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USER ACCEPTANCE & USE OF SISU SYSTEM IN THE UNIVERSITY OF JYVÄSKYLÄ

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ABSTRACT

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Sisu system is the new student information management system in the University of Jyväskylä as the previous Korppi system is being phased out. Student information management system is a critical working environment for both students and staff at the university and it is therefore important for the change process to succeed so that the continuity of working is ascertained. Sisu system is furthermore in the process of being deployed into many other universities across Finland. The experiences gained in the University of Jyväskylä may be utilized in later implementation projects in those institutions. In this master's thesis, the implementation of the new Sisu system was studied. The goal was to ascertain how the users have experienced the use and implementation of the Sisu system and how has the user acceptance of it proceeded. It was desirable to examine the successes and failures encountered and whether there were observable differences between different user groups. This study was conducted as a qualitative case study in which the semi-structured interviews were utilized to collect the data. Eighteen interviews were conducted of which ten were students and eight staff members. An extensive literature review, consisting of the most pivotal literature on IT acceptance and success acted as the foundation for the study and research framework. After the data analysis, the research framework was refined by the empirical results gained. The data analysis provided two user archetypes describing overall perceived experience of two user groups, students and staff regarding the implementation of the Sisu system by highlighting most recurring individual experiences. Both archetypes had reached a stage, where only the most necessary core features and processes are utilized but the system value has not yet realized and the affective state and attitudes are mostly negative. It was also observed that the students' perception was slightly more indulgent compared to staff. The most major problems encountered revolved around the poor perceived system- and information quality and the negative impact it therefore had on the individual's work as well as the perceived lacking quality of communication between the university and the user. Additionally, the study provided theoretical implications for IT's user acceptance process-based view as presented in the refined, nascent research framework.

Keywords: IT acceptance, IS success, IT switching, Process-based view of IT acceptance, UTAUT, SISU-system, Student information management system

TIIVISTELMÄ

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Sisu-järjestelmä korvaa vaiheittain Jyväskylän yliopistossa käytöstä väistyvän Korppi-järjestelmän. Opintotietojärjestelmä on kriittinen työskentely-ympäristö niin opiskelijoille kuin yliopiston työntekijöille, joten muutosprosessin onnistuminen on tärkeää muun muassa työskentelyn jatkuvuuden varmistamiseksi. Sisu-järjestelmä on tulossa käyttöön myös monessa muussa yliopistossa, joten Jyväskylän kokemuksia on mahdollista hyödyntää myöhemmin alkavissa käyttöönotoissa. Tässä Pro gradu -tutkimuksessa tutkittiin uuden Sisu-järjestelmän käyttöönottoa. Tutkimuksen tarkoituksena oli selvittää miten käyttäjät ovat kokeneet järjestelmän käytön ja käyttöönoton sekä missä vaiheessa järjestelmän hyväksymistä käyttäjät ovat. Lisäksi tavoitteena oli selvittää millaisia onnistumisia ja epäonnistumisia on koettu, sekä onko kahden käyttäjäryhmän välisiä eroja havaittavissa. Tutkimus toteutettiin laadullisena tapaustutkimuksena, jossa tiedonkeruumenetelmänä käytettiin teemahaastatteluja. Haastatteluja toteutettiin 18 joista 10 oli opiskelijoita ja 8 henkilökuntaa. Tutkimuksen teoreettisena pohjana toimii kirjallisuuskatsaus, jossa pureuduttiin aihetta käsittelevään kirjallisuuteen ja keskeisiin teorioihin. Kirjallisuuden ja empiiristen tulosten pohjalta luotiin teoreettinen viitekehys.
Haastatteluiden analysoinnin jälkeen havaittiin, että käyttäjäryhmien välillä on ollut sekä eroja että yhtäläisyyksiä. Molempien käyttäjäryhmien arkkityyppi oli saavuttanut teoriaviitekehyksen vaiheen, jossa järjestelmässä hyödynnetään joitain perusominaisuuksia mutta koettu arvo käytössä ei ollut vielä realisoitunut, eikä järjestelmän käyttö ollut rutinoitunut. Tutkimuksessa havaittiin myös, että opiskelijoiden suhtautuminen uuteen järjestelmään on ollut jonkin verran neutraalimpaa kuin työntekijöiden, joiden kokemukset olivat olleet pääosin negatiivissävytteisiä. Käyttöönoton suurimmiksi ongelmiksi oli koettu järjestelmän puutteellinen laatu, sen tuoma ylimääräinen paine työntekoon sekä epäonnistunut kommunikaatio ja avoimuuden puute järjestelmän käyttäjän näkökulmasta.

Avainsanat: Tietojärjestelmän hyväksyntä, Teknologian hyväksyntä, Tietojärjestelmän onnistuminen, Hyväksymismallit, Tietojärjestelmän hyväksynnän prosessimalli, UTAUT, SISU-järjestelmä, Opintotietojärjestelmä,

FIGURES

TABLE OF CONTENTS

1 INTRODUCTION

The motives for the research on information system (IS) success and use continuance is apparent, since according to Geneca (2017) about 75% of IT related projects are anticipated to fail by business and IT executives. According to Lyytikäinen and Hirschheim (1987), infrequent, inappropriate and ineffective long-term use of ICT are some of the most critical factors contributing to corporate level failures. By understanding users of ICT and the factors influencing and predicting their behavioral intention and use behavior in certain context with a certain ICT technology, it is possible for the developers of the technology to ensure the success of the technology and continuance of its use ultimately leading into the success of the project itself. The knowledge gained from this field of IS research does not only assist with the successful deployment of the new IS technology but also with i.e. the requirements acquisition for the technology and project goal planning. In summary: the success of information systems technology is largely dependent on ICT acceptance (Behavior intention and initial use behavior) and ICT use continuance (continued use behavior and IS success) (Bhattacherjee, 2001).

This study aims to recognize and understand users' experiences in the context of acceptance and use of Sisu system, which is the new student information management system (SIMS) acquired by the University of Jyväskylä (JYU). As this study is conducted as a qualitative case study, it does not aim to predict and measure behavior but rather explain a single context-specific situation using theoretical frameworks and additional literature as guidelines. There are two topics, which this study concentrates on through research questions:

- How has the acceptance and initial use of Sisu progressed? What successes and/or failures have occurred?
    - Why is that?
- How is the acceptance and use of Sisu system perceived and are there any differences in perceptions between user groups?
    - Why is that?

The structure of this study begins with the literature review which presents the context of this study. It explains which systems are usually used and needed in educational institutes and for what purpose. It defines and presents the new system called Sisu that is being deployed to Finnish universities currently. Lastly, the literature review presents the theoretical background for the study which enables conducting relevant data collecting and appropriate data analysis. The literature review is followed by an empirical section in which students, staff in the University of Jyväskylä are interviewed. Interviews center around individual experiences and feelings. Data collection is then followed by empirical data analysis which aims to answer research questions and provide insights on the topic. The results are lastly presented with conclusions. This research method and -setting was chosen in order to establishing deeper understanding of the researched phenomenon than a quantitative method would allow and to describes the phenomenon in detail.

This study uses primarily peer-reviewed, ranked and reliable academic sources/references such as journals and books available. The reliability of academic sources was checked and verified by using publication forum (Julkaisufoorumi: https://www.tsv.fi/julkaisufoorumi/haku.php?lang=en). For the literature collection three major academic online archives were primarily utilized; Aisel, IEEE Xplore and ACM digital Library. Additionally, Google Scholar was utilized for literature search since its search capabilities are vast. University of Jyväskylä's Jykdok was utilized to get access to literature with ease. In some instances when such sources/references were not available, secondary sources were used. For instance, there are no academic sources regarding the Sisu system so their official homepage, articles and University of Jyväskylä's webpage were used for references. The adequacy and reliability of secondary sources are evaluated independently.

Search for references began with more general search terms (i.e. theory names and theories combined with the specific context of LMSs) and proceeded to more precise terms (e.g. names of single constructs). Reference lists of found/used sources is utilized.

The interviews were conducted in the University of Jyväskylä. These interviews were semi-structured in order to bring up unexpected topics and gain deeper understanding. Coding-, thematization and explanation building (timelines) are techniques which were utilized to simplify and analyze the collected data. The analysis process was iterative, and an iteration was comprised of three steps: data reduction, data display and conclusion drawing (see Miles et al., 1994).

This study provided extensive results enabling examination of the Sisu system's user acceptance in the University of Jyväskylä. For local implications, the university may utilize the results for improving and further developing the Sisu system and learn from the difficulties encountered. The results provide topics for future localized research which may further enable development of the Sisu system and advancement of the deployment project. Additionally, other topics related to student behavior were identified. Moreover, as the Sisu sys-

tem is being deployed to multiple universities across the nation and the user environment and the context is similar, the results provide a foundation for further research on the topic of Sisu system's acceptance in other institutions as well. Sharing experiences and knowledge about the acceptance of the Sisu system in the University of Jyväskylä may additionally assist in the deployment project planning and implementation in other institutions. Lastly, the results' theoretical implications may provide interesting topics for further research for scholars overall in IT's user acceptance process-view, especially in mandatory organizational context.

2 LITERATURE REVIEW

The literature review includes presentations of the context of this study, theoretical background theories and previous research on the topic. This is achieved by reviewing academic sources of information as well as additional "non-academic" sources when necessary. The goal of this section is to provide deep understanding on information systems in educational context, Sisu system, user acceptance and information systems success as well as previous research related to user acceptance/information systems success of educational information systems.

2.1 Information systems in educational institutes

Information systems are heavily utilized and required in educational institutes to ensure their normal and efficient operation. This chapter covers the main types of information systems used specifically in educational environment. Because of similarities in the context of utilization, features and elements as well as unclear boundaries between different types of administrative and educational systems both types of systems will be introduced and examined. Both the administrative and educational systems have multiple synonyms and definitions depending on the set of elements and goal of utilization. With no established designations this study chooses the most encountered ones in literature. Administrative systems are referred as "student information management systems" or "SIMS" and educational systems as "learning management systems" or "LMS".

2.1.1 Student information management systems (SIMSs)

Student information systems (SIMSs) are software applications for educational institutes to manage specifically student-, institutional, department- and staff data enabling smooth education process. (Almeri & Radchenko, 2017). The va-

riety of data in SIMS is vast. For example, student related data usually contains personal information, role, transcripts containing course grades, progress in studies, ongoing curriculum and planned one. Institutional- and department data contains for example, course selection- and scheduling data, training program data and data related single course details. Teachers may utilize SIMS to manage courses and institution administration may utilize them in facilitation of the institution with various activities. (Bharamagoudau, Greeta & Totad, 2013.) SIMSs enable educational institutions to collect data and analyze it accurately and comprehensively rather quickly despite the large amount of data (Almeri & Radchenko, 2017). The creation and management of updated and critical information related to students' academic career extremely important for students to advance in their studies and for the institution to track their students, organize teaching (Bharamagoudau et al., 2013) and enable it to execute informed strategies developing education (Almer & Radchenko, 2017).

SIMSs have been utilized before digitalization. Before computerized systems student data was managed by paper record systems. Utilizing such systems had multiple drawbacks. For instance, information flow was slow and required constant visiting of notice boards. Because of the vast amount of data, paper records are difficult to manage and track. In addition, record-keeping requires time-consuming and non-value adding activities in form of archiving. (Bharamagoudau et al., 2013.) Computerized systems surfaced in the 1990s as enterprise resource planning- or ERP-systems emerged. At first administrative systems were ERP-systems and were gradually replaced by more specialized systems. (Jones, Behrens, Jamieson & Tansley, 2004.) Computerized systems provide incomparable advantages; quick search, convenience, high reliability, large memory capacity, better confidentiality, long life and low cost to name a few which improves efficiency of student management and other institutional processes (Liu, Wang & Zan, 2010).

According to Almeri and Radchenko (2017) multiple synonyms for SIMS; student records system (SRS), student management system (SMS), campus management system (CMS) and school management system (SMS). However, seemingly in the literature SIMSs are not described having tools for students to manage their data but the right is reserved for institution administration and staff (Bharamagoudau et al., 2013; Liu et al., 2010). In some literature (i.e. Jones et al., 2004) SIMSs are described to have tools for students to interact with the system and manage their data; edit personal information, plan curriculum, enroll to courses for instance. In addition, there are also "hybrid" systems, which combine both administrative and educational activities into one (course management system, CMS & education management system, EMIS) which are discussed later (Koç, Turan & Okursoy, 2016; Marchewka & Kostiwa, 2007).

Furthermore, the University of Jyväskylä (JYU) uses a term "study data system" in its English translation of instructions regarding the new system that is now being deployed. Finnish translation for it is "opiskelun palvelukokonaisuus, Sisu", which freely translates into "studies' service entity, Sisu". Tampere University refers to Sisu system slightly differently and accurately

aligned with literature by calling it "student information management system" (Tampere University, 2019).

2.1.2 Learning management systems (LMSs)

Learning management systems (LMSs) are basically software applications for managing a vast range of learning activities aiming to the facilitation and enablement of them to be conducted in a more systematic and planned manner (Sezer & Yilmaz, 2019). LMSs support teaching and learning activities (Sezer & Yilmaz, 2019; Vovides, Sanchez-Alonso, Mitropoulou & Nickmans 2007), enable monitoring and evaluation of students and teachers and customization of learning and teaching processes (Sazer & Yilmaz, 2019). Additionally, they pro-vide new learning environments and new ways of learning (online learning/ e-learning) (Ghazal, Aldowah, Umar & Bervell, 2018; Mtebe, 2015). There are multiple ways to implement and feature LMS in educational environments by versatile functions (Vovides et al., 2007). LMSs enable functions such as development and sharing of learning materials, discussion policing, class management, task assignment, exam conducting, learning material arrangement, student, teacher and system record keeping and report creation (Sezer & Yilmaz, 2019). In addition, LMSs as digital interconnected systems allow creation of online learning environment and online learning (e-learning) which may be utilized to support conventional face-to-face education and also improve accessibility of education through means of distance education (Sezer & Yilmaz, 2019; Ghazal et al, 2018; Andersson & Grönlund, 2009). In general, LMSs enhance learning and teaching, improve access to educational resources and programs, expand opportunities through e-learning, and reduce the costs of education (Ghazal et al., 2018). LMSs have succeeded in improving students' learning performance, reducing their dropout rates and increasing their satisfaction with the offered education (Naveh, Tubin & Pliskin, 2012). It is worth to mention that LMSs have also limitations/negative impacts. For instance, the lack of face-to-face interactions have been observed to stir the feeling of isolation, confusion as well as frustration and reduced interest in the topic of learning resulting in non-acceptance and dissatisfaction with e-learning. Moreover, high initial costs and substantial costs for system maintenance and the urgency for flexible instructional support may cause troubles for educational institutes acquiring and implementing LMSs. (Ghazal et al., 2018.)

LMSs have been widely adopted by educational institutes across the world in the recent years (Mtebe, 2015) which has affected the educational sector severely (Ghazal et al., 2018). In 2013, 99% of educational institutes, 85% of teachers and 83% of students had adopted some LMS in the USA (Dahlstrom, Brooks & Bichsel, 2014). LMSs have become omnipresent at universities in developed countries swiftly (Coates et al., 2005) and are now becoming more common also in Africa (Mtebe, 2015) and Middle East (Alshehri, Rutter & Smith, 2019; Binyamin, Rutter & Smith, 2019). Behind this expansion is mainly the rapid deployment of information technologies and rise of the World Wide Web

both of which provide new opportunities for education and LMSs (Ghazal et al., 2018). The history of digital (web based) LMSs begun in the 1990s as internet was born and the utilization of digital multimedia got more popular and affordable. In the early 2000s the technology matured and resulted in widespread adoption of LMSs by many universities across the globe, mainly in developed countries (Coates et al., 2005.)

Literature shows that there have been multiple terms used to refer to similar systems. For example, Coates, James and Balwin (2005) identified terms "learning platform", "distributed learning system", "course management system", "content management systems", "portals" and "instructional management systems". Beckner (2011) referred to such systems by the term "education data system".

2.1.3 Hybrid educational systems

In the literature some definitions for student management systems or SIMSs includes both administrative and educational elements from SIMSs and LMSs making them suppositionally hybrids.

For example, Koç et al. (2016) introduce such a hybrid system, called education management information system or EMIS. Its SIMS features include firstly access to critical information, such as course registration, -schedules, calendar and transcripts. Secondly, it includes tools for planning, scheduling and arranging studies. Thirdly, it includes student management and advising tools for the staff (teachers & administration) which are ultimately communicational tools. EMIS's has also LMS features such as a provided access to course materials, additional communicational tools and educational tools such as virtual classes, work modules and homework evaluation. Furthermore, the EMIS has staff management features and tools (human resource management) in addition to student management.

Another example of a hybrid educational information system is the "Course management system" (CMS) presented by Marchewka and Kostiwa (2007). The CMS includes provides access and tools for student management, such as student progress tracking, grade maintenance and distribution. It also includes learning tools such as navigational tools, online discussion boards, communicational tools (email tools and announcements), course content management tools (quizzes, exams, reviews) and course scheduling and calendaring tools. (Marchewka & Kostiwa, 2007)

2.1.4 SIMS in this study's context

Based on the previous discussion it is evident that there are multiple types of differently defined information systems in the educational environment depending on the objective of their utilization which is heavily contextual. Some of the used systems are purely administrative in nature, only featuring elements from student information management systems. They may provide merely ac-

cess to information and data, or they may include administrative tools for staff and perhaps students. Some systems are hybrids in nature combining elements from multiple systems used in educational institutes, mainly LMSs, SIMSs and staff management systems.

This study examines the new Sisu system that is being deployed into multiple Finnish universities. In the chapter 3.1 Sisu system will be examined in detail and defined. The brief definition by Tampere University (2019) states: "Sisu is an information system for teaching, studies and administration. The system is available to students, teachers as well as university personnel.". Funidata (2019c) presents a table presenting all features that Sisu offers. In addition to administrative tasks/features, it also features regarding teaching and student counselling are included. For example, Sisu allows sharing study materials and manage teaching on individual courses. (Funidata, 2019c.) Thus, Sisu system can be defined as a hybrid educational system with main focus on SIMS features. Tampere university calls Sisu system a student information management system (Tampere University, 2019) despite it including teaching elements from LMSs. The focus is still on SIMS features which is apparent by examining the Sisu feature table provided by Tampere University (2019) in which LMS features are not visible but apparently simply under "other features". Administrative features are also more present in Funidata's (2019c) table of Sisu features as they are described in detail and LMS elements in more ambiguous manner. Moreover, most features presented in Funidata's (2019c) table are administrative leaving LMS features marginal. The features and elements of Sisu are examined more precisely in the 3.1 chapter. Therefore, this study will define Sisu system as SIMS but also highlight the importance of examining LMSs and taking the hybrid nature of the system into account in this context.

2.2 Technology acceptance- and information systems continuance models

2.2.1 Unified theory of acceptance and use of technology – UTAUT

UTAUT (Unified theory of acceptance and use of technology) is a theory framework which aims to predict and explain behavioral intention to use technology and technology use, originally developed by Venkatesh, Davis G. B. and Davis F. D. (2003). The theory was composed by reviewing eight theories/models explaining technology acceptance and use and synthesizing them into one, which led to a theory, which included most critical factors and contingencies predicting behavioral intention to use technology and technology use. The synthetized models were: Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Theory of Reasoned action (TRA), Combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT) and Social Cognitive theory (SCT).

