This article examines tutorials from the site Instructables.com to highlight the rhetorical possibilities of including personal narratives in instructions. The narratives in these tutorials offer detailed accounts of their authors' experiences constructing their projects, thereby functioning as accounts of their craft knowledge. Pitched to amateur hobbyists, rather than the professional audiences of many forms of conventional technical communication, these tutorials offer new ways of motivating readers and teaching craft knowledge and techniques.

In the “Fancy Ikea Treadmill Desk” entry on Instructables.com, the author offers clear instructions for assembling a stand-up desk coupled with a treadmill that allows its user to walk while working. This “instructable,” as entries on the site are called, contains many conventional elements one might associate with effective tutorials, such as a materials list, step-by-step instructions, and several images. At the same time, many of these elements are presented unconventionally. For example, some steps combine directives to the reader with narrative documenting the author’s experience:

I removed the entire treadmill from the box it came in. The control panel, pictured below, was attached to some outer plastic. You just have to unscrew the electronics and actual control panel from the backing. There wasn't really anything tricky to it aside from the emergency stop button thing.
Once you get the plastic backing off the actual electronics are very simple. We just need
the safety key intact so we can tape or glue the magnetic key to it later. The wires leading
to the pulse rate meter are unimportant because we won't be keeping them and the
treadmill will run without them. I just shoved mine under the control panel when I
mounted it to the MDF.

Furthermore, Step 2 contains a materials list in the form of a lengthy narrative (391 words)
depicting the author’s search for the best desk, treadmill, and keyboard shelf options, as
illustrated in this brief excerpt:

I spent over two hours wandering Ikea cursing their stupid inefficient layout while
annoying their staff with non-standard questions. Prior to doing any of this I had already
spent another two hours crawling around the floor of the sports store taking pictures of
the underside of treadmills like some bizarre upskirt treadmill fetishist.

Textbook chapters on instructions emphasize that “[r]eaders typically want to understand
as quickly as possible what they should do next” (Anderson, 2010, p. 656) and they don’t want to
“read anything twice” (Tebeaux & Dragga, 2009, p. 226). Instructions, then, should be “clear and
concise” (Markel, 2006, p. 503) and consist of “short sentences—one sentence for each step”
(Gurak & Lannon, 2009, p. 263). Readers of “Fancy Ikea Treadmill Desk,” however, would
seem to have different concerns. They are not facing a box containing all the necessary parts of
the project that they simply want to put together. Instead, they must make a decision about
whether to assemble the same materials, and subsequently, whether to follow the instructions in
part or in whole, if at all, as the author satirically points out in Step 2: “I used the ProForm 480 E [treadmill]. If you're following along and you have one of those, great, my instructions can be followed exactly. Otherwise you're on your own. Best of luck.” The author does, however, attempt to guide readers toward the properties that make a treadmill most adaptable for this sort of project: “Then I went to Modell's Authority and looked at the back of all the treadmill control panels. What you're looking for is one that can be easily separated from the backing.” In fact, the three commenters who posted descriptions of their successful efforts to follow the instructable all used different treadmill models, although they did each choose the same model Ikea desk. Their success, and the growing popularity of the Instructables.com site itself (increasing from approximately 1.3 million visitors per month in late 2007 to 8.9 million in late 2011 [“Instructables.com Traffic,” n.d.]), suggests that there is a sizable audience who finds the material on the site useful and effective. These variations from textbook standards for instruction sets present in this instructable and others like it require a reconsideration of common advice for writing instructions. If these texts are helping a sizable audience, what can technical communicators learn from them?

In many instructables, as in the treadmill desk example, the instructions do not present the most concise and precise means of accomplishing the project. Instead, they demonstrate the author’s craft knowledge and elements of their DIY (do-it-yourself) ethos, as illustrated in the block quotes above depicting a cavalier attitude toward disassembling electronics and a way of looking at materials with repurposing in mind. These aspects are tied to the mixture of narrative and procedural discourse present in many instructables; in some examples the narrative even dominates the overall text of a step or the entire instructable itself. In many instructables, authors describe their motivations and the specific conditions they worked within, often noting how
readers with different needs or conditions might adapt the procedures or materials. As they narrate their particular experience building the project, the authors often make suggestions for ways readers can improve on or learn from the authors’ mistakes. Through their focus on trial and error, adaptations, and the specific contexts of readers and authors, these instructables convey craft knowledge about more than the specific project at hand. They teach a way of approaching DIY activity that becomes a kind of craft knowledge of its own. By taking this form of documentation seriously, technical communicators can develop a better understanding of the means by which craft knowledge can be communicated through texts.

