Diversity in Collaborative Information Systems (IS) Research Methods:
Academic Breadth or 'Re-Inventing the Wheel'?

Claudia Loebbecke, Olivier Berthod, and Claudio Huyskens
Dept. of Media Management
University of Cologne
{claudia.loebbecke|olivier.berthod|claudio.huyskens}@uni-koeln.de

Abstract

Three examples of collaborative research methods, Action Research (AR), Design Science (DS), and Participatory Design (PD), have been applied successfully in Information Systems (IS) research. This paper investigates whether research projects which are prominently published under one method also meet the characteristics of the respective 'other two' methods and could thus also be published under those methods. For instance, we examine whether a project conducted and published as DS work could also be classified and appear as AR or PD. The paper first outlines characteristics of the three methods along their (1) research contribution, (2) roots, and (3) methodological guidelines. It then applies text analysis to fifteen selected publications, five for each method, AR, DS, or PD. The paper finds that research projects applying different methods demonstrate remarkable similarities concerning research contributions, roots, and methodological guidelines, but use different terminologies, also maintaining method-specific publication outlets and communities.

Keywords: Action Research, Design Science, Participatory Design, IS research methods

Introduction

Many authors (e.g., Benbasat and Zmud 1999; Daft and Lewin 1990; Deetz 1996; Hirschheim and Klein 2003; Lee 1999) demand collaborative research approaches and according methods to increase both the practical relevance and the theoretical contributions of research efforts (e.g., Daft and Lewin 1996; Lee 1999; Markus and Davenport 1999; Van de Ven and Johnson 2006).

In the field of IS, *Action Research (AR)* probably marks the most prominent and widely quoted of those methods (Baskerville and Wood-Harper 1998; Davison et al. 2004; Orlikowski and Baroudi 1991). *Design Science (DS)* and *Participatory Design (PD)* also have been applied as methodological grounds to involve practitioners and foster research relevance for practice (Hevner et al. 2004; Kensing et al. 1998a). The three methods AR, DS, and PD are generally geared

towards system development and change to be adopted, used, and accepted by practitioners (Avison et al. 1999; Hevner et al. 2004). Even though they all demand collaboration between researchers and practitioners in the projects, each method can be described along the lines of specific characteristics.

This paper applies text analysis to determine whether a research project not only matches the characteristics of the research method under which it is published, but also the characteristics of the respective other two methods - and could thus be also published in outlets with different foci.

Synopsis of Three Collaborative Research Methods

Action Research (AR)

AR necessitates action, or as Lee (forthcoming 2007, 44) puts it, the "*raison d'etre* of action research is, by definition, action". AR is directed towards problem-solving "performed collaboratively in an immediate social situation" (Hult and Lennung 1980, 247).

Research contribution. AR contributes to practice and theory. It aims at triggering change and investigating the result of organizational development in a constructed social system (e.g., Avison et al. 1999; Davison et al. 2004; Gummesson 2000; Lewin 1946; Rapoport 1970). AR instructs researchers to enter the social context under consideration and conduct change in collaborative and mutually nurturing relations with practitioners (Avison et al. 1999; Susman and Evered 1978). It targets practical consequences.

Roots. Until World War II, most social sciences research employed partial and sense data under positivist methods (Foster 1972; Susman and Evered 1978). AR marks an approach to compensate the exclusion of the social psychological aspects of social reality in positivism (Lewin 1946). Its theoretical roots lie in the works at the Research Center for Group Dynamics in the US (e.g., Lewin 1946; 1947) and at the Tavistock Institute of Human Relation in the UK (e.g., Rees and Dicks 1948). Following its genesis in the post-war research, AR established as a research method suitable for diverse academic fields.

AR differs from positivism concerning outcomes - "prediction versus making things happen" (Susman and Evered 1978, 597). However, AR may develop positivist, critical, and interpretive forms (Klein and Myers 1999). AR follows the main conceptual foundations of pragmatism and learning by acting (Baskerville and Myers 2004). Its epistemological grounding on pragmatism follows the argument of social constructivists (Dewey 1938; James 1890; Peirce 1905).

AR grounds on the conceptual foundation of learning by acting (Hult and Lennung 1980) inspired by the theory on action- and practice-driven learning (Bourdieu 1977). It is associated with the double loop-learning concept, also suggesting recurring activities concerning cognitive mechanisms for knowledge creation (Argyris et al. 1985).