(Venkatesh et al., 2003). The theory has proved out to be quite reliable. The first iteration managed to explain approximately 56% of the variance in behavioral intention to use a technology and approximately 40% of the variance in technology use (Venkatesh, Thong & Xu, 2012). As time progressed and the research of the topic of understanding individual acceptance and use of information technology matured, Venkatesh et al. (2012) reviewed the previous work and managed to extend the theory by incorporating three more constructs into the original UTAUT proposing a new theory called UTAUT2 in 2012. This new iteration managed to substantially improve the explain percentages of the variances presented earlier. UTAUT 2 model managed to explain approximately 74% (+18 percentage points) of the variance in behavioral intention to use technology and approximately 52% (+12 percentage points) of the variance in technology use. (Venkatesh et al., 2012.)

UTAUT – The original model

The original UTAUT model combined eight most prominent theories explaining user acceptance of information technology (IT) and their extensions at the time in the beginning of 2000s (Venkatesh et al., 2003). According to the UTAUT model there are ultimately four constructs which explain most of behavioral intention and use behavior. The four constructs are: Performance expectancy, effort expectancy, social influence and facilitating conditions. The three first constructs determine behavioral intention which together with the fourth construct, facilitating conditions, determine directly usage behavior. In addition, there are four key moderators affecting the relationships between the constructs, namely; gender, age, experience and voluntariness of use. (Venkatesh et al., 2003; Venkatesh et al., 2012, Figure 2.) Next the constructs and moderators are defined and explained.

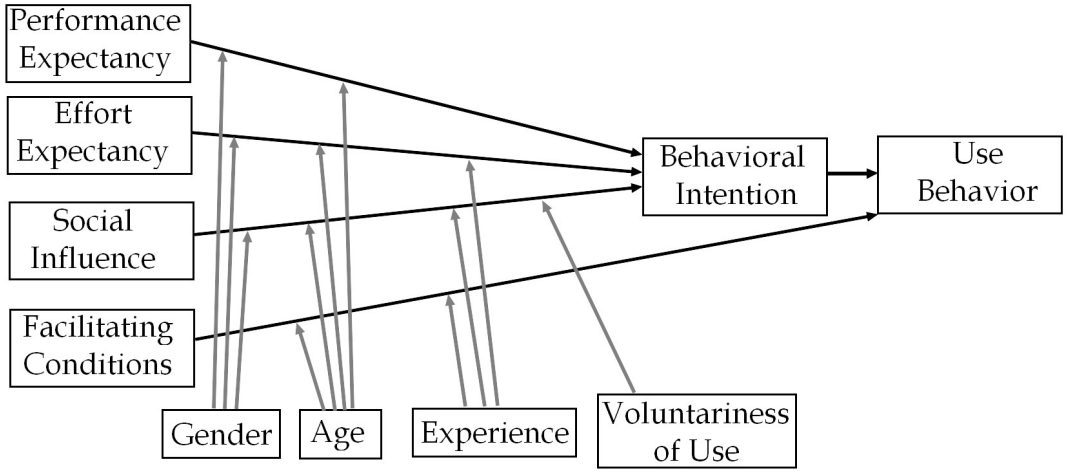

Figure 1: UTAUT1 framework (Venkatesh, Morris, Davis & Davis, 2003, 447)

The performance expectancy refers to the degree to which a certain technology will provide benefits to the user in performing desired activities as per-

ceived by the user (Venkatesh et al, 2012). This construct is regarded as the most critical both in voluntary and mandatory contexts. The influence of this construct in moderated by age and gender in such a manner that its effect is more significant for men and especially younger men. (Venkatesh et al., 2003.)

The effort expectancy refers to the degree of expected ease of use of a certain technology perceived by the user (Venkatesh et al., 2012). This construct influences behavioral intention especially in the preliminary phase of adapting and using new technology. The influence of this construct is moderated by age, gender and experience in such a manner that its effect is more significant for women, especially young women and at preliminary stages of the experiential process, when the user has less experiences concerning the technology in question. (Venkatesh et al., 2003.)

Social influence refers to the extent to which users feel that significant others, i.e. family and friends, believe that they should use a certain technology (Venkatesh et al., 2012). The influence of this particular construct is moderated by gender, age, voluntariness of use and experience in such a manner that its effect is more significant for women, especially older women, in mandatory context and again in preliminary experiential process. (Venkatesh et al., 2003.)

Facilitating conditions refers to users' perception of resources and support available to perform a behavior (Venkatesh et al., 2012). In UTAUT 1 model, this construct has no noteworthy influence on behavioral intention when performance expectancy and effort expectancy constructs exist. Facilitating conditions influence directly use behavior and its influence is moderated by age and experience in such a manner that its effect is more significant for older and especially more experienced users. (Venkatesh et al., 2012.)

UTAUT2 – An extended model

UTAUT2 model is an extended version of the original model proposed by Venkatesh, Thong and Xu in 2012. Although the original model had proven to be reliable in Venkatesh et al.'s (2003) original study and in following applications and replications, especially in organizational setting in the mid-2000s, the theory had been extended by studies throughout the time. There were three usual types of extensions or integrations applied; new contexts, constructs and relationships and exogenous predictors for constructs/elements within the model. Many iterations reportedly employed a subset of constructs from the original UTAUT model, i.e. in most cases dropping moderators off completely. (Venkatesh et al., 2012.)

The purpose of the UTAUT2 model is to build on these past extensions of the original model and concentrate on the consumer use context in general rather than on specific contexts. This new model extends the original in three ways; by implementing three new key constructs regarding general- and consumer adoption and use of technologies based on prior research, by altering existing relationships between constructs in the original model and by introducing completely new relationships. The new constructs are related to the consumer context; hedonic motivation, price value and habit, which have been

identified to play an important role in such a context. As for the moderators, voluntariness of use was left out completely in order to shift the model's applicability towards voluntary consumer context. (Venkatesh et al., 2012.)

The structure of UTAUT2 is rather similar to the original. There are three new predicting constructs, one less moderator and plenty of new relationships, which are depicted grey arrows in contrast to original relationships which are merely in written form on the notes (see Figure 3). There first four predictor constructs affecting behavioral intention and use behavior are again performance expectancy, effort expectancy, social influence and facilitating conditions. As in the first model, performance expectancy refers to the degree to which using a certain technology will provide benefits to the user in performing desired activities. Effort expectancy refers to the degree of expected ease of use of the technology. Social influence refers to the extent to which users feel that significant others believe that they should use a certain technology. Facilitating conditions refers to users' perception of resources and support available to perform a behavior. This construct influences both behavioral intention and use behavior, not only the intention like in the original model. Relationships of these "original constructs are moderated to most extent the same without the inclusion of voluntariness of use but the fourth construct's, (facilitating conditions) relationship with behavioral intention is moderated differently. Age, gender and experience moderates facilitating condition's relationship with behavioral intention in such a manner that its effect is stronger among older women and particularly in the preliminary stages of experiential process. Direct relationship with use behavior is left unmoderated. (Figure 3, Venkatesh et al., 2012.)

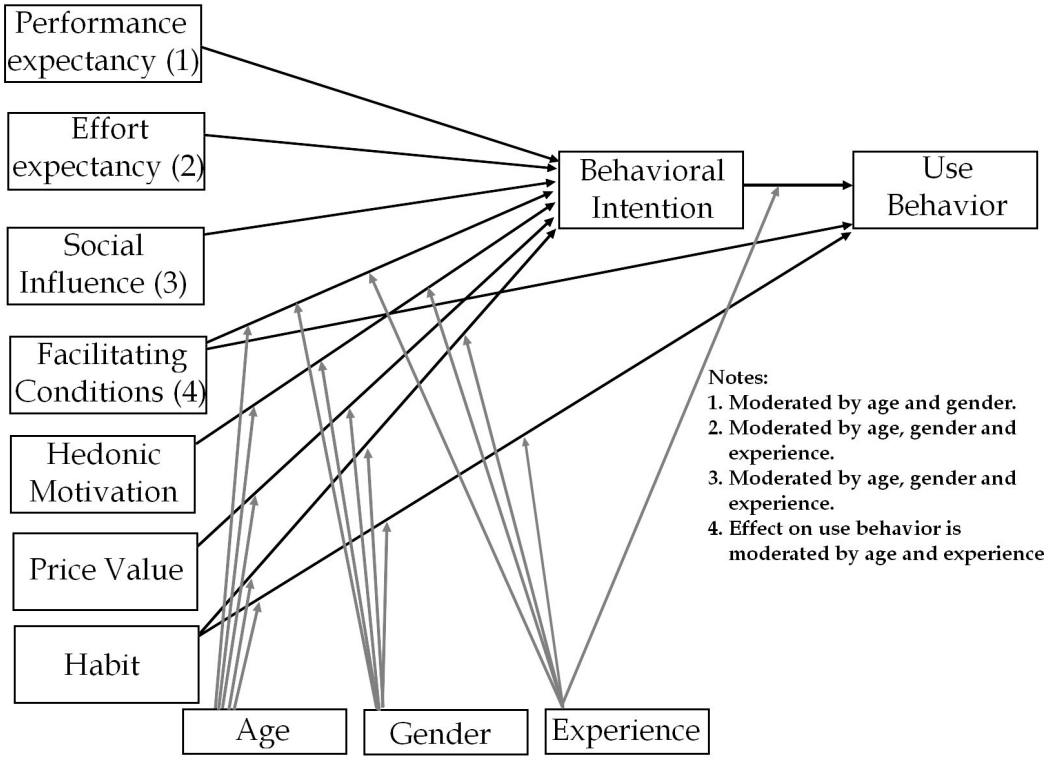

Figure 2: UTAUT2 Framework (Venkatesh, Thong & Xu, 2012, 160)

The first of the new constructs is called hedonic motivation which refers to the feeling of fun or pleasure while using a particular technology. Its effect on behavioral intention is moderated by age, gender and experience in such a manner that the effect is stronger among younger men particularly in the preliminary stages of the experiential process. (Venkatesh et al., 2012.)

The second new construct is price value which refers to users' cognitive tradeoff between the perceived benefits of a technology and the monetary cost of its usage. The effect of this construct on behavioral intention is moderated by age and gender in such a manner that its effect is stronger among women, especially older women. (Venkatesh et al., 2012.)

The third and final new construct is habit which refers to the extent to which users tend to use a certain technology somewhat automatically due to previous behavior and learning. This construct's effect on both behavioral intention and use behavior is moderated by age, gender and experience in such a manner that its effect is stronger among older men in later stages of experiential process (more experiences with the technology). (Venkatesh et al., 2012.)

Additionally, behavioral intention's relationship with use behavior is moderated by experience so that behavioral intention's effect is stronger for consumers (users) in the preliminary stages of the experiential process in general. (Venkatesh et al., 2012.)

UTAUT2 argues that technology use is explained by behavioral intention, facilitating conditions and habit. Behavioral intention is explained by perfor-

mance- and effort expectancy, social influence, facilitating conditions, hedonic motivation, price and habit. The strength of each of such constructs is determined by age, gender and experience level of the individual user. (Venkatesh et al., 2012.)

UTAUT and educational information systems

Venkatesh et al. (2012) managed to verify the importance of added constructs to the UTAUT2 iteration and justify them. The literature review indicates that there are countless fresh studies extending the UTAUT model with new constructs and testing it in various contexts demonstrating reliability.

Although digital educational information systems had been widely utilized and was becoming more prevalent already in the early 2000s, according to the Coates et al. (2005) it had then gained surprisingly little attention. Nowadays the situation seems to be rather different. The preliminary literature review suggests that in the last five years there have been multiple major studies related to technology acceptance and IS success in educational context. Especially the IS success and continuance of learning management systems in the developing regions, such as Africa and Middle East, has been widely studied (e.g. Binyamin et al., 2019; Alshehri et al., 2019; Mtebe, 2015).

Alshehri et al. (2019) implemented the UTAUT model for understanding Students' perceptions of LMSs in Saudi Arabia. Moreover, Binyamin et al. (2019) extended the TAM to understand students' use of learning management systems in the same region and managed to confirm the adequacy of that model in the context of learning management systems in Saudi Arabia.

Sezer and Yilmaz (2019) aimed to develop a measurement tool that enabled reliable and valid measurement of students' levels of technology acceptance in the context of LMS and within the UTAUT framework. They concluded that studies on LMS acceptance have utilized various technology acceptance models and have generally failed to identify any of the models better than others but UTAUT model is utilized in many studies because of its reputation as a powerful and reliable model explaining use behaviors and technology use.

Marchewka and Kostiwa (2007) used the term "course management system" (CMS) in their research that was discussing about investments of institutions of higher education to provide virtual learning environments. It also tried to find an application of the UTAUT model for understanding student perceptions using CMSs. The study provides a number of learning tools that include a high level of interactivity and a high level of satisfaction. As a result, the study did not find strong support for the UTAUT model. This was possibly due the fact that students are mostly young overall and tend to use technology more in general.

2.2.2 Processes-based view of technology and information systems acceptance

Schwarz, A., Chin, Hirschheim and Schwarz, C. (2014) theorized a process-based view of technology acceptance which examines the topic of IS (and IT) acceptance as a linear process rather than simply as a set of theorized constructs influencing behavior. There are four acceptance phases in the process, the last phase is divided into two sections; 1. Receive 2. Grasp 3. Assess 4a. Be given and 4b. Submit. The process begins before users' initial exposure to the technology as soon as they are aware of its deployment. In each phase, users are exposed to activities and will proceed to the next phase when certain conditions are fulfilled. In other words, acceptance may be defined as a continual process in which individual users psychologically receive, grasp, assess, become given and submit to new technology. (Schwarz, Chin, Hirschheim & Schwarz. 2014.)

The first acceptance phase, receive, begins as a user hears about new technology that is to be relevant. It revolves around the initial willingness of accepting the new technology and decision of learning and adapting the new technology. During this phase, the user evaluates whether accepting the technology is significant enough to justify the learning process and may engage in counter-implementation activities such as refusing to learn. There are multiple variables which affect the user's decision-making and behavior during this phase; User's personality traits, computer self-efficacy (related closely to perceived performance- and effort expectancy, social influence and involvement/participation to the development and implementation of new technology. These variables affect the user's attitude towards the new technology, whether they are accepting or reluctant towards it to begin with. The user must acknowledge the importance of learning the new technology and develop a neutral affective state towards it in order to allow movement towards the next phase. (Schwarz et al., 2014.)

The second acceptance phase, grasp, revolves around the user's intellectual comprehension of the intentionality of the technology in form of functionality and design. The lack of negative affective state enables the user to be motivated to understand the new technology and begin movement towards a behavioral change. During this phase the user begins to understand the intentionality of the technology; how its usage changes performed tasks and why it is being deployed though, the user may not yet comprehend or see the value of it in a bigger picture. Training is the key factor affecting how the activities of the second phase affect the users' acceptance of the new technology. The training supports the user in this phase and its activities. Another critical factor or enabling mechanism for the next phase is the perceived resource availability. The user needs resources like time and tools as well as good perception of those resources to support them within this phase and performing other tasks (i.e. ordinary work within the organization) concurrently. Training, support and perception of resource availability is linked to facilitating conditions in UTAUT. After grasping the intentionality, the user may progress to phase three. (Schwarz et al., 2014.)

In the third acceptance phase, assess, the user has achieved an understanding of the technology and is in the process of incorporating its utilization into everyday activities. Despite of the perception of the theoretical importance of the technology the user must determine the realized value to individuals and the organization. The perception of value stems from the preliminary utilization of the new technology in their work routines and other tasks. If the user observes that the technology delivers the value, it theoretically should, movement towards positive affective state and satisfaction begins. Positive perception of realizing value does not require full routinization. There are two enabling mechanism for the fourth and last phase; small gap between user needs/expectations and delivered performance/functionality and responsive IT department which supports users effectively, managing the gap mentioned. (Schwarz et al., 2014.)

The fourth and final acceptance phase involves two separate but parallel psychological processes (regarded as phases 4a and 4b); be given (4a) and submit (4b). Be given phase revolves around the user's willingness to fully adapt work routines to that required by the new technology. Realizing value and satisfaction leads into utilization of the new technology and its routinization and establishment. Full routinization may occur once the value may be completely observed by the user. Submit phase then revolves around user's full surrendering to the technology in which the individual affective phase is fully positive. The user agrees with every aspect of the new technology and it has become established part of individuals' and organizations workflow. Technology is not questioned in case of problems, but the users and processes embedded in the system. (Schwarz et al., 2014.) The process view is depicted in detail in the following figure (figure 4).

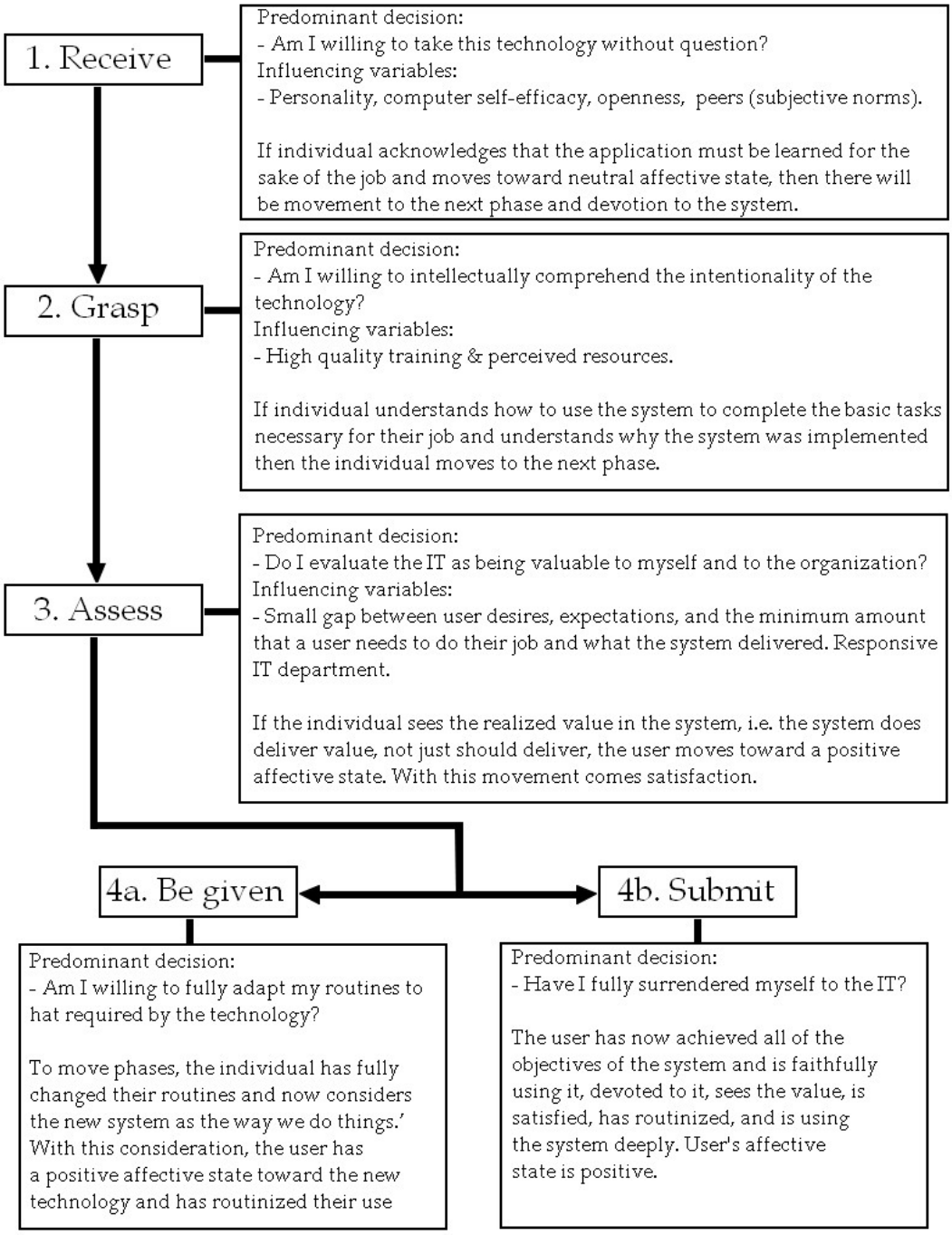

Figure 3: Acceptance process (Schwarz, Chin, Hirschheim & Schwarz, 2014, 88)

2.3 Information Systems (IS) Success models

"The measurement of IS success or effectiveness is critical to our understanding of the value and efficacy of IS management actions and IS investments" (DeLone & McLean, 2003, p.10) In light of this statement it is simple to notice why

plenty of research has been conducted considering IS success. Research over the years has led to several models appearing while also they have amended each other. In the early 90s DeLone & McLean (1992) created a widely cited model which then became a cornerstone of IS success research for decades and offers a basis for several other models and research papers in the field. DeLone & McLean model will be introduced in the following chapter and its major successors will be presented to give an impression of the continuous research of the topic. Three of the following models have been published with a five-year time gap from each other so a certain sequence in literature can be found. IS success models are valid also in the research context of Sisu-system because deployment can be reflected with comprehension gained from IS success models.