Stuart Selber (2010) has recently argued that the pervasiveness of instruction sets on participatory Web 2.0 sites “illuminates the significance of technical communication to an ever-widening audience of authors and users” (p. 98). Selber’s observation confirms Miles Kimball’s (2006) earlier prediction that in our increasingly “postindustrial world,” “we should expect to see … more technical communication happening outside, between, and through corporations and other institutions” (p. 67). At the same time that the profession of technical communication and the rhetorical nature of its work have been gaining prestige (Swarts, 2011, p. 275), more and more amateur technical communicators are writing documentation and sharing it through the Web. Accordingly, the rhetorical features of this work have begun to receive attention from technical communication scholars, such as Kimball’s (2006) examination of DIY car building manuals and their related online communities and Mackiewicz’s (2010a, 2010b) analysis of credibility and expertise in online product reviews. I contribute to this line of work investigating technical communication “outside, between, and through corporations and other institutions” by examining the key differences between instructables and conventional instructions. This article focuses primarily on the inclusion of personal narrative elements in many instructables and asks
how these elements complicate conventional aspects of instructions and documentation. Specifically, I aim to answer the following questions: 1) What are the primary differences between conventional instructions and instructables? and 2) What rhetorical work do these differences accomplish?

OVERVIEW OF INSTRUCTABLES.COM

Founded in 2005, Instructables.com hosts user-generated documentation for a diverse range of activities, such as cooking, furniture building, electronics hacking, and sewing. Basic accounts for the site are free and allow anyone to post a tutorial of their own or comment on and rate existing tutorials. This design differentiates Instructables.com from a growing number of other sites dedicated to instructions. WikiHow.com, for instance, allows users to post instructions, but its wiki infrastructure allows all users to edit any of the instructions as well. Other sites operate under the “content farm/mill” model, where freelance authors select topics from lists generated by algorithms that determine which topics will maximize search engine visibility and ad revenue. Often these authors have no personal experience with the project or topic, leading to widespread critiques of the quality of their instructions (Hiar, 2010). Several of these sites were recently demoted by Google’s February 2011 algorithm update (Beus, 2011). On Instructables.com, authors are not paid, topics are not assigned to them, and only the author may edit their text once they publish it. These constraints promote amateur participation, since it is difficult to earn money directly through posting an instructable. In his categorization of Web 2.0 instruction sets, Stuart Selber (2010) discusses participatory online spaces to trace “the ways in which the genres of technical communication are being articulated and rearticulated on the World Wide Web” (p. 95). The first category, “self-contained,” describes static documents (such as pdf files) that function in many of the same ways as print. In the second category, static
instructions are “embedded” within Web 2.0 infrastructures with features such as tagging and comments. Lastly, “open” instructions allow readers to become authors and create and edit the instructions, such as on a wiki. In describing these models, Selber calls for further analysis of embedded and open models and asks technical communicators to reconsider their roles in relationship to user-generated knowledge.

Selber notes that these models are “interconnected” and “overlap” (p. 95), which can be seen in the case of Instructables.com. On this site the instructions are embedded, since no reader may alter another’s tutorial and the instructions exist within a range of user-generated metadata, like rankings and comments. At the same time, because readers of instructables can easily become authors by submitting their own tutorials, these instruction sets have some of the qualities of the open category, which Selber describes as “encourag[ing] users to become authors and editors of instruction sets” (p. 107). Although ultimately the main text of an instructable is not mutable in the sense that Selber describes for texts in this category, because readers cannot alter it, authors may update and revise their instructables in response to reader questions, comments, and suggestions, as in the case of the “5 dollar, 1/2 hour Worm Composting Bin(s)” instructable:

Update, : May 28, 2008 See step 7 for some info on how I harvest the castings.

Update March '09: There seems to be a steady stream of questions about how to maintain worm bins. People seem to want more detail than I have provided here, so I'm thinking about writing a small book.
Selber classifies comments on embedded instructions as “reaction,” opposing them to the “interaction” that readers have with the mutable text itself of “open” instructions (p. 114), but in some instructables the comments section almost functions as an “open” component attached to the “embedded” instructions. “Double-Decker Drum Composter” has nearly 300 comments containing several instances of direct instruction, making some comments mini-instructables of their own (especially when readers post descriptions and pictures of their adaptations). The author replies to simple questions (e.g., Q: “how deep did you dig your trenches?” A: “Probably about a foot”) and participates in conversations amongst several readers regarding composting procedures (e.g., Add worms or not? What are the benefits to painting the barrels black? How to know when the compost is done? Safe to add meat to compost or not?). Some readers add comments linking to their own instructables regarding composting, and other readers post pictures of their completed (often adapted) drum composters (many receiving praise from the author).

