

Storytelling: The Power of Scenarios

Janice (Ginny) Redish, Ph.D.
President
Redish & Associates, Inc.

6820 Winterberry Lane
Bethesda, MD 20817

voice: 301-229-3039
fax: 301-229-2971
e-mail: ginny@redish.net
web: www.redish.net

Goldsmith Award Session
IEEE PCS
Santa Fe, NM
October 25, 2001

Topics for the session

- What is a scenario?
- Why use scenarios?
- How should we gather scenarios?
- What do we do with scenarios?
(when and how to use them)

What is a scenario?

- a very short story of a real user in a real situation



Sarah Smith, a 25-year old travel agent in a small, three-person agency in a storefront in a suburb of Chicago, takes a call from her friend, Jenny.

Jenny wants to go to Phoenix to see her special friend sometime in the next month. She can go any weekend and she can take Friday and Monday off. But she can only go if she can afford it. Jenny asks Sarah to find her the least expensive flights for any Friday to Monday during the next month.

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 3

Scenarios as the intersection of user analysis, task analysis, context (environment) analysis

information
about users

scenario
scenario
scenario

information about
the users' goals
and tasks

information about the users'
contexts (environments):
physical, social, technological

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 4

Elements of a useful scenario

- I often call these "scenarios of use"
 - just the story of *who*, *what*, and *why*
 - not *how* the user does the task
- Captures a picture of the
 - user (and sometimes secondary user)
 - relevant characteristics of the user
 - relevant characteristics of the context (environment)
 - user's (and sometimes secondary user's) goal
 - user's (and sometimes secondary user's) values



© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 5

Another example of a scenario

At work, Jim Reese uses the Internet a lot, but he has someone who arranges travel for him. He's going to take a week off and take his family to Florida on vacation and decides he'll try to do that himself on the Internet. Getting the air tickets wasn't so hard, but now he's interested in arranging for a car.

He wants a car for the whole week. The Reeses will be flying into and out of Orlando airport. Jim wants to rent a car right there at the airport so he doesn't have to move the three kids and all the luggage any more than necessary.

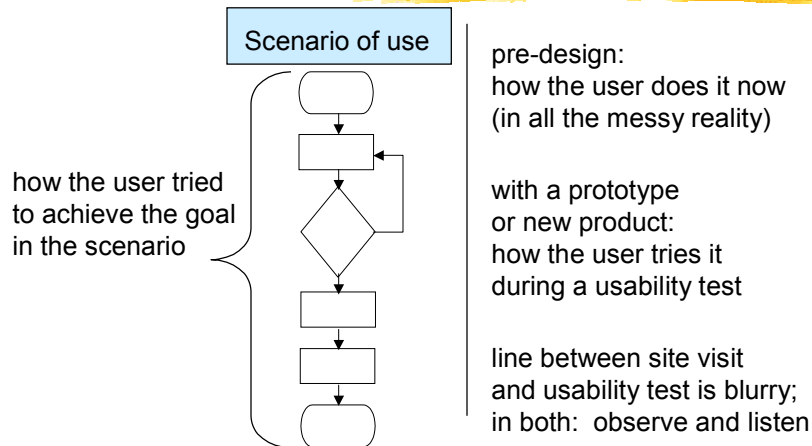
This trip is a big splurge and the Reeses are on a tight budget, so Jim wants the best price for a car big enough to hold all five of them and all their luggage. He also needs to make sure the car rental company can supply a car seat for the toddler.

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 6

You can elaborate a scenario to include *how*



But there is value in considering the scenario by itself, without the *how*.

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 7

Why use scenarios?

Scenarios bring task lists alive

Task list

- reserve a hotel room
- change a reservation
- cancel a reservation

The Redishes are going to St. Paul for Thanksgiving. They need to find a hotel that has two adjoining rooms – one for themselves and one for their daughter, son-in-law, and two-year-old grandson (so they need a crib in one room). They want to be sure the hotel has new cribs that meet government safety standards.

