Team Diversity and Performance – How Agile Practices and Psychological Safety Interact

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Team Diversity and Performance – How Agile Practices and Psychological Safety Interact

Short Paper

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Abstract

Information system development is largely dependent on social interaction and team work. Team composition, team processes, and behavior among, as well as agile practices used by team members play an important role for the success of information system development projects. Especially team resilience, the capacity to recover quickly from crises, is important in an ever-changing environment. Recent research in organizational psychology found team diversity and psychological safety to be important factors for team performance. In increasing diverse teams, these findings become more and more important. In this paper, we propose a model and research design to investigate the effects of team diversity, psychological safety, and social agile practices on team resilience and team performance in agile software development. The proposed model combines recent research in the field of organizational psychology with agile information system research to provide a better understanding of the team-level effects at play in agile software development.

Keywords: Agile Software Development, Diversity, Psychological Safety, Team Performance, IS Development, IS Project Management, Team Composition

Introduction

Agile information system development (ISD) methods are increasingly popular in the industry (Conboy 2009; Dybå and Dingsøyr 2008; Fitzgerald et al. 2006; Lee and Xia 2010; Williams 2012). With increasing diversity among agile ISD (henceforth AISD) teams and an increased need for team management, it has become important to understand the mechanisms of action in AISD teams (Lee and Xia 2010; Persson et al. 2012; Sarker et al. 2009).

Team-level research in AISD, however, is scarce (Lee and Xia 2010), although AISD is mostly conducted in teams and is quintessentially a team effort (Siau et al. 2010). Moreover, results are inconsistent. Some studies suggest that AISD methods work best for highly cohesive, non-diverse teams (Cao et al. 2009; Fruhling and de Vreede 2006), and that cohesiveness could be the main reason for successful ISD. Others find in contrast that diversity amplifies creativity and communication, and therefore contributes to the success of AISD methods (Bear and Woolley 2011; Lee and Xia 2010; Phillips et al. 2006).

Research on teams also has identified a “need to move beyond the simple diversity-affects-performance model in order to think in more complex ways about how and under what conditions a diversity of expertise in groups might promote or inhibit group effectiveness” (Van Der Vegt and Bunderson 2005, p. 542). Similarly, IS researchers call for more empirical research on how diversity affects team performance in AISD (Lee and Xia 2010), and on team-level effects in AISD (Conboy 2009; Mangalaraj et al. 2009; McAvoy...
and Butler 2009; McAvoy et al. 2013). Adding to this unclear view on diversity, extant research suggests that psychological safety, which originates from concepts such as leadership style or team cohesiveness, mitigates downsides of diversity and strengthens positive effects (Martins et al. 2013; Roberge and van Dick 2010).

To shed light on the diversity-performance debate, and to conceptualize this for the domain of AISD, we include and adapt findings of team- and organizational-behavior research. Promising recent (e.g., Bunderson and Boumgarden 2010; Carmeli and Gittell 2009; Schulte et al. 2012) and well-established extant research (e.g., Edmondson 1999) on psychological safety and its influence on team performance has not yet been integrated with diversity in the field of AISD or ISD in general. Furthermore, the use of AISD practices and methodologies might very well interact with concepts such as psychological safety due to their focus on social interaction among team members (Hummel et al. 2015).

We therefore propose a model to investigate the effects of psychological safety on diversity in the context of AISD. Specifically, we suggest that social agile practices (SAPs; Hummel et al. 2015) are likely to affect psychological safety and therefore have an indirect effect on team performance. Based on the change-embracing nature of AISD, agile teams need to have the capacity to quickly recover from setbacks and difficulties (i.e., resilience), which is why we propose team resilience to mediate the influence of diversity on performance.

To evaluate the proposed model, we suggest a multi-step approach. In the first step—the pre-test—we conduct semi-structured interviews with students, partaking in an agile-software-development course. Based upon these interviews, we then refine the literature-based questionnaire and conduct a quantitative study among these students. Following, we will conduct the same study among professional AISD teams.

Providing deeper insights into benefits and downsides of diversity in AISD teams, with respect to the interaction of psychological safety and AISD practices, would benefit both research and practice. These insights, paired with recommendations on how to compose and interact in teams, could help to reduce the number of failed projects and increase job satisfaction—and therefore lead to a decrease in costs.

