What is a picture worth? A primer for coding and interpreting photographic data

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Abstract
Society is becoming increasingly image based. As individuals regularly record moments both mundane and momentous, images potentially lose or gain power to communicate important information. Social work scholars have argued that social work should incorporate images into both interventions (Chapman and Hall, 2016; Chapman et al., 2014) and research (Marshal et al., 2009). A recent review provides an overview of visual methodologies in social work (Clark and Morriss, 2015). The most popular means of doing this has been through the incorporation of Photovoice (Wang and Burris, 1997) into the social work research repertoire. Yet, in Photovoice, although images are central, text remains the unit of analysis. This paper aims to augment the existing literature in social work by focusing on ways in which images can be data in and of themselves and how image-based data interact with text-based data. We will begin with ethical considerations, proceed to step-by-step instructions for coding and analyzing image-based data in ATLAS.ti, and finally discuss interpretation. A case example drawing on a visually based project originally conducted with in-country Chinese migrant mothers will illustrate the outlined methods.

Keywords
Visual methods, photographic coding, qualitative research, Photovoice, ATLAS.ti

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As social work researchers are becoming more interested in visual methods as a data collection mechanism, guidance in analyzing image-based data is required. Using images as data is currently uncommon in social work research. Although, participatory research methods such as Photovoice (Wang and Burris, 1997) have gained traction, in Photovoice, participant-generated images work as photo-elicitation devices in which participant images begin a dialogue with fellow group members and researchers (Sandelowski, 2000). The data most often analyzed in Photovoice are the transcribed text participants provide as they discuss their photographs in preparation for advocacy experiences such as community forums or photo exhibitions. Yet, participant-generated photographs contain additional undiscussed visual data that are often ignored by researchers and participants but may contain valuable information that may augment or enhance the text-based findings.

Although videotaped interactions are often coded for content in the helping professions (Dunn et al., 2011), photographs as data sources largely have been ignored. Scholars, art historians, and marketing professionals have long recognized the power of images to communicate overt and covert messages (Davis, 1992). Indeed, still images provide a powerful means for quickly giving voice to complex experiences by allowing individuals to tell their stories in their own way. In addition, they allow for reflective processing that can lead to rich and insightful individual and group conversation (Kross et al., 2005). The photographer, whether professional or amateur, researcher, or participant, chooses particular moments to depict over others making both the content contained in photographs, as well as what is absent, important components for understanding the photographer's meaning (Berger, 1969). When photographs are coded, patterns included in and excluded from an individual's or group's series of images may become evident. These patterns can be reflected back to participants or other key informants as a form of member checking or photo-elicitation. Yet within social work, methods for coding and analyzing photographs have not typically been a part of either qualitative or quantitative research training. This paper begins to fill this gap by examining ethical considerations when using images as data, providing step-by-step guidance for coding visual data using ATLAS.ti, and considering ways in which we might understand particular functions in ATLAS.ti to aid in interpretation and hypothesis generation.

We will use a case example based on data obtained through a Photovoice study based in Shanghai, China in which we asked migrant mothers to describe their parenting experiences using participant-created photographs and group discussion (Chapman et al., 2013). This exploratory project aimed to understand migrant mothers' life experiences, particularly parenting experiences and adjustment to daily life in the host city. The goal was to take this information to decision-makers who had the power to assist these mothers in creating needed changes in their migrant village. For complete information on this project, see Chapman et al. (2013). In total, 13 mothers participated in taking and discussing photographs, and advocated for change through a forum with community leaders. The audio-taped

discussion was transcribed and translated from Mandarin to English for analysis. Our initial goal, which was accomplished, was to follow the classic Photovoice procedure (Wang and Burris, 1997) in which group discussion transcripts were analyzed with participants in order to create a community forum to share findings with key stakeholders and advocate for change. During the project, a research team member who shared a similar migration history to the participants noticed elements in the pictures that had not come up in the discussion. Further, he suggested other elements that might have been depicted but were not. In addition, information in the pictures supported the text-based findings in interesting ways. Our team opted to code the photographs themselves in addition to the text. Data obtained through this project will be used to provide examples throughout the paper. We will begin with laying out ethical considerations when using photographs as data and move to a step-by-step guide to coding and analyzing images.

