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Narrative visualisation for co-design with a community partner

Abstract
Deficient financial literacy is an important international problem, and research suggests the potential effectiveness of narrative visualisations. This paper presents a case study: a collaboration between a class of design students and a community-based financial counselling organization to develop financial literacy comic strips for use with the organization's low-income clients. We describe and examine the communication challenges between a community partner and an academic institution, detailing the several communication modes employed. These modes include questionnaires and surveys of the counsellors; direct emails between students and counsellors; and, most successfully, a hands-on visualisation workshop with counsellors. The visualisations engaged counsellors with generative-based design practices, which resulted in superior communication with design students. Lessons from this experience may be broadly useful for any collaborative efforts among academic institutions, design students and community partners.

Keywords: co-design, narrative visualisation, generative design, community partner, visual communication

Introduction: Financial literacy education and the problem of 'how-to'
Financial literacy is recognized worldwide by governments and businesses as being of vital importance (Lusardi & Mitchell, 2013; World Bank, 2012). In the U.S., financial literacy is especially important for low-income (financially marginal) individuals operating in an economy in which substantial financial risks are assumed by citizen consumers faced with complex financial decisions.

Globally, organizations such as the Organisation for Economic Co-operation and Development (OECD) and World Bank have spearheaded efforts to measure levels of financial literacy and to promote financial literacy education programs (Yoong, 2011; Yoong et al., 2013). These efforts are founded on a belief that more and/or better financial education will lead to better financial decision-making by individuals and ultimately to a stronger economy.

However, there are numerous obstacles in correlating financial literacy education with improved financial outcomes. The evidence that improved literacy leads to improved behaviour is weak and plagued with methodological problems (Willis, 2011). Poor financial outcomes can also be the result of circumstances beyond an individual's control (such as job loss or natural disaster) or factors (values, situations, attitudes, behaviours, etc.) that are neither observed nor measured:

> If financial decisions were just about money, if they were part of a game without real life consequences, we could develop decision rules that maximize wealth. But financial decisions do have consequences, requiring tradeoffs among costs and benefits that are valued very differently by different consumers…. The quality of any financial decision will depend on the values held by the consumer and a host of other unobserved situational, psychological, and social factors.
>
> (Willis, 2009, p. 432)

Recently, in efforts to focus financial literacy programs around the kinds of real financial factors that individuals face, the OECD and other organizations have begun to use case studies, narratives and explorations of new media (Lusardi et al., 2015; Berg & Zia, 2013). The role of narrative visualisations in creating effective financial literacy materials has been previously discussed by the authors (Overby et al., 2014). Visualisations that incorporate pictorial elements and a story have been shown to increase comprehension and memorability (Bateman et al., 2010). In addition, recent neuroscience research suggests that learning is enhanced when emotions are engaged (Immordino-Yang, 2015).

In the context of financial literacy, narrative visualisations—in the form of illustrations, comic strips, fumetti, etc.—can depict financial decision making within the social and emotional context of individuals' lives, allowing them to see more fully the consequences of their financial behaviours (Fry et al., 2014). In this paper, we extend this concept by showing how narrative visualisations can also be effective in facilitating communication between a design class and a community partner as they work together to create financial literacy materials.

In Part 1, we introduce the community partner with whom the design class worked, followed by a short exposition of narrative visualisation techniques. In Part 2, we present the various communication methods initially used among the instructors, the students, and the community partner. In Part 3, we describe how generative-design principles in a workshop with the community-partner counsellors enabled the counsellors to create their own narrative visualisations to communicate with the students. In Part 4, we analyse the ways in which the partner-counsellors' drawings from the workshop were used to communicate visually and more effectively with the students. We conclude by recommending generative-design and visual-communication methods for more general use in design students' collaborations with community partners.

Part 1: Context
Community partner
Neighborhood Trust Financial Partners (https://neighborhoodtrust.org) (NTFP) is a nonprofit organization that provides financial counselling and financial workshops for low-income adults in New York City (NYC). It is the largest provider of such services in NYC, offering programs in conjunction with the NYC Department of Consumer Affairs' Office of Financial Empowerment. Since 2011, NTFP has used a curriculum developed in conjunction with Global Learning Partners (http://www.globallearningpartners.com), based on a five-part storyline (Emma's Story). This storyline complements other learning materials throughout a five-week program called Getting Ahead, which covers topics such as credit scores, savings, the use of credit cards, and debt. Emma's Story is a text-based fictional composite derived from the financial-counselling experience of the NTFP counsellors and includes the emotional, psychological and cultural aspects of financial decision making. Figure 1 presents the first chapter of Emma's Story, as used in the Getting Ahead workshops; counsellors have here added comments about influences on financial decision making.