2.3.1 DeLone & McLean Model

DeLone & McLean found inspiration for their model (1992) from the discovery that there was tremendous diversity in the field of research and this literature was not arranged in a coherent way. They wanted to define a dependent variable that unifies information systems research and stated that well defined outcome measure from studies is essential to contribute in IS research. Therefore, the purpose of DeLone & McLean model is to organize diverse re-search into a coherent and understandable whole. To achieve the goal the study explores vast amount of prior literature that has been involving IS success. Many researches address different levels and aspects of success and this creates a situation where making comparisons is difficult and building a cumulative tradition for IS research is elusive. To overcome the issue DeLone & McLean model introduces a new taxonomy to draw together a descriptive model. (De-Lone & McLean, 1992.)

Six major dimensions in the model are “System quality”, “Information quality”, “(IS) Use”, “User satisfaction”, “Individual impact” and “Organizational impact”. These components are interrelated forming IS success model. Introduced model suggests that “System quality” and “Information quality” affect both “Use” and “User satisfaction”. Amount of use can affect the degree of “User satisfaction” positively or negatively. “Use” and “User satisfaction” are direct antecedents of “Individual impact” and lastly this impact on individual performance should have some “Organizational impact”. (DeLone & McLean, 1992.)

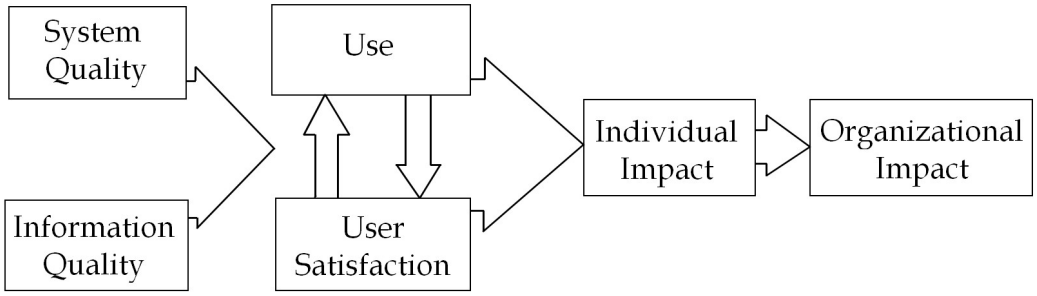

Figure 4: IS Success Model (DeLone & McLean, 1992)

In the literature review it became apparent that nearly as many measures existed as there were studies. Different researchers had concentrated on different aspects depending on the point of view and the focus of the study which led to so many different measures. It is noted that some studies do not fit to any of the six categories and others fit into several. (DeLone & McLean, 1992.) Six categories will be introduced in the following paragraphs.

Some researchers take the aspect of studying system itself. In taxonomy that is put under the "System quality" box. There have been multiple measures of system quality such as reliability, online response time and system accuracy. Most of these studies were quite straight forward, reflecting the more engineering-oriented performance characteristics of the system in question. (DeLone & McLean, 1992.)

Other researchers were focused on the "Information quality" aspect. It was defined the quality of the information that system produces primarily in the form of reports. The measures used in these studies were for instance covering information accuracy, output timeliness, reliability, completeness, relevance and formatting. Because of user perspective information of these studies was fairly subjective. (DeLone & McLean, 1992.)

Use of IS is one of the most frequently reported measures of the success of IS. "Use" is a broad concept so it can be measured from several perspectives. It is stated that actual use as a measure makes sense only for voluntary users. Questions may rise in measuring of use such as what is the difference of actual use and reported use and "used by who"-question. Also, it should be considered that there are different levels of use like a notable difference between general use and specific use. (DeLone & McLean, 1992.)

User satisfaction is undoubtedly popular and widely used single measure of IS success in the literature. One of the explanations for popularity is difficulty to deny the success of the system which its users say they like. There are also reliable tools for measuring user satisfaction which is significant because it is pointed out that other measurement options are very poor. They are either conceptually weak or empirically difficult to obtain. The study revealed that many researchers have found user satisfaction appropriate especially when specific

information system is involved. The central question in hand is that whose satisfaction is to be measured. For instance, some researchers measured CEO's satisfaction which could differ from regular worker's satisfaction. In measurement there have been differences as some have in addition of single rating developed multi-attribute satisfaction measures up to 39-item. It should be noted that attitudes affect satisfaction significantly. (DeLone & McLean, 1992.)

"Individual impact" measures are probably the most difficult to define. It is closely related to improving performance which can tell that system has had a positive impact. However, impact could also be an indication of different things. (DeLone & McLean, 1992.)

There are also problems when measuring "organizational impact". It is difficult to isolate the effect of the IS effort from other effects which influence organizational performance. Influence can occur from variety of sources. One important variable to consider is the reduction of operating costs external to the information processing system. (DeLone & McLean, 1992.)

As observation from D&Ms study, firstly it emerged that IS re-searchers have a broad list of individual dependent variables from which to choose. There appears to be no consensus on the measure of IS success. No single measure is intrinsically better than another, so the decision depends on many things. However, proliferation of measures has been overdone and needs consolidation. Secondly, reduction of the variables is essential to create cumulative tradition of research. Thirdly, it is said that there is not enough attempt to measure influence on organizational performance. Fourthly, it is noted that IS success is a multidimensional construct and should be measured as such. (DeLone & McLean, 1992.)

Conclusion of the study states that there aren't one success measures but many. They fall into six categories which are interrelated and interdependent forming an IS success model. By studying the interactions of these components of the model a clearer picture emerges as to what constitutes of IS success. (DeLone & McLean, 1992.)

Updated D&M model:

After presenting their IS success model DeLone & McLean have revised the model in a ten-year update of the original work. Revision to the model was highly demanded since the popularity of the original work and many interpretations of it. It became apparent to the authors that as popular as their prior work was with over 300 citations, it was outdated because of the role of IS and the measurement of IS effectiveness had progressed over time. Also, the academic inquiry of the topic had evolved. Model published in early 90s was based on studies conducted by several researchers in the 1970s and 1980s. Therefore, the goal of the ten-year update is to propose updates to original work. It discusses about contributions of last decade focusing on research efforts that apply, validate, challenge and propose enhancements to the original model. Based on the evaluation they propose minor refinements to the model and propose an updated D&M model. (DeLone & McLean, 2003.)

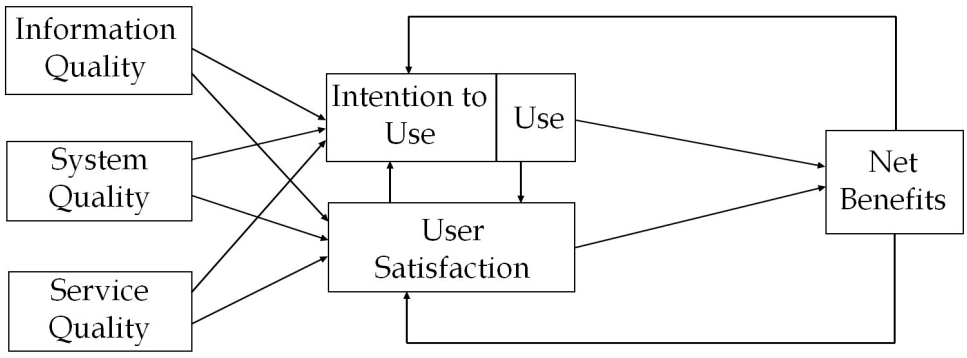

Figure 5: Updated IS Success model (DeLone & McLean, 2003)

In the new model quality has three major dimensions which are information quality, system quality and service quality. All of which should be measured separately because they will affect later use and user satisfaction. Considering the difficulties of multidimensional aspects of "use" it is replaced with alternative term "intention to use" which means that behavior is replaced with attitude. It should be noted that user satisfaction and intention to use are closely related. As a result of use and user satisfaction certain net benefits will occur. If the IS or service is to be continued it is assumed that the "net benefits" from the perspective of the owner or sponsor of the system are positive. The term "net benefits" also takes to account that benefits are both positive and negative. The lack of positive benefits is likely to lead to decreased use and possible discontinuance of the system. The updated model includes arrows to demonstrate proposed associations among success dimensions in a process sense but does not show positive or negative signs for those associations in a causal sense. To conclude, the main amendments are the addition of service quality and combining of individual impacts and organizational impacts into "net benefits".

In the context of Sisu system:

Multiple aspects of D&M model are relevant also in Sisu-system deployment project. Korppi has been successful in many ways and its successor also has to become widely accepted and used system so that it will be fully able to replace Korppi. Many of the goals of implementation of Sisu are aiming ultimately to organizational impact or net benefits such as co-operation between institutions and security aspects. To achieve the net benefits D&Ms model gives relevant statements about quality dimensions, satisfaction and attitudes towards use of what can be the steps to organizational and individual net benefits.

Taking D&M's model into consideration it is possible to find the best ways to measure system success in Sisu context. Considering the model, system quality as a more technically oriented measure and also information quality is not easy to fit into current study's empirical scope and are therefore not used. Con-

sidering D&M's model and Sisu's success it should be highly noted that while Sisu is not a voluntary system, IS Use is not reasonable as a success measure in this case. That leads to examining of User satisfaction. User satisfaction seems like a valid way to measure success in Sisu case. It is reliable to measure, and it is empirically relatively easy to conduct a research about. As D&M's study reveals, attitudes are affecting the users' satisfaction, and this is significant to note also in Sisu's context. Users might be attached to old system and students near of graduation might feel redundant to absorb a new system which affects attitudes. Also, university staff can have attitudes towards new system. In case of Korppi some might also give weight to a student-made system that has been personalized for JYU and possibly can also have sentimental value. In the scale of this study, improvement of individual performance or net benefits would be hard to measure in the scale of this study because the effect of other variables is difficult to exclude. Similar problem stands with organizational impact or net benefits. For instance, the reduction of operating costs for organization is not visible yet because of the initial phase of the use of the system. It can be concluded that user satisfaction stands out to be the best measure of IS success in this phase of the system use and considering the limitations of the master's thesis. User satisfaction can predict individual and organizational impact and net benefits and therefore the success of the system's acceptance and use.

Previous research:

Since its publication, DeLone & McLean IS success model has been frequently a framework for many studies examining IS success. It is widely used in the context of different fields, also in university environment and study information system context. Following chapters will present a share of the previous literature in the context of different educational information systems. Research has been conducted in different continents.

Almaiah (2016) uses updated D&M's model (DeLone & McLean, 2003) in their research to provide a basis to three frameworks in their study. The aim of the study is to achieve high quality mobile learning system based on students' perspective. This study offers empirical support for identifying guidelines to achieve the goal. Based on the study these factors are system quality, information quality and service quality which are promoted to be used in the future work to identify quality factors to develop mobile learning applications. (Almaiah, 2016.)

"Acceptance and satisfaction of learning management system enabled blended learning based on a modified DeLone-McLean information system success model" is a research paper by Ghazal (2018) that assesses the salient antecedents in determines approval of the learning management system by students. The study uses adapted D&M's model (DeLone & McLean, 2003) in blended learning context categorizing critical factors of acceptance and satisfaction. As a result of the study it was found out that perceived usefulness, the quality of the system and computer self-efficacy are amongst fundamental determinants of students' acceptance and satisfaction. Based on the results the study supports

these factors to be especially considered prior to implementation of the system. (Ghazal, 2018.)

Hassan & Seyal (2015) used D&M's updated model (DeLone & McLean, 2003) and its six dimensions in their research to examine and validate success of higher education centralized administration information system (HECAS). The study was concentrating on the constructs that were in the reach of users and stakeholders with a direct effect to HECAS success. Three dimensions of D&M model were applied: system quality, information quality and service quality. (Hassan & Seyal, 2015.)

Chaw (2018) studied learning management systems and what makes them effective for learning. The study applied D&M's model to examine whether LMS system quality, information quality and service quality affect learners' system use and user satisfaction and ultimately their learning effectiveness. As a result, it was revealed that system quality and service quality had significant relationship with system use while information quality didn't. System use had a significant relationship with learning effectiveness. (Chaw, 2018.)

2.3.2 Seddon's model

In his study Seddon (1997) presents new and slightly extended IS success model which is based on prior DeLone & McLean's (1992) model. Seddon noted after working for years with D&M model that it lacks detailed theoretical support for the interrelationships suggested in the model and leads to many potentially confusing meanings. Followed by this perception, Seddon presents a new model in his research paper. The main difficulty of prior model is demonstrated by focusing on the "Use" box of the model and its differing meanings. Main amendments from the D&M's model are that it clarifies the meaning of IS Use and introduces four new variables which are "Expectations", "Consequences", "Perceived Usefulness" and "Net benefits to society". In addition, Seddon reassembles the links between the variables. This creates a re-specified and slightly extended model of IS use and IS success that helps researchers to choose an appropriate mix of IS success measures. (Seddon, 1997.)

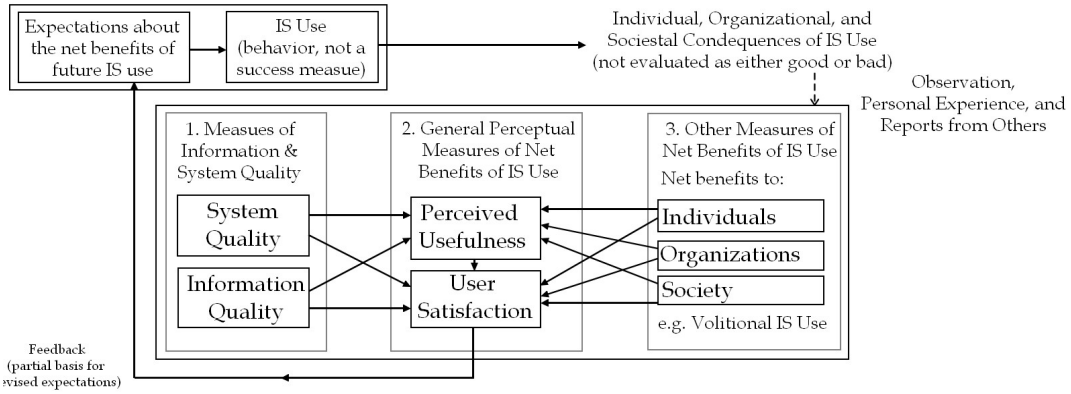

Figure 6: Seddon's Model (Seddon, 1997)

Redrawn model introduces the Seddon's model. The goal of the paper is notably only to clarify D&M's model, not significantly extend it. It is stated that there are three main advantages in this newly specified model. Firstly, use of the system is perceived to have consequences of various kinds. Secondly, Perceived usefulness is included as an IS success measure. For instance, Seddon states that Davis (1989) has shown that perceived usefulness is an important predictor of IS use. Thirdly, feedback loop from perceptions back to expectations recognizes the importance of learning. Overall, Seddon's model introduces a clearer, more theoretically sound conceptualization of relationships between the various IS success constructs identified by D&M and will assist with a goal of helping to choose an appropriate mix of IS success measures. (Seddon, 1997.)

In his research Seddon points out that DeLone & McLean suggested that further development and validation is needed for their model. After testing relationships of D&Ms model they replaced "Use" by "Usefulness" and added a new variable called "User involvement". Seddon states that the reason why D&M's model seems to say so much to the reader is that it consists of three models that have different meanings for IS use. When focusing on the Use box it is possible to identify three different meanings. First of the meanings is IS use as a variable that proxies for the benefits from use. However, it is stated that even heavily used systems are not necessarily successes. The second meaning found is "IS use" being used as a measure to describe a behavior, it is not being used as a measure of IS success. The third meaning is that IS use is an event in a process leading to individual or organizational impact. Interpretation is that user satisfaction, individual impact and organizational impact are out-comes of a process that starts with IS use. As with second meaning, the point is that use itself is not being treated as a measure of IS success. Conclusion from this three-point analysis is that the only valid meaning of IS use is meaning 1: Measures of IS sue can act as proxies for benefits of use. (Seddon, 1997.)

Seddon states that in D&M's model the arrows to the impact boxes are unclear because while it is true that IS use is necessary it is not sufficient alone to cause impacts. Study says that while more use implies more consequences, it still not necessarily implies more net benefits. Seddon takes example of non-volitional users' use that may mean more distress. The point is that without someone's point of view it is impossible to hypothesize relationships between IS use and IS success. In this model, arrows go to other direction than in D&M's model. The six arrows pointing left in the model are drawn to indicate that user satisfaction and perceived usefulness depend on six variables including net benefits. (Seddon, 1997.)

2.3.3 Amended Seddon's model

The question of which constructs best represent IS success has been a debate among the theorists as it has been described before. To help this discussion Rai, Lang & Welker (2002) conducted their study and provided a comparison of two

previous models. In addition, they also presented their own model to achieve the best possible model performance outcome.

The focus of the study is on use of the student information system which fits well to the theme of the current study about Sisu system. The extension of D&Ms model conducted in SIS context even more validates the decision of theoretical context of the current study about Sisu.

DeLone and McLean (1992) created a taxonomy that included six factors that describe the diversity of IS success measures in the prior studies of the topic. However, they did not provide empirical validation and suggested further development which led to modification of the model by Seddon (1997). He stated that D&M model is too encompassing and causes confusion because model can have different meanings. Seddon's argument was mainly that D&M's model combines three different models. He proposed then an alternative mod-el in his study. Rai et al. (2002) are assessing in their research empirically and theoretically the validity of the both previous models which are integrating multiple dimensions of IS success. These prior models have several commonalities and some important distinctions. Their findings mainly support these prior studies, but they suggest some improvements. The research states that one major difference between these prior studies is that D&M's structural model includes a path between IS Use and perceived usefulness whereas Seddon's model does not. Adding this path would potentially improve the model fit be-cause perceived usefulness and IS use operate together since they are both related with same extraneous variable. (Rai et al., 2002.)