Ethical considerations

In the current climate self-made images are ubiquitous. People of all ages and backgrounds are regularly posting images to social media sites and platforms, thus, asking participants to take and share images, may be considered low-risk research. However, an image, particularly one taken for research purposes, may represent deeply personal dimensions of participants' identities or circumstances. Because photography is closely related to visual perception (Solso, 2003), even a photograph taken without much thought may represent and communicate more than what a participant might consciously choose to reveal. At the most basic level, an image may communicate personal data such as location, age, or gender in ways that threaten confidentiality or protection from deductive disclosure. Further, taking a picture and discussing it, may produce emotional responses that participants do not anticipate when they agree to participate in image-based research. Therefore, when working with participant-generated photographs, researchers must consider research ethics as vigilantly as they would when collecting highly sensitive survey or interview data.

Two informed consent elements warrant detailed attention: confidentiality and potential distress from participation. In the community-based participatory research context, images are created for advocacy purposes (Lorenz and Kolb, 2009). Participants take photographs knowing that they will engage with others in their community to discuss their chosen photographs. Yet, photographs obtained as data are often published in academic journals and, in recent years, those articles are widely accessible online. Participants may or may not be coauthors on such articles. But, small sample sizes and data contained in images may produce potential deductive disclosures that participants do not anticipate. For example, one mother in our Photovoice study took a photograph of her husband working. In the picture, he is wearing a cap, and the picture is taken from an angle showing his face only in shadow. At first glance, the photograph

appears deidentified. A closer look reveals that the cap has a logo on it that indicates his employer. If enough information is given in the article to contextualize how and where the research was done, how many participants were involved, or other elements common to a typical sample description, the person photographed and the person who created the photograph may be able to be identified. The participant may have been aware and willing to participate in a community forum, or even to have her photographs published in a journal, but may not recognize that small elements in the photographs may compromise privacy in unexpected ways. Researchers then bear the added responsibility of thinking through these many possibilities both at the point of obtaining informed consent and of dissemination. Photographs may need to be edited—in the above example, we removed the logo and blurred the face to prevent inadvertent disclosure. When a photograph is particularly compelling, yet will compromise confidentiality in ways the participant may not have recognized or anticipated, a researcher must refrain from using it or return to the participant for specific permission. Even when consent has been obtained, the researcher may be in the position to recognize new risks in certain dissemination venues and should either return to their participants for further risk/benefit discussion or refrain from dissemination. Modifications to Institutional Review Boards (IRB) protocols may be necessary in such situations.

Discomfort related to participating in the research also has a particular flavor in visual research, particularly when researchers code images. As posited earlier in this manuscript, images may contain data over and above what participants actually describe when talking about an image they have created. That data may be present in the image or it may be informed by what is missing. Both present and missing elements may represent a conscious or an unconscious choice to depict or neglect that data. Yet, when researchers code images, they may look for elements not previously mentioned by participants. For example, migrant mothers in our project provided no pictures of elder family members even though filial piety is a central value throughout China. When we asked them about this after attempting to code pictures for elders, many mothers at the table began to cry and voiced deep distress in not being able to physically care for their parents on a day-to-day basis. Through asking to discuss photographic elements about which participants did not initiate discussion, researchers may be opening up conversations that are painful and produce emotional consequences that participants did not anticipate when they consented. Of course, these conversations can be rich and meaningful, particularly for social work researchers seeking to understand needs and intervention points, but participants should be made aware of these possibilities and resources should be present to help participants with any emotional distress they may encounter by being a part of the research.

Coding pictures step by step

Several qualitative data analysis programs allow for coding visual data, linking coded photographs to text, and analyzing relationships between coded data.

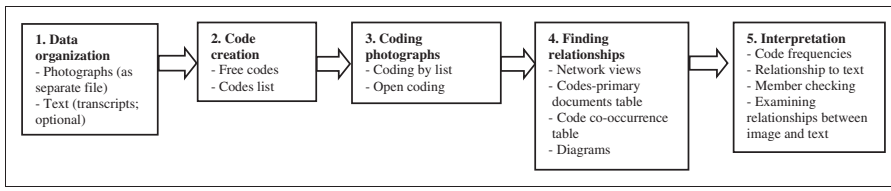


Figure 1. Steps in photographic data analysis.

This article will focus on analytic steps within ATLAS.ti because it is widely used for qualitative data analysis and supports the analysis of visual data.

By way of overview, we suggest five steps, depicted in Figure 1, for analyzing photographic data: data organization, code creation, coding, finding relationships or patterns, and interpretation.