Methodological Guidelines. AR requires the researcher's participation along the entire change process, stretching from initial reflections on the social context to implementing change in the social system. AR instructs researchers to determine the requirements for change in dialogue with the actors of the observed social systems. It expects researchers to contribute to the organizational change processes and reflect upon the scientific knowledge created in the processes.

Towards change, AR implies five iterative steps: (1) Understanding and diagnosis of the situation and its underlying dynamics, (2) action planning, (3) intervention, (4) evaluation, and (5) reflection (Baskerville and Wood-Harper 1996; 1998; Davison et al. 2004; Hult and Lennung 1980; Jaervinen 2005; McKay and Marshall 2001; Susman and Evered 1978). Concerning the creation of knowledge, AR briefs researchers to ground interpretations on pre-existing knowledge to develop new knowledge following the hermeneutic circle (Gadamer 1976; Gummesson 2000).

Design Science (DS)

DS describes the study of designing artifacts, i.e., developing theoretically and practically relevant, innovative technologies (Hevner et al. 2004; March and Smith 1995; Walls et al. 1992). It "addresses research through the building and evaluation of artifacts designed to meet the identified business needs" (Hevner et al. 2004, 79). DS fosters system development subject to observation and theorizing (Nunamaker et al. 1991). It investigates the creation of artifacts in a specific organizational context. DS calls for users participation in the project to facilitate a better understanding of the context and thus adequate development, prototyping and evaluation (Checkland 1981; Hevner et al. 2004; March and Smith 1995; Orlikowski and Iacono 2001; Simon 1969).

Research contribution. DS follows the objective "to create things that serve human purpose" (March and Smith 1995, 253). It aims at designing artifacts that enhance the efficiency of the interaction between humans and technology (March and Smith 1995; Orlikowski and Iacono 2001) and, for that purpose, applies design theories to guide developers and reduce their

uncertainties in design. DS also intends to enhance the IT use and performance in organizations, striving for organizational acceptance of its outcomes (Markus et al. 2002).

Roots. DS grounds on the seminal work 'Sciences of the Artificial' by Simon (1969). It emphasizes prescription whereas natural science stresses description (March and Smith 1995). DS enables researchers to theorize about an IT artifact itself, instead of building variable-driven theories around the artifact (Orlikowski and Iacono 2001). With its problem-driven orientation, DS applies an engineering approach to IT research (Orlikowski and Barley 2001).

DS applies design theoryto social reality (March and Smith 1995). It challenges the existing body of knowledge with regard to a kernel theory that underlies the respective IS design theory (Markus et al. 2002; Walls et al. 1992). DS implies understanding of the social construction, its elements, technologies, and organizational members, and their interaction towards conceptual and technical development (Iivari 1991). It should be evaluated in light of its practical implications (Hevner et al. 2004). DS builds on double loop learning schemes that use feedback to trigger further research which in turn enables additional learning (Argyris and Schoen 1978).

Methodological Guidelines. DS demands an iterative IS development process which distinguishes 'build' and 'evaluate' as recurring activities (Keen and Scott Morton 1978; March and Smith 1995; Markus et al. 2002). To better integrate related theory in the iterations, an extended DS process comprises five phases: (1) Identification of needs, (2) grounding in practice, (3) grounding in theory, (4) creation of artifact, and (5) evaluation and theorizing (e.g., Arnott 2006; Hevner et al. 2004; Markus et al. 2002; Nunamaker et al. 1991).

Participatory Design (PD)

PD stresses the aims of more democracy at the workplace and the empowerment of the workers to challenge the organizational structures of power (Asaro 2000; Clement and Besselaar 1993; Kuhn and Muller 1993).

Research Contribution. PD follows the objective to better align technology design towards user empowerment. It permits workers to decide how to integrate technologies in their work practices and aims at system design that integrates workers' tacit knowledge of the work processes (Spinuzzi 2005a & b).

Roots. PD has developed as architectural discipline responding to organizational specificities (Kensing et al. 1998a), advocating the difference between theoretical reflection and practical involvement in design (Ehn 1989). Conceptually, PD is based on both the Scandinavian practice of computing and process design and Marxist ideology (Spinuzzi 2005b). It integrates the Human Relation School concerned with informal organizational life (Mayo 1959) and the Motivation School dealing with the needs and expectations of people at work (Herzberg 1966; Maslow 1954). Owing to those roots, PD is positioned at the crossing of computer sciences, organization studies, and humanities (Floyd et al. 1989). Institutionally, PD goes back to the European School of Design, which has its foundation in research conducted at the Tavistock Institute for Human Relations (Asaro 2000; Carmel et al. 1993; Floyd et al. 1989). PD can be considered to resemble the American Joint Application Design (JAD), institutionalized by IBM (Carmel et al. 1993; Spinuzzi 2005b).