These open and embedded qualities allow for experts to emerge from the community, rather than being appointed by a publisher or official institution or organization, as is likely with more conventional documentation (cf. Mackiewicz, 2010a, 2010b). James Porter (2010), writing about the digital economy of Web 2.0 sites, has claimed that the disruption of traditional roles for experts is one of the key features of Web 2.0 technologies. “What if the job of experts is not to solve problems by themselves,” he asks, “but rather to design robust collaborative systems that allow diverse groups of users (experts and nonexperts alike) to pool community resources in order to solve problems?” (pp. 189-90). Instructables.com serves as one example of what such a system might look like, providing several types of community support, including a minimal template for an instruction set, commenting features and forums for user communication,
navigational features that link related instructables, and editors that filter and promote effective or interesting instructables and write up profiles of inventive authors.

Much like other Web 2.0 sites, Instructables.com users can create profiles, comment on and rate instructables, and participate in forum discussions. Additionally, the site’s navigation and structure match typical forms: instructables are organized according to the site’s main categories (e.g., food, technology, outside), users can search by the tags that authors apply to their instructables, and a list of related instructables are displayed on each page. Editors for each main category select several instructables to be “featured” every day, and users can also view categories according to the most popular (determined by users’ ratings) or the most recently added.

Many of these features are visible in the main interface on every page of an instructable, as can be seen in Figure 1, a screenshot of “Double-Decker Drum Composter.” [Insert Figure 1 here.] The categories for the site span the top two horizontal rows and the third row has thumbnail images depicting the individual steps (this author has even added a final step that displays images readers have sent of their completed versions). The author’s picture and short biography appears below these rows, with the metadata next to that, listing this instructables’ rating (here, 4.94 out of 5, based on 41 ratings), number of views (97, 464), publication date, copyright license, and tags. The list of related instructables is below the metadata box. The content of the step appears in the main, center-left area, including the step title (“The barrels”) and image (each step can contain one, none, or many images), as well as the text of the step; here, just three sentences broken into three separate paragraphs. The comments, organized in threads, are below the main step. Each step can have its own set of comments, although all the comments for the instructable are displayed on the introductory page.
INSTRUCTION SETS, TUTORIALS, AND INSTRUCTABLES

Scholarship and popular textbooks mostly agree on the formal features and rhetorical purposes of procedural discourse. Farkas (1999), in particular, provides a thorough analysis of brief “streamlined-step” procedures, identifying mandatory and optional formal elements (e.g., steps, infinitive subheadings) and describing their rhetorical functions. These same elements appear in popular technical writing textbooks (although their presentation varies from book to book) (e.g., Anderson, 2010; Gurak & Lannon, 2009; Markel, 2006; Tebeaux & Dragga, 2009). Their descriptions of the form and purpose of these elements remains consistent as well. For example, they each mention an introduction to the instructions (which Farkas calls the “conceptual element”), and describe its purpose as offering additional explanation regarding the intended goal(s) of the instructions. Gurak identifies the tension that the introduction must balance: “You don’t want to bury users in an overly long overview/introduction, nor do you want to set them loose without adequate preparation” (p. 258). Anderson suggests that most instructions shouldn’t even need an introduction, since the title should provide “all the introductory information readers require” (p. 651), although he goes on to note a variety of topics an introduction might cover, including safety information and identifying intended readers.

None of these textbooks, however, touch on types of procedural discourse beyond what Farkas calls “streamlined-step procedures” or instructional manuals. Farkas briefly mentions a few alternatives; namely, “rich-step” and “paragraph-format.” These forms are more common to tutorials, and Farkas notes that the extra length and details afforded by these models (as opposed to the brief streamlined-step instructions) fit well with tutorials’ “cognitive goal of retention and the rhetorical goal of generating confidence in timid users” because writers can provide
“frequent explanations to promote concept-building as well as previews, reviews, very extensive feedback, questions, encouraging comments, and other special elements” (p. 52). Farkas, though, does not elaborate on tutorials to the extent that he does for the streamlined-step instructions, and there is no discussion of which elements are optional or nearly always present, or how the cognitive and rhetorical goals might vary in different contexts.

The elements of tutorials that Farkas describes match many instructables, especially the “frequent explanations” and “extensive feedback.” Instructables.com CEO Eric Wilhelm, however, avoids defining instructables as either instructions or tutorials. In the “guided tour” of the site written by Wilhelm, “Instructables” are “step-by-step descriptions of things people want to share. They are educational, inspirational, and often replicable” (2007). The site itself is described as “a web-based documentation platform.” This phrasing suggests that some instructables, unlike conventional instructions or tutorials, describe projects that are either not meant to be replicated by readers or not possible to replicate (since they are only “often replicable” rather than always so). At the same time, the step-by-step template of each instructable suggests a strong encouragement to authors to teach readers to do something, not just describe their unique accomplishment, which could be done more easily in a straight narrative not broken into steps.