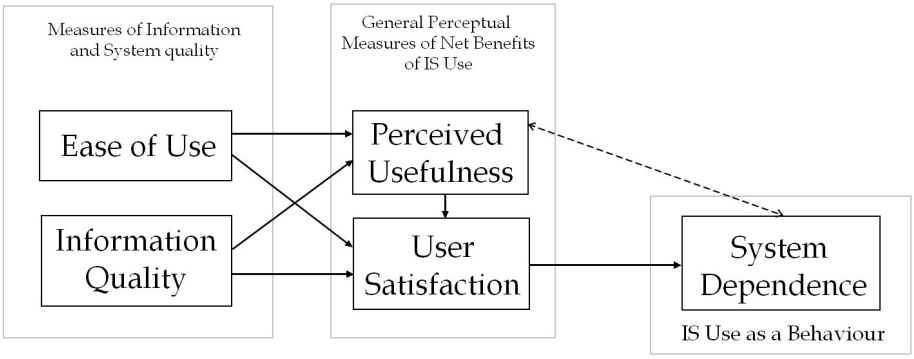

Figure 7: Amended Seddon's model (Rai, Lang & Welker, 2002)

Research context of Rai et al. (2002) represents quasi-volitional IS use. To put in short, users are not mandated to use particular system but using alternative channels would be notably complex and there is social pressure associated. Field study methodology is used with questionnaire-based data-gathering technique. Structural modelling techniques were applied in research and 274 users of integrated student information system participated. Empirical findings are assessed in broad context including for instance Technology acceptance model. The Seddon's model and D&M's model exhibit reasonable fit with the collected data, so the study supports both of the previous studies. Result for the

study is that generally their amended Seddon's model outperforms D&M's model and original Seddon's model. (Rai et al., 2002.)

Analysis of the study states that the remarkable difference between D&M's model and Seddon's model is that D&M's model includes a path between IS use and perceived usefulness while Seddon's model does not. They believe that the lack of this path is the reason for lower fit of the model. The path from perceived usefulness to IS use had the highest modification index indicating that the addition of this path to the structural model would yield the greatest improvement in model fit. As a conclusion, the study examined three models: D&M's, Seddon's and Modified Seddon's model that they newly introduced. A primary contribution of the work was to start a stream of work to empirically test the D&M IS success model (1992) and its refinement Seddon's model (1997). They tested relationships between the constructs and suggest that both models have merit for explaining IS success. They suggest that perceived usefulness and IS use operates together because they are both related with the same extraneous variable. (Rai et al., 2002.)

2.4 User switching

In this chapter, user switching is defined and examined in detail through relevant literature on switching behavior. One of the most renowned theoretical frameworks on switching literature, Pull-Push-Mooring model (PPM) is presented in hope of utilizing it in the research setting categorizing IS acceptance- and -success constructs binding these two research fields together in this study's context. Moreover, the PPM may provide useful in examination of differences between user- and management level's perceptions.

2.4.1 IT users' switching behavior

User' switching behavior means either complete or partial substitution of a used IT product with another product that serves similar needs (Bhattacherjee, Limayem & Cheung, 2012). Such products can be described as entities (Bansal, Taylor & James, 2005). Switching involves a switch subject and switch object. Switch subject is the entity from which the switching behavior originates, and switch object is correspondingly the entity to which the switch behavior destinates to. (Nykänen, Tuunainen & Tuunanen, 2015.) Switching behavior literature has been linked into user acceptance literature for example in Bhattacherjee's (2001) expectation-confirmation model (ECT) although usually switching is not in the spotlight but rather barely the adaptation of new technology. Fan & Suh (2014) concluded that switching prevails "between the perceived performance of the switch subject and the expectations regarding the switch object" (Nykänen et al., 2015; Fan & Suh, 2014).

According to Salo and Makkonen (2018) the interest in IT switching research has grown lately as the topic has been widely apparent in the recent literature. Studies on issues enabling or inhibiting users' intentions for switching have identified that users' decisions for switching are based on clash of issues which push them towards a new alternative entity (switch object) and issues which are favoring the current entity (switch subject) (Salo & Makkonen, 2018). These issues are compiled into theoretical frameworks such as PPM which is presented in following chapter.

2.4.2 Pull-Push-Mooring model

There are multiple justifications for adopting pull-push-mooring model to the research framework. The model gives a possibility for covering the IS acceptance and IS success models in a new light and allows binding together the variables of the models used in this research. To consider the university's transformation towards a new Sisu system and to form a more coherent view also from organizational perspective it is reasonable to scrutinize empirical part of the thesis with a perspective from migration literature. There have been several reasons to choose the new system and in the light of PPM model it is possible to evaluate what were the bottom arguments for and against to transforming to new system and more interestingly, what have been the triggers to make the final decision of it in the end. To give push-pull-mooring model more relevance in scope of the study the organization management and decision makers' will be considered in the empiric part.

Pull-push-mooring model is a basic framework that provides a useful conceptual architecture which can help identify major influencing factors of push, pull and mooring effects as it is illustrated in figure 8. Based on Bansal, Taylor & James (2005) the "push-pull" framework was extended to its modern form which includes mooring variables by Moon (1995). It then became a dominant paradigm in migration research. The paradigm suggests that there are negative factors in the place of origin that are pushing people away. At the same time the positive factors at the destination are pulling people toward them. Such push and pull factors interact with "mooring-variables". These mooring-variables are personal and social factors that can either hold potential migrants to their place of origin or facilitate migration to the new destination. (Moon, 1995) As Bansal et al. (2005) point out, correspondence between migration and customers' switching behavior is appealing. Their article explores the applicability of the push-pull-mooring (PPM) paradigm to service switching. According to their paper the analogies between migration constructs and the phenomenon of service provider switching are reasonably straightforward. Migrants (consumers) move (switch) from place (service provider) to another. Some of them choose to migrate (switch) and are therefore voluntary migrants. Others feel that they have no choice, for example if the service provider closes up. These consumers would be refugees of original model. When considering push effects there are notable conceptual constructs from migration literature that can be applied in

service-switching context such as satisfaction, quality, value, trust, commitment and price perceptions. Of pull factors only existing variable from service switching literature that conforms to the conceptualization is alternative attractiveness. Mooring effect variables that can be applied to service switching context are switching cost, subjective norms (social influences), attitudes toward switching, past behaviors and variety-seeking tendencies. To conclude it can be stated that migration literature offers interesting model to those interested in understanding customer switching behavior. (Bansal et al., 2005.)

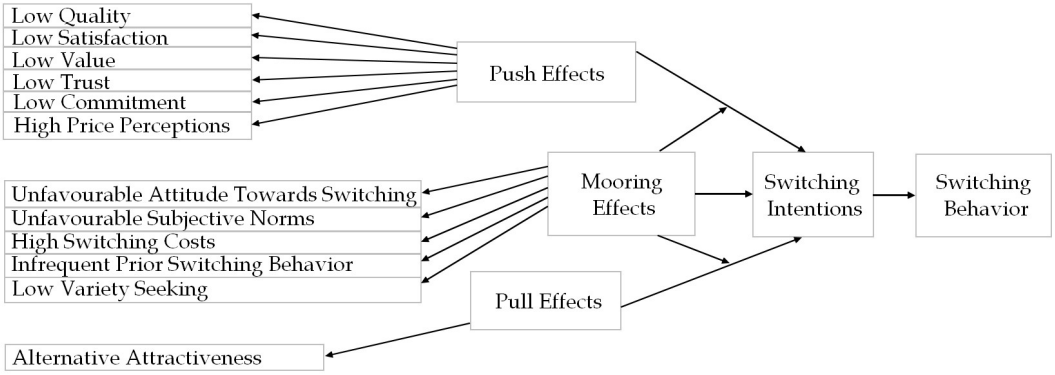

Figure 8: The PPM Model of Service Switching (Bansal, Taylor & James, 2005)

2.4.3 User migration and information systems

IT switching literature has been considering different research contexts and it has been examined with various research settings both with qualitative and quantitative research methods. In following chapter, a sight to the IT switching literature is provided. The switching literature was mostly dealing with enterprise context such as ERP systems. Also research about individual user context existed. However, no research in university environment was found. This taken into consideration the context of our study is significant as it deals with a fresh topic in IT switching area. Wu, Vassileva and Zhao (2017) have collected a comprehensive summary of studies in their research that also shows the variety of prior studies. Also in that list of studies no university context was examined. Approximately half of studies considered were using PPM as their framework.

Mezghani (2014) studied IT switching in enterprise environment context in the research paper called "Switching toward Cloud ERP: A Research Model to Explain Intentions". In the paper the aim was to explain managers' intentions to switch toward cloud-based ERP system. With the research model proposed in the study they presented factors that influence managers' intentions to switch toward cloud ERP. In research they consider IT switching as a form of IT adoption. Theory of Planned Behaviour (TPB) is used to identify the determinants of switching. The study is qualitative in its nature and uses semi-structured interviews as a data collection method. Interviews were conducted with IS managers in four small to middle sized enterprises in Saudi Arabia. As

a main result of their study research model was improved and two additional factors were added to the model. Factors added were "Top management support" as the main determinant of intentions and "Satisfaction with actual system" as important antecedent linked closely to switching. (Mezghani, 2014.)

In research made by Peng (2016) the purpose was to investigate users' switching intentions for mobile instant messaging applications. Context of the study was therefore individual users in private using context. Study was conducted with quantitative methods and survey was used as a data collection method. The main finding of the study was that functional deprivation, monetary deprivation and personal innovativeness can positively influence users' switching intentions. (Peng, 2016.)

IT vendor switching was studied in hospital environment in research by Lammers (2011). In his study health IT vendor switching was studied in hospitals. Study examines the interaction of hospitals with commercial vendors in the recent past. Also, it considered how the federal health IT incentive program influences changes in the vendor market and vendor-provider relationship. Research method used in the study was cross-sectional analysis, so the study was quantitative in its nature. Multivariable regression model was used to estimate the probability of vendor switching and vendor dropping functions. The main finding of the study was that there has been considerable switching between vendors by hospitals, including some hospitals switching away from automated systems all together. It was found that there are certain characteristics that are associated with vendor switching and dropping. Among these were for instance hospital's lower resources and non-profit ownership of hospital. (Lammers, 2011.)

Chang & Hsu (2019) made a research that considered IT switching intentions in enterprise context. They studied organizations' decisions to switch to cloud services. In study they used cost-benefit analysis and technology acceptance model (TAM) to develop a research model to examine the benefits and costs that influence organizations' switching intention to cloud ERP system. Research methods in this study were qualitative in their nature. Empirical testing used survey as a data collection method in which 21 items were measured on a 7-point Likert scale. Scale was ranging from "strongly disagree" to "strongly agree". Study uses covariance-based structural equation modelling to test the measurement and structural models. In the measurement model Cronbach's alpha and confirmatory factory analysis were used to test the reliability and validity of items and constructs. The study resulted to findings that point out that perceived usefulness, perceived ease of use and concerns about privacy significantly affect switching intentions. Also, it is noted that trust can enhance perceived usefulness and perceived ease of use while reducing perceived risk. Perceived control can also reduce perceived risk and privacy concerns. Findings give understanding of switching issues to researchers and practitioners about switching issues from traditional ERP to cloud ERP. (Chang & Hsu, 2019.)

Jang, Kwak & Lee (2017) studied growing mobile communication market in context of China in their study about factors that affect intention to switching

service and used pull-push-mooring theory (PPM) in doing so. The aim of the study was to identify the factors that affect switching intentions and behaviors for Chinese mobile subscribers to other mobile service providers. They used PPM theory as the framework in the attempt to understand correlations between strategies of mobile service providers and users' switching intentions. The research method was quantitative. They used survey as a data collection method that targeted 270 Chinese mobile users. As a result of the study it was revealed that push effects have positive influence on intention to switching and relational switching cost among mooring effect have significantly negative influence on intention to switching. Intention to switching depending on the user group had significant difference. (Jang et al., 2017.)

2.5 Research Framework

This study aims to recognize and understand users' experiences in the context of acceptance and use of Sisu system. The literature review's goal is to present the context of this study, theoretical background theories and previous research on the topic. As there are multiple theoretical frameworks on two major topics; IS acceptance and IS success, there is a necessity to bind both topics together to a research framework for this specific study. Moreover, as IS success and -acceptance literature and research primarily concentrate on adaptation of new technology, mostly overlooking switching behavior related to technology adaptation and previous technology's impact on the adaptation of new technology, it was found important including this third topic, switching behavior into the research setting.

In the context of this study's research setting the Sisu system is replacing Korppi system; Korppi acts as a switch subject entity and Sisu as a switch object entity for both the university as an organization and individuals, namely students and staff within. Therefore, the basis for the research framework originates from user switching literature. Pull-Push-Mooring framework was chosen for the basis of this study as it is recognized as one of the most renowned in its field. IS success and -acceptance constructs are categorized into pull- and push factors as well as mooring effect variables based on the empirical results. The research setting is similar to previous studies on IT switching summarized by Wu et al. (2017). This study examines the switching process from the perspective of Schwarz et al.'s (2014) process-based view of IT/IS acceptance as it provides a qualitatively proven process model to examine how the acceptance of Sisu system has progressed and provides focus points for the examination of user acceptance. The framework of this study **combines aspects from variance models** such as IS success and acceptance as well as IT switching (UTAUT, DeLone & McLean Model etc.) **to a process-based model** (IS acceptance process model). This framework aims to enable thorough examination of the two research questions. The research framework is depicted in the following figure (Figure 9)

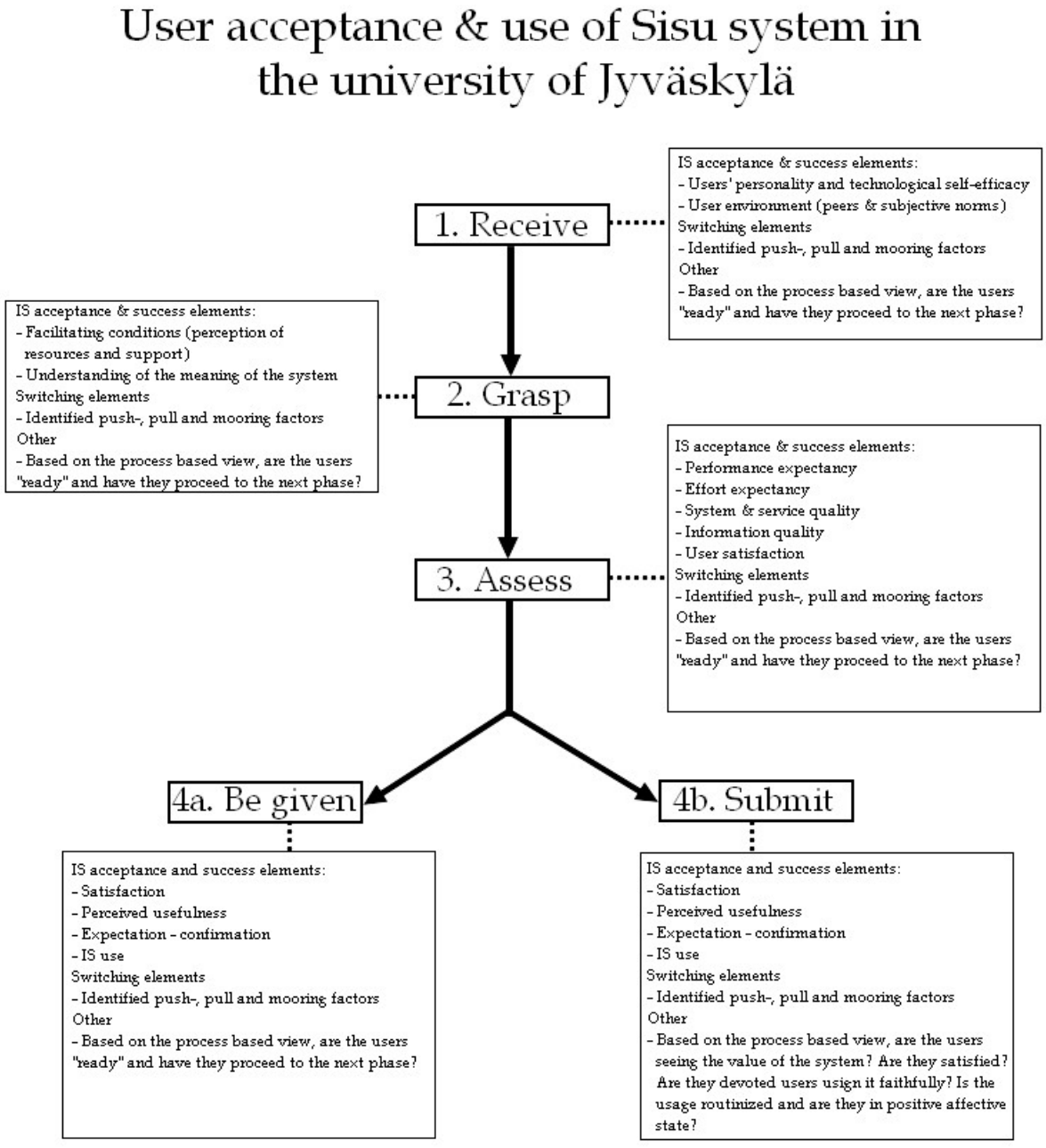

Figure 9: Research framework

3 RESEARCH SETTING & METHODS

This section introduces the case and the choice for research method which is explained and justified. Interview structure is explained and justified. The setting for the interviews is presented. Finally, the data analysis methods are presented and justified. The goal of this chapter is to allow readers, peers and/or future researchers to gain understanding the context of this study and how this study was conducted in detail. Presenting research setting and methods is crucial for a high quality and reliable study; it allows repeatability and examination of the quality by third parties (peers).

3.1 SISU system – University of Jyväskylä's new SIMS

In this chapter, University of Jyväskylä's new student information management system will be presented, defined thoroughly and compared briefly to its predecessor.

3.1.1 SISU System overview

University is purchasing a new Student Information Management System to replace old and aging Korppi-system which has its limitations. New Student Information Management System Sisu is going to fully cover the functions of Korppi in teaching, studying and administration. It will serve students, teachers and staff members in managing study affairs such as course registrations, study planning and monitoring of studies. Sisu is a joint project of several Finnish universities. It will be in service also in Aalto University, University of Helsinki, Hanken School of Economics, Lappeenranta University of Technology and University of Tampere. The University of Jyväskylä has actively participated in the design of the Sisu-system and is the first University to deploy Sisu extensively. The deployment of Sisu at JYU started in autumn 2018 when new students made their study plans in Sisu. In JYU Korppi will be fully replaced by

Sisu in autumn 2020. University of Tampere states that during academic year 2019-2020 the curriculums and teaching schedules are prepared in Sisu. Study planning tool will be introduced gradually in autumn 2019 and 2020 in different campuses. (University of Tampere, 2019) University of Helsinki did test Sisu in two study programs as early as in autumn 2017 and Funidata stated the system was taken to use in all programmes during academic year 2017-2018. (Funidata, 2019d) Funidata (2019e) states also that in autumn 2017 Sisu was taken into production use in University of Helsinki, Aalto University and in University of Tampere.