Although data, both text- and image-based, can be imported to ATLAS.ti in multiple formats (Archer, 2012; Friese, 2013, 2014; Muhr, 1997) to analyze images, each image should be separated from text. If text and images are stored together in one file, the photographs cannot be coded partially although the text can. For instance, in our analysis, we initially created a file that included each mother's discussed photographs and the transcribed text that accompanied those images. This arrangement was useful for analyzing text but we could not analyze the photographs. Instead, we saved each photograph to be considered for analysis in *.jpg format and treated them as independent primary documents (*P-Docs* on the main toolbar; see Friese (2014: 3–4) for more details about the ATLAS.ti toolbar). We also saved each mother's transcript as an independent Microsoft Word document file.

Step 1: Data organization

The *P-Docs* button on the left of the main ATLAS.ti toolbar accesses a "Primary Doc Manager" window. Choosing *Documents,* then, *New,* and then *Add Document* creates a new project. To access an existing project, known as a Hermeneutic Unit (HU) file in ATLAS.ti, go to *Project* on the main menu, choose *Open,* and then select the desired ATLAS.ti file (e.g. mother2.hpr6, where the "hpr6" is ATLAS.ti HU's filename extension). All related documents, code lists, memos, and other ATLAS.ti files saved for that HU will be available to edit. This process mirrors the process for text files; in this case, photographs are uploaded instead of text documents.

Step 2: Code creation

Coding can begin once all primary documents are uploaded. Just as with text, a priori codes based on previous research, conversations with participants, or theory can be created prior to the start of coding. Free codes also can be added to images throughout the coding process. The process is the same.

A priori codes. In our Photovoice project, one focus was the migrant mother's parenting concerns. Knowing from the literature that education was a highly salient issue in Chinese culture, we created an a priori code called "education." Pictures that depicted parents engaged in helping children with homework or driving their children to school were coded as "education."

To create an a priori code list, we chose *Codes* (at the middle of main menu), then *Create Free Code(s)* and type the desired code name in the pop-up window. The down arrow can be used to create another new code. Once all the a priori codes names were entered, the *Codes* window displayed an a priori code list.

After we began to code using our *a priori* codes, we found that most pictures of fathers showed them involved with their children's education. Thus, we added an additional code called "fathers in education" to our code list. The process of creating free codes is the same as for a priori codes. It is done after coding has begun instead of in advance.

Step 3: Coding photographs

To code our photographs we selected a primary document (e.g. a photograph) from the "P-Docs" document list and selected the elements within the photograph to code by dragging the mouse over particular parts of the picture. To use a priori codes we moved the mouse over the selected part of the photograph, right clicked, and then chose first *Coding,* and then *Select Codes(s) From List,* and then double clicked the desired code name.

When we wanted to add an open code called "smile," we moved the mouse over the selected image area and chose *Coding*. Then we chose the option *Enter Code Name(s)* and typed the code name being added. Figure 2 visually demonstrates this process of creating an open code and then using that code. After we added a code called "smile" during the open coding process, we were able to apply the code to other photographs. Once a code is created, either a priori or during the coding process, accessing that code again is done in the same way. Auto-coding in which the program searches for a particular word within the texts is not applicable to photographic data.

Step 4: Finding relationships

Creating code families (CFs) can help organize codes and help researchers think about relationships and preliminary themes. Table 1 presents CF creation using nine photographs taken by one mother. These photographs contain 16 codes which we grouped into five CFs. The nine photos in this example contain six codes that refer to people, two that refer to places, three codes that refer to how time is spent, two that reference changing status, and three that address other issues or special topics. Table 1 presents the progression of codes from individual codes found in pictures, to groupings, to naming CFs.