In 2014, the first two authors planned a Visualizing Finance Class (VFC) at Parsons School of Design for the following Spring semester and entered into an agreement with NTFP to allow the use of Emma's Story in class. The original intent was to have the students produce a comic strip based on Emma's Story for the NTFP counsellors to use with their clients. However, during the partnership, the relationship developed beyond that of designer–client to incorporate elements of co-design through visual communication between the counsellors and the students.
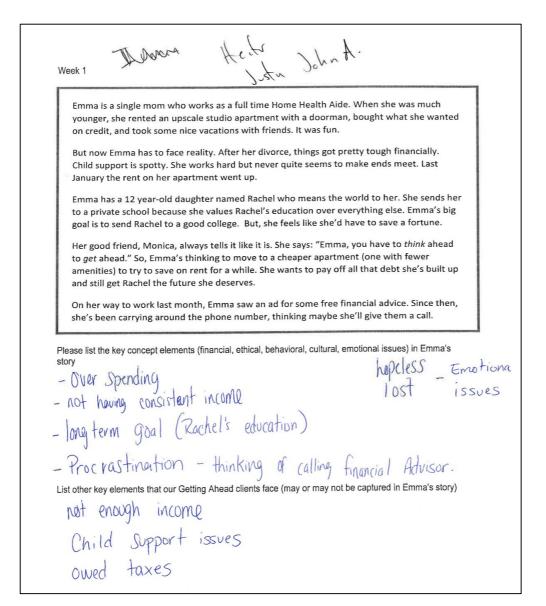
Figure 1: Sample of Week 1 of NTFP's Emma's Story in printed form, with comments from counsellors

Narrative visualisation

Narrative visualisations incorporate the primary aspects of storytelling—character, setting, dialog and nonverbal cues—presented in various formats, such as illustrations, fumetti, videos and comic books. When used to enhance financial literacy, narrative visualisations provide contextually and metaphorically rich financial situations in a way that is immediately accessible to viewers (Fry et al., 2014).

An ambitious example that uses narrative visualisation to address questions of financial decision making and consumer choice occurred in a 2012 storyline in the South African soap opera *Scandal!* Developed by the production company Ochre Media and the National Debt Mediation Association (NDMA), the story addressed the widespread problem of household debt in South Africa. In this multi-week story, the primary character fell increasingly into debt and finally sought help from an NDMA financial counsellor. Figure 2 presents some frames from this story, in which the primary character discusses her debt. At the end of each episode, the series broadcast the NDMA phone number in a public announcement offering free financial counselling.

Figure 2: Two frames from the soap opera *Scandal!,* E Television, NFH productions, in collaboration with World Bank, South Africa, 2012

An assessment of this campaign showed that viewers remembered the incidents in the storyline with a high degree of accuracy, but few remembered the NDMA counsellor who had appeared briefly, and fewer still remembered the public service announcement (Berg & Zia, 2013). The researchers speculated that the primary reason for these findings was that retention was dependent upon the level of emotional connection that the viewers felt with the primary character, the counsellor character, and the strictly informational announcement. While hand-drawn illustrations and comic books do not have the immediacy of a television story, they similarly allow for the rich development of characters, stories and settings. These narrative visualisations may also incorporate other visual elements—such as metaphor or thought bubbles—to emphasize the characters' ideas and emotions.
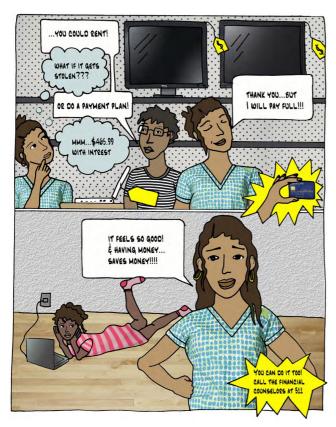

Figure 3: Two frames from the final version of Emma's Story: a two-part comic narrative produced in the Spring 2015 course, as described in this case study.