They want two rooms so they have separate bathrooms, but they would like the rooms to connect. They'll have a car, and they would rather not pay extra for parking.

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 8

Scenarios link personas to goals and tasks

Picture of Julie at work	Julie Morris Travel Agent Globe Travel Kansas City	Julie's work environment
	<ul style="list-style-type: none">Specialty: Corporate TravelExperience: 5 years as travel agent 5 years with PRODUCTTechnology: PC computer only at work no computer at home keyboard savvy limited mouse experience computer has Windows but she spends most of day in transaction-code based programValues: speed of transactions finding bargains for her clients knowing lowest fare	Picture of Julie's desk and the office <small>Note the sticky notes all around Julie's computer monitor.</small> <ul style="list-style-type: none">small office, three travel agentsall help each other, but others specialize in leisure and international, respectivelywork on salary, not commissionon fifth floor of office building so get little walk-in trafficbut keep their desks moderately clean as Julie's partner, Marla, who handles mostly leisure travel, has many clients who make appointments to come inpleasant atmosphere; travel brochures; nice extra chairs for clientsprinter and fax machine are in small room in back to keep noise level down (because they are on the phone so much) – so printing or faxing means getting up from desk.
About Julie <ul style="list-style-type: none">35 years oldtravel agent for 5 years; was in retail sales beforeenjoys the phone contact with clients; likes helping peopleloves to travel, loves perks of being a travel agentlikes the job but it is just a jobtook original required training but has not been to training class sinceno time for new training; after work she has family and other social obligationsis comfortable with the computer, but thinks she doesn't know a lot about computers; doesn't like it when something goes wrong, for example, with printer or fax – doesn't feel she could fix it	Picture of Julie and her family skiing (from her desk at work)	How Julie works <ul style="list-style-type: none">clients call; usually know travel dates, destinations, other needs (common to corporate travel – note: leisure travel is different)Julie makes notes on paper in spiral notebook she keeps on desk – says it is useful to go back to if issue comes up about not getting arrangements right; she has notes of what person asked forknows transaction codes for air travel to most major US cities; fast with getting availabilityif booking a car for something special – drop off in another city; getting it someplace other than airport, need something special like ski rack, etc. will call car companiesalso books hotel online for major hotels in major cities for clients that repeat common visits; but often calls hotels because needs information about price, room, special requests that aren't easy to do onlineasks other agents for help with transaction codes and her colleagues are helpful if they know – but often other person is also on the phone, so Julie can't ask and has to experiment and figure it out herself – or tell client she'll do research and call backsays that a major portion of her time is spent printing tickets and making sure that the right ticket gets in the right envelope and to the right client

Scenarios are stories; people like hearing and telling stories

- Scenarios bring the team together around real people and real situations
- These stories are the users' reality. They have face validity. Whatever you are developing has to work for these stories – or it has no value.

We continue to demonstrate to ourselves
– both through our successes and our failures –
that the first and most important question to ask is,
what does the user want to do?

Brenda Laurel,
The Art of Human-Computer Interface Design, 1990.

Scenarios may help designers write use cases from a more user-centric point of view

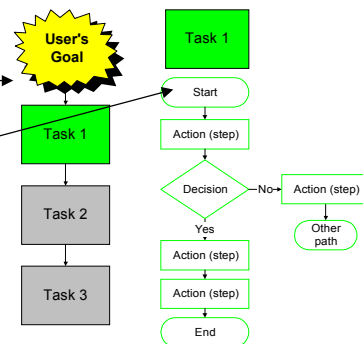
Part of an application use case:

Withdraw money	
User actions	System actions
insert card into ATM	read card request PIN
enter PIN	verify PIN display options
select option to withdraw	display account menu
select account	prompt for amount

Adapted from an example in Constantine and Lockwood, 2000, based on Kruchten, 1999, and Wirfs-Brock, 1993. Note that C&L argue that this level of use case should be preceded by an "essential use case" that gives the user's goals.