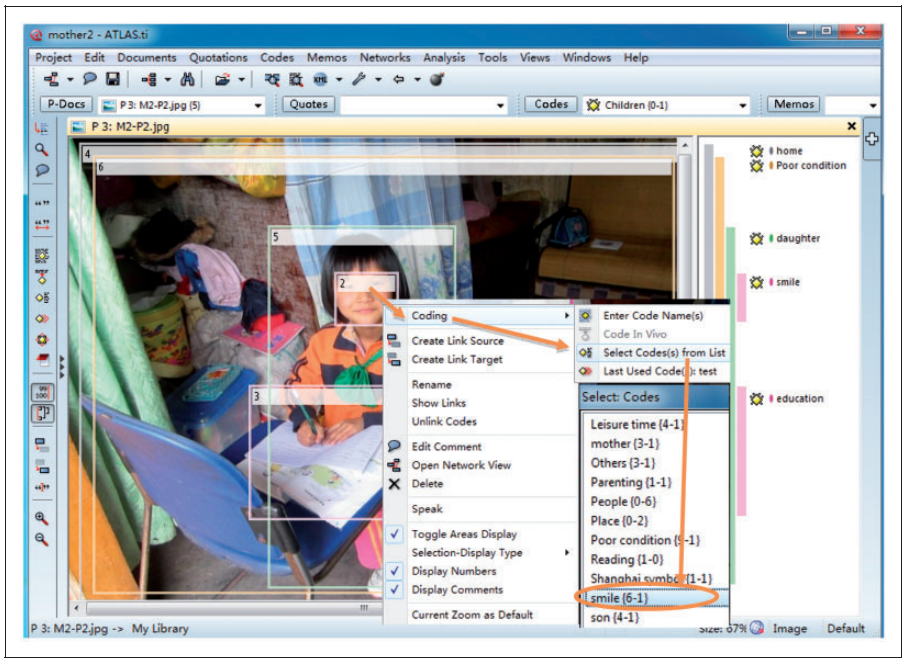


Figure 2. Process of selecting codes from a code list.

Table 1. Process of generating code families.

P-Docs →	Codes (A–Z) →	Grouping codes →	Codes families
M2-P1.jpg	1. Children	1. Children	
M2-P2.jpg	2. Daughter	2. Daughter	
M2-P3.jpg	3. Education	6. Husband	**1. People**
M2-P4.jpg	4. Family portrait	8. Mother	
M2-P5.jpg	5. Home	9. Others	
M2-P6.jpg	6. Husband	14. Son	
M2-P7.jpg	7. Leisure time	5. Home	**2. Places**
M2-P8.jpg	8. Mother	16. Working place	
M2-P9.jpg	9. Others	3. Education	
	10. Parenting	7. Leisure time	**3. Time spent**
	11. Poor condition	10. Parenting	
	12. Shanghai symbol	15. TV	**4. Change symbols**
	13. Smile	12. Shanghai symbol	
	14. Son	4. Family portrait	
	15. TV	11. Poor condition	**5. Special issue**
	16. Working place	13. Smile	

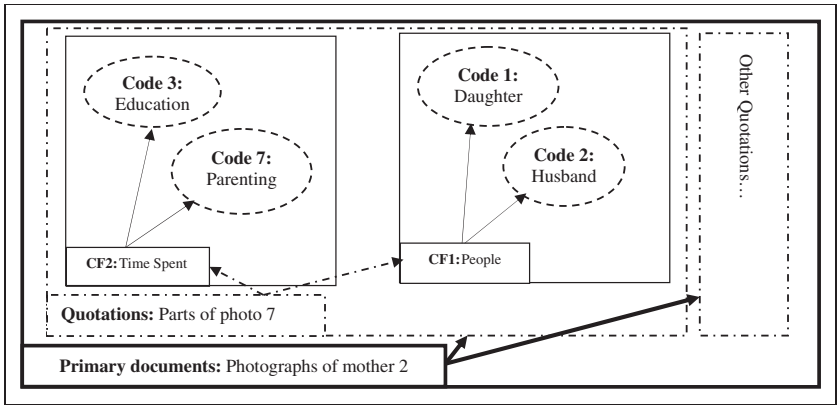


Figure 3. Codes relationship to codes families.

Figure 3 demonstrates the way in which the codes in one photograph contribute to CF creation. Consider photograph 7 that contains six coded elements. Each element is referred to as a *quotation,* even though it is image and not text. In photograph 7, the primary document or *P-Docs,* we coded *quotation* 1 as daughter (*code 1*), *quotation* 2 as husband (*code* 2), *quotation* 3 as education (*code* 3), *quotation* 4 as home (*code* 4), *quotation* 5 as smile (*code* 5), *quotation* 6 as poor condition (*code* 6), and *quotation* 7 as parenting (*code* 7). Then we grouped code 1 and 2 as one CF named "people (CF1)" and grouped code 3 and code 7 as another CF called "time spent (CF2)." Creating CFs may prompt researchers to look at ways in which codes fit together either across all of the visual data or among subgroups of images.