The remainder of this paper is structured as follows. We give an overview about related. Next, we derive the proposed model and state corresponding propositions based upon previous literature. Finally, we give an outlook on the proposed research design being used for evaluating the proposed model.

**Related Work**

**Information Systems Development and Agile Approaches**

IS are often developed in the form of projects (Hirschheim et al. 1995, p. 33), with many involved stakeholders and project team members (Chae and Poole 2005). The nature of ISD is in many aspects intangible (Cule et al. 2000), and the major problems of ISD projects are not so much technological as sociological in nature (DeMarco and Lister 1987, p. 4). Coordination and communication between various stakeholders are necessary for successful implementation (Gallivan and Keil 2003; Ko et al. 2005), and creating a shared understanding between involved stakeholders is deemed to be a major driver for ISD success (Corvera Charaf et al. 2013; Gallivan and Keil 2003; Rosenkranz et al. 2013; Tan 1994).

In practice, approaches for developing IS range from sequential approaches (Royce 1970) to more cyclic, iterative approaches (Boehm 1988). The resulting AISD methodologies (Cao et al. 2009; Vidgen and Wang 2009) trade strict control for more flexibility and autonomy within the team, the overall development process is not planned and scheduled upfront, and progress is made in small iterative phases, while encouraging change and constant feedback (Cockburn and Highsmith 2001; Highsmith and Cockburn 2001). Planning becomes a permanent task, and team leadership is established via collaboration and is separated from project lead (Dybå and Dingsøyr 2008; Dybå and Dingsøyr 2009).

While the team is thus highlighted as the crucial aspect of AISD in practice, extant research in the field of AISD methods has investigated mainly specific and individual or organizational phenomena, such as the use and effects of specific agile practices (e.g., Balijepally et al. 2009; Holmqvist and Pessi 2006; Maruping et al. 2009b), or effects regarding whole projects or organizations, such as the introduction of AISD methods to teams (e.g., Cao et al. 2009; Heeager 2012; Hong et al. 2011; Kotlarsky 2007; Mangalaraj et al. 2009).
As research thus covers the individual and organization-wide level of effects on AISD, team-level effects are covered less so, and existing results are contradictory. Team research has included technology as an influencing factor of team work (e.g., Kozlowski and Ilgen 2006), but specific features of ISD have not been observed. Research found that cohesive teams are the optimal base for applying agile practices (Cao et al. 2009; Fruhling and de Vreede 2006), while other studies suggest that diversity amplifies creativity and problem-solving ability (Bear and Woolley 2011; Lee and Xia 2010; Phillips et al. 2006) and therefore might provide benefits for ISD. These inconsistencies are especially important for AISD, as AISD teams rely heavily on efficiency (to respond quickly to requirement changes and being flexible; Conboy 2009) and problem solving ability (to complete complex, non-routine tasks; Lee and Xia 2010).

At the same time, ISD projects are becoming more distributed and diverse (e.g., Persson et al. 2012; Ramesh et al. 2012; Sarker et al. 2009; Sarker and Sarker 2009). Consequently, research on AISD has started adapting diversity concepts, while calling for a better understanding of effects of diversity in ISD (Lee and Xia 2010). Extant research applied theories of organizational psychology while being focused on IT use than on ISD (e.g., Gorecki et al. 2008; Nan 2011; Wang and Hahn 2015). While research on teams thus is unsurprisingly not completely new to ISD research, team composition effects such as diversity and psychological safety have not been investigated by ISD research, yet. As agile methodologies are based on the idea, that change and changing environments are inevitable, a team’s ability to recover from shocks, such as requirement changes, is key to successful AISD projects.

**Team Resilience**

One important concept closely linked to team composition effects, especially to team performance, is team resilience (Meneghel et al. 2016). AISD explicitly acknowledges the importance of being able to respond to requirement changes and even embrace change and an ever-changing environment (Beck et al. 2001). As each change imposes difficulties for the team, AISD teams have to have the capacity to recover quickly from changes and difficulties, which is the textbook definition of resilience (Oxford English Dictionary).