Most instructables read more like the “rich-step” and “paragraph format” tutorials described by Farkas, but also contain many elements of conventional instructions described in the textbooks. For example, the Instructables.com template begins with an introduction and an option to add subsequent steps as separate pages. The template does not, however, offer any guidelines or suggestions for what kind of material to add in the introduction, other than naming the first page “introduction” and each subsequent page “Step x”. Many instructables also use
either Step 1 or the Introduction to include a materials list. Across the site, the length, content, and style of the introductions vary.

This variety amongst instructables makes it difficult to create a meaningful or useful description of a “typical” instructable. Some authors avoid narrating their experiences while others frame their entire instructable through such narration. “Soundie: A musical touch-sensitive light-up hoodie,” like conventional instructions, illustrates the former and straightforwardly describes the project in its introduction (it does, however, include some narration of the author’s experience in latter steps):

This tutorial will show you how to create a garment that changes its behavior depending on how conductive you are. It detects conductivity through iron-on conductive fabric that we will use, and it will light up and sing different notes depending on how you touch the conductive fabric. We'll be using sewable electronics (the LilyPad arduino module) and conductive threads and fabrics so that your garment will be soft and washable.

The introduction for “Easter Hat” (an Easter basket designed to look like a top hat) uses narration to offer context for the creation of the project, leaving the description of the basket to the image: “Hello, Here at home, since childhood, we have a tradition of making baskets for the Easter bunny lay eggs. This is one of the baskets we made this year. Hope you enjoy.” While both “Soundie” and “Easter Hat” use first-person plural, in “Easter Hat,” “we” does not include the reader, but instead references the author’s family.

The length of the introductions and various steps differs widely as well. “Condensation Reclimation [sic] Rain Barrel” has an introduction nearly eight times as long as “Soundie,” and
like “Easter Hat” it describes the context of the author’s creation of the project. But it also details the monetary cost to the author, the origination of the materials and their safety, the design and materials for a wooden frame, and even begins instructing readers on the steps to construct the frame. As with “Fancy Ikea Treadmill Desk,” this instructable does not match well with the conventions for instruction sets and the standards for tutorials (other than software manuals) remain largely undefined in technical communication literature.

Instead of cataloging the variety of features and forms used throughout the Instructables.com site, I turn now to a focused examination of the most prominent aspect of instructables that differs from conventional instructions and documentation: the inclusion of narratives of the author’s particular experiences. These narratives complicate conventional understandings of strategies for motivating readers and conveying craft knowledge. Although these narratives appear in many of the instructables I have read, they do not appear in all of them. My main purpose in this article is not to make claims about the forms instructables take, but instead to focus on the rhetorical possibilities of including personal narratives in instructions and tutorials. To this end, for the analysis in this article I have chosen instructables that I believe best illustrate these possibilities.

NARRATIVE AND PROCEDURAL DISCOURSE

One of the most striking features of many instructables is the mixture of narrative with, or to the exclusion of, procedural discourse. Interest in narrative within the field of technical communication has lately been growing, particularly as it relates to design (although Barton & Barton, 1988; Blyler, 1996; Rentz, 1992 have earlier argued against a devaluation of narrative in technical communication and business writing). Ballentine (2010) describes the collaborative efforts of software designers and technical communicators to design a medical imaging interface.
Rather than developing strict specifications to determine the interface’s features, technical communicators worked to construct narratives of use (created in tandem with usability testing of early prototypes) that led to specific changes in the code, thereby making the technical communicators participants in the design process rather than solely documenters of a finished product. Carroll (2010) similarly points to the value of narratives over specifications in designing software, arguing that the static nature of specifications stunts innovation, while imagined narratives that depict users interacting with the software generate new and better ideas about the software’s functions and purposes.

Discussion of using narratives in procedural discourse has been more limited. Goodwin’s (1991) analysis of instructions deploys narrative theory to explore the issue of reader motivation, arguing that “a manual must emplot the reader, that is, must create an action-oriented role within a storyline that transforms the reader from a hesitant, if not reluctant neophyte, into a competent software user” (pp. 99-100). Goodwin’s particular example was drawn from a software manual, but the narratological analysis extends to procedural discourse more generally. Using the concept of primary and embedded “fabulas” (or “basic story structure[s]” [p. 103]), Goodwin analyzes instructions in terms of two stories: the “real-world situation” of an “actual reader” following the directions (primary fabula) and the ideal, or “authorial” reader created in the text who accomplishes all tasks according to the writer/narrator’s intentions (embedded, or secondary fabula) (p. 105). “Put simply, to perform the tasks set by the manual, actual readers must become actors in this second, textually embedded fabula of improvement and success” (p. 105). Following Goodwin’s analysis, the task of technical writers is to create an engaging and accurate embedded story that readers will be eager and able to play out in real life. Goodwin concludes by suggesting that further research into different narrative conventions may discover valuable new
strategies for writing instructions that motivate readers. His analysis, however, does not extend in the direction of the narratives in most instructables, where the author narrates their own experience, rather than narrating an ideal reader’s successful completion of a project (i.e., “here’s how I did it” rather than “you will do this”). In other words, in many instructables, the author is the primary actor of the narrative rather than the reader or even an ideal reader constructed in the text. This change may still result in motivated readers, only now they identify with the “real” author (as depicted in the text) rather than the “ideal” reader.