In ATLAS.ti, there are five ways to examine relationships among and between codes. The first is the *network view of primary documents and codes* which displays all the codes within a particular photograph. A second option is the *network view of codes and quotations* which allows for review of all the quotations/photographs that contain a particular code. Third is *codes–quotations–documents relationships* which quantifies codes by showing the distributions or percentages of codes in all considered photographs. A *code co-occurrence table* depicts the correlations among the codes and, finally, the *diagram* function creates visualizations of the relationships among codes. Figure 4 provides an example in which steps 1–4.1 take us through these options.

The *network view of primary documents and codes* provides information on what codes are present in particular photographs. As depicted in Figure 4, Mother 2's second photograph named P3:M2-P2.JPG was chosen as the photograph of interest by choosing *P-Docs* on the main toolbar. Next we chose *Open Network View* that displays a network view window of P3:M2-P2.JPG. Next we right clicked the mouse on the photo and chose *Import Neighbors* and *Import Codes*.

As Figure 4 shows these steps allow all the codes present in this picture to be visible. If a picture contains many coded elements, the window may be difficult to

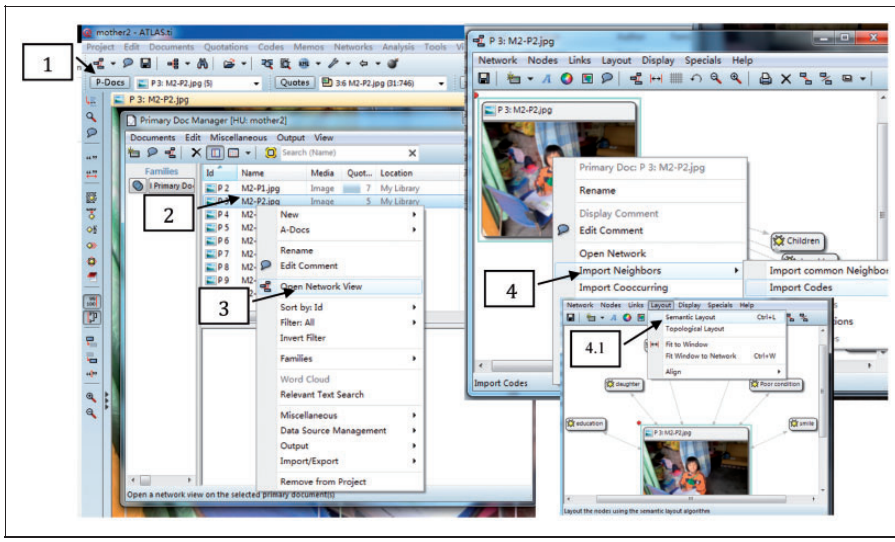
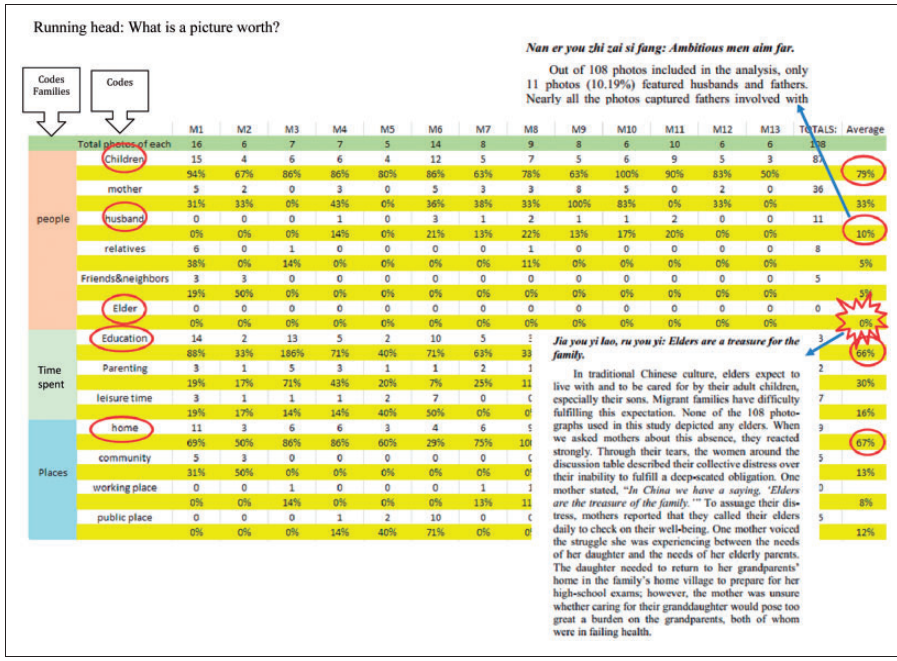


Figure 4. Process to obtain a *network view of primary documents and codes*.

understand. To organize the codes use the step labeled 4.1 in Figure 4, first choosing *layout* from the main menu of the network view window and then choose *Semantic Layout* to create a more organized picture.

