December 1998

Method-ism in Practice: Investigating the Relationship Between Method and Understanding in Web Page Design

Edgar Whitley
London School of Economics and Political Science

Follow this and additional works at: http://aisel.aisnet.org/icis1998

METHOD-ISM IN PRACTICE: INVESTIGATING THE RELATIONSHIP BETWEEN METHOD AND UNDERSTANDING IN WEB PAGE DESIGN

Edgar A. Whitley
London School of Economics and Political Science
United Kingdom

Abstract

This paper develops earlier theoretical work that raised doubts about the common perception that the proper use of information systems development methods is necessary and sufficient for obtaining a proper understanding of a problem domain. It provides a summary of this existing theoretical material before presenting new qualitative, empirical results, taken from the developers of successful web sites, which support the notion that methods are not being used in the way their developers intend them, but rather that pre-understanding is a necessary requirement for successful method use.

1. INTRODUCTION

What is the relationship between method and understanding in information systems development? At first sight, this would seem a straightforward question to answer. Information systems academics invest considerable resources in developing integrated methods for the systems development process. These methods are intended to guide the analyst through the various stages of information systems development so that they obtain a proper understanding of the situation they are investigating.

Empirical research, however, has shown time and again that the wholesale acceptance and use of such methods is, at best, rather limited in practice (see, for example, Fitzgerald 1996; Hidding 1996). This therefore causes us to reevaluate our previously straightforward answer. Maybe the relationship between method and understanding is not so clear cut.

The purpose of this paper is to describe some ongoing research that is reevaluating the relationship between method and understanding. It introduces theoretical concerns for suggesting that the relationship between method and understanding should be reversed and then presents empirical evidence from the developers of three award winning web sites which supports this reversal. The paper ends with a summary of the material and suggestions for further research in this area.

2. METHOD AND UNDERSTANDING

Introna and Whitley (1997) provide a critique of what they call "method-ism" which forms the basis for the work described in this paper. Before considering what they mean by method-ism, it is important to clarify what they mean by the terms method, methodology, and approach as these terms have been used in various ways by different authors.

Introna and Whitley define a methodology as a structured set of techniques and tools that are used to tackle a particular problem, in this case, developing an information system. Historically, the term method has been used in two distinct ways. The first sees a method as a component of a methodology, alongside techniques and tools. The second sees method as an all encompassing

meta-term; this is illustrated in its use in the term "method engineering." The second meaning of the term is the one that is utilized for method-ism. Finally, an approach exists at a higher level than a particular methodology and describes the underlying philosophy that guides the shape of the methodology (the methodology may, in turn, shape the particular tools and techniques).

With this clarification, Introna and Whitley see method-ism as the belief that the use of a method is all that is required to arrive at an understanding of a particular situation. More particularly, they define method-ism in terms of two axioms:

Method is necessary and sufficient for information systems development success.
- This is the belief that everything that is required to analyze and specify a problem situation, and all that is required to design a solution, can be found *within* a suitably designed method.

Systems developers will use a suitable method if they have it at their disposal.
- This is the belief that systems developers understand the value of method and will prefer to work with it rather than without it.

The importance of these axioms can be seen when considering practices that do not fall within method-ism. The first axiom states that method must operate on context-free factors; it cannot rely on things that lie outside the method. Thus the method must provide all the structure for the task. It cannot tell the developer when to stop using the method as such understanding comes from outside the method itself. Similarly, the method will specify everything that needs to be done and produced. The method does not produce a "feel" for a problem or a solution; it produces particular documentable entities.

The second axiom emphasizes that the method is meant to be all encompassing. It also means that the method that is being followed is something that has been specially designed and is not something that has been appropriated from a different domain of activity.

Introna and Whitley are not claiming that methods have no role to play in systems development but rather that the use of method emerges as part of our understanding and involvement *in* the problem situation, and not merely because they are the required steps of the method (Introna 1997, Whitley and Introna 1997).

