Action Design Research – An Integrative Research Method for Studying Design

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1. Introduction

It is the premise of this position paper that a combination of design research and action research can be very useful for studying high performance designs. However, there has been a separation between the two approaches. A growing body of literature is recognizing these cross fertilization possibilities between AR and DR. Researchers argue for similarity between the two (Järvinen 2007; Lee 2007; Figueiredo and Cunha 2007) as well as caution against fusion (Iivari 2007). Others suggest a middle ground stating that in some situations and contexts, the two may be integrated (Cole et al. 2005; Sein et al. 2007).

In the following we will suggest a set of steps for an integrated research program based on Action Design Research.

2. ADR process

2.1. Adding 'Reflection' to augment learning from Design Research

One shortcoming in DR is the lack of a clear stage for "reflection" to specify learning. This requires reflecting on the outcomes to understand how they have contributed to the change sought, and why the success or failure is observed in the organizational settings. For DR, this can be especially problematic when the DR project is not carried out in a specific organizational context, for example in the case of market-based development. The outcome of such a project may result in an artifact, which needs to be shown to have advanced both theoretical and practical knowledge. Current prescriptions about DR research, such as those by Hevner et al. (2004) suggest a useful set of criteria for this purpose, focusing primarily on the evaluation of

DR outputs and less on reflection that may provide articulations of what has been learned. The perspective provided by an AR approach can be useful for the latter, and may be incorporated as reflection on the outcome of the research process. A specific implementation may include interjecting an AR cycle at the last stage of DR process. Alternatively, a DR project may be framed as an AR project if an organizational problem needs to be solved, and the action involves building a system (to the development of TOP Modeler by Markus, Majchrzak et al. 2002). In both cases, the two research cycles become intertwined in different ways.

2.2.   Concretizing learning from Action Research by adding 'Build'

While canonical AR incorporates a specific learning by reflection stage, the outcomes of AR have been difficult to carry forward without a tangible artifact. Owing in part to this intangible nature, cumulative learning from AR projects has remained a matter of concern. In discussing this problem, Braa, Monteiro, & Sahay (2004) propose that knowledge is shared through networks of organizations and not as an explicit artifact of individual AR projects. (It is revealing that their solution, using networks, was itself through an AR project). In short, while all AR studies generalize their findings into abstractions and concepts, contributions towards theory building are rare (notable exceptions include the soft systems methodology). One way to concretize or formalize learning is to frame the output of AR as a DR artifact, such as prototypes, frameworks or models (March and Smith 1995). It can also be argued that the nature of the theoretical contributions from DR is more an embedded artifact, while for AR it is generalizable change processes. In our exemplar, the enhanced SPI is such an artifact. Converting the outcomes of an AR process into an artifact then can serve as the theoretical premise for the next cycle of action research. One specific approach to doing this would involve amplifying the AR *action taking* phase by including the building of a design artifact.

2.3.   Envisioning an integrated research process

The two possibilities outlined above are indications of the overarching finding based on our analysis: that the "essence" of the two approaches may, indeed, be similar or have much in common. Carrying the idea further would, then, involve a new synthesized research process that would fully integrate the two approaches: design research and action research (see Figure 1). As a preliminary conceptualization, we offer the following four-stage model. The first stage can be Problem Definition, corresponding to the first step in both, problem definition in DR and diagnosing the problem in AR. In the synthesized approach, this stage would include both perceived problems as a design researcher may conceptualize them or reported problems as an action researcher may start with based on a client engagement. It would be preferred that there is a possible generalizable design solution that can form a basis for a solution for a specific client concern. The second stage is Intervention, similar to the 'Build' stage of DR and a combination of the action planning and action taking stage of AR. The synthesized research process requires both, the construction of an IT

artifact as well as intervening to change the organization preferably used simultaneously so that the design can accommodate to problems encountered in practise. The third stage is Evaluation, and incorporates the criteria that are germane to both approaches. The final step would be Reflection and Learning, which abstracts knowledge to make practical and theoretical contribution to the field.
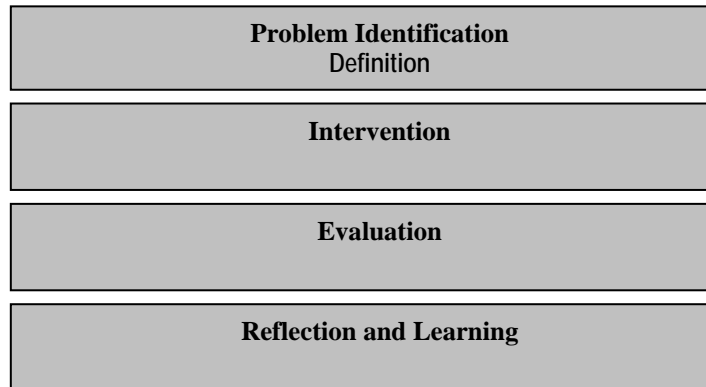
Problem Identification Definition
Intervention
Evaluation
Reflection and Learning

Fig. 1. A synthesized research approach

The proposed research approach would satisfy the call for more relevant information systems research and it can be seen to be in the core of the discipline.

We can already see possible instantiations of this integrated approach. Lindgren et al. (2004) use a canonical action research approach to develop design principles for a competence management system. Their research involved developing prototypes and has the characteristics of a DR approach. It is possible that without cross-fertilization between the two approaches, this research would become part of the AR literature only and remain outside the ken of the DR literature. Clearly, the stress on relevance, problem solving, and intervening to learn are values inherent to both AR and DR. The last point, intervening to learn, also takes a proactive stance to IS research. Not only are we rigorously studying and understanding IS phenomena, we are also stressing relevance at the same time by solving practical problems and constructing reality (Simon 1969). This paradigm has the promise of alleviating a common criticism leveled at academic research that it is carried out in a vacuum and with little influence on practice.