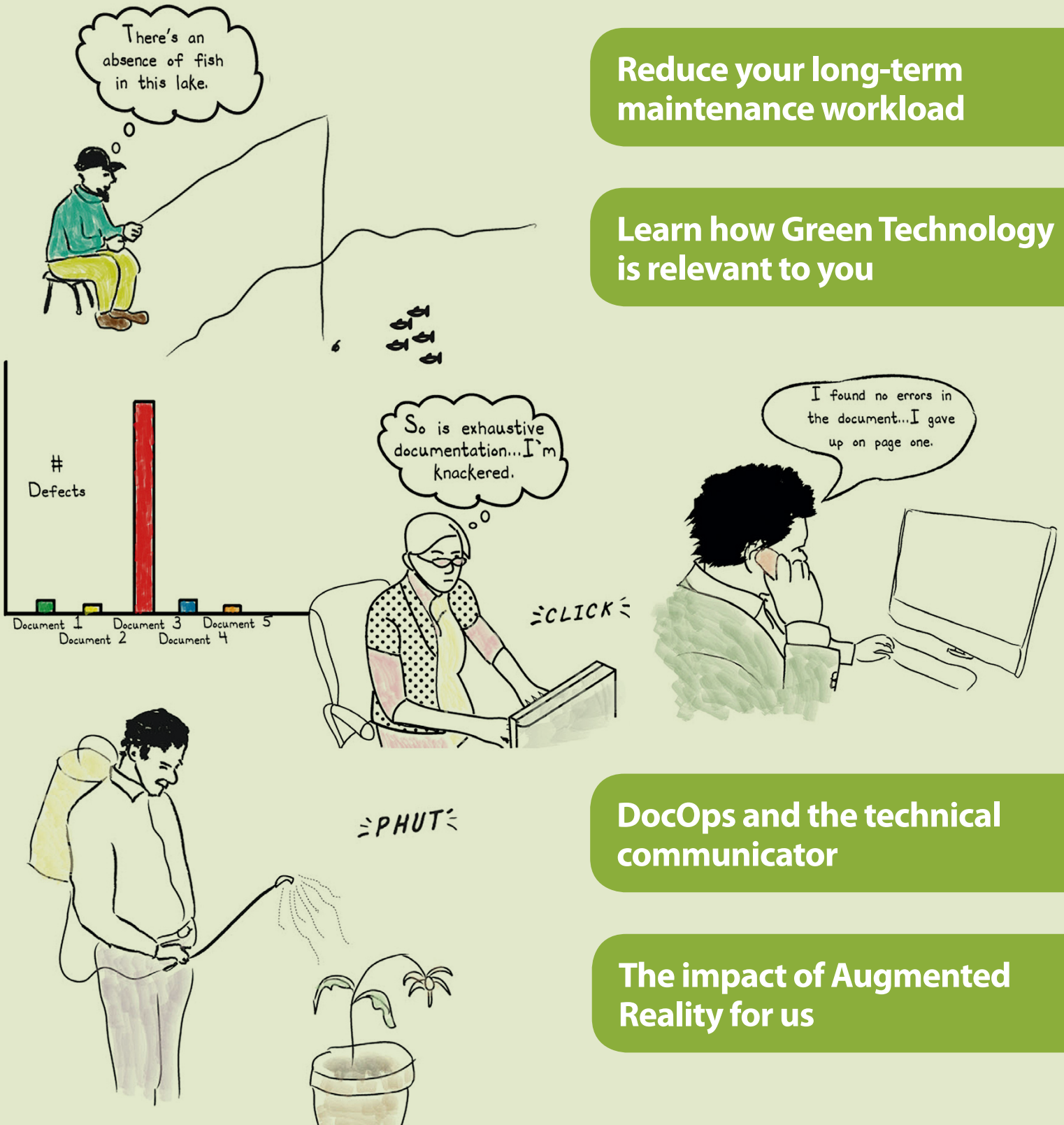
Learning from testing

Tips for technical communicators from testers

Communicator

The Institute of Scientific and Technical Communicators
Spring 2016



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Horace Hockley Award Winner 2015

E-learning expert and technical communicator researcher, Hans van der Meij, recipient of the 2015 Horace Hockley Award, shares his research and lecturing experiences.