Effectively, therefore, what is being claimed by method-ism is that the appropriate use of the method leads to understanding.

Method ➜ Understanding

The method-ism mind set therefore leads to the development of methods that will be used to understand a particular situation.

Method 'X' ➜ Understanding of situation 'Y'

By implication, knowing a method *should* be all that is required to understand the situation. In order to avoid this implication, Introna and Whitley propose reversing the relationship.

Understanding ➜ Method

Thus, in order to be able to use a method appropriately, it is necessary to have an understanding of the context in which it is being used. There are a number of reasons supporting this point and they are given in more detail in Introna and Whitley.

Thus the effective use of a method requires understanding first, and the use of the method second. In so doing, however, we are adding to our stock of knowledge and a learning (hermeneutic) process arises. The use of the method leads to a deeper understanding of the situation, which then affects how we further use the method.

Understanding ➜ Method ➜ Understanding ➜ Method...

Our understanding of the situation and the methodology might require us at points to break with the use of the methodology rather than follow it uncritically. The knowledge of how to do this cannot come from within the methodology.

Understanding ➔ Method 'X' ➔ Understanding of situation 'Y' ➔ Improved
use of Method 'X' and others (including possibly no methodology)

The key characteristic of Introna and Whitley's restatement of the relationship between method and understanding, however, is that they believe that method *requires* a background understanding for it to be used effectively. In order to test this idea, this paper will consider the phenomena of method-ism in relation to hypermedia web page design. The next section introduces the issues associated with web design and how method is proposed to address them.

3. METHOD AND HYPERMEDIA DESIGN

In the past five years, the number of hypermedia documents has increased in number phenomenally. The reason for this has been the widespread acceptance of the world wide web as the main mechanism for accessing information on the Internet. The huge growth in the number and sophistication of web sites has meant that concerns about the effective design of complex hypermedia documents have become increasingly important. These concerns, which were previously only an issue for academics discussing such non-linear documents, have suddenly become very practical problems for large numbers of individuals and organizations trying desperately to create large, sophisticated web sites.

The creation of hypermedia applications, such as web sites, presents problems to the developer that are not encountered during the development of other types of software. The authoring of hypermedia documents can be seen as a process of structuring ideas, describing the order of presentation, and conceptual exploration. The developers of such software face particular problems as hypermedia presents several different options to the readers and the individual readers choose which of them to follow at the time of reading. As a result, the developers have to set up a number of alternatives for readers to explore rather than a single stream of text.

The developers must therefore balance the complexity of the network of the linked pieces of information with the problems of cognitive overhead and disorientation. For "the use of too many links, while bringing flexible access structures have to be weighted against the cost of extra complexity" (Hardman 1995, p. 19). Therefore "an important part of hypertext design concerns aesthetic and cognitive aspects that (traditional) software engineering environments do not support" (Nanard and Nanard 1995, p. 49).

In response to this challenge some writers have stated that their "goal is to identify the main activities that are involved in the design process and to provide a checklist of tasks that can guide designers in performing their work more systematically" (Garzotto, Mainetti and Paolini 1995, p. 6). Such a claim is clearly within the scope of method-ism as the method tries to remove the necessity for any pre-understanding from the task. Streitz (1995) notes that "what is needed is an orientation or even a better methodology for the hypermedia designer which should be based on the new and critical aspects of this new medium for communicating knowledge" (p. 1). This approach to hypermedia hopes to create a methodological approach to hypermedia design thereby "transforming hypermedia development from an hand-crafted to a more organized, engineered, efficient process" (Garzotto, Mainetti and Paolini 1995, p. 5). Again, the intention is to develop an approach that meets the axioms of method-ism.

In order to achieve these goals, a number of hypermedia development methods have been introduced. Three of the most important are the hypertext design model, developed by Garzotto, Paolini and Schwabe (1993); the relationship management methodology, introduced by Isakowitz, Stohr and Balasubramanian (1995) and Schwabe and Rossi's (1995) object oriented hypermedia design method.

