An Introduction to Visual Approaches and Photography for the Study of Immediate Information Space

Jenna Hartel

Faculty of Information, University of Toronto, 140 St. George Street, Toronto, ON M5S 3G6, Canada.
E-mail: jenna.hartel@utoronto.ca

Leslie Thomson

Royal Conservatory of Music, 273 Bloor Street West, Toronto, ON M5S 1W2, Canada.
E-mail: leslie.thomson@utoronto.ca

This methods-oriented paper introduces visual methods and specifically photography to study immediate information space (Lee, 2003); that is, information-rich settings such as offices or homes. It draws upon the authors' firsthand ethnographic field experiences, a review of relevant theoretical and methodological literature, and an analysis of cases within information studies that have made use of visual and photographic techniques. To begin, the traditions of visual research within anthropology and sociology are traced and major epistemological, methodological, and disciplinary debates associated with visual scholarship are presented. Then, investigations of immediate information space that utilize photography are analyzed, including examples from the areas of personal information management, health informatics, information behavior, and computer-supported cooperative work. Moreover, a section entitled "Applying Photographic Techniques. . ." supplies guidelines for employing photography in a research design, as well as a question-based research framework and tips for photographing information phenomena.

Introduction

A metatheoretical shift is overtaking information studies, as cognitive perspectives centered on the minds of information users are superseded by holistic approaches sensitive instead to these same users' contexts. There are many possible interpretations of "context" (Talja, Keso, & Pietiläinen, 1999), one being the *space* in which information activities arise. Information activities and practices are inevitably shaped by both the setting in which they occur and the information artifacts (such as technologies, documents, and organizing structures) therein. Savolainen (2006) calls this realist perspective of space an "objectifying approach," and it

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is especially well expressed by Neumann (1999), who writes, "information is contained in tools, in spatial relationships of objects, and in hands that know where to reach for particular things" (p. 442).

The real-world spaces that surround information users have been diversely called everything from personal information environments (Kwasnik, 1991; Malone, 1983) to personal information management (PIM) systems (Barreau, 1995) and personal spaces of information (Jones, 2007). Drawing upon interviews with academics, Lee (2003) proposes a model of three concentric zones of information that surround a user: "immediate," within arm's reach or a few footsteps away; "adjacent," such as a nearby university library; and "outside," such as a more distant bookstore. Speaking largely from an objectifying stance and adopting Lee's concept of the "immediate information space," this paper focuses on a visual research method—photography—that seems particularly well suited to learning more about settings and their accompanying information phenomena.

A variety of investigative approaches may be used to study immediate information space. Jones (2007) suggests ethnography combined with design methodologies, and places emphasis on context and situation, including contextual inquiry (Beyer & Holtzblatt, 1998), situated activity (Suchman, 1983), and situated design (Greenbaum & Kyng, 1991). Naumer and Fisher (2007) recommend naturalistic inquiry (Lincoln & Guba, 1985) and the data-gathering methods of unobtrusive observation, interviews, diaries, text analysis, pictures, and videos. Sandstrom and Sandstrom (1995) champion scientific ethnography, which sanctions both quantitative and qualitative data-gathering techniques, and carefully negotiates the views of the researcher and informant, distinguished as "etic" or "emic" perspectives.

All of the aforementioned methodologies assign a primary role to observation (Baker, 2006), which is defined as the "systematic recording of observable phenomena or behavior

in a natural setting" (Gorman & Clayton, 2005, p. 40). During observation, a researcher spends time in the field, recording impressions in the form of written fieldnotes. Another possible data-gathering strategy during observation is visual in nature: insights are created and captured with simple tools such as a sketchpad and pencil or through more sophisticated technologies like a still or video camera.

This paper introduces visual research and specifically photography as a means to study immediate information space. It draws upon the authors' firsthand ethnographic field experiences, Hartel (2007) having explored home-based information phenomena in leisure and hobbies, and Thomson (2010) having examined the home offices of printing professionals. A review of the theoretical and methodological literature from across the social sciences pertaining to visual methods and an analysis of cases within information studies that have used visual and photographic techniques compose its bulk.

Visual Methods

Visual methods entail the use of images to learn about the social world. For this paper the terms "visual methods," "visual research," and "visual approaches" are considered nearly synonymous and will be used interchangeably. Visual research can function as a methodology and steer an entire research design, or it can act as one data-gathering technique within a multi-method study. Either way, such approaches are timely, given that images saturate contemporary life. The predominant forms of evidence in social scientific research are words or numbers, yet data in visual forms can be an alternative or complementary medium of discovery that is equally as effective at conveying findings. Weber (2008) states 10 reasons why images may prove valuable in research:

1. Images can be used to capture the ineffable, the hard-to-put-into-words.
2. Images can make us pay attention to things in a new way.
3. Images are likely to be memorable.
4. Images can be used to communicate more holistically, incorporating multiple layers, and evoking stories or questions.
5. Images can enhance empathetic understanding and generalizability.
6. Through metaphor and symbol, artistic images can carry theory elegantly and eloquently.
7. Images encourage embodied knowledge.
8. Images can be more accessible than most forms of academic discourse.
9. Images can facilitate reflexivity in research design.
10. Images provoke action for social justice.

