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The State of Empathy in Agile Information System Development Methodologies (ISDMs)

Research-in-progress

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Abstract

The planning fallacy highlights people's propensity to underestimate project completion times leading to disastrous results. Yet this is only one out of more than a hundred cognitive biases known to affect people's thinking processes. Influenced by these powerful biological mechanisms, practitioners must continually contend with these biases to create something greater than themselves, painting a picture of ISDs as a socially complex process of negotiation. Agile ISDMs acknowledges this social reality, and with its popularity, understanding the factors of successful human interaction is now more important than ever. Despite empathy's central role in communication, a rigorous search of IS literature has surprisingly found no studies of it in Agile ISDMs. This paper contributes to IS research by pioneering an exploratory study on the state of empathy in Agile ISDMs, gathering data on the field towards the creation of an initial theory, setting the stage for a richer, more robust theorizing.

Keywords Empathy, Agile, ISD Methodology, IS Development, Exploratory

1 Introduction

IS Practitioners are situated in a reality by which they are beholden to powerful biological mechanisms (Kahneman and Tversky 1979; Kirkeboen 2009; Simon 1972). For example, the planning fallacy highlights people's propensity to underestimate project task completion leading to disastrous results great and small (Buehler et al. 1994; Hall 1980). Another example is physical attractiveness which influences decision-making both in favour (Dion et al. 1972; Hosoda et al. 2003) and not in favour (Heilman and Saruwatari 1979; Paustian-Underdahl and Walker 2016) of the beautiful individual. People's self-serving biases activate to protect their self-esteem in the presence of threats (Campbell and Sedikides 1999; Miller and Ross 1975). The list goes on to more than a hundred of cognitive biases that have been known to affect people's thinking processes (Blawatt 2016).

These biases paint a picture of Information Systems Development (ISD) as a complex social process of interaction between practitioners. Several surveys of information systems development methodologies (ISDMs) identify the social element as a common feature of ISDMs (Avison 1996; Iivari et al. 1998). The concept of life cycles in ISD literature demonstrates this social process. For example, in Royce (1970)'s critique of the waterfall model, the iterative interaction in and among each life cycle phase mirrors the iterative interaction in and among teams. The generic enterprise reference architecture and methodology (GERAM) encapsulates this social reality into a set of life cycle activity types that entities go through in their life history (ISO 2019). These lifecycle phases are present in a broad range of architectural frameworks that are used in a variety of industries (Noran 2003).

This means that procedural methodologies will not work, as no procedure should be able to cope with the number of possible permutations of problems individual IS practitioners encounter, let alone a group of them. IS researchers repeatedly observed that what is prescribed by methodology is changed to what is doable by practitioners (Avison and Fitzgerald 2003; Beath and Orlikowski 1994; Fitzgerald 1996; Hirschheim and Newman 1991; Truex et al. 2000; Wynekoop and Russo 1995). Developers, such as Parnas and Clements (1986) stated early on that a project will always veer from methodology and the best one can do is document the outcome as if the 'ideal way' had been followed. Management authors, in his critique on strategic planning (Mintzberg, 1994), have long warned about the dangers of trying to define a step-by-step procedure for creative processes that have no formula (in his example strategy-making). In the same vein, software development standards (ISO 2017; ISO 2019), embraced this philosophy, and abandoned restrictive procedures that try to exhaustively account for what can happen in reality, and decided in favour of flexible processes that can adapt to what is feasible in the field.

In a study of more than 10,000 software projects, the CHAOS report shows that Agile projects are almost four times more successful than those based on the Waterfall model (Standish Group 2015, p. 7). Similar studies have shown that the successful adoption of Agile ISDMs improves project success (Khoza and Marnewick 2020; Serrador and Pinto 2015). With the surge of interest in Agile ISDMs by practitioners (Digital.ai 2021) and IS researchers (Dingsøyr et al. 2012; Hoda et al. 2018; Matook et al. 2021), studying the role of factors influencing successful human interaction is now more important than ever.

Studies of interpersonal communication in various forms, both historically (e.g., Hume 1739–40, p. 365) and in present times (e.g., Burkett and Naghavi 2022), point at empathy playing a central role. While an exact definition of empathy has eluded agreement (Wispé 1987) to the point that not only there are several literature reviews of definitions of empathy available (e.g., Cuff et al. 2016; Kunyk and Olson 2001; White 1997) but also a review of literature reviews exists (Eklund and Meranius 2020). This paper will not participate in this debate, instead it will operationally define what it means by empathy as a point of reference. Empathy will be defined as the ability of an individual to understand and feel what another person is feeling, while simultaneously maintaining their own emotional state. This is differentiated from what some authors (Preston and De Waal 2002) define as emotional contagion, in which the emotion of another spreads and overwhelms an individual, the individual being unable to maintain its own emotional state. It is differentiated from simply understanding, but not feeling, what another individual is feeling, a term some authors label as Cognitive Empathy (Cuff et al. 2016), and further differentiated from what some authors (Wispé 1986) call sympathy.