Kimball’s (2006) analysis of independently created automotive manuals explores these kinds of author-focused narratives. These manuals are examples of what he calls, following de Certeau’s (1984) language, “tactical narratives.” They “differ from the strategic, ideal narratives of traditional technical documentation by telling an individual tactical narrative: not ‘Here’s how it is/was done’ but ‘Here’s how I did it’” (p. 74). Kimball explains that these manuals “marked the development of communities of independent user-designers who produce not just valuable tacit or suppressed knowledge, but actual documentation of their technical practices and experiences, especially in the form of technological narratives” (pp. 70-1). These narratives complicate Goodwin’s analysis that instructions motivate readers by eliminating the differences between actual and ideal readers, thus making it easy for actual readers to mimic the ideal reader represented in the text. Readers of the “tactical narrative” car manuals Kimball described are instead presented with a narrative representation of the author. The procedures narrated in these texts are often inseparable from descriptions of the author’s working conditions, objectives, level of expertise, and previous experiences, all of which may be different from that of readers. Instead of motivating readers by helping them identify with some idealized situation in which all steps are completed successfully, these tactical narratives present a character (the author) they may
choose to identify with or become in some fashion, an experience they may want to have, a set of practices they may want to engage in, and an object they may want to create and use in similar or different ways. In Kimball’s example of the Locost do-it-yourself sports car building community, the first published tactical narratives inspired readers to create their own plans to meet their needs and to devise their own procedures using the parts and tools available to them (e.g., taller drivers have adapted the original Locost plans which suited people no taller than 5 ft. 10 in.). In the next sections I detail the ways that narrative-based instructables differ from conventional instructions in terms of motivating readers and in their ability to convey craft or tacit knowledge.

**MOTIVATION**

There are several common ways that narrative-based instructables attempt to motivate readers somewhat differently than Goodwin (1991) describes. The first is by creating a narrator that readers can identify with and emulate. This process is similar to Goodwin’s description of readers identifying with “ideal readers,” because these narrators often play the role of “hero” in the narrative—successfully overcoming obstacles to complete the project. A key difference, though, is that these narrators are often more fleshed out than Goodwin’s “ideal readers.” They have explicit motivations, preferences, cunning tricks, and enjoy their creations. Returning to the first example of the treadmill desk, the author describes the benefits s/he has received from the treadmill desk:

I've had this desk since March of 2010 and after the initial adjustment period, during which walking was torture and standing was something I did for emergencies, I can now say that it's solely responsible for all the happiness I've ever had. Seriously, I'm never tired anymore. I can walk around the mall, the World Maker Faire, go to the gym, and I'm
NEVER tired.

My energy level is somewhere between normal, natural human and freakish mitochondrial mutation. It's totally awesome.

While the tone of this excerpt, and most of the instructable itself, is humorous because of the exaggeration, the author creates a compelling description of how much s/he enjoys the desk. In this case, the author invites readers to specifically identify with this persona and imagine themselves enjoying these benefits. This is not so different from creating an “ideal reader” for actual readers to identify with.

In addition to describing their enjoyment or sense of accomplishment with their project, authors also describe their personal motivations, which may be fairly idiosyncratic or conventional. In “Cyclonic Dirt Separator Using Off the Shelf Parts,” the author describes his/her intention to use existing materials easily assembled rather than embarking on complicated subroutines to achieve more formally perfect results:

In other instructables, I have seen where the author had molded plastic into a funnel shape. I had no intention of doing that - the point was to use things easily obtained, and in my case, things I already had. I already had a 10 - 8" air conditioning reduction fitting. With the sides of the bucket slightly sloped, and with the fitting almost as wide as the inside of the bucket, it sort of resembled a funnel. Sort of.

This author is not likely writing only to an audience who already has a 10 – 8” air conditioning reduction fitting lying around, but instead an audience willing to either adapt the plans in the
same inventive way as the author to fit the parts they do have lying around or buy this part to complete the project as the author describes. The motivation shifts slightly from Goodwin’s analysis—the point is not to motivate readers to construct the exact same project, but to encourage them to follow the same “off the shelf” principles exhibited in the narration.

