

# DESIGNING FINANCIAL LITERACY WITH THE OTHER 90%

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## Abstract

*Financial literacy is widely recognized as being of vital importance in helping to stabilize economies at national and global levels, through strengthening individual and household financial resilience. However, financial education efforts have often emphasized financial concepts and information rather than the emotions, beliefs and cultural factors that drive financial decisions and behaviors. A notable feature of several financial literacy initiatives in the developing world is that the skills, attitudes and behaviors needed to make sound financial decisions are recognized as being (at least) as important as consumers' base financial knowledge and information. Recent and ongoing studies of some of these programs have identified the use of metaphor, storytelling and "entertainment education" as effective strategies for financial literacy. However, these studies have not examined best practices in the creation and evaluation of the design of financial literacy materials. Since 2009 the Visualizing Finance Lab (VFL) at Parson The New School for Design has studied and assessed behaviorally-oriented financial visualizations, adopting the term "Narrative Visualization" to identify those that use visual metaphors and culturally-relevant storytelling to communicate financial concepts and behaviors. To help in the development and assessment of Narrative Visualizations, the VFL has developed the "InfoEmotion Matrix", a tool for evaluating content and design elements across a rational-to-emotional spectrum. Here we apply the InfoEmotion Matrix to some examples of Narrative Visualizations used in financial education in several African countries, to identify the design and content elements that convey useful information and appropriately depict financial behaviors. In addition, the VFL asserts that co-designed Narrative Visualizations, guided by tools like the InfoEmotion Matrix, can provide a framework, enabling designers, policy-makers and economists to engage with targeted community groups as partners in the development process of financial education materials.*

**Keywords:** *narrative visualization, financial literacy, storytelling, visual metaphor, behavioral economics, co-design.*

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## Introduction

Financial literacy is widely recognized as vital for the stabilization of economies, through strengthening individuals' and communities' financial resilience.

"... policy makers around the world... advocate increased expenditure on literacy education, in hopes of increasing household savings and increasing financial market participation, with the ultimate goal of reducing poverty and improving welfare." (Klapper and Hasnain, 2009)

The goals of “reducing poverty and improving welfare” clearly apply to individuals in the lower part of the economic 90%: their moderate-to-low financial resources make them particularly vulnerable to costly and preventable financial decisions, and they stand to benefit most from well-designed and well-targeted financial education.

The strategies and aims of financial literacy programs vary greatly across nations. In higher-income countries, governments’ and financial-institutions’ initiatives (e.g., Money.gov and WiseUp in the U.S.) have focused on increasing knowledge of financial concepts, and on encouraging saving and retirement planning. In contrast, many efforts in low- and moderate-income countries address the broader range of everyday skills important to the economic 90%, and focus on instilling a culture of responsible spending, borrowing and saving. Some of these programs—particularly in Africa—have embraced the findings of behavioral economists, which indicate that acquisition of financial knowledge is less important than changes to financial behaviors (Yoong, 2011).

“Traditional attempts at behavior change were based on a ‘rational person’ model, where it was believed that giving the average person information will move that person closer to choosing the correct behavior. New insights from behavioral economic psychology and other related disciplines suggest, however, that behavior change is not so simple, but rather a nonlinear process that requires more than simply receiving compelling information.” (The World Bank, Sa: sp)

This understanding of financial decision-making has influenced several financial education programs in Africa. These initiatives have focused on creating programs that reflect cultural understandings and beliefs, and that acknowledge the complicated emotional relationships that individuals and communities have with money.

In this paper, we analyze three examples of African financial literacy materials from design and behavioral-economics perspectives. Although they vary in design strategies, format and origin (an NGO, a financial institution, and a television network), all three incorporate emotional, cultural and behavioral factors. A recently-developed tool, the InfoEmotion Matrix (Fry, Wilson & Overby 2013:1242), helps us examine how these factors are embodied by the developers’ design choices. We conclude by proposing the matrix as an aid to co-design: a methodology for developing financial literacy materials with the other 90%.