Visual Methods in Anthropology

A long-standing tradition of visual methods exists in anthropology. While conducting participant observation in field settings, pioneering ethnographers like Bronislaw Malinowski and Franz Boas employed still cameras to document aspects of culture. At the time, photography was thought of as "a simple [. . .] truth-revealing mechanism" (Edwards, 1992, p. 4). One landmark ethnography by Gregory Bateson and Margaret Mead, *Balinese Character: A Photographic Analysis* (1942), involved more than 25,000 photographs and 22,000 feet of film (Jacknis, 1988). Bateson and Mead felt that juxtapositions of photographs revealed "intangible relationships among different types of culturally standardized behavior" more effectively than words exclusively (as cited in Harper, 2005, p. 21).

The modern history of visual research in anthropology was launched by John Collier. At age seven, he was struck by an automobile and experienced a traumatic injury to the left hemisphere of his brain, resulting in impaired use of language and mathematics, hearing loss, and severe dyslexia. Perhaps as a compensatory measure, Collier's visual sense blossomed. In the 1940s he worked for Standard Oil Company as a documentary photographer, and later conducted government-driven anthropological studies of native South American and western American cultures. His *Visual Anthropology: Photography as a Research Method*, first published in 1967, is a handbook to conduct visual field research, and was revised and expanded with his son Malcolm Collier in 1986. It provides instructions for using photography to investigate common anthropological themes such as the layout of a community, landscape, domestic environments, technology, and social dynamics.

Collier and Collier (1986) are known for a scientific or realist approach to visual methods. To study domestic settings, they recommend a shooting guide (the visual equivalent of an interview guide) to help establish the content and sequence of shots to be taken and to ensure consistent photographic records across field sites. As further evidence of a positivist perspective, they provide instructions for microanalysis, essentially a content analysis of the artifacts and spatial relations within visual data, although this strategy also taps into the researcher's intuition and artistic sensibility. Fifty-four years after its first publication, Collier's initial techniques now stand in contrast to more wholly interpretive approaches, but his expanded book remains lauded for its prescient vision and technical detail. Today, the research area of visual anthropology can be accessed through the journal *Visual Anthropology* and the Society for Visual Anthropology, the latter a chapter of the American Anthropological Association.

Visual Methods in Sociology

There is also a long-standing tradition of visual research in sociology. Photography and sociology both came into being in the 1830s, although for more than a century imagery did not factor heavily into sociological inquiry because word-based field methods and surveys were considered the norm (Stasz, 1979). This approach changed in 1974 when sociologist Howard Becker published "Photography and Sociology" as the lead article in the first issue of *Studies in the Anthropology of Visual Communication*. His paper was a call to action

to combine the theoretical strengths of mainstream sociology and the technical skills of documentary photography to better understand the social world.

Soon after Becker's breakthrough statement, Jon Wagner collected early works on visual sociology in an edited book, *Images of Information* (1979a). His introduction provides a first framework and typology of the various ways images can play a role in social inquiry: 1) photographs as interview stimuli; 2) for systematic recording; 3) for content analysis purposes; 4) for native image making; and 5) in narrative visual theory (Wagner, 1979b, pp. 16–19). A contemporary example of visual sociology is Douglas Harper's *Changing Works: Visions of a Lost Agriculture* (2001a); it employs portrait, landscape, aerial, and archival photography to display changes in dairy farming in upstate New York. Starting points to explore visual sociology are the journal *Visual Studies* (formerly *Visual Sociology*) and the International Visual Sociology Association.

Epistemological Fault Lines

These thumbnail sketches of visual research traditions in anthropology and sociology begin to reveal the epistemological complexity that surrounds visual approaches. Foremost, there is a tension between the potential objectivity or subjectivity of visual techniques and the resulting data. Images such as photographs and film appear to represent the world objectively and without interpretation. In this spirit, Collier and Collier (1986) exhort the camera as a "mirror with a memory" (p. 7) that enables precise records of material reality. On the other hand, an image may be seen as socially and technically constructed, a "polysemic and ambiguous social and cultural artifact" (Wagner, 2001, p. 7). In this latter view, images are largely a reflection of visual culture and the way the researcher frames and then interprets the world, and the danger of drawing conclusions from images is emphasized. This tension is expressed by Grady (1996), who notes that photographs are puzzling and fascinating because they:

> are like gravitational fields whose emotional density is provided by the stories they tell. But the source of these meanings is often indeterminate. Is it captured from those pictured? Is it imposed by the photographer? Or is it drawn from the viewer as though by a magnet? (p. 10)

Theorists and methodologists of visual research have characterized these epistemological fault lines in different ways. Harper (2005) calls visual sociology a "two-headed beast" (p. 20) with "empirical" and "symbolic" approaches, which Chapin (1994) refers to as "empirical" and "critical" perspectives. Prosser and Loxley (2008) describe the landscape of visual research today as a "positivist-interpretivist continuum" marked by realist or positivist philosophical axioms at one end of a spectrum and "fervent phenomenological introspection underpinned by ontological idealism and epistemological relativism" (p. 10) at the other. They note that polarity is not constructive for the research community, that both positivist and interpretivist approaches can each play a

legitimate and worthwhile role in social science research, and that many studies benefit from mixed-method designs.