Lastly, many authors portray a wide range of cunning abilities, such as the ability to take apart and modify electronics or tricks to make do without specialized tools. For example, in “Pneumatic potato launcher,” the author offers these initial steps for cutting the PVC pipe that will form the main body of the rocket launcher-inspired potato cannon:

The larger the PVC the more difficult it is to cut, a straight cut through a 4” PVC pipe is almost impossible without big enough miter or table saw. To compensate, I decided to take a sheet of newspaper and wrap it around the pipe. Then I drew a line at the edge of the paper to make a perfectly straight guide.

Here, the author teaches readers how to manage the project without a large miter or table saw, but also shows that a lack of specialized tools need not dissuade readers from doing DIY projects.

The second way these narrative-based instructions motivate readers is by providing recommendations that help readers adapt or improve on the author’s experiences. In “2 storey compost bin!”, the author describes the adaptations made to a purchased compost bin that improved its usability and effectiveness at breaking down material. Basically, the author constructed a 3 foot tall brick semi-circular base for the somewhat cylindrical compost bin, allowing broken down material to drift from the bin into the brick base, where it can be easily
removed with a shovel. Between the base and the bin is a concrete ring with a wire sieve attached, so that only broken-down compost enters the base. The author describes constructing the concrete ring on top of the brick base but notes that this seemed unnecessary: “If you do it, I recommend doing it on flat ground and moving the ring into place later. (Have someone help you)”. Here, the author implies that s/he learned from the experience of building the concrete ring and seeks to transfer that learning to readers, so that they do not have to encounter the same inefficiencies. These recommendations can serve the same function even when they are not phrased as directives to the reader. In a later step, the author describes placing the concrete ring attached to the wire sieve on top of the finished brick base and notes: “(If I do it again, the mesh would go in to the concrete ring as I make it!).” Again, the author provides a note indicating that s/he has learned from the experience and implies that the reader would benefit from considering a different procedure than they author employed. The author, then, motivates readers by showing that the reader’s process need not be as messy or exploratory as the author’s.

The recommendations themselves typically come in two kinds: first, learning from the author’s mistakes, and second, advice on alternatives to the author’s design or procedures. “2 storey” contains both kinds. The earlier recommendation about the concrete ring is of the first type, telling readers that the author’s procedure was unnecessarily difficult or that an alternate procedure would be better. The second kind comes in step 4, describing the process of creating the brick base. After discussing the mortar mixture used, the author notes that different types of cement can be used, as well as stone instead of brick:

In a pinch you can use type 10 cement or type n.

It will not be ideal but if you have a little that is going to waste, use it!
It is only a composter!

You could also make the bottom of the composter from stone with any of the different cement types in your mortar. 3 sand to 1 cement mix for this job in stone too. And you can have the mortar a little drier if you use stone. (Brick sucks the moisture out and drys the mix quick), stone does not suck the moisture out much.

In addition to guiding readers through the various choices and consequences of different cement and stone options, this author also suggests readers forego an ideal assembly of materials over using available ones. Here, the author moves from merely providing a character for readers to emulate to recommending a set of character traits useful for DIY projects (namely, preferring to use or re-use available materials rather than purchasing new ones).

CRAFT

The descriptions of the narrator’s ad hoc techniques also function as an account of the craft knowledge involved in completing the project. In describing the difference between a skilled physician and a lay healer in ancient Greece, the author of the Hippocratic texts argues that even if both achieve the same result for a patient, it is the ability to explain why the treatment works that sets the physician apart (Roochnik, 1996, p. 48; cf. Dunne, 1992, p. 250). In short, the physician, not the lay healer, possesses a techne. As Robert Johnson (2010) explains, through the ability to provide this type of account, “the craftsperson both creates and transfers knowledge; the craftsperson can be a teacher” (p. 678). In the following example from the “DIY Bike Rollers” instructable, the author’s narrative leads directly to a recommendation to the reader and an explanation of the recommendation.
I used 3” PVC for the rollers, you will want something large enough to give decent traction between the tire and roller surface. Also, the larger the roller - the slower the bearings have to spin. Again, I made mine 18” wide. You actually only have a usable 16 or so inches with the webbing / cord that connects the front and mid roller.

Like the physician, this author not only achieved the desired result but can explain why the design is sound. In the next example, from “Double-Decker Drum Composter,” the author explains why braces are necessary:

I drilled pilot holes through the posts and into the beam and held them together with galvanized lag bolts. Each of the corners where the beam meets the post got corner braces and the top got flat braces. The braces are meant for extra support, since the barrels may become heavy.

The explanations in both these examples, though, are not unique to narrative-based instructables. Conventional instructions may also provide explanations regarding the need to complete certain steps or the operation of a device.

