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Highly engaged, less likely to quit? – A theoretical perspective on work engagement and turnover in agile information systems development projects

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Highly engaged, less likely to quit? – A theoretical perspective on work engagement and turnover in agile information systems development projects

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Abstract. Agile information systems development (ISD) has become a popular way to manage IT projects. One of the key claims of agile ISD is to increase employees' work outcomes. At the same time, organizations increasingly struggle to gain and retain qualified IT professionals. Aim of this research is to understand how agile practices influence employees' work engagement and, as a result, their turnover intention. In order to gain empirical evidence, we propose a theoretical model based on the conservation of resources theory. Practical and theoretical implications demonstrate what conclusions can be made regarding the influence of agile ISD on resources, work engagement and intention to quit and what companies can do to retain their IT employees in ISD projects.

Keywords: agile information systems development, work engagement, voluntary turnover, IT workforce

1 Introduction

20% to 28% of Information Technology (IT) projects failed because of turnover of IT professionals in 2012 in the U.S., Canada, Germany, France and United Kingdom [1]. By hitting 13% of turnovers in 2017, IT branch had the highest turnover rate in comparison to retail, media and professional services [2]. With a turnover of IT professional, some implications like delaying deadlines, additional costs and bad project performance are likely to arise [1].

Work engagement has been identified as a decisive factor in order to attract and retain professionals and thus reduce costs of voluntary turnover [3]. Consequently, there is an increased need to study IS-practices that acknowledge both organizational and people sides and examine factors that have a positive impact on work engagement. The agile approach addresses these challenges by emphasizing an evolutionary process [4], influencing not only job characteristics but also the individual's values [5]. Agile practices make people more motivated and satisfied at work [6]. They have been found to foster communication [7] and encourage perceived meaningfulness as well as job autonomy [8]. [9] further found that "agile methods increased trust by increasing transparency, accountability …, knowledge sharing and feedback" [9]. Due to these

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positive effects addressing prevailing challenges, agile practices have become an increasingly preferred alternative to traditional practices and are applied in companies of all sizes and industries [10, 11]. Hence, the following research question guides our work: *What is the effect of agile practices on IS professionals' turnover intention?*

This research contributes to theory and practice by, first, extending existing knowledge on antecedents of IT professionals' turnover [e.g. 12, 13, 14] through the lens of agile practices. Second, we link earlier research on agile practices and work outcomes [5, 15] by empirically and theoretically investigating this relationship. Third, we contribute to the lack of the theoretical core in agile ISD [16, 17]. By this theoretical conceptualization, we work to provide a foundation for future studies examining antecedents and consequences of work engagement in the context of IT workforce.

Our paper proceeds as follows. In section 2, our research model and hypotheses is presented. Section 3 gives an overview of the agenda for data collection. Section 4 provides suggestions for future research and the conclusion.

2 Research Model and Hypotheses

In this research, we define agile practices as "the continual readiness of an ISD method to rapidly or inherently create change, proactively or reactively embrace change, and learn from change while contributing to perceived customer value (economy, quality, and simplicity) through its collective components and relationships with its environment" [18]. The research model is based on conservation of resources theory (COR) [19]. COR theory states that people are motivated to protect their resources and acquire new resources, which are valuable to an individual. Stress occurs because of a threat of loss of these resources, an actual loss of them or their inadequacy to meet certain demands. An assumption is that a loss spiral can start with stresses regarding well-being (e.g. job satisfaction, work engagement). This spiral can accelerate and result in a turnover of employee [20]. In this case, turnover is a method to minimize the loss of resources while confronting with stress. The extent of agile ISD use is presented as directly affecting resources and turnover intention. Figure 1 shows these relationships.