Scenarios of use are device-independent

1. Form a goal.
Is the user here?
2. Form an intention.
Is the user here?
3. Specify the actions needed.
4. Do the actions.
5. Look at what happened.
6. Evaluate what happened.
7. Interpret the outcome.

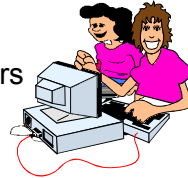


Norman, 1988, 47-48. See also Hackos and Redish, 1998; Redish and Wixon, in press.

How should we gather scenarios?

■ Best

- observe, listen, talk to users in their environments

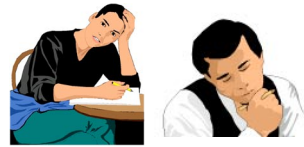


■ Good

- talk to users in person or on phone (critical incident technique)

■ Okay, but...

- think about scenarios



© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 13

Observe, listen to, talk with users in their environments

Gather stories as they happen.

We have watched Harris

- review the daily report (which comes from another department)
- check the balance against another report
- find and fix errors
- print the report again to check the balance again
- send the file with the data that makes up the report

Harris' story continues: And now I go over to this other computer and I enter the data to send the payment that matches that report. The payment actually gets made tonight. After I enter it, I print a copy of what I did and give that with the copy of the report to Mary. She'll check it sometime today, and she'll send an email down to Accounting to tell them to move that much money to the right account so that the money is there for tonight's transfer.

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 14

If you don't see users at work (or play), you are basing your work on assumptions

In the absence of detailed information,
we all work from assumptions about who the user is,
what he or she does, and what type of system
would meet his or her needs.

Following these assumptions, we tend to design
for ourselves, not for other people.

When our assumptions are accurate, we may produce
a reasonable system. When they are inaccurate,
we may produce the wrong system even though
it is "well-designed."

Rubinstein and Hersh, 1984, p. 29.

Wrong assumptions (wrong scenarios) may be the major problem with a product

Situation:

The Training Department is responsible for creating
training materials for Customer Service Representatives.

Assumption:

If we develop lively, heavily graphic, self-paced
computer-based training (CBT), CSRs will love it.

Reality:

The CSRs don't use the training materials.
Doing the training modules means going off by yourself.
CSRs are hired because they like talking to people.
They don't like going off by themselves to work.

Wrong assumptions (wrong scenarios) may be the major problem with a product

Situation:

The web site of a very large division of a government agency

Assumption:

Users are mostly researchers who know which group within the division is responsible for each ongoing study.

Reality:

The division is supposed to be providing information to the public who look to it as the most credible source of information on preventing and detecting cancer.

The public has no idea how the division is organized.

The screenshot shows the homepage of the Division of Cancer Prevention (DCP) at the National Cancer Institute. The header includes the NCI logo and navigation links: Functions, Matrix Structure, Activities, Reports, Contact Staff, Related Links, and DCP Home Page. A search bar is present with the text 'Other NCI Sites:' and a search button. Below the header, the page is titled 'NCI > DCP'. The main content area is divided into several sections: 'Function Statements' (describing the mission of the DCP), 'Organizational Structure' (describing the reorganization of the DCP in April 1999), 'Activities' (listing various programs and studies), 'Funding Opportunities' (providing a guide to funding opportunities), 'Reports' (listing staff and reports), and 'News' (listing recent news items). The 'News' section is highlighted with a blue background. The footer of the page includes the copyright notice '© 2001, Janice (Ginny) Redish, Ph.D.' and the website 'www.redish.net'.

NATIONAL CANCER INSTITUTE

Functions | Matrix Structure | Activities | Reports | Contact Staff | Related Links | DCP Home Page

Other NCI Sites: Search

NCI > DCP

The Division of Cancer Prevention is the primary unit of the National Cancer Institute devoted to cancer prevention research. We develop and support research training and career development and coordinate program activities with other related federal and private agencies.