Figure 3 depicts a scene from the final Emma's Story comic strip that originated in the Parsons course in Spring 2015. This scene shows Emma contemplating whether to pay for a new computer in full or in instalments. Her financial decision process is communicated through speech and thought bubbles, as well as by facial expression, body language and setting. The consequences of the decision are clear in the second scene: her daughter enjoys the computer while Emma is happy to be debt-free.

Regardless of the format, we suggest that narrative visualisations effectively illustrate examples of individual financial behaviour through realistic stories and settings. They highlight the complexity and significance of financial decision making, but also create emotionally resonant and memorable messages that may help to influence financial behaviour (Fry et al., 2014).

The goal of the partnership with NTFP was to draw on the expertise of the NTFP counsellors as the students developed the comic strip of Emma's Story. By taking advantage of the counsellors' deep understanding of the situations, challenges and life stories of their clients, it was hoped that the students would be more able to develop the specifics of Emma's character, motivations, emotions and setting. The design course was launched in Spring 2015 with the specific aim of having students use narrative visualisation methods to create real-world financial literacy materials, working as co-designers with their community-based partner.

Part 2: Collaboration and communication
Special Topics: Visualizing Finance is an elective course offered at the senior (fourth year) level in the Strategic Design and Management program at Parsons School of Design. This program awards a Bachelor's degree in Business Administration (BBA). As described above, students in the *Special Topics: Visualizing Finance* course collaborated with NTFP in Spring 2015 to co-design visually based financial literacy materials for NTFP's counsellors to use with their clients. The class and its members are here referred to as VFC (Visualizing Finance Class).

In addition to the pedagogical value, this collaboration was intended to begin testing the instructors' previous research on narrative visualisation for financial literacy (Fry et al., 2014). The written narrative of Emma's Story (see Figure 1 above) demonstrates the emotional and psychological nature of an individual's financial decisions and encourages NTFP clients to identify these factors in their own financial decisions. This personal identification is believed to help clients change their financial behaviours (Berg & Zia, 2013). By translating the story into a narrative visualisation, we hoped to encourage positive changes in clients' personal financial behaviours.

While developing our collaboration agreement with NTFP, we agreed to a co-design process that would include reviews of students' work in progress by NTFP financial counsellors. These reviews were envisioned either as in-class critiques with counsellors or as consisting of emailing VFC student work to NTFP counsellors and receiving email responses from them.

Communication methodology
From the beginning of the collaboration, communication was primarily by emails and phone calls between the VFC instructors and the NTFP point person, as shown in Figures 4 and 5. The email/phone method of communication caused numerous difficulties, as follows:
- Because VFC students and NTFP counsellors communicated through two intermediaries, messages were not always clear.
- The multi-layered communication sometimes caused long delays; see Figure 4 (a timeline summary of the interactions) and the description below.

- Intermediaries, multi-layered communication, and the lack of a shared language created complex feedback loops. These are highlighted by icons in the timeline summary of interactions in Figure 4 and are illustrated in Figure 5.

Timeline summary of all interactions between Parsons Visualizing Finance Class (**VFC**) and Neighborhood Trust Financial Partners (**NTFP**).
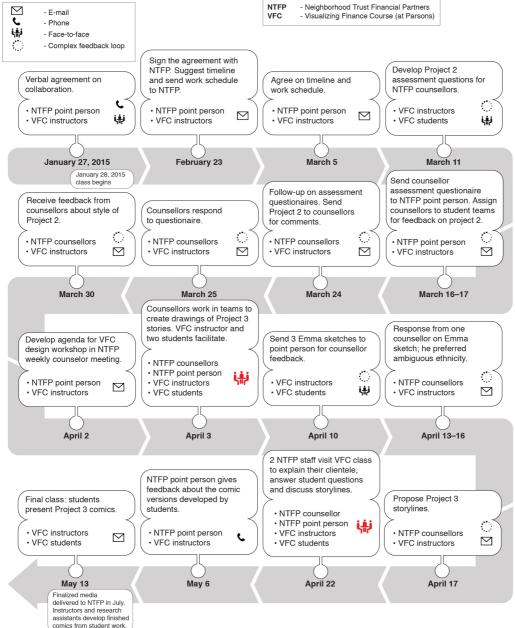

Figure 4: Mapping interactions between the design class (VFC) and community partner (NTFP) throughout the project. Icons indicate modes of communication and the presence of complex feedback loops. Note that there are only two instances of students interacting directly with counsellors, which we have marked with larger red isotype symbols.