Network view of codes and quotations. We used the *network view of codes and quotations* to find out which primary documents in a HU, in our example Mother 2's photographs, contain the code *education*. Note that quotations can refer to text or to an element of a photograph. We first chose *Codes* from the main toolbar and selected "education" from the code list. We then chose the code name to *Open Network View* and then, *Import Neighbors* followed by *Import Quotations*. Three of her nine pictures contain the code "education."

Codes–quotations–documents relationships. Another way to examine how coded elements are connected is to create a codes-primary documents table. Figure 5 provides an example. All codes or subgroups of codes can be chosen in order to examine the relationships between them. We first chose *Analysis* from the main menu and then selected *Codes-Primary Documents Table*. In our example we selected a series of codes for examination. We selected them in the pop-up window from the *Code Families* cell and moved the coded files into the *Primary Document Families* cell. Then, we used the ">>>" button to move the selected codes into the analytic data source cell and clicked *Create Report* which created a table like that shown in Figure 5. The table provides frequencies and percentages for the chosen codes or CFs. The text embedded in Figure 5 gives examples of how these analyses related to our eventual published findings.



		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	TOTALS:	Average
	Total photos of each	16	6	7	7	5	14	8	9	8	6	10	6	6	108	
people	Children	15	4	6	6	4	12	5	7	5	6	9	5	3	87	
		94%	67%	86%	86%	80%	86%	63%	78%	63%	100%	90%	83%	50%		79%
	mother	5	2	0	3	0	5	3	3	8	5	0	2	0	36	
		31%	33%	0%	43%	0%	36%	38%	33%	100%	83%	0%	33%	0%		33%
	husband	0	0	0	1	0	3	1	2	1	1	2	0	0	11	
		0%	0%	0%	14%	0%	21%	13%	22%	13%	17%	20%	0%	0%		10%
	relatives	6	0	1	0	0	0	0	1	0	0	0	0	0	8	
		38%	0%	14%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%		5%
	Friends&neighbors	3	3	0	0	0	0	0	0	0	0	0	0	0	5	
		19%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		5%
	Elder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%
Time spent	Education	14	2	13	5	2	10	5	8						3	
		88%	33%	186%	71%	40%	71%	63%	33							66%
	Parenting	3	1	5	3	1	1	2	1						2	
		19%	17%	71%	43%	20%	7%	25%	11							30%
	leisure time	3	1	1	1	2	7	0	0						7	
		19%	17%	14%	14%	40%	50%	0%	0							16%
Places	home	11	3	6	6	3	4	6	9						9	
		69%	50%	86%	86%	60%	29%	75%	10							67%
	community	5	3	0	0	0	0	0	0						5	
		31%	50%	0%	0%	0%	0%	0%	0							13%
	working place	0	0	1	0	0	0	1	1						0	
		0%	0%	14%	0%	0%	0%	13%	11							8%
	public place	0	0	0	1	2	10	0	0						5	
		0%	0%	0%	14%	40%	71%	0%	0							12%

Figure 5. Codes-primary documents table results (quotations were cited from Chapman et al., 2013).

Code co-occurrence table. A *code co-occurrence table* displays the relationship between codes using ratios. Similar to correlation coefficients, higher ratios suggest a stronger relationship between codes. To begin we chose *Analysis* from the main menu and then *code co-occurrence table*. In the resulting code co-occurrence table window, we selected the codes for both columns and rows and then specified which codes to use in the analysis using the " ≫ " button. These steps produced a code co-occurrence table like the table shown in Figure 6.

The ratios in the co-occurrence table may suggest the "shared meaning" between two codes. For example, the co-occurrence rate of code *education* and code *children* is 0.51, which means there are 73 places we coded as *education,* and 87 places as *children,* and the overlap of *education* and *children* is 54 (as shown in the left of the ratio of 0.51 in the cell). Therefore, 0.51 comes from 54 (as the numerator) divided by the denominator as the sum of 73 and 87 minus the overlap (which is 54). Ratios closer to 1 suggest a greater relationship between two codes. When codes do not overlap "n/a" appears in the cell. Although this strategy may suggest relationships between codes, member checking or supporting text in the transcripts creates more confidence in such findings.