Resilience in general has been used in biology to describe the ability of a dynamic multispecies ecological system to persist with the same basic structure when subjected to stress (Holling 1973). Derived from this, researchers have used team resilience to describe a team’s ability to “withstand disruptive factors, synonymous with both buffering against disruptive factors and correcting for disruptive factors without significant strategic changes” (Chakravarty et al. 2013, p. 983). Recent research found a direct influence of team resilience on team performance – both in-role (i.e., task-related) and extra-role (i.e., contextual performance, e.g. helping behavior or suggestions for improvements) performance (Meneghel et al. 2016).

As AISD explicitly stresses the importance of being able to respond to requirement changes (Beck et al. 2001), resilience is an important team-trait for successfully embracing and implementing AISD practices, as changes in requirements is one of the main reasons ISD projects fail (Maruping et al. 2009a).

Having laid out the basic structure and functioning of AISD teams, we now turn to the effects of diversity and psychological safety. As AISD teams become more and more diverse due to globally distributed teams and the vast variety of skills needed over the course of AISD projects, diversity and psychological safety play important roles in AISD teams.

**The Interplay of Diversity and Psychological Safety**

Research on team work has focused mainly on outcomes of team performance before shifting to mediation effects and more general speaking from input-process-output models to cyclic input-mediation-output-input models (for a comprehensive overview, see Ilgen et al. 2005). A notion of teams as complex, context-sensitive, and evolving systems has emerged (Ilgen et al. 2005; Kozlowski and Bell 2003).

**Diversity**

In organizational psychology, diversity has emerged as an important predictor of team performance and research over recent decades found contradictions (del Carmen Triana et al. 2014; Hülsheger et al. 2009; Joshi and Roh 2009; Milliken and Martins 1996; Phillips et al. 2006; Post 2012; Van Der Vegt and Bunderson 2005). Some studies find a positive relation between diversity and team performance (see Bear and Woolley 2011; Phillips et al. 2006; Van Der Vegt and Bunderson 2005), but outlined a dependency on
specific contextual circumstances, such as the competitive threat-level (del Carmen Triana et al. 2014), team identification, and team climate (Van Der Vegt and Bunderson 2005). Team identification and team climate have been found to play an important role in generating positive effects from diversity (Van Der Vegt and Bunderson 2005). Studies which identified a negative effect describe an overhead of communication and a risk for conflict (Ely and Thomas 2001; Leonard et al. 2004; MacMillan et al. 2004). As some studies suggest that diversity in itself is an obstacle for teams and that cohesiveness is key to success (Cao et al. 2009; e.g., Fruhling and de Vreede 2006), and others suggest that diversity in itself is beneficial for teams (e.g., Lee and Xia 2010; Phillips et al. 2006), most research suggest a more differentiated, nuanced view.

Scholars differentiate between deep-level (DLD; i.e., education, experiences, also known as job-relevant diversity) and surface-level diversity (SLD; i.e., ethnicity, age, also known as background diversity) (Aggarwal and Woolley 2013; Hulsheger et al. 2009; Phillips et al. 2006). These two types act differently: while SLD highlights dissimilarities and encourages sharing of unique information (Phillips et al. 2006), DLD might lead to harmful conflict (Jehn et al. 1999) or facilitate team performance by providing different educational backgrounds and skillsets (Joshi and Roh 2009). Furthermore, diversity can be grouped (Harrison and Klein 2007) into separation (differences in opinions etc.), disparity (differences in socially valued assets), and variety (differences in knowledge etc.). In the scope of this research, we are most interested in variety, as differences in knowledge can help overcome crises (e.g., Ferrier 2001; Harrison and Klein 2007). As diversity entails a risk of increased conflict and a need for increased communication among team members, it is important to encourage team members to talk to one another and to feel safe in doing so to facilitate success.

In general, extant research agrees that a diversity-affects-performance model exists – the exact relationship, however, varies from study to study. Some argue, that DLD positively affects performance (Joshi and Roh 2009), some argue that it negatively affects performance (Jehn et al. 1999). SLD has generally been found to increase information sharing behavior in teams and therefore (indirectly) positively affecting performance (Phillips et al. 2006).