In the background of Sisu is the previous Oodi-system that was in use in many universities. Oodi was lacking requirements of different kind and users were not satisfied. Also, other systems were in use and for instance at universities of Tampere and Turku the situation was stalling and system patches were made constantly when necessary. The need there for new system was evident. Unlike other Sisu universities University of Jyväskylä and its department of computer science had started to develop their own Korppi-system earlier in the beginning of 2000's. Its duty was to substitute old and fragmented whole of systems that had been in use. In a collaboration of students and teachers Korppi was composed to be a comprehensive SIMS that was widely liked and satisfied user needs. Based on teacher and student assessments Korppi was fully functional and well operating system which also occupied potential for use in the future. Extending its lifecycle would have been possible since it was maintained and developed by university's own staff. Nevertheless, also University of Jyväskylä took place among the other Sisu universities and decided to replace the existing system. (Järvinen, 2019.)

University of Jyväskylä announces multiple reasons for migrating to new Sisu-system. Several justifications include better information security, scalability of system to national use, making cross-institutional studies and co-operation easier, modernisation of user interfaces and reaching secure and consistent motion of electric processes. (University of Jyväskylä, 2019a) The Sisu system has been under scrutiny during the development. Usability of Sisu is tested with students and staff of various universities in different phases of development to reach the optimal user experience. (University of Jyväskylä, 2019b)

Funidata gives several reasons deploying new system. Co-operation of universities as well as inside organizations is one of the main themes. Also sparing of paper and working hours for teaching and counselling is possible when questions are handled electronically. It is stated that Sisu offers straightforward processes and planning of student's studies is in the core of the system. In system the data is created through functions. Sisu answers to growing quality demands and technological development and it for instance checks the validity of information while it is being transferred into the system. Teaching and study planning information can be maintained with high quality and up to date in Sisu. (Funidata, 2019c.)

Sisu-system is developed by Funidata which is a company owned by six Finnish universities. (Tieteen tietotekniikan keskus Oy, 2018) Funidata offers their owners strategic partnership for implementing, developing and maintaining services for educational purposes. They offer software as a system (SaaS) -solution which enables stable user environment and constant development of the system. (Funidata, 2019a) Sisu is the most significant service of Funidata. Funidata states that the idea is to develop Sisu with pioneer attitude and customer-oriented approach. The user experience has been "rethought", and system's idea is to support the whole study lifecycle. Sisu includes wide interface options that allow mass transfers of information. Also, GraphQL-technique allows the utilization of real time information. Lifecycle based thinking and preparing for changes in the future are cornerstones of Sisu-system according to Funidata. (Funidata, 2019b.)

It has been announced that from the beginning of year 2020 the reference group of Sisu at JYU will be renewed. It will be including all the user groups and its aim is to be as presentable as possible. Task of the reference group will be bringing up the opinions of end users about deployment, processes and functions. They include also evaluation and defining the results in a manner that requirements can be fulfilled. The group is intended to hold meeting quarterly or when necessary. In the last meeting of year 2019 approximately forty development suggestions were made. (Koski, 2019.)

3.1.2 Properties of Sisu

Properties of Sisu-system are straightforward to be introduced by using three user categories. Categories are student, teacher and governance. Each of these user groups has their own main features which are next to be introduced. (Funidata, 2019c)

Student	Teacher	Governance
Course Registration	Study Councelling	Student Inform. Management
Study Planning	Course Information	Study Councelling
Student Information	Evaluation	Preview Property
Timing of Studies		Functional Processes
		Course Governance

Figure 10: Properties of Sisu (Funidata, 2019c)

Student user of the system has four main properties. The first property is the timing of studies. User can create a timeline for his/her studies that will show the remaining time to complete the studied degree. Student can also see if there are courses that are overlapping and choose the fitting course groups. The second main property is student information part. User sees real time information considering his/her studies. Decisions made via electric services will automatically be updated to system. The third property is study planning. All the Sisu universities' course selections will be found from the same location, which enables versatile planning of studies. Structure of studies –tool will replace traditional paper study guides and student will find study structure, course descriptions and teaching information from the same location. Creating of study plan will be straightforward because of structure-tool. Study counselling will happen through Sisu and will be interactional. The fourth main feature is course registration. Registration is convenient because student will see if the course has room for more participants while signing up for the course. User can choose the best fitting execution technique from Sisu to his/her curriculum. (Funidata, 2019c.)

Teacher users have three main features in the system. The first of them is student guidance. User will easily see the progression of students' studies. The study counselling can be done in Sisu in it's entirely. The second property for teacher user is modifying the course information. It is possible to choose the students that have signed up for the course or they can be chosen automatically by the priority rules settled for the group. Teachers can also modify the information of their own teaching. The third property for teacher users is the evalua-

tion of studies. Teacher can evaluate each course participant with criteria of certain course. Each student can also be given written feedback. (Funidata, 2019c.)

Governance user has five property functions. Information management function includes that all information concerning students is up to date and can be found from Sisu. Decisions made via electric services will be updated automatically into student's information. Governance has also study counselling property. Only structurally differing study plans has to be confirmed separately. Preview property gives possibility to manage education paths and degree structures easily. It also shows structures from student view perspective. Functional processes -property gives option for governance personnel to easily create and maintain studies and at the same time information can be utilized elsewhere in Sisu. Basic register forms automatically. Only exceptional situations are needed to be handled by governance personnel. Teaching property allows governance to split parts of courses and teaching among separate courses and be governed from one place. With this property it is possible to give priority rules that allow entering to the course primarily for those students to whose studies the course is indented. (Funidata, 2019c.)

3.1.3 Sisu vs. Korppi comparison

The first notable difference between Sisu and Korppi is that Korppi-system has been developed in the faculty of computer science in University of Jyväskylä originally as a student project. Developed for various purposes Korppi was introduced in 2001. Development was carried out with co-operation of students and staff members and finally in 2008 maintenance of system was moved to IT-services and student project ended. Since then, it has been in use for the whole university of Jyväskylä. After the decision of moving to Sisu there has been also differing opinions supporting that it would be reasonable to continue development of Korppi instead replacing it with a new system because Korppi would still be fully operational. (Jylkkäri, 2015.)

Sisu system is described as a web app that uses service-oriented architecture (SOA). Järvinen (2019) states that Sisu is a modular system with well defined application module interfaces but fails to answer to the challenge of organization specific agile software development. It is not merely a software development project but at the same time also governance and student services processes are being renewed. This brings excessive side effect to the project management. System is delivered to university as Software as a Service. There are several assets in SaaS based system. For instance, it emancipates customer from the technical liability and new software updates are instantly available for everyone. However, this means no possibility for customer to take role in development. Unlike many other SIMS as for instance widely popular Moodle or TiM-system that was developed in IT faculty of University of Jyväskylä Sisu is not an open source product. The critique that Sisu has gained from the deploy-

ment phase from students and teachers is indicating that the schedule of the deployment has been hurried too much. (Järvinen, 2019.)

Sisu offers new cross-institutional possibilities which were not possible with Korppi. Using the same system between universities makes it easier to offer and search courses of other organizations. There is also a need to transfer, view and handle academic grades of another organization which now becomes possible (Tieteen tietotekniikan keskus Oy, 2018). Sisu has various technological superiorities compared to Korppi. Technically the Sisu-system consists of different applications which allow updating of the system part by part if needed. This feature makes maintenance of the system easier and in the future in development it is possible to customize the system based on the differentiation of the demands. For instance, it is possible to configure system to hide certain functionality. At the moment there has been no customization yet for any customer organization. Sisu is not integrated to learning environments such as Moodle but learning environments can be joined through interface solutions. This property is a significant reconstruct compared to Korppi-system. Also, scalability to mobile devices has been taken into consideration. One of the main reasons for the new system is improving information security. Funidata does not however offer specific information about the security features of the system. User authentication is offered by Haka-identity federation similarly as in Korppi-system. The user interface has been tested with students and staff and the system is supposed to become as user friendly as possible. (Tieteen tietotekniikan keskus Oy, 2018.)

3.2 Research goals

This study aims to recognize and understand users' experiences in the context of acceptance and use of Sisu system, which is the new student information management system (SIMS) acquired by the University of Jyväskylä (JYU). As this study is conducted as a qualitative case study, it does not aim to predict and measure behavior but rather explain a single context-specific situation using theoretical frameworks and additional literature as guidelines. There are two topics, which this study concentrates on through research questions:

- RQ1: *How has the acceptance and initial use of Sisu progressed? What successes and/or failures have occurred?*
    - *Why is that?*
- RQ2: *How is the acceptance and use of Sisu system perceived and are there any differences in perceptions between different groups of users?*
    - *Why is that?*

3.3 Methods

This study is conducted as an qualitative single case study following the example of various authors (e.g. Eisenhardt, 1989; Rosaline, 2008; Sultan & Yin, 2013; Yin, 2003; Baxter & Jack, 2008) which aims to understand a certain phenomenon, pointing out that any findings will be valid in the context of the study itself. This means that such findings may not be directly sufficient for generalizing although theoretical reasoning might provide basis for it. One of the goals of this study, in addition to that of understanding the context of the University of Jyväskylä and its new Sisu system, is to pave the way for future research on whether the findings may be generalized to other similar contexts. This research method and -setting was chosen in order to establishing deeper understanding of the researched phenomenon than a quantitative method would allow and to describes the phenomenon in detail. Additionally, by the time this study is conducted (fall 2019), there has not been previous research related to Sisu system, that is publicly available at least. The topic is very new, the University of Jyväskylä is one of the first universities to deploy Sisu system and the process is currently ongoing which is an ideal setting for qualitative case study on the subject.

The academic literature review on information system in educational context, Sisu system, IS acceptance/-success and previous research on the topic forms the basis for the empirical study. As there was no sufficient number of academic sources, for example for the Sisu system (currently) there was a necessity of using "non-academic" sources as well. For the literature collection three major academic online archives were primarily utilized; Aisel, IEEE Xplore and ACM digital Library.

Eisenhardt's (1989) theory building method is utilized as a primary guideline for the structure of this qualitative case study. The method has eight steps:

1. Getting started
2. Selecting cases
3. Crafting instruments and protocols
4. Entering the field
5. Analyzing data
6. Shaping hypothesis
7. Enfolding literature
8. Reaching closure

The goal of **getting started** is to define the research questions for the study (Eisenhardt, 1989). The planning process for this study started in the midsummer 2019 as the idea for studying the deployment of Sisu system in the University of Jyväskylä next fall arouse during a brainstorming session with our previous supervisor, Tiina Koskelainen. Tiina was unfortunately unable to ultimately supervise the thesis work due to sudden career developments. The research setting and -questions were shaped up in late July/early August and Wael Soliman was contacted (and agreed) to continue Tiina's work as a super-

visor for the study. The topic matured to its current form as the discussions continued with Wael. The research questions were presented earlier on in the introduction.

Selecting cases is theoretical according to Eisenhardt (1989). The case selection was natural for this study; University of Jyväskylä is one of the first universities to deploy Sisu system and replace previous student information management system with it. We have a unique opportunity to study the deployment firsthand, not only in the University of Jyväskylä's context but also nationwide as we were unable to identify any previous studies on the IS acceptance and -success of Sisu system anywhere it is being deployed at. We chose the context of the University of Jyväskylä and limited it to that only for the rigorous scope of the thesis study and because of easy access to data collecting. We had little resources of conducting the study in other universities because of tight scheduling and budget although it would certainly be beneficial to include other universities as well as multiple-case studies usually offers a stronger basis for theory building (Eisenhardt & Graebner, 2007). Single-case setting enables us to examine and describe the context of University of Jyväskylä is Sisu system's IS acceptable and -success in more abundant manner and thus it may be regarded as an critical instance case study which justifies concentrating on single case context (Eisenhardt & Graebner, 2007). This means that the study is limited to a single case study leaving studying other university contexts and generalization of the results for future research. Every interview is analyzed (reviewed) separately making single interview a unit of analysis. Interviewees were contacted and chosen based on their role and level within the organization varying between students and staff. Ten students and ten staff members was the original goal for the scope of the study. Ultimately, ten students were interviewed and eight staff members. Reasoning for this is presented in the following chapter (3.4.2 Interviewees).

Data collection methods and data is compiled for theory building is defined in **crafting instruments and protocols**. For data collection this study follows an ordinary qualitative thesis structure and concentrates on literature review and case interviews. Case interviews were chosen since they were deemed most suitable for the context and research setting. Observations would have not provided enough suitable data for our research setting and would have posed demanding challenges. Document analysis was similarly ruled out as insufficient method. Interviewing allowed for versatile insight collecting regarding research questions directly.

Entering the field refers to data collection and its preliminary analysis, which was completed with contacting interviewees, conducting interviews and transcribing as well as beginning analysis based on them in October 2019. **Data analysis** is explained in following chapter (3.4) in detail and refers to data analysis method presentation and justification. The goal of **shaping hypothesis** is to provide evidence (empirical findings) for found constructs, elements and relationships between them, which will be presented in results and findings. In the **enfolding literature** part, empirical findings are compared to reviewed litera-

ture, which provides either supporting or conflicting aspects on empirical findings which is also presented in results & findings. Lastly, **reaching closure** introduces conclusions based on findings, contributions to research and practice as well as acknowledgement of limitation and suggestions for future research.

3.4 Interviews

This section presents the structure and management of the interviews and provides explanations and justifications for the choices made. This section enables the reader to understand the context of the interviews and research setting.

3.4.1 Interview setting

According to Myers and Newman (2007) there are six types of academic qualitative interview types: structure-, semi-structured-, group-, theme- and unstructured interviews. In this study the interviews are conducted as semi-structured, in which the basis of questions is constructed but free conversation flow is enabled by allowing possible additional questions at the scene. This allows less limited but still clearly defined scope of the conversation. (Myers & Newman, 2007.) In the hopes of allowing the upbringing of relevant subjects in the answers the goal is to offer flexibility to the interviews by choosing to utilize semi-constructed interviews. Additionally, it is expected that semi-structured interviews might bring up also unexpected discussion and topics which possibly will provide deeper understanding of the context than initially expected and such topics may be better grasped with more detailed questions. The interviews were chosen to be conducted as individual interviews in contrast to group interviews in order to ensure that the interviewees were not affected by each other's answer but rather reflected their own subjective experiences. It was desirable to remove peers from the situation and therefore remove the social pressure which could prevent interviewees expressing their own genuine thoughts.

As it is desirable to limit the interviews roughly to the scope of the research and give direction to the interviews, the interview body was separated into different themes which will guide the interview. This study utilizes Schwarz et al.'s (2014) process-based view of IS acceptance in understanding how the acceptance of Sisu system has progressed in the university of Jyväskylä. Interview structure consequently followed this process-based view of IS/IT acceptance in chronological order and the five themes were derived from it; 1. Received, 2. Grasp, 3. Assess, 4. Be Given and 5. Submit. Questions for each theme were formed through adequate constructs and elements from IS acceptance and -success theories and frameworks which had been examined in the literature review. Built-in questions from such theories' and frameworks' appendixes were utilized in this process. Moreover, IS switching elements were added into the structure as detailed in the research framework, as it was an im-

portant element of this study. Interview questions and structure are shown in the appendix of this study (see appendix 1).

The first part of the interview included introductions and basic information regarding the interview, its schedule and structure and the study itself. Then the first questions revolved around the interviewee's qualification which is outlined in the interviewees -chapter (3.4.2) ensuring that they really qualified for the study. Interviewees were asked what their role in the university was and how long had it been relevant and had they used both the old and new student information management systems actively during that time. Also, age and gender were asked for some theoretical elements are affected by them.

The first principal interview theme was called "received" in accordance with the IS acceptance's process-based view. This theme revolved around the interviewee's (user's) personality and self-efficacy in relation to IT, new technology, adaptation and learning, social user environment and its subjective norms as well as user involvement in Sisu system's development and deployment.

The second theme was called "grasp" again in accordance with the process-based view of IS acceptance. This theme contained questions related to user understanding of system intentionality, and perceived resource availability related to the deployment of Sisu system. Additionally, primary functions or operations for which both the old and new systems were used, were charted.

The third theme was called "assess" which revolved around individual experiences with the new system. The questions in this theme covered IS success elements such as perceived usefulness, ease of use, information- and service quality, user satisfaction and performance and effort expectancy in order to gain an encompassing understanding how the new system has performed so far and how its perceived by the user. The interviewees were additionality asked during this stage to evaluate, what or which of the emerged matters they perceived the most important in relation to the overall affective state they had regarding the new system. This was related to the push-pull-mooring model and the purpose was to uncover possible mooring variables for the switching behavior.

The fourth theme was called "be given" which revolved around interviewees' (users') value perception regarding the new system and comparison of realized and theorized value. Interviewees were asked whether they are willing and motivated to adapt their work and activity routines to that required by the new system which theoretically should determine whether theorized (perceived) value had realized during the use behavior.

The fifth and last theme was called "submit" which revolved around interviewees' (users') individual affective state and how encompassing and routinized the use behavior was at the point of the interview. The interviewees were asked what was their overall opinion of the new system and its deployment and if they saw any potential for the system in the future which is related to individual affective state, understanding system intentionality and comparison of theorized and realized value perceived by them. They were also asked if

they felt that the new system had integrated permanently into their work and activities (routinization). Finally, interviewees were asked what they felt that could have been done otherwise (user involvement) and how they could have been supported better during the deployment of the new system and preliminary experiential process (perceived resource availability)

The interviews will be conducted in Finnish or English based on what is preferred by the interviewee. The questions will be available in both languages and the interviewers are fluent in both as well. In order to ensure minimal information loss, it is for the best to only accept interviewees fluent/adequate at least on one of the two languages. Ultimately every interview was carried out in Finnish.

Each interview was digitally recorded using mobile devices at hand (tablet computers and smartphones). Each interview required a primary and secondary recording device in order to minimize the risk of losing the interview because of lost, bad, or corrupted recording or because of technical problems on hardware-side. After each conducted interview, the recording was transcribed. The transcribed data was then prepared for the next phase, data analysis.

3.4.2 Interviewees

In the contacting phase, interviewee candidates were approached by on utilizing our connections, recommendations by others and by approaching face-to-face at the university to request them to participate. The sampling was originally ten students and ten university staff members. As the interviews progressed it proved more difficult to recruit staff as they seemed less interested participating or too busy with their own research and work. In the end, ten students were interviewed as planned and eight staff members falling two short of the original intent. This was considered reasonable as staff interviews turned out to be significantly more in-depth and longer than expected and compared to student interviews. Moreover, the research schedule did not allow for further delays at that stage. There are three conditions for staff and student interviewees, which qualify them: 1) the interviewee has user experience regarding the previous SIMS, Korppi 2) the interviewee is currently employed or registered as a student in the University of Jyväskylä 3) the interviewee has user experience regarding the new SIMS, Sisu.

Interviewees #1-10 were students and #11-18 staff members.

- Interviewee #1: a 26-year-old male student doing his sixth academic year.
- Interviewee #2: a 24-year-old male student doing his third academic year.
- Interviewee #3: a 32-year-old male student doing his first academic year in master's program and has been studying several years prior.
- Interviewee #4: a 23-year-old male student doing his fourth academic year.
- Interviewee #5: a 25-year-old female doing her fourth academic year.