One aspect that stands out in Agile team practices is the relaxation of procedures, thus it is hypothesised that empathy would be an important success factor in these teams. The Agile Manifesto brought the social reality of ISDMs to the fore, emphasizing "individual interactions over processes and tools" and "customer collaboration over contract negotiation" (Fowler and Highsmith 2001, p. 2). Several studies (e.g., Bansler and Bødker 1993; Fitzgerald 1997; Nandhakumar and Avison 1999; Pikkarainen et al. 2008) and literature reviews (e.g., Chan and Thong 2009; Larman and Basili 2003) give additional weight, citing social factors contributing to how an ISDM is adopted. A consistent finding among these

studies and literature reviews cite the ability of an ISDM to facilitate communication among practitioners, and a critical trait in successful adoption.

2 Literature Review

The IS field has not given enough attention to studies of empathy in Agile ISDMs. A search of paper abstracts in the AIS Electronic Library (AISeL) using three main constructs: “Empathy”, “ISDM” and “Agile” has only yielded 14 results (the actual search strings used are shown in Table 1.). A similar search of peer-reviewed papers was also conducted in google scholar from the first 30 pages. Somewhat surprisingly, an inspection of these papers shows that none of these studies are related to Agile ISDMs.

Search Component	Related Terms	Search String Used
Empathy	Sympathy, Compassion, Care, Caring, Prosocial, Emotion	empath* OR sympath* OR compassion* OR caring OR care OR prosocial OR emotion*
Agile	Agile, Scrum, Lean Development, Kanban, Extreme Programming, Crystal	agile OR scrum OR xp OR extreme OR lean OR kanban OR crystal
ISDMs	Methodology, Development	method* OR develop* OR ISD* OR ISDM*

Table 1. Search String Component Construction

Given the lack of any explicit studies, a general search for literature in google scholar with more than 100 citations was done to search for key papers about ISDMs in practice. A review of the ISDM literature shows that ISDMs have failed to adequately consider the negotiated social reality of ISD. To re-iterate on what was already discussed in the opening lines of the introduction, the reality of an ISD is that of a negotiation process between IS practitioners. Influenced by various limiting powerful biological mechanisms and individual constraints, each IS practitioner must bring each of their own unique blend of constraints to the table to negotiate what is desired by the project and what is practically doable.

Therefore, the following research questions have been formulated:

- How and why does empathy play a role when an Agile practitioner working within an Agile Team decides on a course of action?
- Do company-specific policies related to empathy exist, and to what extent are they followed by Agile Practitioners?

3 Research Methodology

The preceding sections demonstrated the importance of empathy in social activities and interpersonal communication. As discussed, above, several disciplines with a crucial social element have an enduring fascination with, and have sought to harness, empathy to their own ends. We have made an argument that Agile ISDMs would benefit from the incorporation of empathy in the personal skillset of practitioners participating in its processes. Yet, it has been shown that IS literature has largely neglected this area for possible application in Agile ISDMs. An exploratory approach to research is therefore in order (Stebbins 2001). In the words of Edmondson and McManus (2007), the methodological fit of this research study would fall under nascent theory as little or no previous theory exists.

3.1 Constructivist Paradigm

The constructivist paradigm is best suited to exploratory research evident in the philosophical stances that it adopts (Creswell and Poth 2016). In adopting a constructivist paradigm, the researchers have assumed the following two primary philosophical stances: a relativist ontology and a subjectivist epistemology. These adopted philosophical stances have been determined by the researchers for their suitability to answer the research questions. The relativist ontology allows for multiple and seemingly conflicting perspectives (Creswell and Poth 2016). However, the synthesis of these perspectives will allow for the sharpening and delineating of concepts as they emerge during the study, leading to a single integrated theoretical perspective and a clear understanding of the limits of its generalisability (Eisenhardt 1989). This ontological stance is therefore a good approach for answering the “How” and “Why” of the first research question and in getting the perspectives of practitioners in the second question. In attempting to answer the first research question, the researchers have determined that adopting a subjectivist epistemology is best suitable. This perspective values knowledge gained through

lived experience over an objectivist epistemology in which knowledge is gained using reason alone (Creswell and Poth 2016). In attempting to answer the second research question, the researchers value knowledge derived from individual experience and actual practice over what is documented.

