, methods, and practice.* New York: Allworth Press.

Frayling, C. (2012). Research in Art and Design. In S. Grand & W. Jonas (Eds.), *Mapping Design Research* (pp. 95–107). Basel, Switzerland: Birkhäuser. (Reprinted from: Royal College of Art Research Papers, 1993/4, Volume 1, Number 1, pp. 1–5).

Friedman, K. (2000). *Creating design knowledge: from research into practice.* Paper presented at the IDATER 2000 Conference, Loughborough University.

Friedman, K. (2003). Theory construction in design research: criteria:

approaches, and methods. *Design Studies*, 24, 507-522. doi:10.1016/s0142-694x(03)00039-5

Fulton Suri, J. (2008). Informing our Intuition Design Research for Radical Innovation. *Rotman Magazine*, 52-57.

Gaver, B., Boucher, A., Pennington, S., & Walker, B. (2004). Cultural probes and the value of uncertainty. *Interactions*, 11(5), 53-56. doi:10.1145/1015530.1015555

Grocott, L. (2012). Designerly ways of researching: design knowing and the practice of researching. *Studies in Material Thinking*, 6, 1-24.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth Generation Evaluation*. Thousand Oaks: Sage Publications.

Hanington, B. M. (2003). Methods in the Making: A perspective on the State of Human Research in Design. *Design Issues*, 19(4), 9-18.

Hanington, B. M. (2010). Relevant and Rigorous: Human-Centered Research and Design Education. *Design Issues*, 26(3), 18-26.

Heller, S. (2006). Better Skills through Better Research. In A. Bennett (Ed.), *Design studies: theory and research in graphic design* (pp. 10-13). New York: Princeton Architectural Press.

Hemsley-Brown, J., & Sharp, C. (2003). The Use of Research to Improve Professional Practice: A Systematic Review of the Literature. *Oxford Review of Education*, 29, 449-470.

Higher Education Funding Council for England, Scottish Funding Council, Higher Education Funding Council for Wales, & Department for Employment and Learning, N. I. (2014a). REF2014, Research Excellence Framework. Retrieved from http://www.ref.ac.uk/

Higher Education Funding Council for England, Scottish Funding Council, Higher Education Funding Council for Wales, & Department for Employment and Learning, N. I. (2014b). REF2014, Research Subject Area: Design Practice and Management. Retrieved from http://impact.ref.ac.uk/CaseStudies/Results.aspx?Type=S&Tag=899

Howard, S. (2017). *Engagement and Impact assessment.* Retrieved from http://www.arc.gov.au/20170217-presentation-Sarah-Howard

IBISWorld. (2011). IBISWorld Industry Report L6723-GL. *Global graphic designers*. (L6723-GL). Retrieved from http://www.ibisworld.com/

IP Australia. (2017). *Australian intellectual property report 2017*. Retrieved from https://www.ipaustralia.gov.au/about-us/economics-ip/australian-ip-report

Jönsson, B., Malmborg, L., Svensk, A., Anderberg, P., Brattberg, G., Breidegard, B. r., . . . Rassmus-Gröhn, K. (2004). *Situated research and design for everyday life*. Retrieved from Sweden: http://www.idemployee.id.tue.nl/g.w.m.rauterberg/lecturenotes/CERTEC-REPORT-2004.pdf

Krejcie, R. V., & Morgan, D., W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607–610.

Krippendorff, K. (2009). Testing the Reliability of Content Analysis Data: What is Involved and Why. In K. Krippendorff & M. A. Bock (Eds.), *The Content Analysis Reader* (pp. 350-357). Thousand Oaks, CA: Sage.

Krueger, R. A., & Casey, M. A. (2009). *Focus Groups: a practical guide for applied research (4th ed.)*. Thousand Oaks: Sage.

Kuys, B., Thong, C., Kotlarewski, N., & Thompson-Whiteside, S. (2014). *Research-led practice in design research used to best demonstrate design theories*. Paper presented at the DRS 2014: Design's Big Debates, Umeå, Sweden.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Thousand Oaks: Sage Publications.