- Interviewees #6, #7 and #8 are 25-year-old male students doing their fifth academic years.
- Interviewee #9: a 23-year-old male student doing his fifth academic year.
- Interviewee #10: a 25-year-old male student doing his sixth academic year.
- Interviewee #11: a 42-year-old male staff member (teaching & research) with >20 years of experience.
- Interviewee #12: a 62-year-old male staff member (teaching & research with 38 years of experience.
- Interviewee #13: a 60-year-old female staff member (teaching) with 33 years of experience.
- Interviewee #14: a 43-year-old female staff member (teaching) with >18 years of experience.
- Interviewee #15: a male staff member (teaching and research) with 31 years of experience.
- Interviewee #16: a 45-year-old female staff member (administration) with 24 years of experience.
- Interviewee #17: a 61-year-old male staff member (teaching and research) with four years of experience in the University of Jyväskylä (several in other universities).
- Interviewee #18: a 27-year-old female staff member with two years of experience.

3.5 Data analysis

For the data analysis, again literature on qualitative research is applied (e.g. Yin, 2003; Miles, et al., 1994; Huberman & Miles, 1994). The relevant point is not to treat each data sources independently and report findings separately (Yin, 2003). The research framework offers rigid guidelines for thematization, which is also apparent in the interview structure. This framework revolves around the process-based view of technology acceptance. Interview questions were divided into relevant and theorized themes based on the research framework. Miles et. al. (1994) offers a fluent process for data analysis which has three steps: data reduction, data displays and conclusion drawing. The first step, data reduction, aims to the organization and simplification of the data (interview transcriptions) which means it is grouped into wholeness. The second step, data displays, aims to formation of tables, figures and categories. The data is illustrated in order to spot regularities, patterns, explanations and causalities. The third step, conclusion-drawing, aims to the identification of the significant aspects mentioned in the previous step. Earlier literature is utilized in identification process. (Miles et al., 1994)

Thematization was utilized in the data reduction step helping with the filtering of the data. Each research question is thematized and sub-themes were

established under them. The themes are based on the research framework revolving around the process-based view of technology acceptance.

The data analysis commenced after the interviews were conducted and the records of interviews were transcribed into textual form. Analysis as a process was iterative in nature. First the data reduction took place and the data was then formatted and displayed in some form and conclusions were drawn after which another iteration of data reduction, -display and conclusion drawing followed. Firstly, data was divided under corresponding themes derived of the research framework allowing for grouping all relevant information together under logical themes. Under each theme, the data was word-coded so that answers were classified with a descriptive "answer type" and displayed in a matrix allowing identification and examination of recurring themes, sub-themes and details. Classified answers were compiled and used to create a user profile for each interviewee encompassing an individual story of the deployment of Sisu system based on the research framework process model. Eighteen individual narratives, or user profiles were created in total (see appendix 3 for students and appendix 4 for staff members). User profiles included all the answers the interviewee had given, classified with identified answer types, compiled into a chronological order based on the research framework. The analysis of user profiles and the thematized answers enabled identification of the user-affecting variables (constructs) for each phase in each of the user profiles. This was achieved by assessing whether the theoretical goals for each phase was observably "achieved" by the user and which aspects had seemingly influenced the process. The identified constructs were color coded with three colors based on the observed and assessed nature of effect it had had: red for negative effect, gray for neutral effect and green for positive effect. Placing the color-coded user profiles side-by-side, enabled identification on similarities between different users. Analysis of the recurring themes in user experiences, constructs and their impacts allowed construction of user archetypes. One archetype was created for each user group: students and staff. An archetype included the most recurring themes, affecting variables (constructs) and description of the nature of their impacts. Archetypes were written out in forms of fabulae (reported in the findings and results) and formatted into a matrix (see appendix 2). Finally, the findings, concentrating on identified (constructs) were compared to the literature in order to find similarities and conflicts.

4 FINDINGS & RESULTS

In this section the empirical results provided by the interviews are presented and then compared to the literature review. This section provides answers for the research questions and proposes an enhanced framework describing the implementation and acceptance of the Sisu system in the university of Jyväskylä. The interview results are reconstructed to form two different narratives for the acceptance process of the Sisu system. One for the students and one for the staff. Both narratives proceed chronologically in accordance with the research framework. The narratives concentrate on the most recurring themes and details aiming to reflect the most common experiences forming archetypes of both user groups.

4.1 A student as a Sisu user

In this section a typical student's experiences of the implementation of the Sisu system and the acceptance of it are described chronologically in relation to the study's research framework. The concentration is on the most recurring themes and details among all ten interviewed students forming an archetype of a "typical student". Nevertheless, this does not mean that all experiences were identical or proceeded the same exact way as details and some differing aspects are inevitably lost in the process of generalizing the experience of a wide and diverse group of people. Examination of students' individual experiences in detail is possible through the student profile matrix (see appendix 3).

4.1.1 Receive phase

A typical student has a self-perception of being a self-efficient IT user with all the relevant skills needed to survive with technology. S/he feels confident about his/her IT capabilities and has experience of a great variety of university IT. Usually the interest towards university IT is limited to necessary everyday

system features without further interest in them overall or in-depth special features or tricks. University IT is seen as a tool. Generally, students have not had any problems learning the use of new IT or adapting to it, but the change is perceived to be natural. Some minor confusion sometimes occurs related to a sudden need to learn quickly coincidentally performing work-related tasks. On average, students do not want to resist change but also do not want it to permanently increase the workload of day-to-day tasks.

> I use them [university IT/IS] to which they are intended to. I am not particularly interested in them other than what they offer me in day-to-day life. I don't think about it further. (Interviewee #1)

> [I am] a capable user. A quick adapter. [learning and adapting] comes naturally. Anything can be thrown in front [of me] and it doesn't cause much of head scratching. (Interviewee #9)

The user environment around a typical student has been neutral towards university IT in general as it is not usually discussed neither in particularly negative nor positive tone. Sisu system on the other hand has stirred a lot of discussion among the students. On average, people around students have had clearly negative attitudes towards the Sisu system due to negative experiences gained through use early on, which had a major negative influence on day-to-day tasks, and studying. The expectations for the new system had been initially mostly neutral before the implementation of it.

> Well, expectations were that it will be just a new system. From now on everything will be handled through this, like it would be Korppi 2.0. Everything will be fixed with it. (Interviewee #3)

Most responses suggest that students were generally not taken into account during the development or implementation of the Sisu system. There was no perception of consultation of students for their input in the development of the system and there was no actual knowledge of any focus groups other than that they reportedly existed.

The analysis points attention to that students took the Sisu system courageously into use without objection feeling confident about their IT and learning capabilities and without expectations. The driver for the change is organizational necessity as there are no alter-natives. They do not necessarily even have interest in participating the development project as university IT is not perceived that interesting and it is per-haps not even perceived important to hear out individuals in the first place. The transition had been rather smooth and natural. These aspects have led to a situation in which none of the students remained in the receive phase but moved on and begun using and learning the system.

> I don't think that I was considered, however I don't feel either that I should've been considered because I'm not so special as an individual user. (Interviewee #1)

4.1.2 Grasp phase

The analysis suggests that students had encountered major difficulties related to learning and adapting Sisu system despite the lack of prior problems related to other technologies. Most problems had revolved around the lack of system intuitiveness, complexity of processes, especially related to curriculum management and course enrollment, information authenticity or availability, perception of inoperative features and incomplete system entirety despite of the positively perceived visual appearance.

> (…) then about Sisu I don't actually know at all how to make it function properly. I've tried to use it but there are such things, that one can't quite intuitively find out how something happens. There I've had to ask for help from other students or read instructions. (…) there's always been a solution found in the end. Well, to a degree and then the camel's back breaks, and we'll move on to other things. Creating [individual] curriculum into Sisu was so impossible [to do]. In Korppi I had it ready but then it had to be moved and that almost did not work out at all. I probably wouldn't have had it done if my beloved girlfriend didn't manage to build it for me (Interviewee #7).

On average, students strives to learn by trial and error and does not easily get into reading instructions provided, attend training sessions or contact the user support. The need to rely on such resources on a simple system implementation is perhaps even perceived negatively itself. This learning strategy together with the system being fundamentally different in forms of process structure and appearance as well as Sisu system's preliminary "teething issues" such as missing features and bugs has resulted into the situation where the learning of the Sisu system is perceived hard. Additionally, some features such as examination enrollment and partially curriculum management are still maintained in the older Korppi system, which had caused confusion.

> Well, trial-error, that's it, the way at least I've learned to use systems so far. I don't know if it's the best way to learn but it's the way I first start with. (Interviewee #7)

> (…) I supposed that a new system would be so intuitive that you wouldn't need education if you had used the previous system. (Interviewee #2)

Most responses suggest that students have a somewhat positive perception of the quantity and quality of the support and training resources. There were instructions provided via email and made available on the university's webpage, info events and voluntary training sessions were organized, and counselling offered. A typical student did not necessarily strive to utilize the available resources though. The primary learning method (trial and error) did not include utilizing them and consulting peers was a first priority if individually unsolvable problems arouse. IT self-efficacy seemingly has played a great role in learning the use of Sisu system. If those methods did not solve the problem, it was time to search and read instructions and if that did not help, counseling was

sought, or info sessions attended. Usually students managed to solve problems independently and consulting peers.

Most commonly, students use the Sisu system to enroll to courses, manage curriculum and check calendar. Some tasks and functions apparent in the older system such as familiarizing with course selection, searching for courses, messaging, monitoring course performance and examination enrollment had not been transferred over to Sisu system. Such functions were perceived either too hard or burdensome in the Sisu system or not possible at all or then it was required to use the older system still to perform them.

Typically, students have some understanding of the system intentionality. They understand that Sisu system's rationale was to get every university to use the same information system and enhance co-operative capabilities between them overall but have no exemplary understanding how Sisu would actually complete that task and why it is a better option to do it compared to Korppi. This could be because of they had not necessarily utilized the training and support resources which could have shed light on the system intentionality on individual level. The rationale was accepted nevertheless although it does not seem to enhance or even affect the day-to-day tasks performed, as the reception for it was mostly positive and understanding.

> Well my understanding is that the Sisu was implemented because they wanted to integrate it [the system]. (Interviewee #6)

Learning the use of Sisu system has been hard for an average student, as the system was perceived unintuitive, complex and incomplete. In time, s/he has learned to perform basic task necessary for studying through independent learning, discussing with peers and perhaps as the last option by utilization of the support and training resources available. S/he still does not utilize all core features of the Sisu system but can manage with day-to-day work despite the prevalent problems affecting the fluent and enjoyable user experience negatively. An average student understands the core rationale for the Sisu system on a theoretical level and seems to accept it as a valid justification even though it is still somewhat unclear how that realizes in practice. All but one student had understood the rationality of the Sisu system and learned to use it on the basic level to perform critical tasks. Because of the problems experienced during the initial use, the affective state seems to be somewhat negative from the start despite the neutral expectations. The transition to the assess phase had been problematic but successful, driven by the initial organizational necessity and IT self-efficacy.

4.1.3 Assess phase

Overall, the new system has had clearly negative impact on work productivity and on work-related tasks in general for students on average. Sisu system has slowed down working, broken routines, caused uncertainty and it is complex

overall. As the older system and Sisu are currently utilized side-by-side the environment in which there are two overlapping system has slowed down the workflow and caused uncertainty. Moreover, the lack of system feedback and information availability are also causing uncertainty. For example, Sisu was unable to confirm successful course enrollment causing confusion and uncertainty as well as situations in which the student thinks s/he managed to enroll successfully even when s/he did not in reality. The task processes are generally perceived complex and they have too many stages.

> If you compare to the previous [system], it [Sisu] has been a negative factor. Of course, I understand that there's the strive to renew and modernize and all that but just from the perspective of basic work, it hasn't had a positive effect. (Interviewee #8)

The two individual problems considered most influencing for the system impact related to curriculum management and course enrollment. Curriculum management was something that caused frustration and decreased productivity as it was perceived "impossible" even after reviewing instructions as its general management and formatting appeared to cause unexplainable issues.

> Curriculum [is the issue]. I can't pull my master's degree curriculum together by no means. If I choose the right starting year of my studies, it does not pile up as it should. The bachelor's curriculum is then correct but the master's curriculum remains completely disorganized. And if I do the opposite and choose later starting year, master's is correct, right elements and modules but then the bachelor's curriculum is disorganized. There are elements lacking which would be required. That's how it is. (...) Some courses are there as duplicates in my curriculum for some reason. (Interviewee #8)

A few individual features were perceived positively. For example, adding courses to calendar before enrolling enabled to see how they fit in and if there were any overlapping lectures, which made it easier to plan studies and manage curriculums.

Most responses suggest that students had had major problems related to the system usability and user interface. The Sisu system is perceived hard and burdensome to use, as the processes for day-to-day tasks, such as course enrollment, are too complex and has too many stages. Processes require jumping from view to view and are "click demanding". Information is hidden under several views and rarely presented in its entirety, which leads into unnecessary search for necessary information. Reportedly, students had also individually encountered varying glitches or bugs, which are affecting the perception of usability. For example, logging on is sometimes unsuccessful without reason and some automated processes, such as linking a student to corresponding course's Moodle workspace during enrollment fails seemingly for no apparent reason. All these add to the perception of system's unintuitiveness and feelings of confusion and frustration. On a positive side, Sisu's modern visual appearance is perceived positive as it looks good and fresh.

> Sisu has a nice visual impression but poor usability. Course enrollment has been made absolutely too difficult. (Interviewee #8)

Generally, students perceive Sisu's reliability rather negatively as there have been major inadequacies in the information authenticity and -quality. Information is perceived not to be visible enough but hidden behind dropdown menus and divided into smaller units requiring further searching and inconveniences. There is also too much irrelevant information available, for example old and outdated courses as well as duplicates visible among course selection causing confusion, frustration and erroneous course enrollments. A major factor affecting the perception of information quality and authenticity is false information, which was perceived to be common. Completed courses did not necessarily show up completed in Sisu which led into missing academic credits (ECTS). Lectures had commonly false schedules; locations, times and/or dates as well as in many occasions they were marked falsely cancelled altogether. The system provided also false course enrollment information such as too low turnout limitations and indication of the course continuing for longer than they did in reality. Inadequate information quality and authenticity has caused a great variety of problems for students such as decreased productivity and erroneous actions and decisions affecting studying negatively resulting into lack of confidence which affects the satisfaction negatively. It was understood that the inadequate information quality may not be the system's fault itself but results possibly from user errors made by the administration and other staff.

> When I was going for an exchange [in January], I looked for course in the early fall [to complete before the exchange] and there were multiple, which showed to have continued beyond January so it almost caused me to drop those as I though they really continued that far. It was not until I had dug up more information about the course about how they are lectured and when is the first examination [I avoided this mistake]. (Interviewee #8)

Typically students reported not utilizing the user support despite the problems occurred and positive perception of support resources available. User support was not perceived necessary overall as problems had been solved independently or together with peers by reading instructions online. Although instructions are regarded as user support per se, they are a more of a passive form of it without an active participation by support personnel and thus students did not regard reading instructions as utilizing the use support. User support was also not considered capable of solving the problems related to the overall usability and system impact.

> I haven't [utilized user support]. Because I have then with friends or alone managed to find solutions to problems if some had occurred. And then on the website there are instructions for example for course enrollment and those I have utilized. (Interviewee #5)

There was an interesting observation that the subjective norms changed heavily during the initial usage of the system. The expectations were mostly neutral but as experiences were gained the tone begun being heavily negative. Sisu was discussed and handled mostly in negative manner and that affected the perception of satisfaction. For example, it was experienced especially demoralizing that the staff had troubles using the system themselves.

> Especially the staff's heavy training to use the system. That I feel demoralizing that very often you stumble across a situation where the staff members themselves did not know how to use the system (Interviewee #10)

The analysis suggests that students are overall in a dissatisfied state in general. This is mostly due to the negative experiences gained through use. The Sisu system has had a negative impact on workflow and productivity. Its usability has been perceived rather negatively and there is a lack of confidence because of the information quality and authenticity. Sisu is perceived to be incomplete. It is manageable to a degree where an individual student barely survives to perform his/her day-to-day tasks, but it is not an enjoyable experience, causes frustration and hinders the performance. Although an average student understands the main reason behind the new Sisu system on an organizational level, s/he has no clear understanding of what kind of value it should practically deliver on grass roots- or individual level but they compare it to that delivered by the previous Korppi system. The newer Sisu system does not perceivably fare well in that comparison because of the heavily negative experiences. For an average student the value has not yet realized on individual level and the usage has not yet shown to be leading towards satisfaction. The system keeps updating and as the problems are addressed in the future, the situation will evolve. At this stage, the system does not deliver the value it should to students on average though.

> I'm generally dissatisfied with usability and information issues [in Sisu]. In addition not all the functions are yet in Sisu, but we're using two overlapping systems. Why then not just test and finish the development of the new one. To make it so that it surely works and all the functions are there. This is another point of frustration. (Interviewee #8)

4.1.4 Be given and Submit phases

Students are generally neither especially willing and motivated nor unwilling and unmotivated to adapt their work routines to that required by the Sisu system but remain indifferent towards the adaptation. The adaptation is perceived to be mostly a necessity and something that needs to be gotten over with, as they have no saying in it. For an average student learning and using the most necessary core functions for the survival and graduation is all that matters as. Routinization has occurred merely on that level, but s/he feels that the new

Sisu system is a permanent and continual part of the working routines at the university.

> Well mostly it's been about the necessity. It's been like… I don't like to use many systems at the same time per se, so I've learned Sisu processes [?] because they've been compulsory [to learn]. I don't feel that I've been change resistant per se but neither change positive. (Interviewee #2)

Despite of being unable to see the value realized in practice on individual level, being dissatisfied and despite of the negative user experiences gained, a typical student sees potential in the system. S/he feels confident that things will get better and through iteration, it will manage to achieve the benefits intended and more enjoyable user experience if the problems are addressed properly. Sisu system's intentionality on an organizational level is well received.

> Well yes I see [potential]. I understand that the system is quite young and that there hasn't been too many iterations at this stage. Change and development, whether it is desired, meaning that feedback is taken into consideration I see actually a lot of potential especially from the perspective that it [Sisu] does not necessarily answer to our university's needs as well as something made here but through the co-operation and –activities I see a lot of potential there. Apparently, universities are in the process of forming into these high-end research facilities in which there are fewer overlapping entities which may mean that it is more and more topical for students to do studies in multiple universities. (Interviewee #10)

Altogether, students have, on average, a neutral or slightly negative overall opinion of the situation 5-6 months into the implementation of the Sisu system. The opinion stems from the perceptions of incompleteness of the Sisu system and inadequately planned and rushed implementation of it. These perceptions were gained through using the system. On average, students felt that the project implementation should have been delayed, the system should have been further tested and it should have been deployed completed so that all the features needed were ready and tested.

Most responses suggest that students do not believe that the new Sisu system is working properly and is satisficing for the organization at the current stage. However, they see potential in the system and understand that the change is for the better on a longer run. It is yet to be realized in practice though. Routinization has happened on some level concentrating only on necessary core features for the survival and advancement of studies. Generally students remain in neutral affective state and is dissatisfied to the system's current performance but remain hopeful for the tomorrow after four to five months into the implementation.