**Psychological Safety**

Psychological safety, “a shared belief held by members of a team that the team is safe for interpersonal risk taking” (Edmondson 1999, p. 354), has been used by researchers to explain organizational learning behavior (Nembhard and Edmondson 2006), information sharing behavior, and how team members are motivated to speak up for organizational improvements (Detert and Burris 2007; Liang et al. 2012) or are motivated to take initiatives to innovate (Baer and Frese 2003). Structure has been found to foster psychological safety, especially in self-managed teams, and to (indirectly) improve team learning, at least for repetitive tasks (Bunderson and Boumgarden 2010). Other research found a direct influence of psychological safety on the ability to learn from failures, especially fostered with high-quality relationships (Carmeli and Gittell 2009; Jehn et al. 2014).

Furthermore, psychological safety has been found to moderate (i.e., mitigate) the (indirect) negative effect of diversity on team performance (Roberte and van Dick 2010). Other research found a direct effect on team performance (Schaubroeck et al. 2011) or a mediation of diversity climate, employees’ perceptions regarding the extent to which an organization values and integrates diversity and supports it, via psychological safety on employee performance, stressing that psychological safety is an important predictor for performance, especially in diverse teams (Singh et al. 2013).

**Theory Development**

In addition to the findings outlined in the previous section, research calls for a move beyond the simple diversity-affects-performance model, and to further conceptualize under what conditions and how precisely diversity affects team performance (Van Der Vegt and Bunderson 2005, p. 542). Considering the inconsistent findings regarding diversity and team performance as outlined before, we propose to contribute to closing this research gap with the following model. Specifically, we argue that diversity can act as an enabler for team resilience—and can therefore indirectly benefit performance—as it provides a greater variety of skills, which can be beneficial in overcoming crises by providing alternative solutions to the problem at hand. However, this benefit can only be realized if team members feel that they can speak freely and voice concerns or give alternative, possibly controversial, solutions (i.e., take an interpersonal...
Therefore, psychological safety might moderate the beforehand mentioned enabling effect of diversity. If the team is not diverse (i.e., low level of diversity), the team’s resilience is reduced due to the reduced skillset. If the team is overly diverse, the team’s resilience is decreased due to an overhead of communication. In essence, this results in a u-shaped effect. We further argue that SAPs lay the groundwork for psychological safety in AISD teams by providing safe environments (e.g., via daily standup meetings) and fostering mutual support and responsibility (e.g., via collective code ownership). While these phenomena have been investigated on their own and mainly in the context of general or occasional teams, ISD research has not put these theories together and evaluated these effects in the specific context of AISD teams, although AISD methods rely heavily on team work, team composition, communication, and interpersonal relationships (Beck et al. 2001; Lee and Xia 2010; Maruping et al. 2009a; Rosenkranz et al. 2013; Sawyer et al. 2010). If our assumptions hold true, the proposed model helps in explaining team-level effects in AISD and in turn gives guidance to improve team resilience and ultimately team performance. Figure 1 displays our model. Table 1 summarizes the constructs.

![Proposed Research Model](image)

**Figure 1. Proposed Research Model**

<table>
<thead>
<tr>
<th>Name</th>
<th>Definition</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Team Diversity</strong></td>
<td>The differences among team members regarding visible (i.e., surface-level; e.g., race, age) and invisible (i.e., deep-level; e.g., experience, education) characteristics.</td>
<td>Phillips et al. (2006) Post (2012)</td>
</tr>
<tr>
<td><strong>Psychological Safety</strong></td>
<td>Psychological safety is defined as “a shared belief held by members of a team that the team is safe for interpersonal risk taking” (Edmondson 1999, p. 354), meaning that team members are more likely to engage in behaviors such as seeking feedback, asking for help, speaking up about concerns or mistakes, or coming up with innovative ideas when psychological safety is high.</td>
<td>Edmondson (1999)</td>
</tr>
<tr>
<td><strong>Social Agile Practices (SAPs)</strong></td>
<td>Agile practices entailing communication practices or practices aiming at exchanging knowledge and facilitating interpersonal interaction (e.g., daily scrums or pair programming).</td>
<td>Hummel et al. (2015)</td>
</tr>
<tr>
<td><strong>Team Resilience</strong></td>
<td>Describes how quickly a team is likely to recover or bounce back from failure once failure has occurred. Also defined as “being able to withstand disruptive factors, synonymous with both buffering against disruptive factors and correcting for disruptive factors without significant strategic changes” (Chakravarty et al. 2013, p. 983).</td>
<td>Alliger et al. (2015) Hashimoto et al. (1982) Chakravarty et al. (2013)</td>
</tr>
<tr>
<td><strong>Team Performance</strong></td>
<td>Composed of on-time completion, on-budget completion, and software functionality.</td>
<td>Lee and Xia (2010)</td>
</tr>
</tbody>
</table>
Proposed Research Design

In the following section, we will outline how we are going to sample data to evaluate these propositions.