## **Part I Behavioral economics and African initiatives in financial literacy**

As noted in the World Bank quotation, insights from behavioral economics challenge the neoclassical economics model that individuals always act “rationally”. Research has found that individuals’ financial behavior is mostly driven by emotions, beliefs and culture rather than the rational thought processes previously assumed. For example, people’s limited attention causes their decision-making to be disproportionately affected by the most recent or most apparently relevant information (Yoong 2011). Limited attention can also increase individuals’ tendency to collect and retain information that reinforces their already-held beliefs or understandings (Mullainathan & Shleifer 2005:1041, referenced in Yoong 2011). In addition, financial and economic behaviors vary widely across cultures (Henrich et al.:798), implying the importance of cultural factors in financial education. Kahneman (2003, 2011) describes the system of thinking characterized by intuitive and emotionally-inflected beliefs as predominating in financial decisions over the analytical reasoning system implicit in neoclassical economics.

Materials for financial education, especially in higher-income countries, have tended to present information and explain concepts, rather than contextualize the financial concepts within the belief systems and cultures that actually drive financial decisions. In part, this is because it is much easier to assess programs' effectiveness through increased content knowledge rather than long-term changes in financial behavior. Recently, however, researchers (Yoong 2013) have developed better tools for assessing financial behaviors and the effectiveness of financial literacy programs that incorporate behavioral factors.

Financial literacy programs in low- to middle-income countries face the additional challenges of low literacy and inconsistent access to financial information and institutions (Messy & Monticone 2012). In a 2012 World Bank conference titled "African Regional Dialogue on Financial Literacy and Capability" (The World Bank 2012), participants identified several methodologies to address these challenges:

- entertainment education
- school-based curricula
- innovative technology-based solutions.

Note that visual communications play important roles in these approaches.

Here are some African initiatives that exemplify these methodologies:

1. "Teach Children to Save": an educational initiative targeted at school children and communities in Nigeria, funded by the NGO Financial Literacy For All. Materials include comics, and "ant banks" distributed to children. [https://www.facebook.com/TeachChildrenToSaveInitiative?hc\\_location=timeline](https://www.facebook.com/TeachChildrenToSaveInitiative?hc_location=timeline)
2. *Scandal*: a South African soap opera with a three-month plotline focused on financial difficulties of low-and-moderate-income South Africans. <http://www.tvsa.co.za/shows/viewshow.aspx?showid=2726>
3. "On the Money": a financial education program created by Old Mutual PLC (South Africa), with materials based on metaphorical characteristics of five trophy animals (lion, leopard, elephant, rhino and buffalo). The program incorporates a companion curriculum with support resources including games, activities, posters, flash cards and assessment and lesson plan ideas for educators. <http://www.oldmutual.co.za/about-us/transformation/financial-education/financial-education-programmes/on-the-money.aspx>
4. *Makutano Junction*: a Kenya-based soap opera by Mediae Company, supported by the Financial Education Fund of the United Kingdom's Department for International Development. They also plan a related school curriculum. [www.makutanojunction.org.uk](http://www.makutanojunction.org.uk)
5. *Dab iyo Dahab* ("Fire and Gold"): a Somali soap opera sponsored by USAID and Education Development Center (EDC). This project, which combines traditional storytelling with interactive audio instruction, is audio-broadcast to young people through MP3-embedded devices. <http://idd.edc.org/about/news/fire-and-gold-helping-somali-youth-make-wise-financial-decisions>
6. Shujaaz Financial: a monthly comic book produced by Well-Told Story (WTS) with a related radio program. Junior Achievement Kenya (JAK) is currently partnering with WTS to develop related financial literacy materials for schools. <http://wts.co.ke/comics.php>

In the next section we assess the design and content elements of the first three of these initiatives, framing with the InfoEmotion Matrix.

## Part II Analyzing the design of financial literacy programs

Since 2009, The Visualizing Finance Lab at Parsons The New School for Design has explored the use of metaphor-rich visual storytelling to improve financial understanding. These “Narrative Visualizations”—an appellation that encompasses cartoons, illustrations, graphic novels, comic strips, animations, videos, etc.—employ traditional storytelling elements such as character, setting and metaphor to convey complex concepts and behaviors. In 2012 the VFL piloted the InfoEmotion Matrix, a tool for assessing content and design elements in Narrative Visualizations (Fry et al. 2013:1242). The matrix can be used to identify relationships among an image’s content elements (on the vertical axis) and its design elements (on the horizontal axis). Each axis orders the elements from most-rational to most-intuitive aspects, echoing Kahneman’s (2003, 2011) systems of decision-making. The InfoEmotion Matrix is a tool to aid the co-design and evaluation of visually-based financial literacy materials, identifying the absence/presence, relative weighting and interplay of design and content elements. Table 1 presents a simplified list of elements.

