

# What Makes a Representative User Representative? Considering Synecdochic and Metonymic Fallacies

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## ABSTRACT

We compare six definitions of the concept of “representative user,” including interpretations based in statistics, grounded theory, political theory and design practice. Each approach has strengths; none is perfect. We hope to engage our colleagues in thinking about when and how we (all) might choose each approach.

## Keywords

Work analysis, task analysis, requirements analysis, field studies, participatory design, representations

## INTRODUCTION

“Know thy users” is a popular advice in HCI research and practice. This advice speaks to issues of validity and hence quality. Often, we follow this advice through study or consultation with one or more “representative users.” In this paper, we offer contrasting interpretations of the concept of the representative user.

### Statistical Average User: One Stands for All

The most frequent approach in HCI is to think of a single, “average” user (for review, see [4]). We may conduct surveys, conduct tests, or examine employment records to calculate the description of this representation of the users.

This approach is consistent with much of Western philosophical tradition. It invokes powerful rhetorical moves in Western thought, related to the rhetorical figures of synecdoche (in which a specific instance stands for the general case) and metonymy (in which a specific concept stands for another related or broader concept). In effect, we treat one user as being a synecdochic representative of all users, and we treat one measurement on that user as being a metonymic indicator of all of the relevant attributes of that user and all users. We often speak of these rhetorical moves as “figures of *speech*,” but they can also become “figures of *thought*” [5], influencing the way that we think about problems, and constraining the solutions we consider.

In the Statistical Average approach, we substitute one characteristic user for all users – our statistical average becomes our representation. If the users are really homogeneous – and if their tasks and work settings are also homogeneous – this approach may be valuable to us. If there is significant heterogeneity, however, then this approach inevitably fails to describe some of the users (or their conditions of use),

and may result in systems that do not meet their needs. Burke has termed this outcome a “synecdochic fallacy” [1].

This approach depends crucially on our having selected the appropriate user attributes for our calculations and sampling strategies. If we fail to measure the most important attributes, and if we treat the attributes that we *have* measured as sufficiently descriptive of the users, then (by analogy to Burke’s reasoning) we may be committing a “metonymic fallacy” (i.e., taking our measured attribute as if it were representative of the users). This approach may also tempt us to think that, because we already know the characteristics of the average user, we may delay consulting with any users. Thus, this approach may discourage us from challenging our own assumptions, and may deny us a source of corrective information that could save us from errors.

### Statistical Stratified Sample: Range of Users

A more sophisticated statistical approach is to construct what is called a “stratified sample” [4]. Typically, this approach involves at least two steps. First, we determine the important user attributes, and we discover (through surveys, tests, or records) the distribution of those attributes among the user population. Second, we construct our sample of “representative users” so that their distributions on these attributes match the distributions in the population.

This approach removes the synecdochic substitution of the Statistical Average, while maintaining its metonymic basis -- i.e., the Stratified Sample approach avoids substituting one user for all, but continues to characterize users in terms of a small number of attributes. This approach may help us understand heterogeneous populations. However, this approach carries several disadvantages of the Statistical Average approach: reliance on choosing the correct metonymic attributes; delay in consulting actual users; reduced opportunities to challenge assumptions or correct errors.

### Grounded Theory: Sampling for Diversity

Grounded theory uses a methodology emphasizing *strategic sampling for diversity* [8]. Each sample (or site) is considered to represent an aspect of the phenomenon or population in question. Sampling continues across multiple persons, groups, or sites until the researcher is satisfied that s/he has exhausted the important sources of heterogeneity.

This approach avoids the synecdochic and metonymic issues of the two statistical approaches. The grounded theory

approach maintains a skepticism about the attributes under study, and is open to revisions as the study progresses. However, the grounded theory approach makes summary difficult. Its focus is more on the discovery of diversity, and less on the formulation of solutions for specific categories within that diversity.

### **Participatory Design: Political Delegation**

The participatory design approach often looks for *politically representative* users – ideally, one or more people chosen by other users to represent their interests during analysis, design, or evaluation activities [7]. This approach avoids reliance on calculated attributes, and enhances opportunities to challenge assumptions and correct errors.

This approach also has potential weaknesses. It gives over responsibility for validity and "representativeness" to the user group or association or union that delegates one of its member(s) to serve as synecdochic representatives.

### **Fictive Approaches**

Two other approaches involve fictitious users. Cooper [2] proposed the use of a Persona – an in-depth description of a fictitious person who stands for "the typical user," to help the team think through designs and tradeoffs in conventional settings. Djajadiningrat et al. [3] proposed the use of deliberately "Extreme Characters" – very *untypical* users – to challenge conventional thinking and develop new design insights. These approaches can provide rich and personalized foci for thinking about designs. However these approaches have the synecdochic potential to substitute fiction for reality, and to delay contact with real users until later in the project lifecycle. Discussions at the DIS 2000 conference revealed another potential problem: Extreme Characters may embody social prejudices (e.g., racial stereotypes of drug dealers, or an all-male team's assumptions about the lives of women).