Other Issues and Integrative Frameworks

There are other issues and debates among visual researchers that can only be superficially discussed here due to space limitations. One of the largest and most open-ended questions asks what qualifies as an image in visual research. Traditionally, visual methods imply photographs (this paper is limited likewise), while video, diagrams, and illustrations are also common. Arts-based research (Knowles & Cole, 2008) employs formats such as cartoons and paintings, among others, and multimedia further expands the visual possibilities (Pink, 2007, Part 3). Another relevant issue is the origin of the images during the research process. Visual data can be created by the researcher during data gathering or the research participant can be directed to visually represent his or her world. Similarly, images found in the field, or anywhere in culture, may also serve as data. Furthermore, scholars continue to probe the relationships between the academic and professional communities that both take a central interest in the visual realm. Becker (1995) distinguishes visual sociology, documentary photography, and photojournalism; Harper (1988) asserts the different orientations of visual methods and visual studies; and Wagner (2004) charts the distinctions between social science inquiry and documentary study. There are integrative frameworks available elsewhere that provide comprehensive views on the epistemological, methodological, and disciplinary issues beyond the scope of this introduction. For interested visual-methods newcomers, Table 1 (in chronological order by year of publication) is designed as a gateway to these topics.

Case Studies

Following are four instances of research into immediate information space that employed visual methods and specifically photography as a data-gathering means. Such research designs have not been common in information studies and, because of this, there is not a large pool of examples from which to select. The first illustration is from the specialty of personal information management and was chosen because it is a pioneering precedent, even though within it visual methods play a relatively minor role. The remaining three case studies were selected because still photography contributes significantly to their data gathering, analysis, and findings. They explore immediate information space from the diverse perspectives of health informatics, information behavior, and computer-supported cooperative work[1] (CSCW).

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[1]Visual approaches, especially those that capture data through video, have a much richer history in the CSCW specialty than in mainstream information studies. Suchman's pioneering studies of coordinated work practices (1983) and Crabtree and Rodden's (2004) more recent investigations of the home are two of many excellent examples.

TABLE 1.   Gateway to writings on visual methods. While there are excellent introductory monographs, the table features the more succinct and accessible journal literature (and two book chapters). These papers are either landmark contributions or attempts at a synthesis of epistemological, methodological, and/or disciplinary issues, and are mainly from the perspective of sociology. Complete citations are available in the bibliography. The table is presented in chronological order. The report by Prosser and Loxley (2008) is the best place to begin.

Author (Year)	Title	Annotation
Becker (1974)	"Photography and Sociology"	Becker's essay is credited with launching contemporary visual sociology. It is a call to action to combine the theoretical strengths of mainstream sociology and techniques of documentary photography to better understand the social world.
Wagner (1979b)	"Introduction: Information in and about Photographs"	This introductory chapter, written by the editor of an important collection of early essays on visual research, presents one of the first typologies of the ways photographs can play a role in social inquiry, namely: photographs as interview stimuli; systematic recording; analysis of naïve photographs; native image-making; and narrative visual theory.
Harper (1988)	"Visual Sociology: Expanding Sociological Vision"	Harper reports on the state of visual sociology in 1988 as consisting of two domains: visual methods (taking photographs during the research process) and semiotics of visual communication (analyzing photographs others have taken). After a history of visual sociology, he describes approaches to visual methods based upon the "mode" of using images, which may be: scientific, narrative, reflexive, or phenomenological.
Grady (1996)	"The Scope of Visual Sociology"	This article is a sweeping conception of visual sociology as the study of three things: seeing (how sight and vision contribute to the construction of social organization and meaning); iconic communication (how spontaneous and deliberate construction of images communicates information and can be used to manage relationships in society); and doing sociology visually (how techniques of producing and decoding images can be used in empirical research).
Prosser and Loxley (2008)	*Introducing Visual Methods*	An outstanding report written for newcomers to visual methods. It contains easily digestible sections on: early visual research; researcher created data; respondent generated data; research design; visual representation; and visual ethics.
Weber (2008)	"Using Visual Images in Research"	This introduction to visual research differs from the others in this table because it comes from an arts perspective. Weber elaborates ten reasons why images are valuable for inquiry. She also describes how images can be used during research: production of artistic images as data; use of existing (found) artistic images as data or springboards for theorizing; use of visual and object-images to elicit or provoke other data; use of images for feedback and documentation of the research process; and use of images as mode of interpretation and/or representation.
Pauwels (2010)	"Visual Sociology Reframed: An Analytical Synthesis and Discussion of Visual Methods in Social and Cultural Research"	Pauwels proposes an "integrated framework for visual social research;" the framework being presented temporally and following the trajectory of a visual research project from inception to completion. The framework is organized around three themes: origin and nature of visuals; research focus and design; and format and purpose of the end product.

Malone (1983)

An oft-cited paper by Thomas Malone (1983) may be the first time photographic methods were applied to an immediate information space. He focused on corporate settings and explored how professionals and clerical workers organize their offices. Ten people were interviewed for an hour before they gave explanatory tours of their work area; photographs were taken along the way. However, he does not address the specific photographic process (i.e., the number and type of photos), relative contribution of the photos, or their analysis. The final paper does not feature photographs but instead diagrams presumably based on photographic data. The study is a landmark into personal information management, for it illuminates how people organize information in offices in "files" and "piles" and display information on surfaces to "find" and "remind" themselves of tasks.