PD deals with organizational dynamics like routines, language, and tacit knowledge (Asaro 2000; Clement and Besselaar 1993). Paying tribute to tacit components of the organizational reality, PD implies learning by doing and results in practice-driven knowledge creation (Carmel et al. 1993; Kuhn and Muller 1993). PD emphasizes permanent learning inspired by the interaction between researchers and workers. It expects additional learning cycles to emerge from the interactions (see also Argyris, Schoen 1978).

Methodological Guidelines. PD instructs researchers to enter the organization under investigation in "frameworks of cooperation" (Kensing et al. 1998a, 173) comprising researchers, designers, and users (Boedker et al. 1993; Greenbaum and Kyng 1991). It demands involvement of the users in the design activities (Floyd et al. 1989). The degree of participation depends on the participants' goals, the design aspects, and the overall relevance of the input (Asaro 2000, Damodaran 1996). PD practically excludes managers but involves technology users, especially workers and non-technical staff along the entire system development life cycle (Carmel et al. 1993).

PD suggests applying ethnography and micro-ethnography to reflect values and tacit elements at the workplace (Blomberg et al. 1993; Kensing et al. 1998). The idea is to paint a comprehensive image of the workers' environments and thereby serve a better understanding of workers' perceptions of their activities (Kensing et al. 1998a).

PD involves five recurring steps: (1) Initial exploration, (2) need discovery, (3) ethnographic studies, (4) collaborative prototyping, and (5) evaluation of concrete options (Carmel et al. 1993; Clement and Besselaar 1993; Spinuzzi 2005a).

Comparative Synthesis

Table 1 summarizes the three research methods concerning their main (1) research contributions, (2) roots, and (3) methodological guidelines.

Table 1: Method Characteristics

	AR	DS	PD
Research Contribution			
Objectives	Change of (social) system, organizational development	IT artifact creation, improved human/IT interaction, technology acceptance	Technology design, user empowerment to contribute to design
Focus	Practice / Theoretical development	Practice / Theoretical work	Practice / Theoretical consideration
Roots			
Selected Core References	Susman, Evered (78), Baskerville, Wood-Harper (98), Avison et al. (99)	Walls et al. (92), March, Smith (95), Hevner et al. (04)	Greenbaum, Kyng (91), Clement, Besselaar (93), Kensing et al. (98a)
Theoretical Grounds	Social Sciences	Engineering, Computer Science	Social Science, Computer Science
Learning Approach	Learning by acting	Double loop learning	Learning by doing
Methodological Guidelines			
Researcher Intervention	On-site in social setting	On-site in organization	On-site at work place
Org. Members' Involvement	Practitioner contribution to entire research	User contribution to artifact design	Worker contribution to full development cycle
Determining Change/ Design Requirements	Dialogue	Observation	Ethnography
Research Process	Phased, continuous, iterative	Phased, continuous, iterative	Phased, continuous, iterative

    Research Contribution. Despite different outcome foci (social change, artifact design, and technology design), the three methods aim at problem-solving and influencing organizational settings in given practical situations. Referring to change in social systems, AR remains more abstract than DS which prescribes the creation and studies the consequences of an IT artifact. However, the two are similar insofar as "the action in action research is itself an artifact" Lee (forthcoming 2007, 49). Referring to technology design, PD fills the gap between the other two methods.

    Roots. The three methods involve system development as prime theoretical concern, but either have a focus on social sciences (AR), a combination of social and technically oriented sciences (PD), or an emphasis on technically oriented sciences (DS). They commonly refer to the concept of learning in the context of the research project. Although their respective history and 'birth' differ, the Tavistock Institute has influenced both AR and PD. Also, AR and DS share common epistemological grounds in the concept of pragmatism.

    Methodological Guidelines. The three methods imply participation of organizational members in the research. They instruct researchers to intervene in the organization and collaborating with the practitioner in AR, the user in DS, and the worker in PD. AR, DS, and PD imply subjective elements, challenging the researcher's classic objectified 'observationist' role. They all demand iterative steps on a cyclical basis including (1) an initial understanding of the situation (diagnosis in AR, needs identification in DS, initial exploration in PD), (2) researcher intervention in the organization studied, and (3) reflection and evaluation of results before re-initiating the cycle.