Of all 16 activities shown in Figure 4, there were only two instances of face-to-face communication between VFC students and NTFP counsellors:

1. A visualisation workshop at NTFP with counsellors and the point person, facilitated by two VFC instructors and two VFC students (April 3)
2. The NTFP point person and one counsellor participating in VFC class (April 22)

These face-to-face communications are highlighted in Figure 4 by large red icons on those dates.

Complex feedback loops leading to time delays

The VFC students began to work on Emma's Story during the March 25 class after instructors and the NTFP point person defined the projects. Because NTFP counsellors had very little time to guide the project, we (the instructors) used phone calls and emails with the intermediary point person as the least-invasive way to garner feedback. However, this 'middle man' method often created a confused complex feedback loop, as seen in Figure 5. In addition, time delays occasionally held up progress at critical junctures; as class met just once a week, a late answer from NTFP sometimes meant seven days of delay.
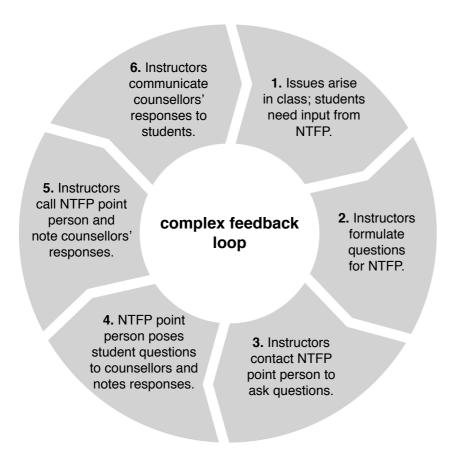

Figure 5: The complex feedback loop above was time inefficient and subject to errors of interpretation. Figure 4 tags instances of this with a dotted-circle icon to indicate a processing delay.

An especially disruptive example of delay in our workflow occurred in connection with representations of the Emma character. Students created several sketched versions in class on April 8 (Week 10); the instructors emailed these to the NTFP point person on April 10, with a request that NTFP counsellors choose one version for development. The point person forwarded the sketches and request to counsellors on April 14, and one counsellor responded on April 16. These delays meant that VFC students could not move ahead with Emma's character

development until the April 22 class (week 12). This left just two more class sessions to complete the comic.

Lack of creativity and nuanced information in counsellor feedback

When requesting feedback from NTFP counsellors, we tried to be as clear and concise as possible, for example, 'Please answer specific questions,' and 'Choose from these 3 options.' These controlled survey formats and assessments were intended to protect the counsellors' limited time; however, they also limited the counsellors' scope for creativity.

A good example of a controlled interaction (see the March 24 portion of Figure 4) was the solicitation of NTFP counsellors' feedback on the students' Project 2. This warmup project was a narrative visualisation of a financial decision process by an Emma-like character (example below in Figure 6).
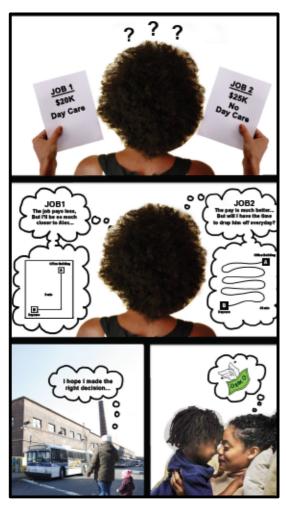

Figure 6: This example of Project 2 by VFC students required students to depict a complex decision process using an 'Emma-like' character.

The Parsons instructors originally intended for student teams to co-design Project 2 directly with their assigned NTFP counsellors, but to save time a questionnaire was crafted to focus the counsellors' feedback. This questionnaire had two portions, Assessment and Suggestions. Addendum A shows the complete questionnaire, and a sample of counsellors' responses follow in Addendum B.

Despite the limitations of the questionnaire format, the counsellors' feedback on the Assessment portion of the questionnaire was thoughtful and searching. For example, when asked whether the visualisation's message was clear and understandable, they replied 'not very clear…what decision is it that she made and is now pondering' (Addendum B). In contrast, counsellors' responses in the Suggestion portion had a rather narrow focus. For example, when asked how the visuals could be more relevant, realistic and engaging, they suggested some design tweaks to the visualisation, for example, 'she could look at an MTA map… [to] make it more… relevant to New York. More imagery of NYC or of her in her apartment might make it a bit more colorful….' (see Addendum B for more detail). The questionnaire format seemed to limit the counsellors' co-design and creativity, and they tended to respond as critics of existing visuals rather than as generators of alternate possibilities.

