WALL-TO-WALL TOOLS

THREE LOW-TECH WAYS TO UTILIZE YOUR WALL SPACE FOR PROJECT ACTIVITIES **by Amanda Sulock and Rebecca Traeger**

ONE OF THE MOST VALUABLE TOOLS IN THE SOFTWARE DEVELOPMENT process may be staring you right in the face every day: your wall. That's right, your wall. Whiteboards and flipcharts barely scratch the surface of the elements you can tack up on that boring white wall to gather information, analyze it, and glean valuable insight and direction. We will examine how three experts use the wall in very different ways to make retrospectives, design, and collaboration better and easier.

1 Case Study

Esther Derby on Retrospectives: Sizing Up Your Project

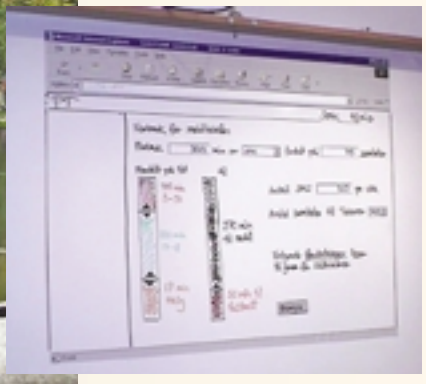
A typical project review consists of looking at the project plans, the effort hours, the defect data, and other similar information to answer the questions: *What went well?* and *What should be done differently?*

"These are good questions," says Esther Derby of Esther Derby Associates, Inc., "but, they aren't good *first* questions." Instead,

QUICK LOOK

- Using the wall for retrospectives
- Aiding software design through prototyping
- The "Wall of Wonder" collaboration tool

Gautam Ghosh takes the Web page off-line and onto a wall with the Magnetic User Interface (in inset).



TOP: STEVE WOIT/CORBIS SABA; MIDDLE: ANDERS ØVERBERG; BOTTOM: SHAWN SPENCE/CORBIS SABA

Derby's retrospective wall tool has teams answer the questions: *What did we do?* and *How was it for us?* The answers are captured on a piece of rip-stop nylon sprayed with adhesive or a simple brown sheet of paper draped on a wall.

"I ask people to recreate the timeline for a project and list all the events that were important to them." These events are written on index cards and stuck on the wall in the appropriate time slot—Q1, Q2, November, December, etc. (see Figure 1).

Once the timeline and events are in place, each team member is asked to draw what Derby calls an *energy line* above the timeline. The energy line measures project energy or job satisfaction as the project progressed, from "dreaded coming to work" at the bottom to "was excited about the project" on the top. For example, an individual line might start out high at the beginning of the project, dip back and forth between the top and the middle for a while, and then dip down to the bottom to correspond with a particular event. Derby explains, "We have the events and then we have how people responded to the events. We step back and look at it, searching for shifts and patterns. We examine what was going on in those periods of time when things on the project were going well for people, and also what was happening when people were just not enjoying their time on their project at all.

"People get a very different set of insights from looking at a project this way than they do from just looking at the hard data, or from asking the usual questions." For example, one group that Derby worked with noticed a huge dip that coincided with a senior management pep talk, where coupons for Starbucks coffee were promised to the developers who fixed the most bugs in their code. Why did such low energy center around a reward? Derby explains, "There was this one little event card up there that said, 'zero coffee coupons.' And this came from a guy who wrote solid code. He was never rewarded because his code was solid." Having this information out there allowed the group to discuss the reward system, as well as have some closure to the negative feelings that had cropped up as a result of the misguided reward effort. "I doubt that would have come up had we just been looking at the hard data of the project," says Derby.

As with any tool, there are some safety issues to consider, mainly emotional and psychological. "If people are afraid to say what's true for them because they will be ridiculed or punished, or it's going to show up on their performance evaluations, they are not going to be willing to put much on the wall," Derby reminds us.

On projects that have been particularly difficult or had a lot of problems, it's helpful to have an outside facilitator familiar with the formal retrospective process to lead the group. Derby reiterates, "If it's just the project team sitting around to do some processing about what happened, and there wasn't anything particularly controversial, and they are doing it very informally, they can do it on their own. If it's a more formal post-project review, or retrospective, I think it's important at least to have someone who is not on the team operate the tool—the wall. If there has been a lot of controversy on the project or the project failed, then I think it's best to hire an experienced facilitator who can handle some of the conflicts and emotions that might come up."