### Content Elements

#### Financial factors

- Data/information: numbers, budgets, facts
- Concepts: e.g., compound interest, legal information, policies, loan terms

#### Behavioral aspects

- Decision processes: rational versus intuitive methods; influences
- Culture: a community’s norms, expectations, beliefs and biases
- Ethics/consequences: the right/wrong thing to do; financial and personal outcomes
- Emotion: personal and subjective feelings around relationships, loyalties, opinions

### Visualization Elements

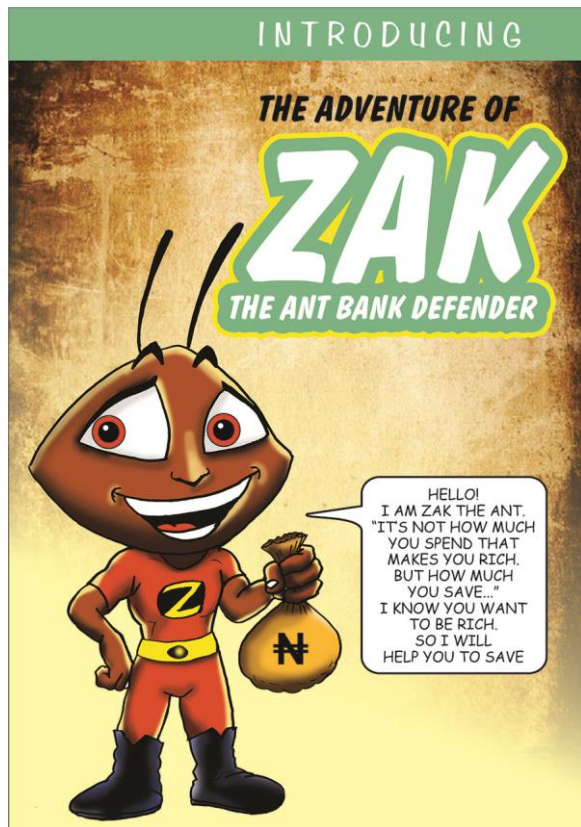
- Graphs/maps
- Text: on-image written information or data
- Dialog: verbal explication by characters, voiceover or speech bubbles
- Metaphor: e.g., symbols, personifications, archetypes
- Setting: locations and objects
- Character: individuals or personifications with whom the viewer can identify or be influenced
- Body language: of character(s)
- Facial expression: of character(s)
- Tone of voice: of character(s) and/or voiceover

**Table 1: Elements of the InfoEmotion Matrix (adapted from Fry et al. 2013:1242-1243)**

Next, we apply the matrix elements to three African examples, highlighting the emotions, beliefs and cultural factors that drive financial decisions and behaviors.

### Example 1: The Ant Bank “Teach Children to Save”

The Ant Bank is sponsored by the NGO Financial Literacy for All through their “Teach Children to Save” initiative, which has introduced the character of Zak: an ant-like cartoon superhero who encourages children to save (see Figure 1). The program distributes the “Ant Bank” to children as a modern replacement for the traditional “kolo”: an earthenware pot in which money is kept. The “ant” metaphor was substituted for a “piggy” bank for cultural reasons: because of religious proscriptions against pigs, and because of the ant’s positive cultural meanings. Ants are considered to be hard workers that save for the future, and they represent abundance; they are disciplined, strong for their size, good managers of resources, environmentally friendly and willing to sacrifice for the common good. An African folk saying asserts that “a nest of ants near your door means you will grow rich.” (Shoniran 2012:sp)



**Figure 1: Zak The Ant Bank Defender (Shoniran 2012)**

InfoEmotion Matrix content elements that dominate here are

- Financial: concepts (saving, wealth accumulation)
- Behavioral: culture (head echoes the shape of a traditional “kolo” bank; ant as cultural metaphor).

Dominant design elements are

- Character (ant superhero Zak)
- Metaphor (ant and full bag as symbols of abundance).

In addition, the content element of “Decision process” engages the design element of “Dialog” to show motivation, with Zak directly addressing the viewer. “Facial expression” reinforces the idea that saving is positive with Zak’s optimistic expression, while his “Body language” suggests determination and capability.