That the photographic element is not elaborated in Malone's (1983) paper perhaps created a precedent for later researchers to underutilize the technique. Subsequent studies by Case (1986, 1991a,b) and Kwasnik (1989, 1991) both explore the informational features of offices and resemble Malone's research design, but do not employ photography during data gathering, opting instead for interviews and observation. Why do these later researchers, who cite Malone, not use visual methods to capture information phenomena in the context of the immediate information space? One can speculate that the studies occurred before the advent of inexpensive and easy-to-use digital cameras, that visual approaches were not well known in the research community, and that no other information studies academics championed the technique. Twenty years passed from the time of Malone's study before photographic techniques came to play a more significant role in research about immediate information space.

Advanced Technologies for Health@Home (2004)

In the field of health informatics, Patricia Brennan and her lab conducted a 3-year inquiry termed *Advanced Technologies for Health@Home* (Brennan, ATH@H, 2004). This investigation seeks to understand how individuals manage

FIG. 1.   An example of health information located in a kitchen and surrounded by various objects from everyday life. In the ATH@H study photographs captured the material complexity and diversity of health information storage solutions within 39 households.

health information within their households and in the context of their local healthcare communities. The project was funded by the Intel Corporation, and it aimed to develop a prototype information technology for personal health management. Its research design included three phases: 1) describing household health information management practices; 2) assessing community health information resources; and 3) prototyping designs and performing usability testing. Several research methods are employed throughout the project, but here special attention is placed on the first phase—describing household health information management practices—given its extensive use of visual techniques within the immediate information space of the home.

ATH@H researchers visited 39 dwellings in one rural Midwestern community of the United States. After a semistructured interview with each family's self-nominated "home health information manager," researchers were shown health information artifacts and photographed these using a digital camera. The researchers followed their informants' leads throughout the residences, never overly directing the process. Immediately after a photograph was taken, it was evaluated on the camera's viewscreen and deleted if blurred or redundant, with reshooting occurring as necessary. By the end of the first phase of the ATH@H project, 145 unique photographs formed the visual dataset. Then, through a systematic observational process each image was coded and grouped along three dimensions: location, physical expression of artifacts, and information content.

The main findings of the study (Brennan & Kwiatkowski, 2003) report that health information is typically managed by one person in a household and derives from many sources, the most common being physicians and other family members. Health information's most prominent material expressions are standard paper formats such as files, daily planners, and calendars (as in Figure 1), while computer-based resources are less common. In the home, health information is overwhelmingly kept in the kitchen—and to lesser degrees the bedroom, bathroom, and home office—as a highly visible

location will facilitate reminding. The main topics for health information pertain to logistical interactions with healthcare systems (e.g., details of appointments or phone numbers), personal health records (e.g., immunization records or insurance documents), and materials meant for reference (e.g., encyclopedias, pamphlets, or websites). These results were variously presented as descriptive text, tables, and striking color photo collages.

The ATH@H project is exceptional for having published a methodological statement upon completion, aptly entitled *Photographic Data: An Untapped Resource to Explore Complex Phenomena such as Health Information Management in the Household (HIMH)* (Marquand, Moen, & Brennan, 2006). This paper notes the decreasing costs of photographic techniques as one advantage to their use, as well as the storage and organizational challenges raised when images are incorporated as research data. It supplies valuable process-centered pointers for visual researchers, such as remembering to take fieldnotes while shooting to capture additional context and the necessity of "staging" some shots (e.g., first photographing the outside of a cabinet and then the items inside) to adequately portray context. The authors express appreciation for photographs as "first order" representations that are less prone to misinterpretation than word-based data, yet also stress that photographs are not immune to distortion. They conclude that, overall, "photographs provided vivid accounts of the context of information use, contributing to a more explicit problem definition in the information design process" (p. 58).

Hartel (2007)

Jenna Hartel afforded still photography a central role in her dissertation, a scientific ethnography (Sandstrom & Sandstrom, 1995) of information in the hobby of gourmet cooking in America. Her dissertation explores how information in this hobby is collected, managed, and used within the contexts of everyday life and the home. Photographs feature prominently in the project and the resulting articles, posters, and conference presentations; they are also actively used on her personal academic website.

Hartel's dissertation fieldwork involved participant observation in the broader gourmet cooking social world and encompassed semistructured interviews with 20 hobbyists in their homes. Each participant also gave a narrated tour of the culinary information resources on hand while Hartel took photographs. Following Collier and Collier (1986), she utilized a shooting guide that launched the process from the informant's kitchen and outlined a structured sequence of shots at the levels of rooms, smaller collections, and interesting items. The photos were taken in a consistent manner whenever possible in order to preserve the opportunity for comparative analysis across households. At the completion of each interview and home tour, Hartel sketched a floor plan of the setting and marked concentrations of information resources to create a birds-eye view not possibly captured by any single photograph.

FIG. 2.   A gourmet cook displays a binder of her favorite recipes. Several cooks in the study created identical binders; photographs brought the similarity of the information artifact to the fore.