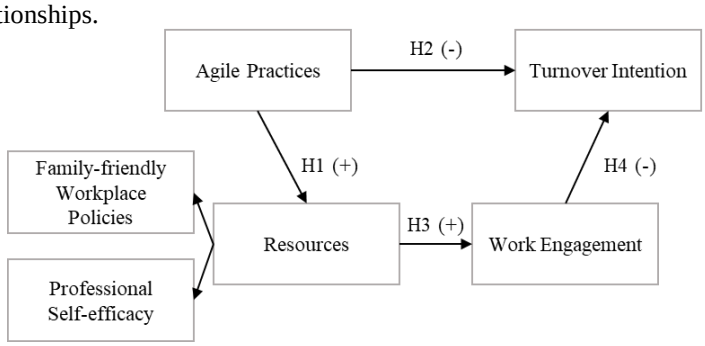

Figure 1. Research Model

Agile ISD provides constant feedback, autonomy, and flexibility for team members [21] and relies on self-organizing principles. This enables employees to flexible design

their work environment. [22] found that high levels of self-efficacy are well maintained by agile methodologies. We thus hypothesize: *The extent of agile ISD use positively influences family-friendly workplace policies (H1a)* and *The extent of agile ISD use positively influences professional self-efficacy (H1b)*. Agile ISD claims to value people over processes and strives for a high amount of interaction among team members [23, 24], which enables professionals to establish familiar and strong relationships at work. Agile ISD increases organizational commitment of team members [25], which acts as a key predictor of voluntary turnover of IS professionals [26]. Hence, we suggest: *The extent of agile ISD use negatively influences turnover intention (H2).* Work engagement theory [27] suggests that job resources, such as family-friendly workplace policies and professional self-efficacy, make people more motivated at work and therefore increase their work engagement. As well, they have been found to increase affective commitment to the organization [26]. Therefore, we suggest: *Higher perception of a) family-friendly workplace policies and b) professional self-efficacy positively influence work engagement (H3).* Finally, there is evidence indicating positive relationship between work engagement and turnover intention [3]. Hence, we argue: *The level of work engagement negatively influences turnover intention (H4).*

3 Agenda for Data Collection

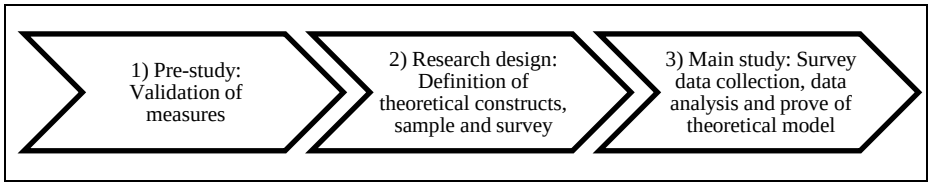

Figure 2. Overview of main phases of research

In this research, we investigate the relationship between agile practices and IS professionals' turnover intention. We use a quantitative approach with survey data to gather insights, and empirically validate our theoretical model using structural equation modeling [28].

3.1 Completed Work: Pre-study

Study Sample. For this pre-study, we surveyed 24 fellow students and full-time workers in IT companies anonymously.

Measures. To measure the extent of the applied agile ISD practices, we used scales from [15]. Family-friendly workplace policies were measured using a five item scale of [29]. Professional efficacy was measured using a four item scale of [30]. Work engagement (WE) was assessed with the short form of the Utrecht Work Engagement Scale by [31], using a 7-point frequency rating scale from 1 (never) to 7 (always). Turnover intention's five-item scale was taken from [32]. All items were available in English and have been translated in German.

Preliminary Results. We used SPSS AMOS 26 to accomplish a first-order confirmatory factor analysis (CFA) in order to assess the construct validity of reflectively measured latent dimensions of resources: family-friendly workplace policies and self-efficacy. Table 1 presents CFA factor loadings for the constructs.