The leading question in my research on technical communication has always been how to create instructions that empower the user and designer. I am delighted and honoured that this work has made me the 2015 winner of the ISTC Horace Hockley Award.

Tutorials

The tutorials that my students and I design aim to enable the user to complete software tasks quickly and easily, and in the process of doing so, learn these procedures as well. We do not always achieve a desired performance level of 80% success on trained tasks, but frequently we get very close. Just as importantly, we often succeed in substantially raising user confidence.

As we create these software tutorials we also strive to apply existing and find new design principles. Right from the start, around 1990, I was attracted by John Carroll's minimalism. Together with Ard Lazonder, my PhD student at that time, our first action became a replication study of Carroll's original research. This study fully substantiated the claims of minimalism and from that moment onward the focus of my research has been on a further articulation and substantiation of the design principles of minimalism theory. These efforts came to the attention of John Carroll and ultimately led to two chapters in "Minimalism beyond the Nurnberg Funnel" that outline the construction of minimalist instructions and the misconceptions existing with regard to this design approach.

Research

One feature in my research on technical communication is that I try to bridge the gap between fundamental insights about human information processing (including motivation) and practical design knowledge. I have always liked to start my design studies from the latter stance. Based on a firm belief that people in academia can learn a lot from designs of experienced practitioners - intuition is always ahead of articulation - I have spent hundreds upon hundreds of hours analysing the products of technical communicators.

One of the fruits of this analytic labour is the Four Components Model.

Four Components Model

This model suggests that procedural instructions generally consists of the following elements:

1. goals
2. prerequisite states
3. action and reaction
4. unwanted states (warnings and troubleshooting information).

There is a nice history to the origin of this model. I had been working on and off on the topic for almost two years, trying in vain to create a suitable descriptive model for procedures until I came across David Farkas' paper on procedural discourse and the underlying framework of systems theory and rhetoric. The article offered the link with theory that I had been missing. Thereafter, my research on what became the Four Components Model was quickly completed.

Troubleshooting

Another outcome of my analyses of the products of technical communicators was laid down in a paper on the frequency and nature of support for the user's troubleshooting efforts. One minimalist principle concerns supporting the user in detecting and correcting mistakes. I considered this to be a unique feature, but some authors disagreed arguing instead that software tutorials and reference guides routinely provide troubleshooting information. I decided to investigate this claim by conducting an audit of over 100 tutorials and references guides. To discover the presence of troubleshooting information I had to read the table of contents, index (if available) and 25 consecutive, randomly selected pages in each manual. The outcome did not favour existing practices, to put it mildly. Almost ten years later I conducted a similar audit with only slightly better outcomes.

Practical or theoretical?

Taking a practical perspective as the starting point for my research has occasionally had important consequences for the acceptance of my papers. Because I departed from practice rather than theory (as is the more usual route in academia), most of my research papers concentrate on articulating design principles and proving their relevance for task achievement and learning. If an empirical study proved that a design principle was effective this was the signal to seek connections with theory. More than once this approach yielded the critique that my papers were 'merely' practical and lacking in theory. It was never a happy moment when I received such a comment. That said, I was always glad when reviewers pointed views or perspectives that could provide a stronger theoretical framing for the presentation of my work in the academic literature. Even so, after nearly 80 scientific papers I still find it hard to present my work in such a way that it is both theoretically and practically innovative and relevant.

Continuing research

More recently, I have started to investigate video tutorials for software training. To connect theory with practice, I began with an audit of existing practices using the minimalist approach and the Four Components Models as the analytic framework. One issue I am currently investigating concerns the construction and effectiveness of a review after a video demonstration of task completion. To my knowledge practitioners

increasingly include reviews while research has yet to look into the issue of their design and effectiveness. In short, once again my research has been inspired by practice. In that respect, I treasure the Horace Hockley Award as a sign that practice has also been inspired by my research. C

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