Part 3: Using generative design methodologies to resolve communication problems
To give students greater access to the counsellors' content and cultural expertise, we conducted a visualisation workshop during the NTFP counsellors' weekly meeting on April 3 (see Figure 4). This workshop used generative design methods—techniques derived from Sørensen's re-contextualization of Sanders's work in her MoneyWorkshop (Sørensen, 2013; Sanders, 2000). Sanders's generative design tools/practices enable non-designers to engage with the process of creating and co-creating artefacts and experiences in a way that captures expertise and insights derived from the same fields with which the design seeks to engage. The tools are directed toward open-ended speculative 'what-if' questioning, which Sanders argues helps to build immediacy and relevance into the design from its very earliest iterations. In Sørensen's MoneyWorkshop, participants use collage techniques to visualize and reflect on their own experiences with money. The workshop with counsellors became the key activity in bridging the gap between the students' understanding and the counsellor/client realities.

In this workshop, we challenged the 14 NTFP counsellors to create several short comic strips that would support the Getting Ahead program by telling stories of decisions around money. A VFC team worked with the counsellors as design facilitators; the team consisted of two student leaders, one instructor and one teaching assistant. The counsellors worked in groups of two or three and were asked to

> … take 5–15 minutes to draw a visual narrative… something very simple, using things like stick figures and using your wealth of knowledge about past client experiences and the barriers they face. This should be fun and allow each of you to be creative. The Parsons team members will come around and talk to counsellors to help.
>
> (VFC document, 2015)

As the counsellors' visualisation workshop began, several counsellors were reluctant, saying 'I can't draw' but perhaps meaning 'I am unfamiliar with this language and don't know how to begin telling my clients' stories.' By working in small teams, the counsellors were able to reassure each other about making 'true' visual depictions rather than striving for 'artistic' ones. They also engaged spontaneously in the design/critique/reiterate cycle within their teams and as a larger group, beginning to identify the most important aspect of each mini-story they told, aspects such as a character's tone/appearance/phrasing/emotional engagement (e.g., the boyfriend who wants to borrow money for the truck became an extremely vivid character, sparking a discussion of the effects of romantic dynamics on financial decisions).

The counsellors' visualisations are shown below in Figures 7, 8 and 9. The commentary in the bubbles is by NTFP counsellors, while the visual analysis below each figure is by the authors.
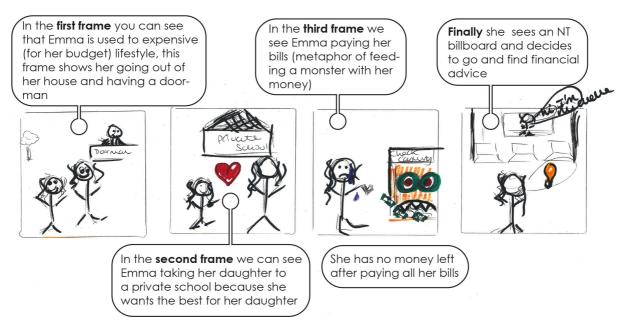
Figure 7: Visualisation created on April 3 by NTFP counsellors Michelle Morillo and Fernando Duran. In Figures 7, 8 and 9, we have added the counsellors' narrative comments in bubbles, transcribing their unpunctuated verbatim notes (bold emphasis ours). The April 3 entry on the Figure 4 timeline indicates when these were created.

In our analysis, we use content and visualisation elements derived from our Visualizing Finance Lab's InfoEmotion matrix (Overby et al., 2014; see Addendum C). In the first frame of Figure 7, facial expression and body language communicate feelings of happiness and being carefree, while the setting suggests that Emma had made a decision to live beyond her means. The centrally placed red heart visual metaphor in the second frame indicates that while Emma's decision about private school for her daughter will have positive financial consequences in the far future, the strongest factor in this decision is emotional—her love for her daughter—which will have negative financial consequences in the present and the near future. The absence of Emma's facial expression in the second frame suggests her dilemma. The most compelling visual metaphor appears in frame three—an entity that is simultaneously a check-cashing shop, a monster and a dumpster that devours Emma's cash and leaves her in tears. In frame four, these difficulties lead her to a 'light-bulb' insight about her financial situation and cause her to decide to seek financial advice, indicated by the office-like setting.