Table 1. Constructs and Definitions

Extant research shows that overly diverse teams show decreased performance (Ely and Thomas 2001; Leonard et al. 2004; MacMillan et al. 2004) but also that diversity is helpful to performance (Bear and Woolley 2011; Phillips et al. 2006; Van Der Vegt and Bunderson 2005). Literature argues that reduced performance is due to an overhead in communication (Ely and Thomas 2001; Leonard et al. 2004; MacMillan et al. 2004). Combining both views, we argue that diversity does not directly influence team performance, but that a diverse team is able to cope better with changing requirements due to the broader set of skills present and that this resulting resilience positively affects performance (see P_2), as long as no overhead in communication is needed due to a higher level of diversity. This is why we argue that diversity has an inverted U-shape effect on team resilience, and we propose proposition P_1:

P_1: Medium Team Deep-Level Diversity positively affects Team Resilience, while low or high Team Deep-Level Diversity does not.

As AISD is based upon the idea that requirements change (Beck et al. 2001) and that teams have to be able to cope with an ever-changing environment to succeed (Meneghel et al. 2016), we suggest that team resilience is beneficial to the overall AISD team performance. Therefore, we state proposition P_2:

P_2: Team Resilience positively affects Team Performance.

Psychological safety plays an important role regarding social interaction in teams (Baer and Frese 2003; Detert and Burris 2007; Liang et al. 2012; Nemhhard and Edmondson 2006). Especially in regard to team diversity, psychological safety acts as a moderator, which fosters positive and mitigates negative (indirect) effects on team performance by empowering team members to speak freely with one another, cooperate, and resolve conflicts (Roberge and van Dick 2010). Therefore, we postulate proposition P_3:

P_3: High Psychological Safety enforces positive effects of Team Diversity on Team Resilience and mitigates negative effects. Low Psychological Safety enforces negative effects of Team Diversity on Team Resilience and does not enforce positive effects.

Linking psychological safety with AISD, we argue, that SAPs foster psychological safety by providing a safe environment for speaking up (e.g., during daily stand up meetings or during sprint reviews) and by creating a perception of shared responsibility and mutual support (e.g., via shared code ownership or pair programming), because structure (as provided for instance by daily stand up meetings or by mentoring during pair programming) has been found to be beneficial to psychological safety (Bunderson and Boumgarden 2010). This results in proposition P_4:


Extant research found that structure helps self-managed teams to improve their learning from failures (Bunderson and Boumgarden 2010). Therefore, and similar to P_4, we argue, that the usage of SAPs positively influences team resilience, as SAPs provide structure (both in the form of daily routines, e.g. daily stand up meetings, and in the form of mentoring and help-providing structures, e.g. through pair programming or collective code ownership). P_5 resembles this proposition:

P_5: Usage of Social Agile practices positively affects Team Resilience.

In the following section, we will outline how we are going to sample data to evaluate these propositions.
According to G*Power (Faul et al. 2009; Faul et al. 2007), a sample size of 77 is needed to achieve a power-level of 0.8. It is important to note that our sample size does not refer to individuals but to teams. Comparable studies aimed at a power of 0.8 with at least 60 (Engel et al. 2014) or 110 (Maruping et al. 2009a) teams. To gain access to enough teams to satisfy the sample size requirements, we are currently negotiating with a large consulting company. As regards potential measurements for latent variables, the studies on which our constructs are based already utilized questionnaires and therefore provide tested items and indicators. These items will be translated using the back-translation technique (Brislin 1970) to be able to reach out to more participants and to ensure adequately worded items. Further, we will perform a pre-test involving students partaking in an agile software development course. Both, before the pre-test and before the field-testing, we hope to gain further insights into the interplay between diversity, psychological safety, SAPs, and resilience by conducting semi-structured interviews with participants about their experiences. The pre-test will take place in 2017 and field testing is set for 2018. Multiple large consulting companies from our professional networks have been selected as potential data sources.