DIVISION OF CANCER PREVENTION
dcp.nci.nih.gov

Function Statements

Official "Function Statements" describing the mission of the different organizational components within the Division of Cancer Prevention

Organizational Structure

As of April 1999, the DCP was reorganized into a **MATRIX structure**, with most activities performed by Project Teams composed of staff from the various **Research Groups**.

Activities

- Cancer Prevention Fellowship Program (CPFP)
- NCI Summer Curriculum in Cancer Prevention
- 2000-2001 Colloquia Series (weekly seminars)
- PLCC (Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial)
- LSS (Lung Screening Study)
- EPS Library (DCP, DCCPS, and DCEG)
- ALTS Study (NCI/ASCO/SIL/Triage Study)
- Dietary Assessment Calibration/Validation Register (in collaboration with DCCPS)
- Early Detection Research Network

Staff

Staff listing and email links for the DCP.

Funding Opportunities

A guide to the various funding opportunities available from the NCI.

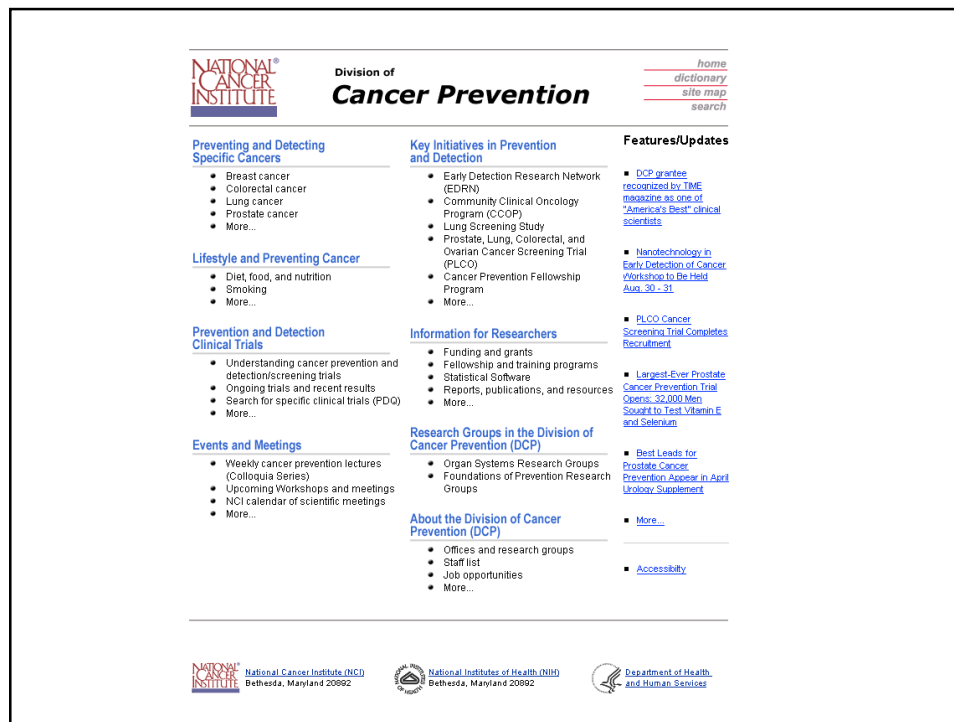
- [Funding What's New](#)
- [Recently Cleared Concepts for RFAs and PAs](#)
- [Grant Guidelines and Descriptions](#)
- [Grants Review Process](#)
- [NCI Notices Related to Funding Initiatives](#)
- [Requests for Applications](#)
- [Program Announcements](#)
- [Requests for Proposals](#)


Reports

DCP Newsletter and Division Reports

News

- [Operations Manual for Lung Screening Study is now available online.](#)
- [NCI-Sponsored Trials of Celecoxib for Cancer Prevention](#)
- [Detection Network Gives Early Cancer Tests a Push](#)
- [Early Detection Research Network Completes Initial Funding, Seeks New Screening Tests for Common Cancers](#)
- [The Cancer Prevention Fellowship Program is accepting applications for 2002.](#)
- [The NCI Summer Curriculum in Cancer Prevention has completed its 2000 class schedule. Information about this year's classes are available on the Office of Preventive Oncology web site.](#)
- [NCI "Molecular Targets" Initiative \(in collaboration with the Developmental Therapeutics Program\)](#)