Lunenfeld, P. (2003). The Design Cluster. In B. Laurel (Ed.), *Design Research: Methods and Perspectives* (pp. 10-15). Cambridge, Massachusetts: The MIT Press.

Manfra, L. (2005, 25th July 2005). School Survey: 2005 Research—Its Role in North American Design Education. *Metropolis*. Retrieved from http://www.metropolismag.com/story/20050725/school-survey-2005

Nini, P. J. (2006). Sharpening One's Axe: Making a Case for a Comprehensive Approach to Research in the Graphic Design Process. In A. Bennett (Ed.), *Design studies : theory and research in graphic design* (pp. 117-129). New York: Princeton Architectural Press.

Norman, D. (2011). *Design Education: Brilliance without substance*. Retrieved from http://www.core77.com/blog/columns/design_education_brilliance_without_substance_20364.asp

OECD. (2002). *Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development*. Paris, France:

Organisation for Economic Co-Operation and Development (OECD).

OECD. (2013). *OECD Science, Technology and Industry Scoreboard 2013*. Retrieved from http://dx.doi.org/10.1787/sti_scoreboard-2013-en

Patton, M. Q. (2002). *Qualitative research and evaluation methods (3rd ed.)*. Thousand Oaks, California: Sage Publishing.

Poggenpohl, S. (Writer). (2010). *03_NCNP_Provocation#2: Sharon Poggenpohl* [Streaming video]. USA: College of Design at North Carolina State University. Retrieved from http://vimeo.com/15694188.

Raisanen, M. (2012a). To Connect With Consumers, Ditch The Focus Groups. Try Acting Instead. *Co.Design*. Retrieved from http://www.fastcodesign.com/1670049/to-connect-with-consumers-ditch-the-focus-groups-try-acting-instead

Raisanen, M. (2012b). To Innovate, You Have To Stop Being A Slave To Data. *Co.Design Weekly*. Retrieved from http://www.fastcodesign.com/1669090/to-innovate-you-have-to-stop-being-a-slave-to-data

Research. (2011). In *Oxford English Dictionary online*. Retrieved from http://www.oed.com/view/Entry/163432?rskey=H9Q0Nv&result=1&isAdvanced=false - eid.

Robertson, K. (2011). Building the Design Profession Through Honours Research. *Studies in Material Thinking*, 6.

Robertson, K. (2014). Communication design: Ordering, disordering, reordering. *IdN extra 09: red thread: Navigating the labyrinth of contemporary communication design*, (pp. 110–115).

Sanders, E. (2006). Scaffolds for Building Everyday Creativity. In J. Frascara (Ed.), *Designing effective communications: creating contexts for clarity and meaning* (pp. 65-77). New York: Allworth Press.

Smith, H., & Dean, R. T. (Eds.). (2009). *Practice-led Research, Research-led Practice in the Creative Arts*. Edinburgh, UK: Edinburgh University Press.

So, C., & Joo, J. (2017). Does a persona improve creativity? *The Design Journal*. doi:10.1080/14606925.2017.1319672

Storkerson, P. (2006). Communication Research: Theory, Empirical Studies, and Results. In A. Bennett (Ed.), *Design studies: theory and research in graphic design* (pp. 158-178). New York: Princeton Architectural Press.

Throop, L. C. (2006). Being Serious, Being Popular: Positioning Design Research. In A. Bennett (Ed.), *Design studies: theory and research in graphic design* (pp. 64-72). New York: Princeton Architectural Press.

Universities Australia. (2016). *University Profiles.* Retrieved from https://www.universitiesaustralia.edu.au/australias-universities/university-profiles - .WhS9pz9bQUE

Valid. (2013). In *Oxford English Dictionary online*. Retrieved from http://www.oed.com/view/Entry/221190?redirectedFrom=valid

Wong, F. W. H., Lam, P. T. I., & Chan, E. H. W. (2009). Optimising design objectives using the Balanced Scorecard approach. *Design Studies*, 30(4), 369-392. doi:10.1016/j.destud.2008.10.004

Young, A. S. (2005). *A Genealogy of Graphic Design in Victoria*. (PhD), RMIT University, Melbourne.