What sets narrative-based instructables apart is their inclusion of information related to the narrator, including their experiences, intentions, preferences, disappointments, and successes. This material also works to produce an account of how and why the project was successful. These narrators clearly describe their particular needs and goals, often noting that readers with different constraints or preferences will need to adapt the design or procedures (sometimes these notes are in the form of recommendations as described in the previous section). More so than
conventional instructions, these narrative-based instructables require that users make decisions about the design and materials of the project. Such decisions represent a key difference between these instructables and conventional instructions. Farkas (1999) cautions against using too many “user option steps” because they “may push the user too far into decision-making mode” and “suggest design problems in the product and documentation” (p. 48). Conversely, these instructables typically encourage decision-making mode as they continually highlight the situated aspects of the project’s design and execution and encourage readers to consider how their situation will alter the design.

For example, in “Build a Lab Quality (ish) Distillation Apparatus” step 7 begins by instructing readers: “Somehow. Somehow you will need to find a way to install a 1/2” female adapter into the top of the distillation pot. What worked for me may not work for you.” The author then proceeds with a two paragraph narrative, first detailing several failed plans for installing the adapter onto an old pressure cooker (being used here as a distillation pot) and explaining briefly why they didn’t work. This paragraph concludes with: “Then I got frustrated so I beat the crap out of the female adapter with a big mallet and it flattened it. That gave me an idea.” The next paragraph details the successful procedure. Step 7 ends with a principle of sorts: “My mother always told me, ‘If it doesn't work then don't force it.’ Clearly, there are exceptions to any rule.” More than just an account that answers why the procedure works, this narrative provides an account of the trial and error process through which the procedure was conceived. Such description paints a picture of an ethos of the person who engages in DIY projects—willing to try several options, open to serendipity, willing to break rules and conventions, and keeping a sense of humor throughout (or at least using humor to describe the project after the fact). The successful procedure is described in detail and could likely be replicated by readers with similar
materials on hand, but this step teaches a way of acting as much as any particular action. By instructing readers that they will “somehow … need to find a way,” the author points to the adoption of this ethos as perhaps more important or more useful than attempting to follow the documented procedure. After all, as the author states, “[w]hat worked for me may not work for you,” meaning that the specific procedures may not work for readers.

Taken together, the instructables examined in this article provide an account of how to “do it yourself.” One component of the DIY ethos illustrated in these instructables is forgoing the ideal tool for the job in favor of the tool at hand (since the ideal tool is often costly and/or specialized). In the PVC pipe cannon described above, the author uses a hacksaw and newspaper guide rather than the miter or table saw (many of the instructables I’ve seen provide alternatives to these two particular tools). The author of “Lightweight Headlamp from Cheap, Readily Available Parts” mentions that his/her lack of specialized tools motivated the design of the project:

I don't have access to a CNC machine, a shop, or fancy tools, so I set out to design a headlamp that could be built in a spare bedroom of an apartment out of readily available parts that didn't require exotic tools or materials.

The knowledge of how to get by with the materials at hand displayed in these instructables matches the way Janet Atwill (1998) describes techne:

A techne is never a static normative body of knowledge. It may be described as a dynamis (or power), transferable guides and strategies, a cunningly conceived plan—
even a trick or trap. This knowledge is stable enough to be taught and transferred but flexible enough to be adapted to particular situations and purposes. (p. 48)

In other words, certain approaches within DIY projects are applicable to a variety of projects (trial and error, repurposing “off the shelf” parts), but specifically adaptable to meet the needs of any particular project. Also, Atwill here ties together techne and metis, the cunning knowledge also referred to by de Certeau. In these instructables, metis and techne are equally linked, because the art of DIY projects typically involves cunning plans or tricks for what de Certeau (1984) has referred to as “making do” (p. 29).

However, it is important to note that not all narrative-based instructables have the political charge of resistance present in de Certeau’s work. Some do fit well, such as the “Fancy Ikea Treadmill Desk,” which narrates the author’s productive consumption and metis through a clever combination of consumer goods (desk, treadmill, keyboard tray) and slightly illicit modification of the safety features and control panel of the treadmill. Other instructables, though, lack the sense of consumers “poaching” on the systems of the powerful through “trickery” and “wit” (p. 37), even though they, too, display their author’s techne. For example, in “How To Make a Standing Desk and Music Workstation,” the author describes how s/he made a desk out of lumber purchased from a home improvement store and shaped and assembled it using conventional woodworking tools. The author explains how s/he cut a piece into an arc shape through trial and error, providing an account of the benefits and drawbacks of using a compass vs. a free-hand approach.

The more accurately you can draw the arc, the better. I tried to use a compass initially,
but found that this design wasn't a perfect circle, and also had a radius much larger than the compass I bought. Instead I drew it more or less free-hand a few times until I had a good shape. I actually practiced first on a similar sized piece of scrap wood. By first cutting this and shaping it to a particular size and symmetry I had a good template to trace onto the actual platform: kind of like a stencil.