There is not space to describe the these methodologies in detail, however it is pertinent to demonstrate that each is clearly attracted by the tenets of method-ism. Garzotto, Paolini and Schwabe, for example, focus much of their attention on in-the-large issues and "global tasks" (Garzotto, *et al.* 1993 p. 2) and so ignore contextual factors. Similarly, the relationship management

methodology and object oriented hypertext design method suggest that the analyst searches for a context-free list of factors, implying that the method can be used to obtain understanding in any situation.

4. METHOD-ISM IN PRACTICE

The previous section has made two points. First, it has claimed that the design of hypermedia applications, such as world wide web sites, is a potentially complex problem as care must be taken to link related pieces of information together in such a way that the relationships between items is obvious but does not lead to cognitive overload on the part of the reader. Second, it has shown that methods exist that claim to support the process of designing such applications. That is, they are methods that are apparently able to assist developers in dealing with the complexities of hypermedia design. They do this in a manner that this paper has described as method-ism, namely with the expectation that the correct use of the methodology will be sufficient to develop successful web sites.

The theoretical part of the paper, however, has argued that method-ism does not succeed in practice. It suggested that the use of methods can only succeed if there is already an understanding of the situation. This section uses empirical methods to determine which of these two claims is supported in practice. Are web sites developed using methods of the kind described previously? Or is the development process driven by a pre-understanding before method is used, if at all?

The most common application of hypermedia systems is in the world wide web and it therefore seems sensible to explore the development of web sites for this study. Ideally the sample of web sites should include successful ones, rather than just any sites that have been created, as it would be more likely that successful sites would have been developed in a structured fashion. Also, a sample of web site developers, which included both large (and hence more likely to use structured methods) and small (which are more likely to use ad hoc methods) developers, would also be desirable.

Fortunately, it was possible select a small sample of web sites and developers for this study in a fairly straightforward manner that satisfied both these criteria. The sample chosen were nominees for the British Interactive Multimedia Association (http://www.bima.co.uk) Award (BIMA) "Corporate Web Site of the Year 1997" awarded for "World Wide Web Sites which provide corporate resources, for public information and/or employee communications, beyond advertising and promotion of a specific product or service." Nominees for the award were chosen by a panel of independent evaluators and selected from a field of eleven entries.

4.1 Data Collection

The choice of data collection method is very important for this study. Investigating what developers do "in the wild" (Hutchins 1995) is not something that can be adequately addressed by large scale postal surveys or laboratory experiments. Instead, what is required is a more qualitative approach (Lee, Liebenau and DeGross 1997), which is able to pick up the nuances of the situation. To this end, it was decided that a one-to-one semi-structured interview approach should be taken. In this format, although certain questions must be asked, the order and wording of questions should be allowed to change according to context. It was felt that this kind of directed conversation rather than a structured interrogation could illicit serendipitous results which may be of great value. Questions were thus allowed to emerge spontaneously in response to points raised by the interviewee. Similarly, if questions are inappropriate for a particular context, they can be modified in the interview. For example, during the first interview it emerged that the relevance of one question was misdirected. This question was intended to explore collaboration during the development process, but it emerged that the respondent preferred his employees to have a range of abilities. The semi-structured approach allowed the question to be rephrased in terms of skills required by team members rather than exploring collaboration between team members with different skills. Full transcripts were made of all the interviews (available at http://is.lse.ac.uk/edgar/MandU/default.htm) and are used below to support the analysis.

A limitation of this choice of research method is that it is limited to only three sites and it is therefore not possible to perform meaningful statistical tests on the results obtained. As a consequence, concerns could be raised about the ability to generalize

from the results presented. In response, it is important to recall that the sites were chosen because they were prize winners in an industry-wide competition. Moreover, it turns out that the three organizations are very different but all show similar characteristics with regard to the acceptance of method-ism.