Measurement Items

Regarding team diversity, both DLD and SLD should be observed. The later can be observed via items regarding ethnicity, age, and further demographic characteristics (Phillips et al. 2006). Data regarding DLD can be approximated via items regarding education, religion, and political orientation (Phillips et al. 2006; Post 2012). Educational diversity, as part of DLD, is reflected in agile ISD teams especially regarding professional specialization, such as domain-specific knowledge, experience regarding different programming languages, frameworks, or aspects of implementation (e.g., user-interface design, testing). We are especially interested in the variety aspect (Harrison and Klein 2007) of diversity. Recent research suggests an aggregation of the “big-five” personality traits as possible proxies for DLD composition (Bell 2007).

Measures regarding the ability to respond to user requirement changes and software failures (i.e., bugs) with minimal time, cost, personnel and resources (i.e., team response efficiency) make up our proposed measurement for team resilience. We propose to measure bug severity and flexibility. Bug severity has been defined as the product of number of bugs and the hours needed for resolving (Maruping et al. 2009a), while flexibility can be defined as the number of implemented changes in a given time frame (Conboy 2009). This data will be collected from project management and issue tracking tools such as working hours, number of reported and resolved bugs. Additionally, we will gather this data via self-report items in the questionnaire. We expect this self-report to be distorted, which is why we will compare these items with the data gathered from project management and issue tracking tools. Similarly, team response efficiency has been used in questionnaires before (Lee and Xia 2010).

Adherence to schedule and budget, as well as meeting requirements are important parts of team performance and will be obtained via self-reported items in a questionnaire, as well as via data from project management and tracking tools.

To measure psychological safety, we will rely on tested measurement items. Variations of an item scale have been used by extant research (Dertert and Edmondson 2011; Majchrzak and Jarvenpaa 2010; Pearsall and Ellis 2011; Schaubroeck et al. 2011), which we will incorporate in our study.

Regarding the usage of agile practices entailing communication, knowledge sharing and social interaction, we will use already tested items to observe the usage of agile practices (Hummel et al. 2015).

Risks and Challenges

We expect to encounter changes in the measurement items as we progress in our pre-test. Especially due to ambiguities introduced by even carefully translating the items some rewording might be necessary to guarantee clarity and unambiguity of the items used. Further, we are aware that any performance-related questions are prone to the social desirability bias, since it is generally more socially desirable to report success rather than failure. Nederhof (1985) proposes to use forced-choice items, that is, to utilize items in which participants have to choose between two approximately similar attractive items of different topics. We will not be able to utilize this approach due to the clear and judgmental scale of performance measures such as budget and schedule. Furthermore, Nederhof (1985) suggests postulating questions that are neutral concerning social desirability. Similar to forced-choice items, we will try to minimize the social desirability
bias emerging from our questions. However, due to the clear preferability of success over failure, social desirability bias is still likely to emerge from questions posted in this questionnaire. Self-administered questionnaires did not always actively reduce social desirability bias, but it is likely that anonymous and self-administered questionnaires have less distortion. As we will provide this questionnaire anonymously and online, we suggest that this way of data collection reduces the influence of social desirability bias. Regarding psychological safety, we are expecting some distortions as well. For instance, suppressed or bullied team members might feel insecure in their teams and therefore might—consciously or unconsciously—not report a low psychological safety. We further expect different results for mainly remote and on-site teams. For instance, while both types of teams might hold daily stand-up meetings, virtual presence might influence the effect this practice has on psychological safety.

Conclusion

In this paper, we argued for a novel model, explaining the interplay between team diversity, psychological safety, team resilience, and AISD practices. We gave an overview over the findings of recent decade's research on team-level effects in AISD and deduced the model from extant research. Further, we proposed a research design to empirically evaluate the proposed model and discussed possible issues over the next steps. We believe, that this model might very well help both theory and practice in better understanding team-level effects in AISD and hence improve AISD as well as help to reduce failed AISD projects.

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References


Psychological Safety in Diverse Agile Software Development Teams