Diagrams for visualizing relationships. Diagrams like the one shown in Figure 7 also depict connections among codes. Using the ratios from code co-occurrence table,

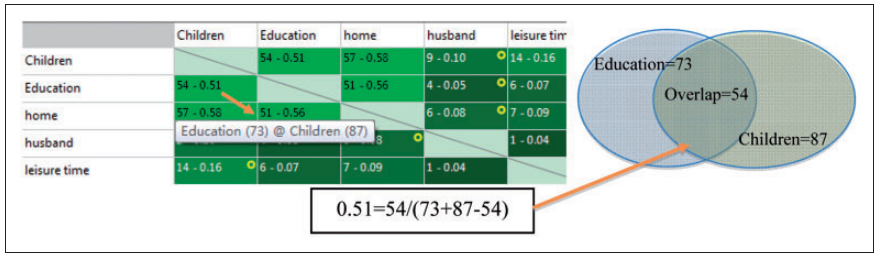


Figure 6. Code co-occurrence table.

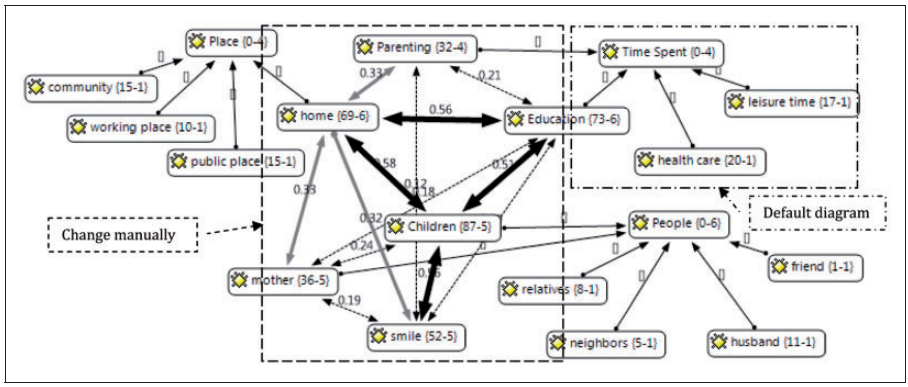


Figure 7. The default and augmented diagram of code relationships.

we augmented the program-produced diagram to further visualize important relationships by using different line styles or color. For example, when the high ratios between *education, children,* and *home* were highlighted using a thicker bold line to represent the ratios which were higher than 0.5, a triangle emerged that suggested the deep connection between children, their home, and their education.

Default diagram. We created this diagram by using the *Codes* button in the main toolbar and dragging one code onto another code to create a chosen type of relationship using chosen symbols to specify the type of relationship. Options are ''==: is associated with '', ''[]: is part of'', ''=>: is cause of'', ''<>: contradicts''. The selected relationship codes are chosen by opening network view, selecting a relation line, changing the relation, and opening the relation editor. Note that by selecting the relationship direction as described above, the researcher is simply creating a visual of hypothesized relationships for which he or she has support through other means.

To create these relationships in the default diagram, we chose *Links* in the network view window menu; then we chose, *Edit Relations,* then *Code-Code-Relations* which created new code relations by filling out the options in the ''code-code-relations editor'' window.

Step 5: Interpretation

When looking exclusively at photographs or text, the way in which findings are interpreted may vary based on what qualitative tradition the researcher espouses. Photographs, like text, can be analyzed and interpreted using content analysis to count the number of times particular codes arise, co-occur, in order to identify particular themes or build theory (Bell, 2001). Alternatively, researchers might use a more phenomenological approach to describe important ideas that are represented by depicted image elements. However, when photographs and text are used together as data sources, interpretation involves considering what is present and absent in each data type as well as what the participants' role is in creating meaning.