Altogether, 468 photos were generated for her project, an average of 23 images per site. Because of this high volume, Collier and Collier's (1986) microanalysis was not performed. As an alternative, she used a type of ad hoc analytical approach in which the contact sheet of photographs from each home was reviewed and those pictures that displayed the critical features of the immediate information space assembled with captions into short visual essays. These essays were coded along with other textual data (e.g., interview transcripts and fieldnotes) using NVivo software.

Hartel (2007) provides a first account of a domestic, hobby-related immediate information space. She describes the "personal culinary library" (PCL) that is "a constellation of culinary information resources based in the home of the gourmet cook, and an associated set of upkeep tasks" (p. 179), and quantifies the range of PCLs as small ("imperceptible, tucked away"), medium ("good-sized, a few bookshelves"), to large ("dominates or permeates a setting") (pp. 197–207). PCLs are presented in the context of the home and everyday life, amid nonculinary information, housing infrastructure (e.g., bookcases, countertops, and boxes), cooking paraphernalia, and décor. Her description of the PCL concludes with a model of the information structures that organize culinary information in the home and that lead to the creation of a cherished collection of recipes, usually kept in the simple technology of a three-ring binder, shown in Figure 2.

Hartel's description of the PCL evidences how still photography can be used to document the types and relative volumes of print information resources, systems, and structures; their arrangement in a domestic setting; and their aesthetic and heritage features. The presence of visual data also enables triangulation with verbal accounts of information phenomena expressed by gourmet cooks during interviews. In a later paper, Hartel (2010) comments on shortcomings of the photographic technique:

> Information resources that existed outside the home were minimally documented. Another limitation of the approach is that it favored information phenomena in traditional (paper)

form, such as cookbooks and recipe cards, while computer or Internet based resources were marginalized (p. 853).

Concerning epistemology, Hartel's study (2007) shows that combining "positivist empirical visual methods with interpretive visual methods when the circumstances warrant a mixed-methods approach" (Prosser & Loxley, 2008, p. 16) can lead researchers to unique and valuable findings. In an effort to negotiate scientific ethnography's (Sandstrom & Sandstrom, 1995) "emic" and "etic" perspectives, Hartel applies Collier and Collier's (1986) inventory technique, in which the shooting guide establishes reliability within a realist or positive paradigm; at the same time, during guided tours, her informants serve as navigators, narrators, and interpreters of their settings and the accompanying artifacts. Now at the Faculty of Information, University of Toronto, Hartel trains students in ethnography and visual methods in the course *The Information Experience in Context* (Hartel, 2009); her advisee and coauthor of this paper, Leslie Thomson, utilized photography to study the home offices of printing professionals (Thomson, 2010).

Swan and Taylor (2004–2008)

For almost a decade, Laurel Swan and Alex Taylor have been conducting highly original studies of information and technology in home environments. Swan is a doctoral candidate and researcher at Brunel University and has a particular interest in mothers' work, while Taylor is employed by Microsoft Research Limited, lending their investigations a design orientation. Both practice ethnomethodologically informed ethnography (Crabtree, Nichols, O'Brien, Rouncefield, & Twidale, 2000), which does not aim to develop a theory; rather, the goal is to make visible the mundane practices that constitute everyday life. Following Dourish (2006) and Anderson (2007), they apply ethnography to "broaden and sensitize design concerns" (Swan, Taylor, & Harper, 2008, p. 6).

The following is an analysis of a collection of five related papers by Swan and Taylor, drawn from an 18-month field study of several London families with children. Their objective was to better understand the activities that organize home life and its associated material artifacts. The research plan involved participant observation, informal and in-depth interviews, fieldnotes, video, and photography—the latter is of greatest interest here. The methodology sections in their papers are short, and in four out of five cases constitute just a single paragraph. Only one article specifies that pictures were taken (Taylor & Swan, 2004), and another mentions, "all the households ended up giving us tours of their homes in one fashion or another" (Swan & Taylor, 2008, p. 262). Otherwise, their visual techniques are unelaborated.[2] Nevertheless,

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[2]This is not a criticism. The absence of detail may follow traditions in the research community and/or reflect the fact that Swan and Taylor's articles are by and large published as conference proceedings, which are shorter and more focused on results. For very thoughtful reflections on methodology and method by these researchers, see Swan et al. (2008, pp. 5–8).

The Family Chart — theme

This role of coordinating family and household activities is further illustrated in our next example. Rebecca is a mother of three girls, aged nine, six and three. To arrange and keep track of her daughters' as well as her husband's various activities she uses a home-made calendar, or what she calls her "family chart" (Fig. 1). — analytic point

The chart, heavily annotated with the family's comings and goings, is hung prominently on the side of the refrigerator for all to see. Rebecca describes her own regular use of it: — orienting information

I generally look [at the chart] at the beginning of the week. So just to remember like when there are tea dates, when I'm going out for dinner, have I got babysitting, and that kind of stuff. But I do look at it every morning. I do religiously come down, put the kettle on, have my shower, come back, look at it while I'm making the tea, and then go up back to bed with tea. And that's what I do every morning, that is my routine. — excerpt (fieldnote)

— excerpt (photograph)

Figure 1. Rebecca's family chart.