### **Example 2: *Scandal* soap opera**

*Scandal* is a popular television soap opera in South Africa (see Figure 2). In 2011-12 a three-month storyline addressed indebtedness incurred by a religious and moral woman (Maletsatsi) who bought furniture to please her family and to impress her friends. As interest compounded her debt, she fraudulently “borrowed” from a community fund and eventually had to confess and construct a plan for repayment.



**Figure 2: Financial woes cause consternation from *Scandal***  
([http://www.etv.co.za/sites/etv.co.za/files/Maletsatsi telling Dintle that she's been fired](http://www.etv.co.za/sites/etv.co.za/files/Maletsatsi%20telling%20Dintle%20that%20she%27s%20been%20fired) retrieved 5 July 2014)

Dominant content elements:

- Financial: concepts (debt and interest)
- Behavioral: ethics and consequences (actions divergent from moral self-image)
- Behavioral: emotions (love, pride, fear, shame)

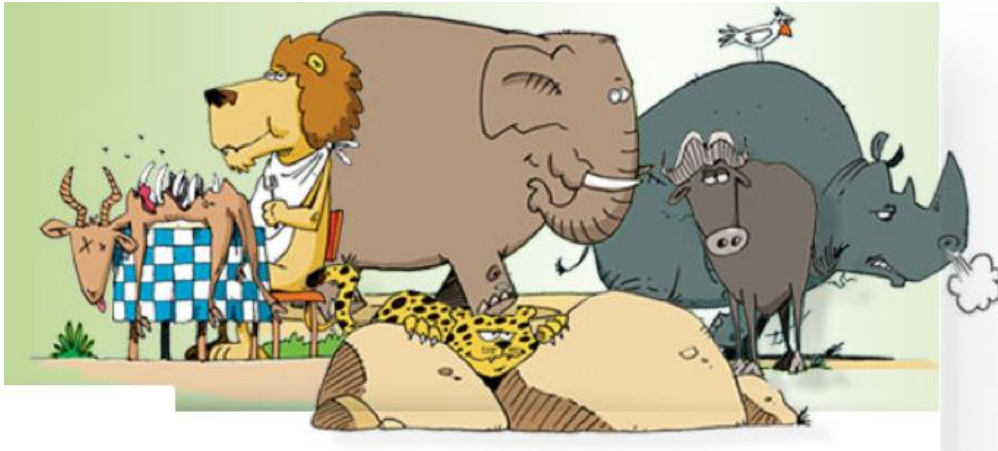
Dominant design elements:

- Dialog (all financial concepts and decisions are explained by characters' lines)
- Character (Maletsatsi is established as a moral and loving person)
- Facial expression, Body language, Tone of voice (all reveal ethics and emotions)

The character's dialog in the video also clearly demonstrates that her "Decision processes" are not rational or analytical; rather, they're based on her emotions around pleasing her loved ones and seeking status. The setting in Maletsatsi's home reflects her pride, aspirations and love of family.

### **Example 3: "On the Money"**

The "On the Money" financial education program was developed by Old Mutual PLC (South Africa), a financial services firm. The program primarily explains financial concepts through text, reinforcing the information with images of the "Big Five" game animals as metaphors for desirable financial behaviors (see Figure 3).



**Figure 3: The Secret of the Lion from “On the Money”** (retrieved 05 07, 2014 from <http://www.oldmutual.co.za/about-us/transformation/financial-education/financial-education-programmes/on-the-money.aspx>)