Consider Table 2, which contains information from nine photographs taken by one mother and the transcribed text that is associated with those photographs. Column two shows which codes were found in each picture. Column three shows which codes were noted in the transcribed text for each of these photographs. Column four shows which codes were noted in both the text and the photograph. Note, that in Column two, ''poor living conditions'' were coded by researchers in each photograph. However, in the discussion transcript, the participant only mentioned ''poor living conditions'' in reference to photograph number 5. Returning to participants with findings is helpful to interpretation. In this example, the mothers had migrated to Shanghai from the Chinese countryside in which living conditions are often very poor, a reality that sometimes prompts a family's migration. To our eyes, this mother's living conditions looked dismal and we coded them as such in every one of her photographs. Yet the mother's text said very little about her living conditions. This discrepancy provided an opportunity to think in more nuanced ways about her experience. To this mother's eyes, her living conditions may represent an improvement over conditions in her home province. Alternatively, a participant may not have given much thought to their surroundings prior to taking the photographs and seeing their environment through a camera lens may prompt new thought, reflection, and conversation. Indeed, although these mothers did not focus on their living conditions as hardships for themselves, they lamented the paucity of safe, outdoor, play spaces for their children. Through continued conversation during the coding and interpretation process, we were able to gain more insight into what the mothers' photographs and text together reflect.

What is not seen in photographs can also be telling (Packard, 2008) and is best considered through dialogue with participants (Drew and Guillimin, 2014). In our photographs, we noticed no elders, something quite unusual in China where grandparents are typically very involved with their grandchildren and filial piety is a central cultural value. When we asked about the absence of elders in the photographs, our participants became quite emotional telling us how difficult it was to live far away from the elders in their family and the great lengths to which they went to maintain contact. Had we not brought this observation to their attention, we could have misconstrued our observation assuming a more Western viewpoint about people wanting to reinvent their lives away from their families of origin.

Table 2. Codes from photographs and texts.

Mother2	From photographs	From texts	Combined codes
Picture 1	1. Home 2. Poor condition 3. Others 4. Leisure time 5. TV 6. Smile 7. Working place	1. Children 2. Mother 3. Neighbor	n/a
Picture 2	1. Home 2. Poor condition 3. Education 4. Daughter 5. Smile	1. Daughter 2. Education	– Daughter – Education
Picture 3	1. Home 2. Poor condition 3. Mother 4. TV 5. Working place	1. Mother 2. Job	– Mother
Picture 4	1. Home 2. Poor condition 3. Daughter 4. Son 5. Smile 6. Leisure time	1. Children 2. Daughter 3. Son	– Daughter – Son
Picture 5	1. Home 2. Poor condition 3. Son 4. Smile 5. Education	1. Son 2. Education 3. Poor condition	– Son – Education – Poor condition
Picture 6	1. Home 2. Poor condition 3. Family portrait 4. Mother 5. Husband 6. Daughter 7. Son	1. Family portrait 2. Daughter 3. Paintings 4. Shanghai symbol	– Family portrait – Daughter
Picture 7	1. Home 2. Poor condition 3. Education 4. Parenting 5. Husband 6. Daughter 7. Smile	1. Daughter 2. Education 3. Husband 4. Parenting 5. Job	– Daughter – Education – Husband – Parenting
Picture 8	1. Home 2. Poor condition 3. Leisure time 4. Others 5. Daughter 6. Son 7. Smile 8. Shanghai symbol	1. Relative 2. Daughter 3. Son	– Daughter – Son
Picture 9	1. Home 2. Poor condition 3. Leisure time 4. Mothers 5. Reading	1. Mother 2. Reading 3. Leisure time 4. Neighbor	– Mother – Reading – Leisure time

Conclusion

Analyzing photographs provides another means to help participants share nuanced perspectives which, together with other methods, will help social workers design and test interventions and advocate for needed change. In our example, the overall study was exploratory and our analyses were used to understand the mothers' experiences and need from their perspective. This process resulted in

interventions implemented by social workers working in the mothers' migrant village. Image-based data collection and analysis lends itself to exploratory work because image creation enfranchises communities by allowing them to depict clearing their priorities. When researchers are collaboratively engaged with participants, further data may be extracted from participant-created images as described in this manuscript. Yet, social work researchers must be careful not to make assumptions about what they see in participant-generated images. Indeed, the data's visual nature means researcher biases and viewpoints can be easily introduced into each analysis step without conscious awareness. Even more so than in text-based analysis, a team approach using insider and outsider perspectives and working closely with participants throughout the analysis mitigates against a researcher's point of view coloring the findings.

Photographic data collection has several advantages and benefits. Participants, regardless of age, literacy level, and from all walks of life can engage with images in ways perhaps not possible through a standard interview. Through carefully considered analysis and interpretation, visual analysis of participant-generated images shows promise as a tool in the qualitative social work research toolkit.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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