Zaccai, G. (2013). Focus Groups Are Dangerous. Know When To Use Them. *Co.Design*. Retrieved from http://www.fastcodesign.com/1671600/focus-groups-are-dangerous-know-when-to-use-them?partner=newsletter

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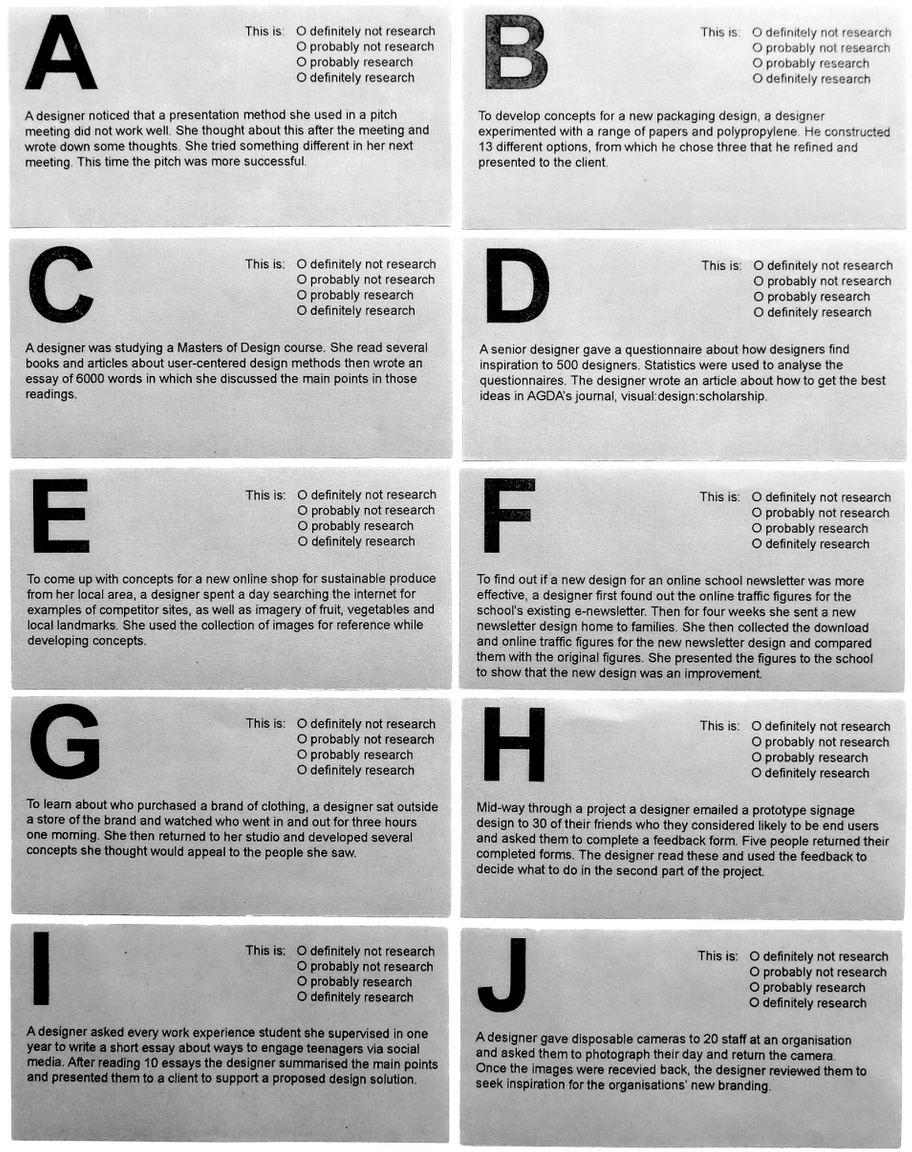
APPENDIX A



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