For instance, Derby often takes an anonymous safety poll: A secret ballot is cast where each individual rates where they fall on a scale of 0 to 4 (zero being much more evocative than one) relative to bringing up difficult topics in front of the group. "Zero" is "I'm not saying anything; I'm keeping my head down," and "four" is "I feel comfortable discussing anything." Derby compiles the results in a histograph that she then presents to the group. "I say, 'What does this tell us? What can we make of this data?' Then we come up with some ground rules to make it safer, so that everyone can say what they need to say," explains Derby.

Other safety issues are easier to deal with. "Make sure your markers don't bleed through and use blue painters' tape," cautions Derby with a laugh. "I once pulled the paint off the wall in an office when removing a chart—oops!"

While you can't take the wall back to your office, you can preserve the information you have gathered. "I've had some teams actually roll up their wall and take it back to the office and show it around so other people get a sense of why software projects are hard," Derby quips. Derby also takes a digital photograph of the final product. She then leads the team through some detailed analysis so the team can learn what they want to do differently. By having so much information, the team can look at the root causes of any problems and make recommendations based on that.

Software projects can be quite large. The events can span a large period of time. You need a big forum to collect all of that information. It is equally important to understand how people responded to what happened. "Using the project timeline and energy lines gives you a better picture of the patterns of the project and what the human interactions in the project were. You can't get that same information from looking at just the effort hours and the defect data." Esther Derby has found

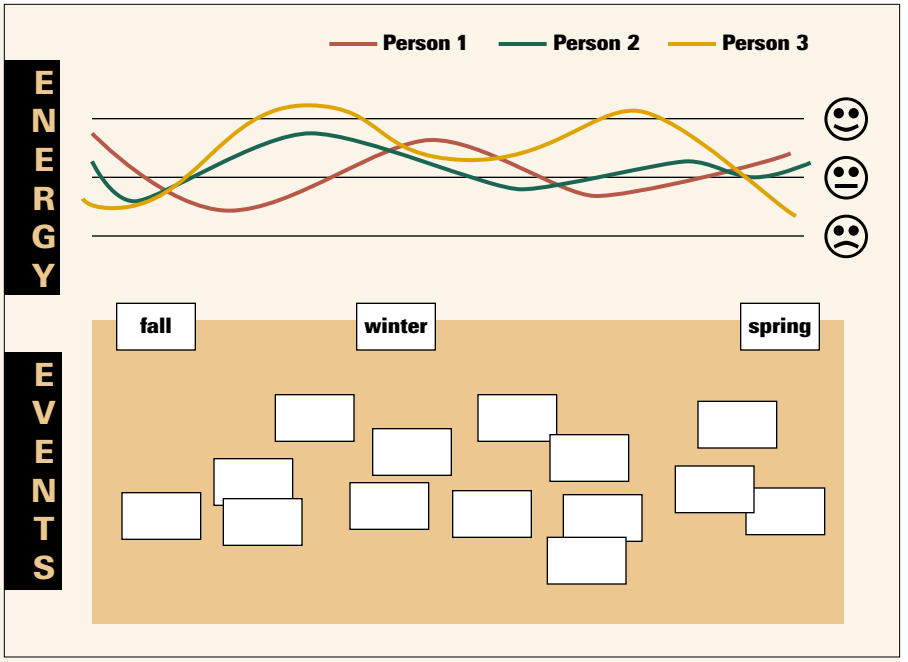


Figure 1: Project timeline with energy lines representing team members' reactions to events.

a way to use the wall to gather project data that may have been staring you in the face, but needed to be put up on the wall to be seen.

Case Study 2

Gautam Ghosh on Design: A Magnet for Ideas

Gautam Ghosh is a partner in a company called Userminded, based in Oslo, Norway. He uses the wall in workshops for documentation and to increase users' consciousness levels about what they're trying to achieve.

"It's more accurate to say *we* use them because I never work alone. As a group we use walls mostly because they're accessible…and they're everywhere," Ghosh explains.

"I'm a usability specialist," he notes. "To make a process work, it's important to see your ideas, and whereas developers have a tendency to dig in and hang *data* models up on the walls…we put ideas about the *users* up there. The wall techniques allow us to meld the two perspectives."

To make the most of walls, Ghosh works closely with graphic designers, Web designers, and his partner in Userminded, an industrial designer, to come up with creative ideas. His company created two different wall techniques, Wallware and Magnetic User Interface, to help visualize ideas and functional design for things such as Web applications and intranets. In addition to creating realistic prototypes of new systems, these techniques can also be used to illustrate strategies and goals.