Wage & Hour Rules

[Minimum Wage](#)
[Prevailing Wage](#)

[L&I Laws & Rules Home](#) [Employment Standards Home](#)

Topic of Rule	Revised Code of Washington (RCW)	Washington Administrative Code (WAC)	Rule Making Activity
Agricultural employment standards	49.30	296-131	Final Rule
Employment of minors	49.12	296-125	PreProposal
Farm labor contractors	49.30	296-131	None
Family care	49.78	296-130	None
Family leave	49.12	296-134	None
Labor standards for all occupations. Includes meal & rest periods and record keeping	49.12	296-126	None

Wrong assumptions (wrong scenarios) may be the major problem with a product

Situation:

The web site of a state government agency.
Every employer and employee in the state should be a user.

Assumptions:

They'll come here first for the information this agency has.
They'll know which division within the agency to go to
for each type of information they need.

Reality:

Many users don't know which agency has which information.
Many users don't know the agency divisions or acronyms.

If you can't observe, at least talk to users

The critical incident technique

- Collecting scenarios (stories of real experiences) when you
 - cannot see the behavior
 - want many examples in a short time



- Decide on issues and users; write questions.
- Talk to users one at a time.
- Ask the user to recall a specific incident.
- Probe for relevant specifics.
- Ask the user to recall another specific incident.

Flanagan, 1954; Hackos and Redish, 1998.

Thinking up the scenarios is better than not working with scenarios, but it is risky

- You are too likely to
 - write scenarios *from* requirements rather than *for* requirements
 - miss the many interesting stories that are not the most standard, but are still important
 - miss the problems users are going to have because their scenarios aren't included in the product

Limiting scenarios to what the product can do runs the risk of not meeting users' needs

- Usability try-out (when you make up the scenarios) is an excellent way to see if the product as designed works well for users who have those scenarios.
- But it doesn't guarantee adoption or use.

Risk calculator

You are worried about how much nuclear tests affected your probability of getting thyroid cancer.

Scenarios:

- lived in same county, drank one kind of milk
- lived in different county or state in different years; drank different kind of milk in different years
- what if people don't remember, can't find out?

What do we do with the scenarios?

1. Provide input to application requirements and to business process changes.
2. Plan and organize a web site.
3. Get objects and attributes for application design.
4. Reorganize documents.
5. Rewrite documents.
6. Do a scenario-based heuristic analysis, walkthrough, or usability inspection.
7. Plan usability testing.

1. Provide input to application requirements and to business process changes

Sarah Smith, a 25-year old travel agent in a small, three-person agency in a storefront in a suburb of Chicago, takes a call from her friend, Jenny.

Jenny wants to go to Phoenix to see her special friend sometime in the next month. She can go any weekend and she can take Friday and Monday off.

But she can only go if she can afford it. Jenny asks Sarah to find her the least expensive flights for any Friday to Monday during the next month.

Julie (another travel agent) spends a lot of time printing tickets, matching tickets with itineraries, getting tickets and itineraries into the correct envelopes, and mailing or delivering the envelopes.

Mary Kelly was born in 1938 in New Mexico. She doesn't remember what county and she moved from there when she was six years old...

2. Plan and organize a web site

Maria Hernandez stopped smoking years ago when she was convinced it was bad for her health and her children. Her oldest son is now fourteen and she thinks he is sneaking cigarettes. She knows that nagging him won't work, so she is looking for good solid facts from the government to show him the dangers of smoking.

Dr. Chung gets questions from his patients all the time about the how much diet affects getting cancer. He wants to help them with information. The information has to be valid, reliable, credible, up-to-date, and in language his patients will understand.