Research Approach

    We apply text analysis, a specific kind of content analysis, concerned with systematic reading of a body of texts, images, and symbolic matters. Text analysis helps retrieving pre-defined structures in selected texts and allows inferences on the basis of retrieved structures (Krippendorf 2004).

    We apply text analysis to selected IS publications from general IS journals, method-specific journals, general IS conference proceedings, and method-specific conference proceedings. We analyze a total of fifteen publications, five per method. Each publication reports on a system or software development projects having occurred in collaboration with practitioners. With the selected publications, we aim to achieve the largest possible heterogeneity in terms of authors and type

of outlet. In each publication, we extract quotes searching for wording and content schemes pointing to the characteristics of each of the three methods (see Table 1).

Text Analysis Results

An overview of the text analysis results is shown in Table 2. The full text analysis has been omitted due to word and space limitations.

Two check-marks represent a very strong match. One or more quotes fully support the characteristic of the respective method. One check-mark stands for one or more quotes resembling the characteristic of the respective method, and finally a dash means that there is no match. Concerning the overall fit of a publication with a method (last column), three check-marks represent a very strong overall fit with matching more than seven characteristics (as shown in Table 1, two check-marks illustrate a strong overall fit with matching more than five characteristics, and one check-mark signals a weaker overall fit with matching with only three characteristics.

Three characteristics, 'research focus', 'learning approach', and 'researcher intervention', show a perfect match, i.e. all selected publications show evidences for all three methods. Two further characteristics, 'research process' and 'organizational member involvement', indicate 44 and respectively 41 out of 45 possible very strong matches. Even the third group of characteristics, 'comprising change/design requirements', 'theoretical grounds', and 'research objective', with 36, 33, and 32 out of 45 possible very strong matches illustrates a good fit. Only 'selected core references' with only sixteen matches, of which fifteen originate in the respectively applied method, does not offer much evidence for resemblances across methods.

When analyzing the fifteen publications regarding the three methods on the level of individual characteristics, 26 (of 45) combinations of publication and method show a strong fit, i.e., indicate a very strong match for most individual characteristics. Each publication following 'its own' method offers an explanation for fifteen strong fit combinations. The additional eleven strong fits between publication and method indicate a match of a publication with one of the respective other two methods in terms of the majority of the individual characteristics.

Analyzing along the methods, AR publications show a strong similarity in most cases with DS characteristics and in a few cases with PD characteristics. DS publications present some similarity with the other two methods. Finally, PD papers indicate an almost perfect resemblance with the DS characteristics and still a very strong similarity with AR characteristics.

AR Publications. The five AR publications offer several quotes in support of DS characteristics. Lindgren et al. (2004, 443) for instance illustrate a typical DS objective by aiming to "identify design principles for CMS" and further show substantial support for double-loop-learning (2004, 446) by indicating "a second action research cycle." Braa and Hedberg (2002, 119) report on practitioner contribution to artifact design in a "period of active prototyping and user interaction".

When matched to PD characteristics, AR publications also show evidence of that method. Salmela et al. (2000, 8) with their aim at "A new control information system (CIS)" pursue a typical PD objective. Vidgen (1997, 39) stated that "New ways of working supported by new technologies were explored" and with this signaled the learning-by doing approach. Lindgren et al. (2004, 444) "collected information about users' experiences with various kinds of IT-based competence management solutions" to reflect an ethnographic approach.

DS Publications. DS publications present a number of distinctive quotes as evidence of AR characteristics. Markus et al. (2002, 191) follow the "objective of improving overall organizational effectiveness", resembling the typical organizational AR objective. Miller et al. (2006, 457) write "Feedback from the user study can be incorporated into the next iterative development cycle" for a typical AR learning approach. Peffers et al. (2006, 99) select "30 participants from different end-users segments to participate in the study" to show organizational member participation and Markus et al. (2002, 188) pursue a dialogue through "Interviews with representatives from the four sponsoring companies".

When matched to PD characteristics, DS publications also show evidence for that method. Markus et al. (2002, 189) reflect on the usage of a" system by both potential hands-on users and managers" and (2002, 188) "learned that the IS design theory (…) was inapplicable to the organization design process. As a result we were forced to reconceptualize" indicating learning efforts during project conduct. Jones and Gregor (2006, 360) apply ethnography: "Webfuse had been used by almost 100 staff to maintain over 150 course websites containing over 100,000 separate web pages".