Another possible objection would be that the data presented here is used selectively, with only those aspects supporting the argument being included. To address this concern, the full transcripts of the three interviews are available at the above address.

Where available, resource locators for the designed web sites have been included, although it should be noted that the awards were presented in 1997 and it is reasonable to expect the sites to have changed since that time.

4.2 Wolf Olins

The first interview was undertaken with the technical director of Wolf Olins. Wolf Olins is a large design agency with many blue chip clients. They aim to provide a complete service for corporate identity. They were nominated for their Hutchinson Telecom Orange web site (http://www.uk.orange.net/index.htm), which provides over 100 pages of corporate information for customers and investors and they produce web sites along with other interactive media, such as corporate CD-ROMs.

Although Wolf Olins is a large organization, with plenty of experience in project management, it is interesting to note the technical director's response to a question about the methods used to develop corporate web sites: "*There are not set rules to say how you should do it* but it seems like there's a general understanding of how you do it...*but that doesn't mean it's all easy going and mechanical* as we are a design company and creativity seems to be a big part of what we do" (emphasis added in this and all further quotations).

When pressed further about which specific methods they used, the technical director replied that they are only used "in terms of the way that visual designers *traditionally* work." Any notional designs are shown to the clients "just to give you an idea of the *feel* the colors that might be used and so on." Similarly, there is very little actual preliminary design as "with all computer systems development these days it's so easy to do it actually on the screen, when I say easy it's actually easy to rough out an idea on the screen. The boards now are being complemented by the solution on the screen, the prototype solution on the screen." Again, they don't use specific techniques like "state transition diagrams and things like that mainly because there seems to be more effort putting into those, drawing those than actually doing the real thing. That's because the visual programming tools are so easy to use."

Another interesting point is how the company deals with the maintenance phase of the system once the web site is up and running. In Wolf Olins' case, maintenance is typically handed over to a different company. Method-ism would suggest that the detailed design documents would need to be passed on to the maintenance company for their work. This is not, however, how Wolf Olins handles the process: "If you've got a web site designed by us then we document the web site and say how it could be expanded. So when we hand over to another company presumably all those materials presumably go to them but also *we could do workshops, show them the rationale.*"

4.3 Brilliant

The second interview was undertaken with the production manager of Brilliant Agency. Brilliant is a smaller agency that was nominated for its web site for Trade Indemnity (http://www.tradeindemnity.com), a reinsurance company.

Brilliant tends to work by creating story boards, similar to film story boards, which are presented to clients. Although at one level they tend to do similar things for all their projects, it "just scales up or down depending on the size of the project. The steps are *always very similar*. It's the same as any software production." When questioned further about the methods they use, they claim "*There [are] no*, as far as I know, *guidelines set down for the development of a project in new media. It's all untested waters a bit.* And I'll be interested to find out whether we're still using the same process in...five years that we use now." Thus

they don't seem to be following a particular method at all, rather they are doing similar things to what they learned developing CD-ROMs. "You identify your content, you break your content into a number of areas, say four areas. So you need a menu to get to each of those four areas. So that's your kind of top level. And then you've got your four content areas. And then within that there might be some subareas. *Which is where you can now come up with a creative story board.*"

4.4 Hyperinteractive

This interview took place with a programmer/producer for Hyperinteractive. This is a much smaller company that was nominated for their web site for the Design and Art Directive (http://www.dandad.org/). The Design and Art Directive is an awards body that promotes good design in all fields of advertising and is responsible for the "Oscars" of the advertising industry.

Hyperinteractive's approach to systems development is probably the least structured of all three companies considered here. "Well I'm kind of trying to push through a new working practice *a sort of experimental way of doing things.* As far as we're concerned, it's probably not new. But the way it's been approached before is that everyone goes away, thinks about it, comes back, and then starts working without any planning or any thought that goes into it." The reason for trying to structure the process a little more is primarily financial: "We're still making money on the projects, but I think there's a lot more efficient way of doing things."