Figure 8 uses the visual metaphor of the 'long road,' as well as that of the game board. This twisted path indicates Emma's tortuous financial situations (expenses, obligations, costs and lack of banking) and decisions, with red 'stop' (or danger) visual metaphors. Emma has confident body language and a pensive facial expression at the beginning of her journey toward the ultimate goal of an emergency fund. The emergency fund is represented by the setting of a bank building, coloured green to signify the oasis or 'go-ahead' that the banked emergency fund represents.

Figure 9 shows complex emotions, beginning with a visual metaphor of 'weighing' Emma's daughter's graduation against her boyfriend's wanting to borrow money from Emma for a truck, which in his dreams will yield 'truckloads of money.' The smoothly dressed Joe—dominant through facial expression, body language, size, placement and level of graphic articulation—contrasts with a frazzled Emma, rendered with scribbly lines and a hesitant facial expression and avoiding eye contact with Joe. Even Joe's well-articulated dream seems more vivid and compelling than Emma's, and he is speaking it while Emma is only thinking about her financial decisions and their positive consequences—her daughter's education.
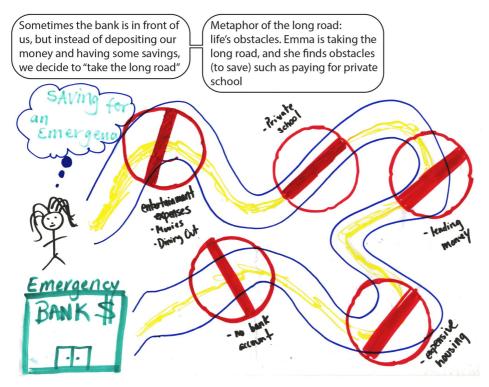
Figure 8: Visualisation by NTFP counsellors Hector Hidalgo and Janet Silva, with counsellor comments in bubbles.
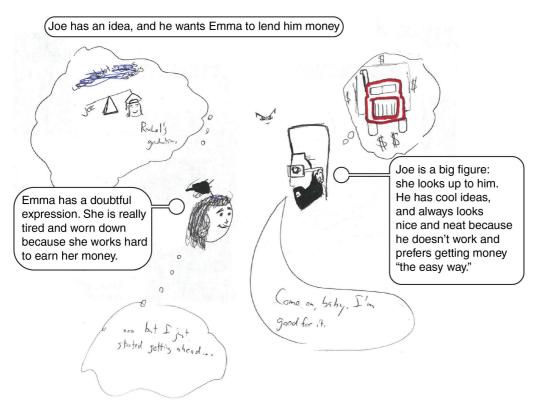

Figure 9: Visualisation by NTFP counsellors Justin Enany and John Figueroa, with counsellor comments in bubbles.

Part 4: Analysis of visual communications
Communicating visually allowed the NTFP counsellors and VFC students to truly begin to co-create collaborative designs, bridging the gap between the students' limited understanding and experience and the counsellor/client realities. When the counsellors were asked to describe their clients' stories visually, the narratives became accessible to the students, and, importantly, the counsellors were able to work beyond their pragmatic advice as critics and commentators to *show* what they meant in some detail and with nuance. This extends the insights they articulated in response to earlier student visualisations (Addendum B) and advances the NTFP counsellors from critics to co-creators.

> Although we can to some extent form mental images in our heads, we do much better when those images are out in the world, on paper or computer...etc., which all help us to solve problems through the process of visual thinking.
>
> (Sørensen, 2013 in Ware, 2008, p. 6)

In seeing the counsellors' mental images, VFC students were able to align their visual thinking with that of NTFP content experts (the counsellors). This illustrates Sanders's claim that
the visual is often ambiguous, a term we substitute here for 'indeterminate'. Because counsellors were instructed to interpret a passage from Emma's Story using visual means, the resulting work was exploratory, incorporating unedited subjectivities and unconscious ideas that may never have been articulated in a written response.

> What do all these [generative] tools have in common? They take advantage of the visual ways we have of sensing, knowing, remembering and expressing. The tools give access and expression to the emotional side of experience and acknowledge the subjective perspective. They reveal the unique personal histories people have that contribute to the content and quality of their experiences. These are qualities useful to those of us involved in making people-centered decisions.
>
> (Sanders, 2000, p. 10)

The counsellors' visualisations that were collected did not yield new insights into the specifics of Emma's story. However, they did help significantly in moving the project forward in several ways. First, as the counsellors drew and talked about what they were illustrating, they communicated empathically with the students, allowing the students to experience Emma's journey through the counsellors' eyes (and emotions) rather than simply relying on the counsellors' expertise for feedback. Second, the students were better able to grasp Emma's story in a visual way. The visual language employed communicated more effectively to them than previous class readings, written feedback or the text of Emma's story, thus giving the students a deeper understanding of the financial dilemmas experienced by low-income individuals. This exemplifies the way that narrative visualisations improve emotional connection to content by presenting contextually and metaphorically rich stories, as discussed in Fry et al. (2014).