Lion: “eat first” allocating money to savings before spending

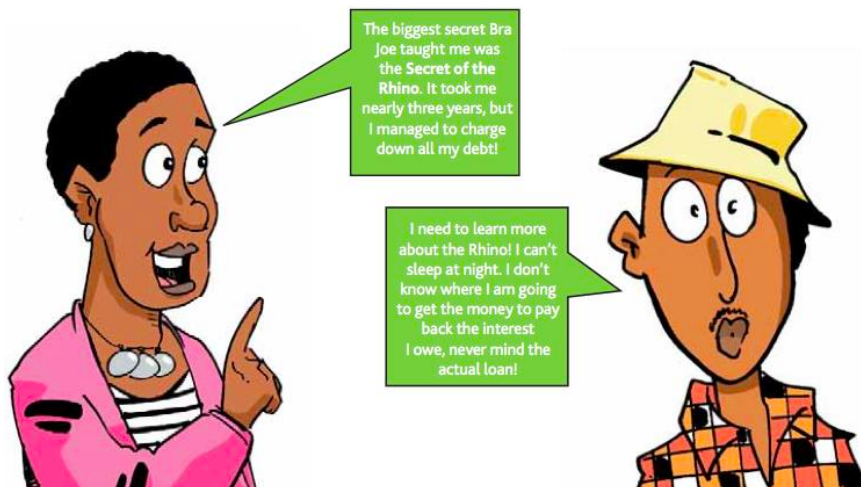
Leopard: set realistic goals

Elephant: knowledge is power: the importance of record-keeping

Rhino: charge ahead to pay down debt

Buffalo: patience yields compounded returns

In this program’s workbook materials, human cartoon characters discuss and apply the animal-based financial concepts in comic-strip format (see Figure 4).



**Figure 4: The Secret of the Rhino from “On the Money”** (retrieved 07 07, 2014 from [http://www.oldmutual.co.za/onthemoney/images/rhino\\_cartoon01.gif](http://www.oldmutual.co.za/onthemoney/images/rhino_cartoon01.gif))

Dominant content elements:
















- Financial: concepts (saving, planning, debt)
- Behavior: decision processes (rational, motivated by fear)

Dominant design elements:

- Text (speech bubbles; program is very text-heavy overall)
- Metaphor (extended metaphors of the animal behaviors)



The cultural aspects of this initiative are varied: the “Big Five” are trophy animals hunted by the wealthy, while the human cartoons depict individuals of the 90%. Both groups of characters are stylized, with neutral facial expression and body language. Speech bubbles present dialog, but tend to be informational and imply rational rather than emotional decision processes.

		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									

**Table 2: InfoEmotion Matrix mapping relationships among content and design elements. The icons of ant, woman and lion represent The Ant Bank, *Scandal* and “On the Money” examples, respectively.**

As the InfoEmotion Matrix (Table 2) shows, The Ant Bank (Zak) utilizes cultural references and metaphors to convince in what is largely an appeal to his audience to save and accumulate wealth. It is clear that *Scandal* is richest in its use of behavioral content elements, presenting these convincingly in situations dominated by ethical and emotional factors, while the “On the Money” program uses metaphor (and large quantities of text) to make a rational-choice case for saving, planning and paying off debt.

The indexing and cross-referencing of content and design elements in the matrix suggests that it could be a useful tool in co-designing financial literacy materials, as it enables financial educators (who understand financial concepts) to work closely with designers and with community members (who comprehend cultural, behavioral and emotional issues, as well as the community’s financial-literacy needs).

“... the person who will eventually be served through the design process is given the position of ‘expert of his/her experience’, and plays a large role in knowledge development, idea generation and concept development. In generating insights, the researcher supports the ‘expert of his/her experience’ by providing tools for ideation and expression. The designer and the researcher collaborate on the tools for ideation because design skills are very important in the development of the tools. The designer and researcher may, in fact, be the same person.” (Sanders and Stappers 2008:8)



Used in this way by experts in content, behavior and design, the matrix can provide a conceptual and practical framework within which stakeholders can collaborate in the development and evaluation of financial literacy materials.

## Conclusion and next steps

The analysis here of three financial education examples highlights the ways in which design elements can be used to support insights from behavioral economics, when design choices embed financial content into the emotionally and culturally rich contexts that drive individuals' financial decision making. The effectiveness of these approaches is currently being evaluated through rigorous research studies that are measuring the effects of both the *Scandal* soap opera episodes and the "On The Money" programs. Results are still forthcoming from Financial Literacy & Education (an initiative of Russia Trust Fund, The World Bank and the Organisation for Economic Co-operation and Development (OECD)), but a recent post on their website indicates that *Scandal* has had dramatic effects on viewers' financial engagement (Financial Literacy & Education 2013: sp)

Programs that emphasize behavioral aspects are not necessarily dominant in financial literacy efforts; however, evidence about the importance of behavioral elements is emerging, and these behaviorally-oriented concepts and programs are increasingly embraced by major global organizations such as The World Bank, OECD and international aid organizations. The themes of these programs—budgeting, borrowing, saving—promote immediate and practical goals that are of paramount importance to the economic 90%, and the programs are sensitive to the cultural and belief structures of their audience. More-traditional concept-based education initiatives would do well to emulate many of these practices, especially as long-term saving and planning is impossible without these short-term capabilities.

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