When pressed on what the current method is, the interviewee replied "we like to scribble. There's lots of scribble, there's lots of pages, we like to draw pages out like that. For instance, that's more sort of like design. For a web site, for instance, you draw lots of boxes, what links to what, that goes to here, and all that kind of stuff. You have to do that to kind of visualization." While they are aware that things can be done more formally, they don't want to become "anally retentive" and a company "where everything has to be done this way, and you know *here's the guidelines you must follow* those. *I don't think that produces the most creative work.* It might produce very efficient, very corporate boring work, but we don't necessarily want to do that. I don't think that's what this company is about."

5. CONCLUDING DISCUSSION

This section summarizes the approaches of the three software houses in relation to method-ism and then provides a discussion suggesting why method-ism is still in existence despite the evidence against it and proposing a research project for exploring the concept further.

5.1 Summary of the Three Approaches

It is immediately apparent that these three web site developers do not accept the tenets of method-ism. In *each* case, there is very little use of formal methods like the hypertext design model and the object-oriented hypermedia design method to drive the development process and even if methodical approaches are used, they tend to be used on the basis of existing understanding and the organizations know when to stop using them.

Wolf Olins claims not to use any particular rules for developing web sites; rather they let their designers get a basic understanding of the situation. They sometimes do prototyping, but this is typically done in an unstructured manner. Finally, when they hand over a site to another organization to perform the maintenance, they provide documentation of their existing system but emphasize the "feel" of the design as strongly as its technical structure.

Brilliant states that they use the same techniques for most projects, simply scaled up or down. However, they claim that there are no guidelines set down for doing this and have been adopting the approaches they found useful for developing CD-ROMs, a very different technology.

Finally, Hyperinteractive, the smallest of the three companies, are most articulate in their opposition to method-ism. They don't want to have to use guidelines. They like being able to step outside of the rules so that they don't produce "very boring corporate work." They are experiencing some problems with things being too flexible and are trying to introduce some structure to their work, but even this is being done for financial rather than methodological reasons.

5.2 Discussion

On the basis of the evidence presented in this paper, it would seem that there is little support for method-ism from these three organizations and it is important to restate that they were selected because they were nominated for prizes as the developers of the best corporate web sites. All three organizations, which are of varying sizes, don't seem to follow the process of taking up a method and using it to solve their problems. Rather, it is apparent that they are applying their existing understanding (whether of graphic design or the development of CD-ROM systems) to the development process. And if method-ism is not supported within the development of new technologies, such as interactive web sites, then it is unlikely to be supported in more traditional environments either, although there may be other reasons for the use of methodologies in such situations (Avgerou and Cornford 1993).

The question still remains, however, of why so many academics still have an implicit belief in method-ism. Part of the answer, I believe, lies in the way the subject is investigated rather than the phenomena itself. Humans are remarkably flexible creatures who are able to compensate for inadequacies in their interactions with considerable ease, often in unnoticeable ways. Everyone who transcribes an interview or conversation is astonished at just how "bad" typical conversations are. There are incomplete sentences, mistakes, changes in tense, etc., yet humans compensate for them and don't notice these problems while the conversation is actually taking place.

I believe that a similar process happens in most instances of method use in practice. Even in situations where a methodology that follows the tenets of method-ism is being applied, there will typically be some people with understanding working alongside others who are just following the method. These more experienced developers will typically provide support for the inexperienced developers in ways that are often unseen and unnoticed. A quiet word here, a glance there, a piece of advice given freely all help to teach the necessary understanding for effective method use.

5.3 Future Research

This therefore suggests a particular piece of further research, namely an investigation of systems development "in the wild." This will involve a close observational study of how development methods are used in practice which is sensitive to the full range of mechanisms by which understanding is passed on from experienced to inexperienced developers (Collins 1990).