An additional benefit was that in viewing and responding to the counsellor's narrative visualisations, the students were able to reflect on how NTFP's clients might ultimately respond to *the students'* finished work. This meta-understanding of what worked and what did not in the visual narratives improved the students' pragmatic comprehension of Emma's decisions; we would consciously emphasize this reflection in future generative design iterations.

In short, it was only when the counsellors were asked to describe their clients' stories in a visual language that these stories became accessible to the students. Their examination and discussion of the counsellors' visualisations resulted in a much more reflective understanding of the financial circumstances of Emma's life. This deeper understanding was evident in the

frame-by-frame storylines (example in Figure 10) created by students on April 22 to map Emma's decision process regarding her dilemma about taking two weeks' leave from her job.
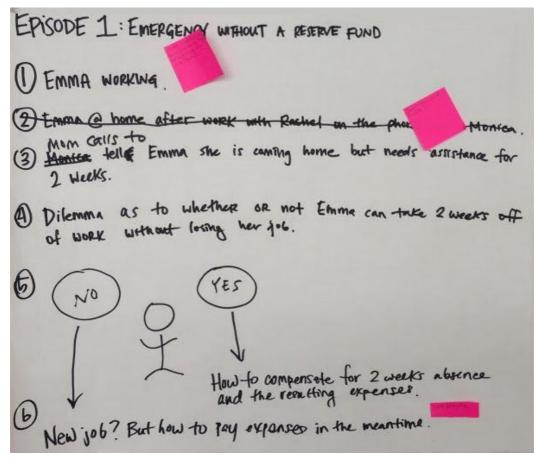

Figure 10: Draft of a frame-by-frame storyline from the April 22 (Week 12) class with student commentary on sticky notes.

Students were now finally able to generate plausible and empathetic narrative lines and scenarios and were able to create more relevant and nuanced characters in the narrative visualisations (as evident in Figure 3). The exercise of extrapolation (from the factual information about Emma's circumstances to understanding of her constraints and emotions) would not have been possible earlier in the course. It mainly resulted from the generative design exercise with the counsellors and the ensuing conversations, spurred by the counsellor drawings, about the specifics of Emma's circumstances.

Conclusion

We propose the generative design methodology of eliciting visualisations 'from the source' as a very economical way of creating characters and storylines that will engage the intended end user. The creation of effective visually-based financial literacy materials is extremely complex, with many concepts that must be understood, such as behavioural economics, cultural authenticity, visual storytelling and compositional techniques and which financial decisions and consequences are most common and most important to intended clients. The technique of eliciting visualisations from first-hand sources who already have a deep understanding of many of these concepts provides an invaluable 'jump start' for the designer's compositions and represents a truer collaboration than verbal and written research methods and communications.

Narrative visualisations and new media have proved effective in communicating financial literacy (Lusardi et. al., 2015); it makes sense that the same tools would be effective in communicating similar complexities between community partners and students.

While the email exchanges and feedback from questionnaires were helpful in obtaining specific information and assessments from the NTFP counsellors, the narrative visualisations created by the counsellors in the generative design workshop were by far the most successful means of communication between the counsellors and the students. By directly employing narrative visualisation strategies, the counsellors were able to

1. directly experience the difficulty of the artists'/students' task.
2. communicate a greater depth of information through details of setting, character, body language and dialogue.
3. communicate implicit assumptions, ideas and emotions using visual metaphors.
4. achieve a deeper level of empathy and emotional response.

For their part, the students were better able to grasp the complexities of Emma's life experiences and to envision how they might themselves use visual tools to develop their comics.

Interest in working with community organizations continues to grow in design education, spawning new models of partnerships and co-design strategies. These models could be significantly enhanced by the development of efficient and effective visual strategies for communication. While the goal of most of these partnerships is not necessarily the production of narrative-visualisation materials, this case study suggests that narrative visualisations might serve as an effective way for community partners and design students to co-design by sharing their ideas and exploring the consequences visually.