Table 2: Summary of Matching Fifteen Publications to Characteristics of Three Methods

Publication			Research Contribution		Roots			Methodological Guidelines				Overall Fit
			OBJ	FOC	SCR	THG	LAP	RIN	OMI	CDR	REP	
Lindgren et al. '04	AR	AR	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓✓	✓✓	✓✓	✓	✓	✓✓	✓
Salmela et al. '00	AR	AR	✓✓	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓	✓✓	✓✓	✓✓	✓✓	✓	✓✓	✓✓
Vidgen '97	AR	AR	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓✓	✓✓	✓✓	✓	✓	✓✓	✓
Braa, Hedberg '02	AR	AR	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	-	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓	✓✓	✓✓
Fruhling, De Vreede '06	AR	AR	✓	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Markus et al. '02	DS	AR	-	✓✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓	✓	✓✓	✓✓	✓✓	-	✓✓	✓✓
Miller et al. '06	DS	AR	-	✓✓	-	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓	✓✓	✓✓	✓	✓	✓✓	✓
Peffers et al. '06	DS	AR	-	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓	✓✓	✓✓
Haynes '06	DS	AR	✓✓	✓✓	-	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Jones, Gregor '06	DS	AR	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓	✓✓	✓✓
		DS	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓	✓✓	-	✓✓	✓✓	✓✓	✓	-	✓✓	✓
Kensing et al. '98	PD	AR	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓	✓✓
		PD	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
Anderson, Crocca '93	PD	AR	-	✓✓	-	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
Bodker '96	PD	AR	✓✓	✓✓	-	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
Clement '94	PD	AR	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		DS	✓✓	✓✓	✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
Gronbak et al. '93	PD	AR	✓	✓✓	-	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
		DS	✓✓	✓✓	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
		PD	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓

OBJ – Objectives	THG – Theoretical Grounds	OMI – Org. Members' Involvement
FOC – Focus	LAP – Learning Approach	CDR – Det. Change/Design Requirement
SCR – Sel. Core References	RIN – Researcher Intervention	REP – Research Process

　　PD Publications. The five PD publications show quotes that resemble AR characteristics. For instance, Boedker (1996, 220) aims at "general processes of organizational development". Further, Anderson and Crocca (1993, 50) apply "Open and

continuous feedback" supporting a learning-by-acting approach. Clement (1994, 57-58) reports that "Management (…) released the clerical staff to participate in project activities" involving the organizational members on an ongoing basis. By using interviews, and workshops, Gronbak et al. (1993) foster the AR-typical dialogue. Further, PD publications offer quotes matching the DS characteristics. Boedker (1996, 219) indicates that "A purpose of the project was to design a number of computer applications", illustrating the objective of an IT artifact. Kensing et al. (1998b, 253) appreciate that "The employees gave valuable feedback", which could be used to initiate a double-loop-learning cycle and Gronbak (1993) used observation techniques to determine the design requirements.

Summary. As to be expected the analyzed publications meet the characteristics of 'their' method. In addition, the selected AR, DS, or PD publications also match the characteristics of the other two respective methods.

Discussion: Academic Breadth vs. Re-Inventing the Wheel

The results of text-analyzing fifteen publications with regard to characteristics of three methods support the argument that many research projects not only match the characteristics of the research method under which they are published, but also the ones of the respective other two methods - and thus could be also published in outlets with different foci.

One may interpret the observed phenomenon as sign of increasing *academic breadth* and specialization in the IS field. And even in case of limited differentiation, separating the research communities multiplies publication opportunities as it allows multiple packaging of findings under either one of the three 'headings'. With publications representing the 'scientist's currency', additional outlets for publication mark an incentive to maintain separate communities. Separate communities allow shaping personal profiles, thereby serve career building, and in the end facilitate positioning for newcomers.

However, one may also open the discussion with a more critical position: In cases of missing differentiation, one could suppose that researchers as protagonists are carving out and securing little kingdoms against intrusion from other academic territories. Applying one of the three methods, researchers discuss projects in workshops and conferences with hardly any overlap to adjacent communities and often refrain from participating in other communities. Thus they develop partially independent bodies of literature. The resulting divergent positioning of research results despite the similarities among methods and contributions supports the argument of redundancy or frequent *'re-inventing the wheel'* under different umbrellas and terminologies. Along those lines, the IS field as a whole may have allocated resources to redundant efforts in different communities paying insufficient attention to one another. Such potential redundancy not only slows down the scientific process, but also implies wasting resources.

To substantiate either argument, future research should extend the exploratory sample. In addition, it may chance the unit of analysis from research outlets and research methods applied to the actual research contribution and investigate to what degree different papers by different authors claim very similar or even the same contributions.

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