It is the way in which Rebecca describes the routine nature of the morning ritual with her chart that is immediately striking in this excerpt. The chart's fixed place in her morning schedule signifies how it is she who takes on the role of overseeing the family's agenda in its entirety: to know who is doing what at any given point in the day. The very ordinary, everyday quality of the described ritual, performed in and amongst shower taking and tea drinking, establishes this work as a taken for granted feature of what Rebecca does. — analytic commentary
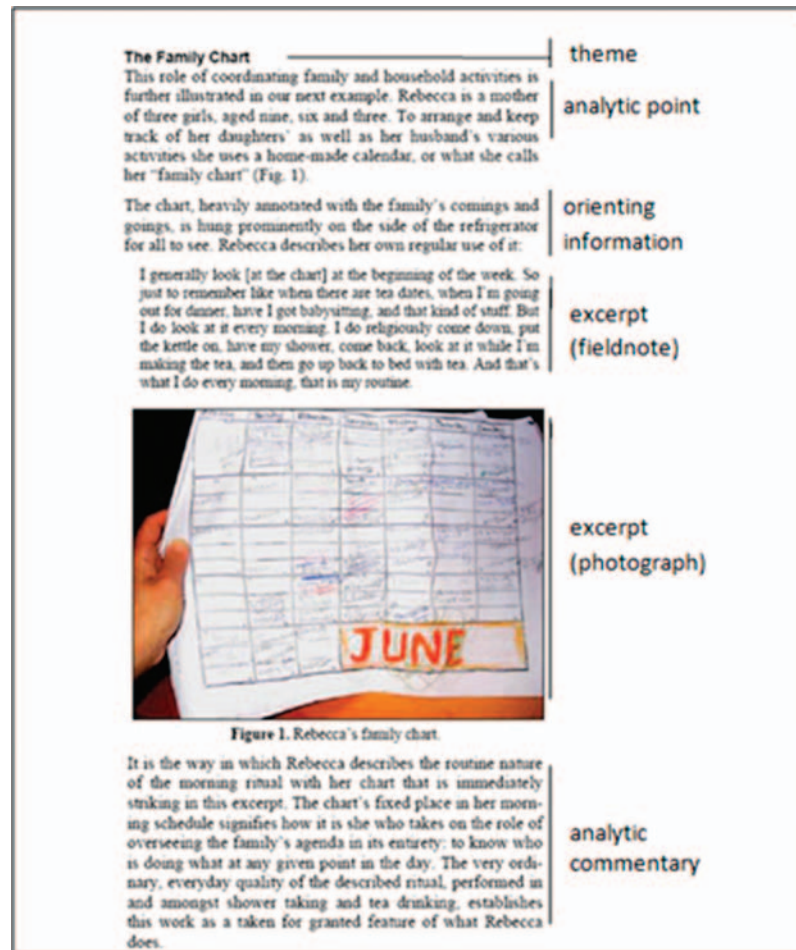
FIG. 3.   This is an original section from an article by Taylor and Swan (2005); the elements of an excerpt-commentary unit are identified in the right margin.

it is likely that hundreds of photographs were taken during fieldwork and exist within the ethnographic records for their studies. Each paper contains color photographs that anchor key results, revealing the importance of images to the projects.

Although Swan and Taylor's papers do not explain how visual data is mobilized, it is possible to deduce this based on a familiarity with ethnographic analysis and writing strategies. Swan and Taylor generate results using similar techniques as those outlined in *Writing Ethnographic Fieldnotes* (Emerson, Fretz, & Shaw, 1995), hereafter referred to as WEF. This handbook provides precise instructions for marshalling fieldnotes, the written record of observations from sites, into final reports that are relevant to an outside readership. The authors of WEF advocate writing fieldnote-centered accounts that organize vivid pieces of field data into stories or "tales of the field" (Van Maanen, 1988). WEF assumes that data are in the form of textual fieldnotes; in an innovative leap, Swan and Taylor also apply the same analysis and writing strategy to photographs.

The analytic approach in WEF can be summarized as follows. During the initial stage the researcher studies the fieldnotes (or in the case of Swan and Taylor, photographs

as well) and invents a code that links the data to a new concept or existing concern in the research area. Next, the most interesting codes are elaborated into a broader theme via writing formulas called "excerpt-commentary units" (Emerson et al., 1995, pp. 182–186). Every excerpt-commentary unit contains four elements, usually in the following order: an "analytic point" (the key finding); "orienting information" (explaining the source of the field data); an "excerpt" (one or more illustrative pieces of original field data); and "analytic commentary" (a thoughtful expansion of what is interesting about the excerpt). Although there may be slight modifications, excerpt-commentary units are evident in the papers by Swan and Taylor, as shown in Figure 3.

The final reports from their studies provide fresh insights into family life and its information phenomena. "List-making in the Home" (Taylor & Swan, 2004) describes how to-do lists are used by families as timelines, spatial activity maps, and symbols of cooperation. An article about refrigerator doors reveals that these ubiquitous flat surfaces can support magnets and ephemera that express and negotiate relationships (Swan & Taylor, 2005). Another paper (Taylor & Swan, 2005) illuminates how calendars, charts, and recipe books are used to coordinate household happenings; these organizing systems

FIG. 4.   A one-of-a-kind family organizing device called a "petal board" by its creator. Photographs illuminated the artful and bespoke nature of home organizing systems.

can be artful, as shown in Figure 4. They elsewhere document the accumulation of clutter, "a heterogeneous collection of things that, for all manner of reasons, hold an ambiguous state in the home," whether in bowls, on countertops, or hidden in drawers (Swan et al., 2008, p. 1). Finally, Swan and Taylor (2008) describe how photo displays that appear on mantelpieces, sideboards, hallway walls, and in home offices can unknowingly reveal family dynamics.