Wallware, one technique used by Userminded, consists of a portable wall, five shapes and six colors of cards, plus a number of colored pens.

"You never know what kinds of walls you'll get at a client's location. Sometimes they have the last thirty CEOs' photos hanging up, so we can't even get at [the walls]," he says. That's why Ghosh relies on a big swatch of hot air balloon material to create a wall in front of the wall. "We spray it with thin nylon-type glue (like photographers use), hang it up, and then we can affix colored cards straight onto it and rearrange them as needed."

The shapes of the colored cards are different depending on the type of project, but each idea is assigned its own card and then placed under a heading, e.g., goals, users, or benefits. One set of cards, the user-focused set, consists of cutouts of different types of users (an older man, a younger woman, a teenager, etc.), which the team hangs on the wall. They then stick the characteristics of the users, also on colored cards, underneath the cutouts. This creates a visual model of the different types of users and their attributes. The wall space is then used to structure and sort the ideas as much as possible.

The second technique Ghosh uses is called Magnetic User Interface (MUI). The MUI method consists of actually constructing a prototype of an Internet page on a magnetized white board.

"It's a *virtual* virtual environment; a pretend Web space used to prioritize information," Ghosh explains. "We have different-sized magnets that replicate a Web browser toolbar, a left navigation column, buttons, and input fields. We use them to create a frame around the white board to make it look like a Web page. We do this so we can explore ideas."

The MUI method is not just used to design Web pages. It can also be used to depict complex ideas in a familiar way. Participants can take conceptual, abstract thoughts, such as a new strategy for a company, and make them visible by using the Web as a metaphor. This is helpful not only in determining what the strategy is, but also in prioritizing the strategic points.

The facilitator asks pertinent questions to fill in the white board. For instance, the first question might be, *What would you put on your home page?* "The home page is where you want your most important strategic points, hence the Web as metaphor." Ghosh continues, "Then we can delve into what would go below. Slightly less important pieces of a strategy would make up the links or buttons, and tangent points will be lower-level pages." This also lets participants correctly discard ideas or activities that aren't really relevant.

"The group uses the MUI magnets and erasable markers to fill in the page's content areas, and the combination creates the illusion of a Web page," says Ghosh. "The best part is that you get everyone in the workshop to participate, and once they're happy, you use a digital camera to capture it."

While Wallware is appropriate for a do-it-yourself approach, Ghosh cautions that MUI requires some degree of facilitation for it to be effective. As for the low-tech approach in general, Ghosh says people are often surprised.

"Some people don't take it seriously because they're just bits of cards and magnets," he explains. "Once developers see the models, they immediately want to translate them to the more advanced and stylish formats, like HTML. But that's not the point. We're trying to keep it low-tech because the lower the threshold, the more people we can bring onboard. We want to have as many users, stakeholders, managers, and developers involved as possible. You don't want to exclude anybody."

The other advantage of low-tech tools is the clean-slate factor. At any point, you can pull the cards off or wipe down the wall and start all over again. The trick is to be sure to photograph it along the way. Since these tools tend to put people in a creative mode, major changes can happen quickly.

Beyond the wall, Ghosh says these tools bring about consensus as well as collaboration. "Whatever's on the wall is 'It,'" he says. "It's up to you how much you've contributed. When you leave the workshop at the end of the day, you know what you're going to get because you've got it on the wall. You're not waiting for the results to be transcribed and sent around and approved by all sorts of people."

Case Study 3

Ellen Gottesdiener on Collaboration: Maximizing Team Effort

Ellen Gottesdiener of EBG Consulting, Inc., uses her wall technique to produce a variety of deliverables, including requirements. "Working on the wall is the most natural thing in the world," says Gottesdiener, "because when a group of people are working together in a room, they tend to use the wall spontaneously most of the time anyway. I call it the 'Wall of Wonder' (WoW). The name isn't original, but it's so apropos because once the group is done working, the wall has the collective wisdom of everyone in the room and it is like a Wall of Wonder."

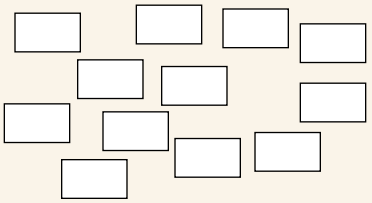
Figure 2 (on page 52) illustrates the WoW technique. The first step in the process is to present a focus question. Gottesdiener explains, "You have to set the context for the work the participants are about to do. Paint an image of what they have to deliver. So, if we're about to use the wall to come up with a list of

1 Present a **focus question**.

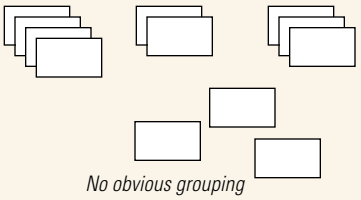
2 Participants **individually list** items.