Table 2. CFA factor loadings

Construct	Item	First-order CFA
Family-friendly workplace policies	FFWP_FFWP2r_1	0.978
	FFWP_FFWP3r_1	0.922
	FFWP_FFWP4r_1	0.697
	FFWP_FFWP5r_1	0.701
Self-efficacy	WLII_PE1r_1	0.832
	WLII_PE2r_1	0.837
	WLII_PE3r_1	0.873
	WLII_PE4r_1	0.829
	TRA_TRA3r_1	0.835

3.2 Future Work: Research Design and Main Study

Based on the results of our pre-study, we intend to conduct a cross-sectional survey among full-time IT professionals within our main study. Our research design includes the following theoretical constructs: family-friendly workplace policies, professional self-efficacy, agile practices, work engagement (independent variables) and turnover intention (dependent variable). We will include the following control variables: function in the company, work experience overall, experience in working agile, and general project characteristics, like the number of parallel projects, project size, project duration and project success [33]. In the third phase of this research, the main study will take place (see table 2).

Table 2. Overview of main phases of research

Stage 1)	Data collection (snowball technique): survey among IT professionals (full-time employment relationship)
Stage 2)	Data cleaning: item recoding, missing values, common method bias
Stage 3)	Data analysis: structural equation modeling, test of measurement model, test of structural model
Stage 4)	Prove of theoretical model: confirm or reject hypotheses

4 Suggestions for Future Research and Conclusion

Our research contributes to existing theory of agile ISD and work outcomes of IS professionals. Thereby, we perceive theory as a "statement of concepts and their interrelationships that shows how and/or why a phenomenon occurs" [34].

Firstly, this study theorizes that agile ISD positively influences the desire of IT workers to quit an organization, contributing to earlier research on voluntary turnover of IS professionals [e.g. 12, 13, 14]. We propose that a high level of work engagement lessens the likelihood of quitting the organization. Engaged employees feel safer and have no need to quit an organization and seek for job alternatives. They are more enthusiastic about their job and feel a higher level of energy. As well, the current study contributes to general literature [35] about the negative effect of work engagement on turnover intention. Future research might investigate how work engagement influences professionals' intention to return to their former employer, as proposed by [13]. Furthermore, future studies on other IS professionals, such as IT road warriors [36, 37], might provide useful insights on the relationship between work engagement and voluntary turnover.

Secondly, we link earlier research on agile practices and work outcomes [5, 15] by empirically and theoretically investigating this relationship. In our model, we argue that agile practices increase team members' work engagement, which is consistent with earlier research on job satisfaction [15] and motivation [5]. In this research, we extend the agile ISD literature and literature on the IT workforce beyond job satisfaction, which has traditionally been a key concern in the IS literature [15, 38-40]. Future studies might examine how agile practices affect different roles of team members, such as project managers. The role of project managers remains unexplored so far [41], and insights into their engagement at work might provide insights for successfully running IT projects. In addition, [42] found evidence that developers' stress varies among different stages of ISD projects; future research might thus investigate team members' work engagement from a longitudinal perspective.

Thirdly, we contribute to the lack of the theoretical core in agile ISD. While agile practices are commonly applied in organizations [43], researchers increasingly call for gathering empirical evidence on agile ISD [16, 17]. This research answers this call by providing insights into the so important "people factor" in agile ISD [23].

From a practical perspective, resources have a significant value in the hypothesized process that may lead to low level of work engagement and intention to quit the organization, enhancing those resources might be sufficient way to retain IT professionals in organizations. Human resource development managers can focus on job satisfaction and motivation of IT employees. One of the things that can improve them is to consider worker's welfare when creating important rules and policies. As already stated in the prior research, some of the IT professionals in ISD projects work on weekends because they need to accomplish tasks that were not initially assigned to them. Good policies ensure that no personal issues will reduce the level of productivity at work and help people balance work and family lives without stress.

In summary, this paper contributes to literature on agile ISD and IT workforce by proposing a positive influence of agile ISD on resources like rewards and self-efficacy and by revealing how enhancing of resources might positively affect work engagement, which in turn is supposed to be negatively related to the turnover intention of IT workers.

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