4.2 A staff member as a Sisu user

In this section a typical staff member's experiences of the implementation of the Sisu system and the acceptance of it are described chronologically in relation to the study's research framework. The concentration is on the most recurring themes and details among all eight staff members forming an archetype of a "typical staff member". As mentioned before, this archetype does not accurately illustrate all individual user experiences as they are not identical but rather provides a generalization of user experience of a diverse group of staff members. Examination of individual experiences of staff members is possible through the staff profile matrix (see appendix 4).

4.2.1 Receive phase

Generally, staff members have a self-perception of having a very high self-efficacy regarding university IT. They are interested in technology because of its critical role for the job. An average staff member perhaps attended piloting programs or focus groups of various new IT, giving inputs for development projects or at least has been aware of such projects. S/he has multiple years of experience with various sorts of university IT and s/he has seen full life cycles of some technological innovations during his/her career. On average staff members report having a docile and adaptable personality. They feel confident towards IT in the university context because of the experience and long career. They have not had any major problems prior but understand that age has caused it to get harder to adapt things quickly. Most responses suggest that they not consider himself being change resistant though but actively strive to find more efficient working routines and thus sometimes testing new things ends up in reimplementation of the prior technology because of this premise.

> (…) I'm always on a lookout for better solutions and try using them and I might use them for a couple of weeks and may remain using it or go back using the old (…) I strive to look for more efficient ways of performing and working and I'm not… Probably the change resistance is brought up in this [study] on some level. (Interviewee #11)

> I think I'm open. I don't resist change if it is justified or I feel it has benefits and I don't fear new technology. I gladly test different things also on my free time. I maybe not the early adopter but perhaps the next category [early majority]. (Interviewee #18)

Despite the openness and adaptability of the staff, for an average staff member, the user environment has been clearly negative in the context of the Sisu system. The expectations had been somewhat negative early on before the implementation, as it had become apparent that the new system was seemingly not ready yet. Beta-testers had talked about negative experiences prior to the deployment during the earlier spring as course management with Sisu was

tested in few piloting courses. There was a fear that the system will have a strong negative impact on the individual level based on what was circulating from people who had participated testing in some form. Moreover, there had reportedly been major problems in other institutes planning to implement the new Sisu system, for example in Tampere, which had strengthened the negative expectations. During the preliminary training, it also became more apparent that the system was incomplete and not ready as that even the instructors had no clear understanding how the system works in practice. Negative subjective norms were further accentuated by early experiences as they led into extremely negative perceptions. The new system had drastically affected the workflow and productivity and the deployment project was perceived inadequate. The system felt incomplete and it was difficult to learn and use if not inoperable altogether. Sisu had also increased the workload compared to previous which was perceived negatively. On a positive note, the implementation of Sisu was perceived to bring people together as it offered a common topic for discussion and sharing experiences. Staff members could relate to one another. Digital services of the university (Digipalvelut) had reportedly given a perception of dismissing the negative discussion and also negative feedback as "typical change resistance" and the administration had commented the situation for a local newspaper by stating that the Sisu deployment had proceeded well on "system level" implying that the users were the ones causing issues. These were contrasting the self-perception of change positivity and the experiences gained on the system causing further tensions and affecting the user environment negatively.

> For example, during the spring when we started doing [preparations for switching systems] many had a feeling that the new system is completely incomplete and people wanted to slow down but they [administration] did not listen but went ahead and for a very long time we got to wait for an answer from the top [management]. It was as far as in the news that things had proceeded well and on the system level Sisu works well and here we wondered if it meant that we [the staff] are stupid and cannot use it? It could've been handled better. Maybe those who were more closely involved in the project did not expect that this would be so hard. (Interviewee #18)

On average, staff members do not feel being taken into consideration in the Sisu implementation. There had been training and support offered but neither the university nor the developer managed to give a perception of being genuinely interested in staff's input and feedback. A typical staff member had a chance to share his/her comments, feedback and input to the developer. There had been for example focus groups enabling the possibility to share thoughts on the wished features, system requirements and what different work processes included and how things were done in general. Even though the typical staff member had been heard, the perception was that s/he was not really listened to. The perception was that the developer's or the main administration's message was that "the staff has been heard enough" and that they did not even want to ascertain what is done with the current systems and how. Reportedly, the main administration had provided the developer some "main models" for some tasks

and processes performed and that the developer was given rather free reign over decision-making.

> We were heard. We had so called 'focus groups' but we weren't really listened to. There was a lot of things done so that it was done in the main administration and not here where we do actual work in practice. We weren't consulted on how this specific thing is done but they took some main models on how things are done, and they let the Funidata [the developer] to come up with solutions on how things are done. The principle was kind of "the system does not give in" and not "these features we need and the system should be able to do these". We climbed the tree ass first so to speak. The end user was not listened to or even if they were, it did not mean anything (Interviewee #16)

Moreover, there had been a chance to participate in usability testing, in which the developer's UX-designer gave testers basic work-related tasks and then followed up how the tester performed the task and there was a possibility to give feedback and comment on the processes and tasks performed. Nevertheless, this was done after the system had been already deployed and taken into organization-wide usage.

Most responses suggest that staff members are generally experienced university IT users and understand that technology is and has been a prominent part of their job. Therefore, they are interested in the university IT and have perhaps participated in piloting programs and testing of various related projects to give inputs and feedback. Despite of these aspects their expectations for the new Sisu system have been overall negative and cautious as the user environment has been clearly negative from the beginning. There has been negative argumentation for the Sisu system circulating among the staff by the people who had already had firsthand experiences of the system. Additionally, the administration had reportedly either accidentally or intentionally caused a perception that it regarded the staff's user resistance and user errors as reasons for the negative feedback. Typically, staff members have a perception of not being taken into consideration in the development even though there were chances to give feedback, inputs and wishes regarding the new system as the developer had perceivably shown great disregard towards them. There are no alternatives offered for the Sisu system causing organizational necessity. Despite the negative user environment, the imperative of IT for the job prevails and the typical staff member is confident of his/her IT skills and has shown to acknowledge the importance of its learning. The transition to grasp phase and learning the use of the system had been smooth and immediate after the system had been initially launched.

> It [Sisu] is now the tool of student management and when I'm a lecturer, my primary job here is teaching. Research is marginal. I do teaching and its tools must serve that. (Interviewee #17)

4.2.2 Grasp phase

Learning to use the new Sisu has been burdensome for staff members on average despite the self-perception of being highly self-efficient in relation to IT. The perception is that the reason for this is not change resistance as the organization is implying but because of the incomplete and inoperable perception of the system.

> In the beginning when the system was yet to come, one thought that "it'll be alright still" and that it is still burdensome and shoddy but it'll get better. It feels that as we argued that "this is bad and does not work" the response was "this is just that change resistance and it will pass". At some point I wondered that I don't really feel like I was so change resistant that I usually manage to adapt well using new technology. I would like to think that my attitude towards the Sisu is not because I were a sluggishly change resistant who does not want to ever change and wants to do things like yesterday. (Interviewee #18)

Another reasoning for the hard-to-learn perception was the system's complexity. Specific system features and task processes are experienced too unintuitive and illogical. There are too many stages to go through. View after view opens and in a single view the user may be required to scroll all the way down to do something and then all the way back up to complete the action. This was called "wandering" in the system. It was hard to get a grasp of processes and remember how they were done causing frustration and loss of time from other work activities. Adding to that, the system's terminology is peculiar for an average staff member making it hard to understand what was exactly going on in certain phases or stages of various system processes. Also, the odd terminology caused issues in finding relevant information and navigating through processes effectively affecting the learnability.

> For example, if I want to create an email list or order a Moodle workspace for a course, it would never have occured to me that it was done behind a heading "classification factors" ("luokittelutekijät"), I haven't till this day understood what that means. Then in the administration view there are "study modules" (opintojaksot) and "studies" (opinnot) and behind the latter you'll find course's curriculum-level information which confuses me as it sounds more regarding my own studies or something but it doesn't refer to curriculum-level work in my mind. (Interviewee #18)

Lastly, also further changes in the user environment have affected the learnability of the Sisu system. There were in fact two system replacing the Korppi system: Sisu and KOVS (university's data system for education and curriculum planning and resource planning). Putting it roughly the KOVS system is used to manage course execution and to reserve the spaces needed and the Sisu is used to create courses, create workspaces etc., manage enrollment and give grades. In the beginning, staff members had generally a hard time to learn and remember which activities were done in which system as the two systems were partially overlapping. Moreover, some features are in the process of being transferred

between the two (curricula from KOVS to Sisu for example) causing further confusion in learning processes of both systems.

Most responses suggest staff members have a perception that the support and training resources were inadequate both in quantity and quality. Training and support resources were perceived to be critical for survival though and staff members had typically utilized these resources in some form. There had been training offered for the staff in the earlier spring and then in August 2019 just a month before the organization-wide implementation. In the spring, the problem had been that the developer and the actor responsible for the training had limited knowledge of what the system will be like in practice and how it will work in detail. This led to that the training was perceived too sweeping and lacking. It seemed that neither the developer nor the main administration of the university knew how the new system will specifically affect the work and work processes in practice. The instructions also changed in time as the deployment changed drew nearer and even after that which added to the confusion. Additionally, for these same reasons, instructors had no answers for the participators' questions and in multiple cases the answer was either "I'm not sure yet" or "That is not yet implemented". These strengthened the perception of the systems incompleteness and inoperability.

> We had training but for example during the last spring it was such that they didn't even know what they wanted. They couldn't for example tell us if every teacher is resourced as a responsible teacher and as we had no responsible teachers for example for bachelor's theses, we resourced everyone as normal teachers. Then it turned out that a normal teacher could not give grades so we had to change each teacher individually to responsible teacher by hand (…) Then they instructed us differently in time. At first older students did not have to create curriculums into the new system at all, then they suddenly had to but only the courses they planned to enroll during that academic year were necessary to add (…) ultimately they had to add also the completed and all planned courses to it as well. (Interviewee #16)

On average, staff members reported using rather limited set of system features compared to the previous. Most commonly Sisu was utilized for course information management, course enrollment examination, grading and messaging (to course participants). This is due to four factors: 1) introduction of two new systems (Sisu and KOVS) to replace the previous Korppi system, 2) highlighted importance of a pre-existing TIM system (IT faculty's learning environment), 3) keeping up the previous system for limited features and 4) limitations imposed to the teacher role in Sisu compared to previous. In KOVS, university's curricula and narrower syllabi, space reservations (bookings) for courses (lectures, examinations, subgroup meetings etc.) are managed. Course information is firstly managed in the KOVS system and after that published into Sisu system. Additionally, older pre-existing system called TIM (IT faculty's learning environment) has seen further use within various faculties in the university. TIM is used for partially completed studies to mark grades for individual assignments within certain courses as it is not possible to do so in Sisu system. After publication some of the information is managed in KOVS and some in Sisu. Officially

as of January 2020, mass examinations, study module assessment and aggregation as well as complete degree applications are still managed in Korppi system. In some rare cases old but partially completed courses that had now been completed had to be graded in the Korppi system. Mass examinations from the Korppi system and curricula from the KOVS system are features in the process of being transferred into the Sisu system in the future. Lastly, course enrollment- and grading management were completely revoked from an average staff member and moved to the administration's responsibility.

The analysis points the attention to that staff members have an extensive understanding of the system intentionality on organizational level. There had been gatherings organized in various faculties by the administration in which the system intentionality had been presented on organizational level. The new Sisu system intends to enable better student mobility, co-operation between universities, planning and organizing of studies and study modules as well as reach cost benefits with a single multipolar nation-wide system. Additionally, the administration had deemed the previous Korppi system as a vulnerable monolith and feared that it had information security risks as it had been mainly built by students. Nevertheless, an average staff member lacked understanding of the system intentionality on individual-, practical level. The training had been deemed inadequate and contradictory which had hindered getting grasp of the system's practicality and how it enhances the operations of the university compared to the previous. Additionally, for example, a smooth recognition of prior learning (RPL) which had been one of the key features intended, did not work at all in the autumn when the system was launched causing further confusion of how the system achieves its goals in practice. Overall, the system intentionality was received mostly neutrally as staff overall was aware of the debate going on for the system intentionality in defense for the previous Korppi system.

Leaning the use of Sisu system has been hard for staff members in general, as it had been perceived to be incomplete, inoperable and complex. Additionally, the previous system was replaced by two systems and the old system was kept up as well. There were three systems in use for operations previously managed under one system. The training and support were deemed inadequate; lacking and contradictory, failing to disseminate understanding of the new system's effects on the work on practical level. On average, staff members had a broad understanding of the system intentionality on organizational level, nevertheless. Despite the problems in learning and lacking training and support, a typical staff member reported managing the basic use of the new systems on some level. There were two staff members who reported not managing effectively with the new set of systems on day-to-day level as the training had been inadequate and the use of multiple systems was too confusing. The transition to the assess phase was severely problematic and sluggish. After four-five months since the initial deployment of the system the usage of the Sisu was still perceived burdensome and difficult although on average staff members managed to perform necessary tasks in order to do their jobs.

4.2.3 Assess phase

Overall, for staff members, the Sisu system has had a major negative impact on work productivity and on day-to-day tasks in general. Performing tasks takes a lot more time as the processes are complex and require "wandering" up and down within a one view. Moreover, the loss of user privileges regarding detailed course management such as managing course enrollment, course grading and administrating students within the course have hindered the performance. Performing routine course management, such as adding students to courses and moving students from study group to another for example, requires contacting the administration and waiting for it to perform the desired task which takes time. In the administration the change has caused frustration as performing these routine tasks has caused a massive increase in workload and decrease in productivity overall.

> We've calculated that in each morning it could take from both me and the study secretary one hour to fix Sisu requests from the earlier night, there were students in wrong study groups and so on, meaning it took couple of hours every day to fix and update things. It took immensely work time and then everyone had the same thing. People were in burnout and the [main] administration was like "oh well, it'll get better". (Interviewee #16)

On average, staff members found it also extremely confusing to use multiple partially overlapping systems also affecting the performance negatively. There were no positive aspects brought up regarding the system impact.

The analysis suggests that staff members have had major problems related to the usability and interface of the Sisu system for the same reasons as for its learnability: the system was deemed incomplete and inoperable for some parts and overall unintuitive. Information was hidden, the use involved a lot of system "wandering" and the terminology used was confusing. For example, most simple tasks, such as creating an emailing list required to read instructions extensively which was related into the perception of poor usability. Another reasoning for the poor usability came outside of the system. The context of using three overlapping systems also led into the perception of poor usability regarding the overall user environment. Although the visual appearance of the system is acknowledged to be beautiful and modern.

Generally, staff members have a clearly negative perception of Sisu's reliability as the information quality and authenticity has been perceived negatively. For example, regarding course management, in the beginning all enrolled students had not been visible for the course's responsible teacher. Also, it is required for students to enrolled for examinations in both the new Sisu- and the older Korppi system but when the numbers did not match there was no information available to tell who were the people that had failed to enroll in both systems. Moreover, Sisu system does also not allow updating grades which prevents correcting a false grade or updating it after a student renews course examination and receives a better grade. This has led into situation where Sisu

system has false information regarding students' grades and failed students cannot receive grades at all as the 'failed' -grade cannot be updated later. Another major reliability issue was related to accidental lecture cancelling. In some point during the fall, administration started receiving notices of cancelled lectures by teachers who had no idea why his/her lectures were cancelled by the system. During an investigation it was revealed that as the KOVS system had three different calendars and managing the wrong one for course lectures caused the system to drop linkage between the course and its reservations effectively cancelling every lecture of the course. Moreover, in some cases the mistake was done a secretary from facility maintenance (tilapalvelut) inspecting reservation data. The system failed to give feedback to staff about the cancellation and a teacher usually heard about the it by students asking whether the lectures had been actually cancelled. As of January 2020, this issue was reportedly still not fixed even though it was known.

> There's a possibility to cause damage unknowingly. One cannot reasonably know that it [using wrong calendar for examining reservation information] affected something completely unrelated. (Interviewee #18)

Typically, staff members have somewhat negative perception of user support as in the beginning it had been hard to get help to urgent issues quickly enough because the user support had been heavily congested. There had been too little resources allocated into the user support in contrast to the number of requests it received. Reportedly the delay for urgent requests was three to five days and at least in some cases the delay for the answer had been over a week. Another issue related to the user support was that it did not necessarily have answers for the request, which was perceived especially frustrating.

> (…) There happened something very strange, for example information appeared into Sisu that had been outdated for some time but you couldn't change that from anywhere, so I then asked [the user support] where this information comes from so I can go there and fix it, if they had an information- or dataflow models presenting how it [data] moved but the answer was that they didn't have those and that "let's see if we manage to do it in the autumn". (Interviewee #11)

Even though the delay had diminished after the congested early autumn the perception of inadequate user support had prevailed. There was not necessarily motivation to utilize the resources. Support from colleagues and peers was just as common and usually perceived better.

On average, staff members are overall in a clearly dissatisfied state. This due to the poor perceived overall performance of the Sisu system. Sisu has had a negative impact on the workflow and productivity perceivably because the system is in an incomplete state and unreliable. Tasks take long time, as they are too complex, and the system feels unintuitive. Moreover, managing courses require constantly contacting administration to perform tasks previously performed independently because of revoked administrative privileges and there are three systems in use compared to just one previously. The user support had

not been responsive when it was the most requested and had no satisfying answers to all problems relevant. The Sisu system and the new user environment overall has not only affected the workload, -flow and productivity negatively but also the general atmosphere among the staff and individual well-being of an average staff member.

> Something that could've changed a lot, maybe not from the system's perspective, but maybe the atmosphere if they [main administration or the developer] had come and to say thanks and apologize about the autumn and that they would listen to our worries and give an impression that the anxiety and pain had been noticed. Then the concentration on the background work and to the practical changes coming so we wouldn't have tried to push that Korppi mentality into Sisu. (Interview #18)

Most responses suggest that staff members also barely survive with the system to perform their day-to-day tasks with it. Moreover, the changes in user environment overall with the second new system makes it more difficult to manage things. They are dependent on support and instructions to complete tasks and the situation has not gotten better during the four- to five-month period in which the two new systems, KOVS and Sisu had been in organization-wide usage. Although on average, staff members had a clear perception of how the system intends to change and enhance the performance of the university and individuals the reality has been different. Sisu system has been burdensome to learn and its impact has been predominantly negative on all levels and quality has been poor. For staff members in general, the promised or theorized value had still not realized in practical level. The usage has not yet shown a single sign of movement towards neutral affective state and satisfaction currently.

4.2.4 Be given and Submit phases

On average, staff members are neither especially motivated and willing nor unmotivated and unwilling to adapt their work routines accordingly to the required by the Sisu and KOVS systems. The adaptation is seen mostly as a necessity and it has been made clear by the main administration that it is not backing off despite the criticism and request to delay the project until the system is in the better shape to perform as intended.

> Well it's a necessity [to adapt]. Listen to the spruce on the roots of which one's house is [A Finnish proverb meaning that one has to be obedient to the environment around which one lives in]. (Interviewee #17)

On average staff sees only slight potential in the system. The intentionality is understood, and it is the source of Sisu's potential as well. There have been updates answering some problematic aspects of the system and that is perceived well. For example, missing features have been added. The problems have been so severe that it shows in the attitude though. It is a fear that the system will not be able to achieve its goals on bigger scale and is in the end

abandoned. That, for example, other universities abandon the idea because of the experiences gained in the University of Jyväskylä or that different universities will not be able to agree on system-specific details.