Swan and Taylor's work has uncommon communicative power that results from the innovative use of excerpt-commentary units showcasing visual data. In just a few economical photographs per paper, they spotlight aspects of family life that, at first impression, are neither information-intensive nor socially meaningful. But subsequent analytic commentary deftly bridges the image to important concepts in the research area, resulting in "eureka!" moments of new understanding. Furthermore, photographs are an apt means to convey the broader theme, repeated across their work, of the artful and bespoke nature of domestic information artifacts—an aesthetic dimension hitherto neglected. As Weber (2008) posits about images in social science research, the photographs by Swan and Taylor capture the "ineffable, the hard-to-put-into words," they "make us pay attention to things in a new way," and they are "memorable" (pp. 43–44).

Applying Photographic Techniques to Study Immediate Information Space

Drawing on the case studies highlighted above, this section points to some strengths and limitations of visual methods and specifically photography to study immediate information space, and provides practical advice for information researchers to utilize photography in a research design.

Strengths and Limitations of Photographic Techniques

Photographic strategies are especially useful in "exploratory research" (Stebbins, 2001); that is, pioneering investigations when "a group, process, activity, or situation has received little or no systematic empirical scrutiny" (p. 9).

Cameras are also powerful data-gathering tools for complex or busy research environments in which the fieldworker is not able to observe everything of relevance in a limited timeframe. Photographic data enables subsequent, careful scrutiny of, for instance, an extensive book collection or cluttered desk. Visual data in the form of photographs are also a highly effective way to establish the basic properties of an immediate information space, including its scale, size, and layout, among other things, and to survey, quantify, characterize, and typologize the artifacts therein. The aesthetic characteristics of information phenomena are also effectively captured in photographs. Table 2 is a question-based framework for the study of immediate information space that leverages the strengths of photography. Given the dearth of instructions for applying visual methods in information studies, Table 3 contains a collection of original tips to photograph information phenomena within immediate information space.

All research methods have limitations. Cameras cannot equally capture every concept relevant to information studies. They are best suited to document the tangible features of immediate information space, information artifacts, and structures in print formats, since electronic, digital, virtual, and network-based resources are often nested, beyond view, or within computer hardware. Also, photographic data usually preclude human beings to protect privacy and confidentiality, and could potentially give short shrift to the social dimension of information phenomena (although Swan and Taylor's oeuvre is exemplary in its social richness). To correct for these shortcomings, visual methods are best seen as one element of a mixed-methods research design.

Mixed-Methods Research Design

The projects surveyed earlier did not employ photographic techniques exclusively. In all cases, in-depth or semistructured interviews were conducted to gather the informant's commentary on the immediate information space, its contents, and its circumstances of use. Malone's (1983) strategy of the guided tour effectively directs the subject's attention outward. During a guided tour, object probes (DeLeon & Cohen, 2005), such as "What is this?" or "Tell me more about this. . ." or "How does this work?" can be used to further encourage elaboration. Another visual method, diagramming, is also complementary to photography, since it is not possible to capture and contextualize multiple views in a single camera angle.

However, much can still be learned by simply measuring and counting the features of immediate information space (Case, 1986) or by observing subjects performing simple office tasks (Malone, 1983; Kwasnik, 1991). Although not featured in this paper, some studies of immediate information space have also included surveys (see Whittaker & Hirschberg, 2001; Kalms, 2008). When electronic, digital, virtual, and network-based information phenomena are important to the research project, various tools are available that log technology use and performance. Essentially,

TABLE 2.   A question-based framework for the study of immediate information space, using photography.

What are the general characteristics of the immediate information space?
● What type of space is it? (office, home office, study, living room, bedroom. . .)
● What are its dimensions and layout?
● How is it situated in the household/ building? (a dedicated room, a section of a room, multiple rooms. . .)
● Is the space oriented to windows, outdoor views, or other entities?
● What entries, exits, throughways, and apparent traffic patterns exist?
● What furniture is present? (desks, tables, chairs, file cabinets, media units, bookcases. . .)
● What infrastructure exists? (lighting, floor/wall/window treatments, plants, ventilation. . .)
● What is the aesthetic? (traditional, modern, eclectic. . .)
● How is the space personalized? (artwork, photographs, memorabilia, collectibles. . .)

What information resources exist in the immediate information space?
● In print formats? (books, magazines, newspapers, documents. . .)
● In electronic formats? (digital files/folders, webpages, bookmarks, CDs. . .)
● What information technologies exist? (computer, printer, telephone, photocopier, fax, mobile devices. . .)
● What networks are present? (Internet, local area network, wireless network. . .)
● What administrative materials are present? (mail, receipts, tax documents. . .)
● What personal (or family) ephemera are present? (letters, greeting cards, recipes, photo albums. . .)
● What personal (or family) organizational entities exist? (calendars, address books, day-timers, to-do lists. . .)
● What multi-media entertainment resources are available? (television, stereo, CDs, games. . .)
● What is the volume and relative ratio of the various information resources above?
● What types or genres of information exist? (reference, non-fiction, fiction, primary, secondary, tertiary. . .)