Ideally, this would involve a researcher, who had been sensitized to the ideas on method-ism presented in this paper, being immersed in a systems development environment where a methodology is officially used. In order to reveal how the method-ism inherent in the particular methodology is overcome, the researcher should be present at a time when a new, inexperienced member joins the project team. The researcher would use non-obtrusive methods (observation and video and tape recording) to detail the variety of means by which existing members of the organization (people who have the understanding necessary for the methodology to be used effectively) pass on this understanding to the new recruit.

Such a study would highlight the variety of ways in which skills are shared between members of a working community and provide a detailed analysis of the time scales involved for such a sharing to take place. For example, it might be found that such assistance ceases after a few weeks, or cues might still be present some months into the project. Such a study would have important implications for our understanding of method-ism and also of working in virtual environments where the mechanisms for sharing such understanding are far more constrained.

Acknowledgments

References

Avgerou, C., and Cornford, T. "A Review of the Methodologies Movement," *Journal of information technology* (8:5), 1993, pp. 277-286.

Collins, H. M. *Artificial Experts: Social Knowledge and Intelligent Machines,* The MIT press, Cambridge, MA, 1990.

Fitzgerald, B. "An Investigation of the Use of System Development Methodologies in Practice," in J. D. Coelho, T. Jelassi, W. König, H. Krcmar, R. O'Callaghan, and M. Sääksjarvi (eds.), *Fourth European Conference on Information Systems* Lisbon, Portugal, 1996, pp. 143-161.

Garzotto, F.; Mainetti, L.; and Paolini P "Hypermedia Application Design: A Structured Approach," in W. Schuler, J. Hannemann, and N. Strietz (eds.), *Designing User Interfaces for Hypermedia* , Springer, Heidelberg, 1995.

Garzotto, F.; Paolini, P.; and Schwabe, D. "HDM—A Model Based Approach to Hypertext Application Design," *ACM Transactions on Information Systems* (11:1), 1993.

Hardman, L. "Experiences in Authoring Hypermedia: Creating Better Presentations," in W. Schuler, J. Hannemann, and N. Strietz (eds.), *Designing User Interfaces for Hypermedia*, Springer, Heidelberg, 1995.

Hidding, G. "Method Engineering: Experiences in Practice," in S. Brinkkemper, K. Lyytinen, and R. J. Welke (eds.), *Method Engineering: Principles of Method Construction and Tool Support*, Chapman & Hall, London, 1996.

Hutchins E. *Cognition in the Wild.*,The MIT Press, Cambridge, MA, 1995.

Introna, L. D. *Management, Information and Power: A Narrative of the Involved Manager,* Macmillan, Basingstoke, England, 1997.

Introna, L. D., and Whitley, E. A. "Against Method-*ism:* Exploring the Limits of Method," *Information, Technology and People* (10:1), 1997, pp. 31-45.

Isakowitz, T.; Stohr, E.; and Balasubramanian, P. "RMM: A Methodology for Structured Hypermedia Design," *Communications of the ACM* (38:8), 1995, pp. 34-44.

Lee, A. S.; Liebenau, J.; and DeGross, J. I. (Editors). *Information Systems and Qualitative Research,* Chapman and Hall, London, 1997.

Nanard, J., and Nanard, M. "Hypertext Design Environments and the Hypertext Design Process," *Communications of the ACM* (38:8), 1995, pp. 49-56.

Schwabe, D., and Rossi, G. "The Object-oriented Hypermedia Design Model," *Communications of the ACM* (38:8), 1995, pp. 45-46.

Streitz, N. "Foundations of Hypermedia Design," in W. Schuler, J. Hannemann, and N. Strietz (eds.), *Designing User Interfaces for Hypermedia*, Springer, Heidelberg, 1995.

Whitley, E. A., and Introna, L. D. "A Thought Experiment in Information Systems: The Involved User and the Experiment," in N. L. Russo and S. Johnson (eds.), *Exploring New Ideas, Methods and Problems in Information Systems Research: Oasis'97*, Northern Illinois University, DeKalb, IL, 1997, pp. 27-30.