3 Form subgroups of participants and write **one item per card**.

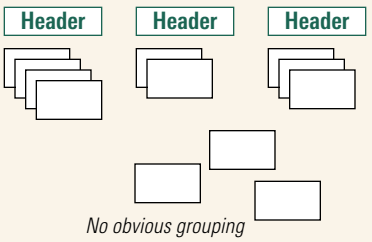
4 **Post cards** randomly on the wall.



5 **Group cards** into related clusters.



6 Summarize the theme that ties each group together and **create header cards**.



7 **Analyze** groupings.

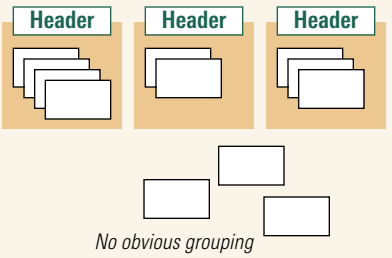


Figure 2: The Wall of Wonder technique

attributes to go into a data model, I might ask the participants, 'Imagine you're an end user about to register a new product. You have everything you need to do that on your desk. Come up with a list of what those items are.'"

Within the large group, each participant then creates his own list. When finished, the participants form small groups, where each participant shares the top two or three ideas from her list. Within the small groups, participants review each other's top ideas and compile agreed-upon items on index cards (with one item on each card).

Meanwhile, Gottesdiener is busy preparing her wall. "I bring in a large roll of white poster paper, 25 yards by 48 inches, and roll it all the way across one wall. Then I spray it with sticky spray. So, I build my own nine-foot-long wall."

Once each small group has assembled its stack of index cards, they rejoin the other small groups. Each small group then randomly places its index cards up on the wall. Once all of the small groups have placed their cards on the wall, the cards can be manipulated by the group as a whole. All of the participants begin to sort and match the cards. Each individual card is placed into logical sets or clusters. Each cluster is then given a title based on the common elements. For example, a title might be "applicant eligibility" if the cards below it all define eligibility business rules for a claim applicant. The titles are written on header cards that are put above each set of cards to form a category (see step 6 in Figure 2).

"What's really happening on the wall is the facilitation process. And facilitation is critical when you're trying to reach a goal as a large group, especially if you're trying to bring different functions or requirements together. The wall helps the group see where they're going and how they should get there," says Gottesdiener.

The large group then stands back to analyze the wall. They look at ways to further combine headings. For example, five different types of business rules could be grouped under the umbrella of "business rules."

Even after the sorting is done and you have all of the information on the wall, you are not done. Gottesdiener explains, "You always want to go back and make sure all the ideas are represented. You can do this by asking focus questions at the end, and if there's anything new that comes up, write it on a card. Oftentimes, these are the most awesome cards." By using both individual and group ideas, the ideas can be expanded and linked together logically.

What has just been described is a bottom-up example, where a team starts with the details and arrives at higher-level categories. Another way to structure the group discussion is top-down, where header cards are pre-prepared and individuals drill down to the lower-level details. For example, if you have a header card called "events," the individuals would list system events to fill in below it. Use the structure that seems most fitting for your needs.

The important thing to remember is to use individual time, small-group time, and then whole-group time at the wall, and then go back to the individual. "This really honors all kinds of personality types. And after the wall is done, discuss the wall so you can transition your team to the next piece of work they have to do.

"Walls are probably the most efficient low-tech tool we have in software. They are inexpensive, accessible, and fun to use. They provide something essential to collaboration—shared space," notes Gottesdiener.

"Groups are exceedingly wise," she adds. "The facilitator's job is simply to tap into that wisdom. The wall is an excellent way to do it."

Summing Up

All of these techniques share more than a common wall. They require and foster a safe environment. They allow you to display a vast amount of information prominently. They allow for manipulation and participation by stakeholders. Finally, while you can't take the wall with you, you can take away all you have learned. The next time you need to hold a retrospective, create a design, or reach a group consensus, put away your computer and pull out your note cards, brown paper, and colored markers. You may be surprised by where they take you. STQE

STICKYNOTES

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- More on collaboration techniques
- More on prototyping
- Retrospectives details