These narratives work against the typical presentation of “tips and tricks” in guidebooks and home improvement manuals. Moeller and McAllister (2002) note how misleading a sidebar in such a manual can be when it describes the “trick” professional roofers use to efficiently pound in roofing nails with one swift hammer stroke and suggests that readers can learn the trick simply by following the instructions. This ability is not learned conceptually—it is an embodied knowledge, earned through practice. “[T]echne is always embodied. It is a way of being, particularly a way of being in relationship to other things. And to people. It is built on failure—hundreds of failures, in fact—and emerges slowly in the form of occasional, but deeply memorable successes.” (Moeller & McAllister, 2002, p. 201). The narratives in the instructables presented in this article cannot help readers jump the hurdle between tacit and explicit knowledge, they cannot teach readers through the text what needs to be learned through practice. But, they do work against the misleading ways that techne is typically presented by dramatizing and making explicit the kinds of relationships, ways of being, and experiences that led to the author acquiring their techne. By acknowledging that mistakes are often made in such projects, that it takes practice to get certain techniques right, that one can learn to substitute a variety of materials and tools if one is willing to have flexible goals, these instructables show through their narratives how craft knowledge can be learned and deployed.
However, no matter how detailed the narrative or instructions, there is no guarantee that the craft knowledge displayed in any particular instructable will transfer to readers. As the graphic designer and educator Lorraine Wild (2005) explains, “Tacit or craft knowledge is hard to teach because a lot of it cannot even be described, but has to be experienced. Some of it can be described in a sort of step-by-step way, but teaching this way leads to ossification when the same steps are assumed to be adequate in any situation” (p. 50). This warning against teaching through step-by-step manuals echoes the critiques against the tradition of reductive rhetorical handbooks (Atwill, 1998, p. 6; Papillion, 1995, p. 150). But narrative accounts, when added to step-by-step instructions, can minimize the ossification Wild identifies. Because the narratives make space for discussion of chance or one-off situations, instructables that feature them work against the sense that their steps are universally applicable. In the potato cannon instructable discussed earlier, the author notes that while 4” PVC pipe may be cut best with a table saw, it need not be cut this way every time. Other situations allow for different procedures, provided the trade-offs (extra time, possibly rougher edges, increased chance of a crooked cut) are acceptable.

**IMPLICATIONS FOR TEACHING**

The primary difference between conventional instructions and these instructables is the presence of narrative documenting the author’s procedures and experiences. These narratives are not superfluous or simply the mistakes of amateur technical writers, but instead instrumental in conveying an ethos or disposition that is beneficial for engaging in creative DIY projects. Through these narratives, writers motivate readers by providing a variously fleshed out narrator with which to identify or emulate. Furthermore, they document the writers’ craft knowledge in more explicit ways than conventional instructions, by giving detailed stories of the trial and error and practice attempts through which it was earned.
These aspects of instructables make them useful objects of study for technical communication courses. This is not to say that the narrative form employed in these instructables should come to supplant the current textbook standards for instructions sets and documentation, or even that students should necessarily be taught to use this form. Instructions written for professionals in technical fields must meet different legal and rhetorical requirements than those written for an audience of amateur hobbyists. This difference in form, though, is precisely what makes these instructables valuable for technical communication students. Students can see from instructables that deviations from the conventions are not inherently wrong, but instead represent choices made by authors to address different audiences and aim for different purposes. Further, students might create their own instructables (with or without personal narratives) because the amateur hobbyist community of Instructables.com serves as a nonacademic audience outside of corporate or institutional standards, one that accepts a wide variety of technical communication forms and styles. This sort of assignment could fit into a larger pedagogical effort to address Carolyn Miller’s (1989) concerns that technical communication courses can too often take corporate practices for granted and focus too strongly on making “our students ‘more valuable to industry’” (p. 23). In determining how to engage with the community of Instructables.com and what purposes they might have for participating in the site, students engage with the aspects of “practical wisdom” that Miller advocated. Lastly, asking students to write for Web 2.0 documentation sites like Instructables.com better prepares them for the contemporary rhetorical situation that Selber (2010) and Kimball (2006) have identified, where technical communication reaches an increasing number of people outside of traditional corporate or institutional channels.
REFERENCES


Technical Writing and Communication, 21(2), 99-115.


Endnotes

1. Some users, however, do link to an e-commerce site where they do business, like Etsy. Additionally, users may enter their instructables into a variety of contests sponsored by advertisers, where they can win prizes or money if their instructable is selected by the sponsor’s judges.

2. Although he does not discuss the site at length, Selber does list Instructables.com as an example of such a space.