### **Other Perspectives**

Several of these approaches suggest that multiple perspectives may help us to understand users and usage. In some cases, the multiple perspectives reflect variety among users, and may be provided through multiple accounts of usage (e.g., [8]). In other cases, they may be provided through reflective commentaries – by users themselves [5] or by people with a more distant and formally structured perspective, such as a Greek theatrical chorus of stakeholder-interpreters (e.g., [9]). These perspectives at the margin of the users' work may be valuable in expanding all stakeholders' understandings of the users and their work.

### **CONCLUSION**

It is easy to imagine situations in which one approach may be particularly useful. An incremental improvement to a research program or existing product may benefit from the Statistical Average or the Stratified Sample approaches. An inquiry or product for a diverse range of users and usage

may benefit from a Grounded Theory approach. A redesign of an office-based system for a known user population may benefit from a Participatory Design strategy. A new product based on novel technology, with no current user base, may require the Persona or Extreme Characters approaches. Combinations of the approaches may also be useful.

The themes of the HCIC meeting are partially met by the analysis summarized in Table 1, below. The table presents a brief account of how each practice appears to be useful and valuable, and how each practice may not be appropriate for a particular setting or problem. Our on-going research agenda is to explore ways to bring together diverse voices in dialogue. The different conceptualizations of "representativeness" speak to a need for a dialogue among representations, as well as among the source disciplines and knowledges behind those conceptualizations.

We hope to encourage participants at HCIC to think deliberately about the "figures of thought" through which they choose the type of "representative user" that can best serve their research and practice. We will propose open-ended questions at the end of our presentation, to help begin a shared exploration of the concepts, and the relationship of our practices to the concepts.

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**Table 1. Preliminary Analysis of the Six Methods discussed in this Paper**

<b>Approach</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Open Questions</b>
<b>Statistical Average</b>	<ul style="list-style-type: none"> <li>• Straightforward summary</li> </ul>	<ul style="list-style-type: none"> <li>• Synecdochic fallacy</li> <li>• Metonymic fallacy</li> </ul>	
<b>Stratified Sample</b>	<ul style="list-style-type: none"> <li>• Quantitative summary</li> <li>• Avoids synecdochic fallacy</li> </ul>	<ul style="list-style-type: none"> <li>• Metonymic fallacy</li> <li>• More complex computations</li> </ul>	<ul style="list-style-type: none"> <li>• Report omnibus results, combining across strata? Report results of distinct strata separately?</li> </ul>
<b>Grounded Theory</b>	<ul style="list-style-type: none"> <li>• Explores available diversity</li> <li>• Avoids synecdochic fallacy</li> <li>• Avoids metonymic fallacy</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to summarize</li> <li>• Difficult to define reliability, generalizability</li> <li>• When is enough?</li> <li>• Often not quantifiable</li> </ul>	<ul style="list-style-type: none"> <li>• How to turn complex, site-specific outcomes into a straightforward report for clients/customers/next-in-process?</li> </ul>
<b>Participatory Design</b>	<ul style="list-style-type: none"> <li>• Shares responsibility for selecting representatives with users</li> <li>• <i>May</i> avoid synecdochic fallacy</li> <li>• <i>Probably</i> avoids metonymic fallacy</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to summarize</li> <li>• Difficult to define reliability, generalizability</li> <li>• Sometimes not quantifiable</li> </ul>	<ul style="list-style-type: none"> <li>• Issues of leadership, control, combining of multiple voices; disciplinarity</li> </ul>
<b>Personae</b>	<ul style="list-style-type: none"> <li>• Very inexpensive</li> <li>• Good focus for team</li> </ul>	<ul style="list-style-type: none"> <li>• Fantasy</li> <li>• May delay or defer contact with real users</li> <li>• May reflect author's or audience's social biases</li> <li>• May dilute users' power</li> </ul>	<ul style="list-style-type: none"> <li>• How are personae chosen? How refined? To whom is their representation "faithful?"</li> </ul>
<b>Extreme Characters</b>	<ul style="list-style-type: none"> <li>• Very inexpensive</li> <li>• Helps to explore design space</li> </ul>	<ul style="list-style-type: none"> <li>• Fantasy</li> <li>• May delay or defer contact with real users</li> <li>• May reflect author's or audience's social biases</li> <li>• May dilute users' power</li> </ul>	<ul style="list-style-type: none"> <li>• How are extreme characters chosen? How refined? To whom is their representation "faithful?"</li> </ul>
<b>Other Perspectives</b>	<ul style="list-style-type: none"> <li>• Provide additional views and knowledges</li> <li>• Can be used strategically to uncover particular under-represented constituencies, tendency, or directions</li> </ul>	<ul style="list-style-type: none"> <li>• Seemingly impossible to summarize easily</li> <li>• May dilute users' power</li> </ul>	<ul style="list-style-type: none"> <li>• How to represent such that their epistemic nature is made clear?</li> <li>• How to know when you have enough other perspectives? How much is too much?</li> </ul>