What information structures are present?
● How is the space organized (or not)?
● Is the space neat or messy?
● What information structures contribute to organization and use? (files, bookshelves, crates, drawers. . .)
● Is there signage or labeling?

How do people use the immediate information space?
● Who uses the space? (a single person, a couple, a team, family, children. . .)
● What is the nature of activity in the space? (work, socializing, entertainment, hobby. . .)
● What information activities occur? (information seeking, storage, reading, sharing, producing. . .)

research into immediate information space benefits from multi-method research designs that utilize the full range of quantitative and qualitative data-gathering methods.

The Dissemination of Visual Research

Investigations that employ visual approaches raise special issues for communication and publication. As Malcolm Collier (2001) notes, "although changes may be on the horizon, one of the frustrations of visual research is that we are usually required to present our findings primarily in written form" (p. 59). Ironically, indeed, research that employs visual techniques is often reported mostly in words due to disciplinary conventions that favor text, as well as cost-based restrictions by academic publishers. (This latter aversion is changing as digital formats proliferate.) When photographs are included in publications, handbooks such as the *Publication Manual of the American Psychological Association* treat them as figures, and basic guidelines are provided for "best effect" (see *American Psychological Association*, 2010, Sections 5.20–5.30). Outside of academic journals and monographs, research containing images can make a powerful impression. Half of Wagner's (1979a) book on visual sociology addresses the value of images to teaching, while other public forms of dissemination such as conference presentations and posters can be significantly enlivened with pictures.

Conclusion

As mentioned earlier, visual research today spans an epistemological spectrum. The projects discussed in this paper largely exhibit the realist or positivist pole and the visual tradition of anthropology, whereby the camera is used to generate records of reality. Such studies would be classified by visual theorists as empirical, applying photographs to scientific or narrative purposes (Harper, 1988). Practically speaking, researchers in information studies use photography to perform a systematic recording (Wagner, 1979a,b) or conduct an inventory (Collier & Collier, 1989, Chapter 5). In contrast, at the opposite interpretivist end of the spectrum (Prosser & Loxley, 2008), photographs are viewed more critically and skeptically as expressions, foremost, of the researcher's own worldview. In this realm of visual studies, photographic data are analyzed in terms of theories or conventions that exist beyond the immediate information space, in visual culture at large. Of note, the research designs culled from information studies for the purposes of this paper are not extreme examples or wholly representative of the empirical position; each is moderated by interpretive, reflexive, and phenomenological elements, namely, the informant's framing of images through guided tours, the application of excerpt-commentary units (Emerson et al., 1995), or the inclusion of reflexive methodological statements in the researchers' final reports.

TABLE 3.   Tips for photographing information in immediate information space, drawn from research by Hartel (2007) and Thomson (2010) and adapted from Collier and Collier (1986, Chapter 5).
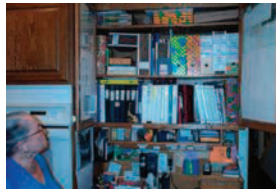

Look inside. Information is often in closed spaces or chambers. If possible, photograph the inside of closets, cupboards, and drawers. Here, a kitchen cabinet is opened to display a sophisticated documentary system.

Capture folk phenomena. Don't overlook folk information resources and structures often found in homes. For instance, this bulletin board displays a miscellany of documents.

Think systemically. An immediate information space may not be contained in a room, but can be a constellation of sites throughout a dwelling. At left, the set of bookshelves was just one node in a larger home-based information system.
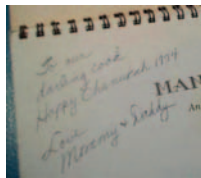
Take close-ups. It is possible to capture handwriting and text markings which suggest uses of information in everyday life. Here, a personal note in a cookbook displays the sentimental side of culinary information.

Photograph technology. Photography is not an ideal data gathering method for documenting inner workings of information systems. However, photos can be taken so that technology and digital resources remain present in the ethnographic record.

Anticipate miscellany. Information keeps company with mundane objects of everyday life. At left, books are kept amidst knives, bananas, and a loaf of bread.

Document structure. Any explicit display of classification is valuable to information-related research. Take every opportunity to photograph evidence of structure such as the tabs on a filing system at left.

By embracing visual methods already well established in other social sciences, information studies enhance its methodological sophistication and interdisciplinarity. Further, there is little attention given to immediate information space within the strongholds of visual anthropology and sociology, where information researchers are poised to make an original contribution.

This paper traced the traditions of visual research within the social sciences, and introduced the major epistemological, methodological, and disciplinary debates associated with visual scholarship. An analysis of four cases from information studies displays how pioneering applications of photographic methods have mainly applied realist, scientific, or positivist principles, tempered with interpretive

touches. These investigations have successfully documented the basic features of immediate information space in new research domains. Hopefully, visual approaches will gain in prevalence in information studies, helping to bring new information phenomena into view.

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