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Addendum A

Questions for advisor partners

Please answer questions 1 and 2 ONLY for the comic strip produced by your assigned group.

1. Assessment

a. **Is the problem shown here important to your clients?**
b. **Is the message clear and understandable?**
c. **Do you think your clients could relate to the character?**

2. Suggestions

a. **How can we make the problem more relevant and realistic?**
b. **How could the characters' actions and decision processes be more realistic and relevant?**
c. **How could the process/solution be more engaging, realistic or useful?**
d. **How could the visuals be more relevant, realistic and engaging?**
e. **Do you have other suggestions to improve this?**

Addendum B

Questions about the 'entrepreneur' comic

1. Assessment
a. Is the problem shown here important to your clients?
Sort of. There's several issues at play here:
i) She has a steady job
ii) She wants to leave this job for her own business, which is an extremely complicated issue. As an advisor, I need to know what experience she has, if she's thought about costs vs. expected income, if she has a partner (at home, not at the business) who has income to help support the family in the case of the business not working out or in the early stages … that is to say, this is not a straightforward thing at all and it is often the case that I recommend someone keep their day job if this came up. *That being said*, most people are so far from opening up their own business that this isn't a very realistic or common issue to have to deal with. She probably has no savings and no credit. My goal would be to get her to save and build credit, after which she might not even be interested in leaving her job once she realizes how much she should risk by doing it (if she sees how her current job gave her the ability to save so much, for example). Also, I work in a credit union. They look at the same stuff when offering a business loan. If this woman has no experience, very limited/no/poor credit, etc., she's going to have a tough time getting a small business loan anyway.

b. Is the message clear and understandable?
Not really. A lot of our clients would be eligible for subsidized child care. Some of the phrasing used would be confusing for clients as well—'ego depletion,' for example.
'More manageable with income' also makes no sense to me. Also, Emma seems to change race three times in this strip, which is a bit confusing. And I don't know why a Dominican woman would open a Mexican restaurant.

c. Do you think your clients could relate to the character?
Again, sort of. I'd stick more to the story of Emma as per the class. Generally, what clients want is *more* stability. 'I don't want to be living pay check to pay check' or 'I want to get out of debt.'

2. Suggestions
a. How can we make the problem more relevant and realistic?
The other comics we had seen as examples were very good at showing clearly a change the person would have to make. For example, *these are the things you should be doing when planting corn*. This visualisation would do a lot better, I think, if it focused on showing our clients something they might not be familiar with. *This is how you set up split direct deposit to two separate accounts at two different institutions and how this ultimately helps you to save* or *This is how you rebuild your credit by getting a secured credit card* (How does that work? Very confusing for our clients!), *using it once a month, and paying off the balance in full.*

b. How could the characters' actions and decision processes be more realistic and relevant?
See above. Smaller changes, more detailed!

c. How could the process/solution be more engaging, realistic or useful? See above.

d. How could the visuals be more relevant, realistic and engaging?
The visuals are very confusing. See above. Having the same character represented by the same person, introducing new characters and their relationship to the main character a bit more clearly, having things explained a bit more thoroughly. For example, *how* is Mr. Happy going to help Emma? Also, would Snidely Whiplash, a well-trained loan officer at such a serious and professional financial institution as Chase, ever so clearly admit age discrimination in his loan rejection?

e. Do you have other suggestions to improve this?
I'd honestly change the entire thing, taking into account the response to 2a. The other examples I saw honestly suffer from a lot of the same issues, so if someone were to change in the direction mentioned above (detailed steps on how to make a change our clients might have trouble doing on their own or lack experience seeing in action) it would be far and away the most useful in my opinion. Our clients avoid doing a lot of the suggestions we have for them because they avoid the unfamiliar. These comics could help by making the steps familiar and something they'll already have seen when they go to take them themselves.

Addendum C

InfoEmotion Matrix

		Visualization element								
		Graphs/ Maps	Text	Dialog	Metaphor	Setting	Character	Facial expression	Body language	Tone of voice
Content element	Financial : data and information									
	Financial : concepts									
	Behavioral : decision processes									
	Behavioral : culture									
	Behavioral : ethics and consequences									
	Behavioral : emotion									

For the assessments of visualisations described in this paper, we adapted the InfoEmotion Matrix to accommodate the comic strip format. No graphs/maps or financial data are included, and tone of voice is expressed through typography.