3.2 Case Study

Adopting a case study methodology for this exploratory research appears to be the best fit for this study. Case study research is especially useful when the aim is to answer ‘how’ and ‘why’ questions such as the one posted in this research study (Yin 2018). Using case studies for theory-building has been adopted because it builds on case study’s intrinsic strengths: i) it allows the understanding of the phenomena in a holistic manner while remaining firmly grounded in the real world (Yin 2018); ii) the theory’s generated constructs and hypotheses are empirically valid and readily testable because of their initial grounding in data that has likely gone through repeated verification in the field (Eisenhardt 1989); iii) it is a proven way of capturing knowledge of IS practitioners (Benbasat et al. 1987). All these three features of case studies work together in answering the research questions stated in Section 2. A pilot case study using Yin (2018)’s Multiple Case Holistic Case Study Design (Type 3) was conducted involving 4 Agile practitioners with at least 10 years of experience in various continents and in various industries. Each practitioner was treated as a separate case. The strategy for case selection embraced Stake (2005)’s recommendation of leaning towards cases from which the study can learn the most, as opposed to selecting cases to establish some form of ‘representativeness’.

3.3 Grounded Theory

Grounded theory is used in data analysis because of its ability to synthesize data into an initial coherent theory (Glaser and Strauss 1967). The Straussian approach to grounded theory will be used because of its compatibility with the constructivist paradigm (Mills et al. 2006), as well as because of its compatibility with the case study approach in generalising its findings (Yin 2018). Constructivist grounded theory preserves the voice and views of the participant (Charmaz 2014). This approach to theory building is acknowledged by IS case researchers such as Lee (1989).

4 Preliminary Results and Discussion

Category	Researcher’s Memo
Project managers turned scrum masters with zero to little agile experience.	Interviewees seem to look at these people with consistent contempt. Will have to qualify further in what circumstances does this happen and why companies allow this to happen.
The occurrence of bonding events.	A seemingly crucial turning point is when team members commit not just to the project but also with <i>each other</i> . Interviewees recall that their best experiences working in an Agile team is when friendships are formed. Will need to flesh out the nature of this curious relationship.
Each agile team’s ways of working are uniquely emergent.	High-performing agile teams seem to evolve out of a pre-defined process. Through a recurring process of establishing mutual understanding and commitment, an emergent way of working arises, a dynamic creation that arises from having intimate knowledge of each other’s changing <i>day-to-day</i> needs and circumstances. Are there cases where <i>too much</i> is known?
Following the process and doing something extra.	Interestingly, interviewees with experience working in high-performing agile teams not only follow a pre-defined process but also do something ‘extra’ that is not defined or compelled by any process, such as helping other team members due to understanding <i>their</i> needs, and at the same time progressing the cause of the team. Interviewees have consistently recalled spending a significant amount of time with other team members outside working hours (contrasted with low-performing teams who only follow a pre-defined process prescribed by a methodology and do nothing more). Will need investigate the nature of these ‘extra’ steps.

Table 2. Most striking initial categories for further development

The interview protocol (see **Appendix 1**) was followed as a guide. The role of interviews in case study data collection is central to the constructivist paradigm’s pursuit of knowledge. The researcher (the interviewer) forms a trust-based partnership with a research participant (the interviewee) to work

together in answering the research questions with detail, depth, vividness, nuance, and richness only possible in this kind of data collection method (Rubin and Rubin 2011). The most striking initial categories and the researcher's memos as they emerged from the data, are shown in Table 2. Memo writing is espoused by grounded theorists as the process transforming data into theory (Lempert 2007). These data surfaced interesting revelations from the industry; this will be pursued further in succeeding cases. While the astute reader may say that these are common occurrences in any job, Agile ISDMs are particularly influenced by them because of the emphasis on individuals and interactions over processes and tools. None of the current methodologies give any guidelines or acknowledgement of these.

5 Conclusion and Future Research

This short paper has already contributed to IS by conducting a literature review on the state of empathy research in ISDMs. First, it demonstrated the socially complex process of ISDMs. Second, by highlighting that ISDMs in practice have failed to adequately consider the negotiated social reality of ISD, it made a case for the importance of empathy in ISDMs. Finally, by demonstrating the lack of attention paid by IS researchers to empathy and its potential applications to agile ISDMs, this paper serves as a call for action to IS researchers to conduct research into ISDMs that incorporate empathy.

This short paper will further contribute to IS in two ways: 1) by further exploring the initial categories that was developed in the pilot case study, the researchers hope to shed light on the state of empathy in Agile ISDMs, paving way for a much clearer understanding of how Agile teams work in practice, and 2) by understanding how Agile teams work in practice, this study hopes to contribute further to the development of agile methodologies relevant to what practitioners' face in the field.

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Appendix 1 Interview Protocol

Please describe your experience working in Agile teams, the positions held, and industries worked on.

How did you communicate and/or connect with your team members? Recurring/significant disagreements/issues?

Did you follow an established set of processes? Was it effective? Suggestions for improvement?

What is your overall assessment working with an Agile Team? What do you think is a key enduring characteristic/s of an Agile Team?

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