NATIONAL CANCER INSTITUTE
Division of **Cancer Prevention**

[home](#)
[dictionary](#)
[site map](#)
[search](#)

Preventing and Detecting Specific Cancers

- Breast cancer
- Colorectal cancer
- Lung cancer
- Prostate cancer
- More...

Lifestyle and Preventing Cancer

- Diet, food, and nutrition
- Smoking
- More...

Key Initiatives in Prevention and Detection

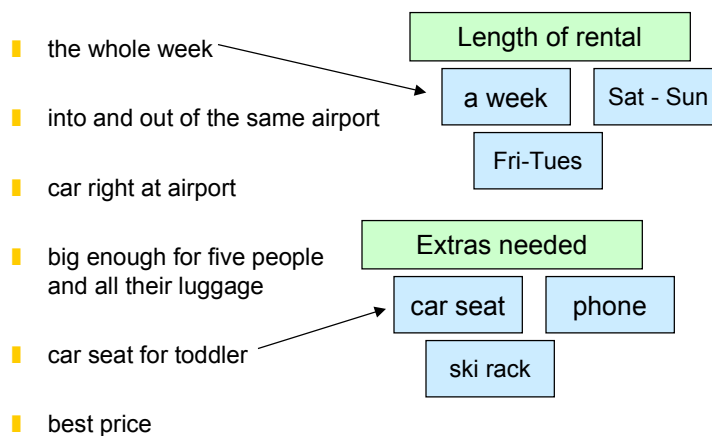
- Early Detection Research Network (EDRN)
- Community Clinical Oncology Program (CCOP)
- Lung Screening Study
- Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial (PLCO)
- Cancer Prevention Fellowship Program
- More...

Features/Updates

- DCP grants recognized by [TIME magazine as one of "America's Best" clinical scientists](#)
- [Nanotechnology in Early Detection of Cancer Workshop to Be Held Aug. 30 - 31](#)
- [PLCO Cancer Screening Trial Completes](#)

The scenarios led to this new content and organization of the web site.

3. Get objects and attributes for application design



Adapted from Dayton, McFarland, and Kramer, 1998.

4. Reorganize documents

Terms and Conditions of Loan
Deferments
Repayment
Eligibility Notice
Eligible Lenders
Program Operation
Insurance Fee
Default

What is the guaranteed student loan program?
Who is eligible to apply?
How much may I borrow?
When should I apply for a loan?
How do I apply for a loan?
How and when will I have to repay the loan?
Are there situations that allow me to put off repaying my loan?
What happens if I don't repay on time?

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 31

5. Rewrite documents

Except as otherwise provided in paragraph (b) of this section, approved fumigation with methyl bromide at normal atmospheric pressure in accordance with the following procedure, upon arrival at the port of entry, is hereby prescribed as a condition of importation for shipments of yams from all foreign countries.

*See "The scenario principle,"
Flower, Hayes, and Swarz, 1983.*

For yams from Japan, see section (b).

If you are importing yams from any country other than Japan, the yams must be fumigated when they get to the U. S. port of entry.

[Who?] must fumigate the yams with methyl bromide at normal atmospheric pressure.

The specific procedure is ...

© 2001, Janice (Ginny) Redish

Storytelling: The Power of Scenarios

Slide 32

6. Do a scenario-based heuristic analysis, walkthrough, or usability inspection

- Instead of reviewing screens field by field, or web pages topic by topic, ask
 - who is the user here?
 - what do you know about those users?
 - what are they trying to accomplish?
- Review by going through that scenario.
- You may be amazed at the change in the way designers and developers see their work.

7. Plan usability testing

You are a member of IEEE PCS and want to use the web to sign up for the conference.

Your colleague at work just came back from the IEEE PCS conference in Santa Fe and has been telling you how great the organization is. You might be interested in joining, but you wonder how much it costs.



Conclusion

- Users are reality.
- To have a successful product/document, you must enable success for the users.
- Scenarios describe the users' reality.
- Scenarios also provide common ground for everyone on the team – including users.
- So, always ask:
 - Who is the user?
 - What is the user's story?