Generally, staff's overall opinion of the situation remains negative. Sisu's rushed implementation is seen as an organizational catastrophe on individual level because of its negative impact to productivity and mental well-being. Additionally, the situation is perceived as negative also due to it nature where an organization has to adapt to tool or a system that is moreover defective as it is and not the other way around where the new system complements and enhances the organizations performance. On average staff members feel that Sisu system should have been tested further and been piloted properly so that it would have been deployed in a complete state, ready to perform fluently and enhancing the university's performance as intended. Moreover, there were hopes that the university had put more effort into change management, mapping current processes and needs of the staff and students more carefully as a part of system requirements management and supported the staff more in the change on other levels as opposed to system level.

> Sisu guides our performance even though it should be an ancillary tool and not redefine our way of working. Now it's been like the tail has wagged the dog. (Interviewee #16)

On average, staff does not believe that Sisu system is working properly and is satisficing for the university on any level currently. The perception is that there is some potential in the system, but the fears surpass the hopes for the future. Routinization has occurred on minimum level concentrating on core function necessary for the survival in the job. An average staff member remains in negative affective state and dissatisfied overall after four to five months into the implementation.

4.3 A typical student vs. a typical staff member

The acceptance process for a typical student and staff member regarding the Sisu system in the University of Jyväskylä has proceeded similarly on a general level. Both user groups have taken the new system into use, managed to learn how to perform basic tasks necessary for the survival and understand the intentionality of the system on some level. For both user groups, learning to use Sisu system has been especially hard despite of the self-perception of being highly self-efficient and adaptable in relation to IT, the expected and intended system value has not yet realized and the system quality is perceived as poor. Both user groups are neither willing and motivated nor unwilling and unmotivated to adapt accordingly, remaining overall dissatisfied and in negative affective state. Both user groups reported utilizing only the most critical core features in order to minimize the level of frustration and negative effects of the system impact.

Overall, students had remained more neutral throughout the acceptance process and sees a brighter future for the system despite being in a negative affective state, and moderately dissatisfied. On average, students spend considerably a shorter time in the university compared to a staff member and prioritizes graduation. Thus, students may not be especially interested in university IT in general and Sisu system specifically but wants to manage with the bare minimum necessary. Moreover, students on average did not perceive user involvement as an important factor in the development of Sisu. These aspects could moderate the level of dissatisfaction despite perceived negative impact on workload and productivity similarly as they moderated the expectations for the Sisu system. On the other hand, staff members on average understand that the university IT is a prevalent aspect of their work and career affecting directly, not only their productivity and performance but also psychical well-being and comfort. At least to some degree because of these, staff members on average show major interest in university IT, development projects and perceives user involvement more important. The perceived poor system quality, system impact on workload, productivity and overall psychical well-being, introduction of multiple overlapping systems and neglected user involvement in the development project thus have a greater influence on the affective state and level of satisfaction. Therefore, a typical staff member is significantly more dissatisfied to the Sisu system and the situation overall and sees less potential in it.

There were some interesting differences within individual acceptance process phases as well. In the receive phase subjective norms, expectations and user involvement seemed to have no effect for students on average. They were not especially interested in the Sisu system in advance and had no tangible expectations for it. Their peers seemed to have been in the same situation which showed as neutral subjective norms. Generally students felt that they were not involved in the development and did not necessarily perceive it important. Because of the low interest and not being involved meant that there was no basis to form expectations. For staff members on the other hand user involvement, subjective norms and expectations had played bigger role in the receive phase. User involvement was perceived important and on average, staff members had been given a change to be involved but the general perception was that despite of being heard they were necessarily not listened to. For staff members, the negative subjective norms stemmed at least partially from circulating negative experiences from people who had been involved somehow in the project. Negative personal expectations stemmed from both the negative subjective norms and negative personal experiences of the user involvement as well as knowledge of the Sisu system gained via it.

In the grasp phase, students had a good perception of the quality and availability of the training and support resources on average but did not necessarily utilize them as the main learning method utilized did not entail it. Thus, utilization of such resources thus did not seem to have a particular effect. Training and support resources were still perceived available if needed providing mental assurance. Staff members on the other hand had utilized training and

support resources and deemed them inadequate by experience further hindering the learning process on average. Both the perception and utilization of such resources were perceived critical. Overall learning the use of Sisu was perceived hard with and without utilizing training and support resources. Moreover, students understood the Sisu system's intentionality on theoretical level lacking on the exemplary individual level. Nevertheless, accepting the intentionality. On average, staff members also understood the Sisu system's intentionality on organizational level. Similarly, they also lacked understanding of how the system was going to achieve its goals and fulfill its intention in practice. It seems that the perception inadequate training resources managed to strengthen the fears and mistrust regarding the system's ability to achieve the intended goals. The lack of knowledge and these fears and mistrust may have contributed into the unacceptance of the system intentionality overall.

In the assess phase, students on average had not utilized user support beyond reading instructions as the problems were either solved with peers or independently and the user support was not perceived to be able to "fix" the issues regarding false information or complex usability for example. Staff members on the other hand had utilized user support, but the perception was negative as the its performance was deemed ineffective and slow during the most critical times. Both archetypes and their differences are illustrated in a comparison matrix attached to the appendix (See appendix 2).

5 DISCUSSION

In this chapter the empirical results are compared to the literature, analyzed, and discussed in detail. The combination of empirical results and literature of the subject is utilized to introduce a theoretical framework describing the acceptance of Sisu system in the university of Jyväskylä.

5.1 Enfolding literature

The study's theoretical framework will be examined phase by phase. Within each phase the empirical results are compared to relevant literature. Experiences from both students and staff are examined in the same chapter, one theorized or new observed construct in a one paragraph. This chapter provides explanations and justifications for each element added into the nascent framework for Sisu's acceptance in the University of Jyväskylä.

5.1.1 Receive phase

The receive phase is a starting point for the user acceptance on new technology in the Schwarz et al.'s (2014) process model as the user can choose to either start using and learning the new IT or reject it completely. Users' personality, capabilities, expectations, environment and role in the development project affects how they will receive the new IT (Schwarz et al., 2014).

IT-self-efficacy was observed having affected both students and staff members in Sisu's context. Theoretically, higher levels of perceived IT self-efficacy help users remaining positive and open towards new IT during the change if encountering difficulties (Schwarz et al., 2014). The empirical results showed that for both user groups such levels were self-perceived high (see appendix 2). both had openly taken the system into use despite early difficulties trying to learn the usage showing confidence which implies that empirical results observably matched theoretical implications.

Similarly, self-perception of learning and adapting capabilities was observed affecting both students and staff members. Theoretically such flexibility enables confidence in the user and allows them to process effectively through the initial phases of the user acceptance process remaining less likely to attempt reject the new IT outright for change's sake (Schwarz et al., 2014). Both students and staff members had a self-perception of adaptable personality and learning was perceived generally easy, natural even. The attitudes towards change was generally positive but conditional: the change must be well rationalized, its effects must be positive in bigger scale and easily perceivable. The empirical data implied that the flexibility and openness towards change had contributed in achieving the goals of the theorized phase as users had again begun using and learning Sisu despite the initial problems arising. This observation was in match with the theoretical implications.

The analysis suggests that prior experiences and expectations were observed to affect staff members on average but for students the effect was neutral in general. Theoretically, strong positive thoughts and attitudes towards the switch subject (Korppi system in the context of this study) implies being higher up in the acceptance process of it and likelihood of having difficulties receiving new IT (Schwarz et al., 2014). The empirical results showed that staff members had been generally aware of the organization-wide debate for the defense of the Korppi system and its capabilities which implies that the organizational acceptance being high for it. Throughout the interviews it became also clear that many staff members had an emotional bond towards the previous system as it had worked well and for a long time despite the generally open and adaptable attitude towards new IT overall. Typically, staff members spoke overall positively and at most neutrally about Korppi. Additionally, the quality of training had affected staff's expectations in general implying that it could be added as a new construct affecting the receive phase. New proposed theoretical constructs are discussed later. Interestingly, students on average had neutral expectations and did not show interest in university IT in general nor in Sisu system particularly. Even though the effect of the construct was observed neutral, Schwarz et al. (2014) argue that neutral attitude towards past IT decreases the likelihood of encountering similar issues in receiving IT. This implication seems to be backed by the empirical results as students' affective state seemed to be more accepting compared to staff's in the beginning phases validating inclusion of expectations as a construct despite the observed neutral effect of it.

Subjective norms were observed to affect staff members but had neutral effect on students on average. According to Schwarz et al. (2014) negative or positive spirits of others around the user (subjective norms) influence his/her reaction and attitude accordingly to similar direction. For staff members, circulating negative experiences of colleagues who had already used the system and negative experiences from other institutes had stirred fearful atmosphere and raised concerns affecting ultimately personal expectations negatively in addition to the lacking quality of training and level of user involvement. This observation is therefore seemingly backed by the literature. For students on average

the effect remained neutral as there had not been wide discussion nor interest towards the Sisu system initially and expectations had remained neutral overall. Lacking prevalent spirits of other around students in general led to subjective norms' neutral effect in this study's sampling.

Also, user involvement was observed to affect primarily staff members but not students on average. Participation to the development project in any form whether by consulting, testing or giving feedback should lead to feeling of ownership towards the new IT and cause feeling of voluntariness and choice (Schwarz et al., 2014). User involvement had affected staff members seemingly because of personal interest towards university IT and participation to new projects as well as willingness to participate. The developer and the university had managed to give out a perception of not valuing the given feedback though. This, in turn, had significantly affected the attitudes and expectations negatively. The importance of user involvement was thus prevalent in the empirical results in addition to theoretical implications. In contrary, for student the effect of user involvement was observed again neutral in average. There was no personal interest to participate and students did not necessarily even consider the participation nor giving input important despite the university placing them as users into the focal point during development projects. This mindset seems to stir from the general uninterest towards university IT in general. It could be speculated the uninterested attitude is affected by the fact that students will spend relatively short periods of times studying in the university in comparison to career staff members. "I'm going to graduate soon (anyway)" -types of remarks were common in the student interviews as sort of verbal shrugs. Exploration of this aspect could be an interesting topic for future research.

As for the newly identified constructs, for both user groups: staff members and students the driving force for the first acceptance process phase seemed to have been simply necessity and lack of alternatives. Necessity and having no choice were mentioned multiple time by both the students and staff members coming out usually in jokingly manner if asked whether the interviewee had adapted or was willing to adapt accordingly. Necessity is determined as a state of having no choice and influence over the change and reception of new IT. The new IT is therefore imposed on the users for them to keep working or studying at all. In an organizational and mandatory context this comes as no surprise. Necessity is loosely adapted from Venkatesh et al.'s (2003) UTAUT 1 model. In the Venkatesh et al.'s (2012) examination of UTAUT 1 model the voluntariness of use, the context's mandatory setting is merely utilized as a moderator strengthening social influence's (social norms) effect in the acceptance of new IT. This study's empirical results did not imply that this was the case as social norms was not deemed important from the perspective of students on average and there were more prominent factors affecting staff members' social environment in general at least hiding possible strengthening effect of the mandatory context. Therefore, it was more suitable and descriptive of the empirical results to include necessity as its own independent construct.

Another new element for the receive phase was derived from Schwarz et al.'s (2014) acceptance process model but from the second phase. The empirical results showed that staff members' expectations were affected on average by the perception of the training and support resources and their quality. In the context of Sisu the perceived inadequate quality of the training resources had strengthened the fears and concerns for the future and Sisu's impact on their work and well-being. Schwarz et al. (2014) argue that the quality of training shapes the user's response for the new IT and motivation towards the change as it enables better understanding of the new IT and perception of its ease of use. Perception of ease of use is a closely related to personal expectations for the new IT in the literature. For example, in the UTAUT model (Venkatesh et al., 2003) effort expectancy as a dimension of overall personal expectations highlights the expected ease of use of certain technology perceived by the user. Training and its quality are thus closely linked with expectations management in the literature and this link is partially supported by the empirical results. It is worth to mention that the empirical results did not provide similar results for students in general. The reasoning for this seems to be the observed neutral impact of personal expectations overall in the receive phase as well as lesser utilization of training resources compared to staff members on average.

5.1.2 Grasp phase

The grasp phase revolves around the initial learning and usage of the new IT during which users strive to understand how to use it to complete basic day-to-day tasks and the rationality for its purpose. This is affected by personal experience of learning the new IT, apprehension of its rationality, perceived support and training resources and their quality. (Schwarz et al., 2014.)

Empirical results suggest that personal experience of learning new IT is affected by multiple factors starting from personal qualities to new IT's attributes and external factors such as training and other changes in the user environment. Schwarz et al.'s (2014) process model emphasizes perception of training resource availability and quality in aiding the users to understand how to complete tasks with the new IT and its intentionality allowing movement to further assessing its quality. Resources must be available to allow users to perform tasks successfully and the quality of the resources enable users to efficiently learn the new IT and motivates them. Inadequate training makes it more difficult to start using the system and get a grasp of it. (Schwarz et al., 2014.) The empirical results suggest that both students' and staff members' experiences were affected by the perception of training and resources availability and quality. Typically, staff members felt that the inadequate training resources and utilization of them hindered the learning process significantly instead of supporting it failing to achieve its goals. Reasoning for such perception was sweeping and inaccurate quality of the training and constantly changing instructions. For students though, the perception of training resource quality and availability was rather positive as what was offered was deemed "surely good enough" and

little interest was pointed towards them otherwise on average. This could be linked to main learning method of being trial-and-error and overall uninterested attitude towards university IT as opposed to staff members in general who regarded training as essential and were interested in university IT overall. Generally, students seem to have relied on other aspects in learning and getting a grasp of the Sisu system. On average, staff members utilized the resources, but students did not necessarily do so. This is the reason why perception and utilization are separated from each other. Most responses suggest that the good perception worked as a mental "safety net" in the background for students impacting the grasp phase but then the impact of utilization was left unnoticeable in the empirical data.

As mentioned before it was observed from the empirical results that in addition to perception and utilization of training resources, both user groups' learning experience was also impacted by a number of other elements either not included in the Schwarz et al.'s (2014) process-based view or found out to be relevant in other phases. Firstly, Sisu system's learnability was perceived hard by both user groups. Sisu system is perceived to be unintuitive, illogical, too complex and including confusing terminology which had affected the personal experience of learning and getting a grasp of the system. These could be related to system-, information- and service attributes linked to IT success literature. In IT success models such as Seddon's model by Seddon (1997) and amended Seddon's model by Rai et al. (2002) these mentioned attributes are utilized as measures for overall IT quality affecting user satisfaction, attitudes and use intention. The empirical results suggest that the initially perceived inadequate quality of Sisu system together with the learning methods of students dismissing user support's role and staff members' average perception of inadequate quality of the user support had hindered the learning process for both user groups. To highlight this suggestion in the framework it was determined important to add "system learnability" as a new construct to depict this effect. It revolves around users' initial perceptions of the system quality. Good system and information quality could enable efficient learning independently and even if the user support and training resources are perceived inadequate.

Secondly, the empirical results suggested that the system learnability for staff members on average was additionally affected by additional major changes in the user environment. The old Korppi system had been replaced by two distinct systems: Sisu and KOVS into which most of the activities had been transferred. Additionally, Korppi system had been retained for limited functionality. Instead of one acceptance and learning process staff members were engaged in two. Moreover, features and activities kept being transferred between the two new systems after their initial launch further causing confusion and hindering the learning process. This factor, further radical changes in user environment and effects of being engaged in multiple IT acceptance and learning processes is not considered in the literature chosen for this study and was surprising. Also, a prompt additional literature analysis was unable to provide theoretical implications for this finding implying that this might be a novel as-

pect of user acceptance literature requiring further examination. Nevertheless, it was considered important to add "additional changes in the user environment" as a new construct to reflect this finding in the empirical results.

Lastly, the empirical data suggested that both students and staff members on average had interestingly learned to use the Sisu system to a degree in which they could perform day-to-day tasks successfully despite the major problems. It became clear that this was achieved in time by determined independent learning and in cooperation with peers. This finding reflects earlier mentioned finding of higher self-perceived learning and adapting capabilities in relation to IT introduced in the first phase of Schwarz et al.'s (2014) process-based view of IT acceptance. Users showed confidence and determination keeping learning to use the system independently and together despite the difficulties. To reflect this finding, it was decided to add learning and adaptation as a construct affecting grasp as well in addition to the first phase.

Understanding (and agreeing with) the rationality of the system enables users to better get a grasp of the system, accept it and remain positive about the change (Schwarz et al., 2014). On a wider organizational context both students and staff members seemed to have been aware of the system intentionality on average, knowing the overall reasons for the change. The university had managed to provide and disseminate strategic explanations for the deployment of system and reasoning behind the core functionalities. What was left unclear though was how the system would achieve its intended goals in practice as few real examples of practical applications could be provided and how day-to-day work is affected for the better. For staff members in general, because of the lacking practical explanations and demonstration the intentionality was necessarily not accepted but left the staff member skeptical and doubtful. Student on average on the other hand seemed to accept the intentionality perhaps trusting the management's capability to do rational decisions reacting more indulgently. Therefore, the empirical results as far as a typical student is concerned seemed to have supported the implication of the importance of system intentionality for IT acceptance. It is difficult to estimate whether staff member's reaction would have been different if the intentionality had been clear on practical level as well. Being aware of the system intentionality was observed to be enough for the users to move to the next phase and assessing the Sisu system's value. This is because the main intentionality of Sisu system was not necessarily perceived important for day-to-day work as it was seen more as a strategic tool for the university management. It was expected that day-to-day work should remain at least as fluent as before via the new IT. Perhaps this aspect influenced the users to later assess the system's quality by comparing it to the previous system and personal expectations possibly hindering the process further.

The empirical results suggest that both students and staff members on average had managed to achieve grasp- phases theoretical goals: they have managed to learn to perform basic tasks with it, survive with it and understands its intentionality on some level. The negative initial experiences with the system had caused generally neutral attitudes of students to shift towards negative and

further strengthen the already generally negative attitudes of staff members. Moreover, the empirical results seem to imply that the assessment of the system value begins before the user has learned to use the system to perform basic day-to-day tasks. In the interviews it was apparent that assessment of the system's impact for the user's work begins as the user has the first experience with the system. Some interviewees claimed that they had immediately known that the system was doomed upon the first try or sight even. This aspect would make the grasp and assess phases partially overlapping. It was determined that the phases were left separate as there was no further details in the results. It would make an interesting topic or aspect of future research.

5.1.3 Assess phase

During the third phase, the user assesses the valuableness of the new IT on individual- and organizational level by using it. The usage should allow the user to discover the realizing value promised and provide specific examples why and how the system provides value. The user should show movement towards more in-depth use of the system and the realizing value should lead into satisfaction. (Schwarz et al., 2014.)

Schwarz et al.'s (2014) process-based model does not specify which aspects affect the value realization and how the perceived value is generated. To answers these questions and provide more accurate and descriptive empirical results in Sisu system's context, value was examined through theoretical constructs of IT acceptance and -success literature. As Schwarz et al.'s (2014) premise is that realizing value through practical examples (qualities of the IT) leads into satisfaction and similarly the IT success literature's (DeLone & McLean, 1992; Seddon, 1997; Rai et al., 2002) premise is that higher IT quality leads into satisfaction, it was determined that examining IT quality could reflect perceived value. To include a thorough coverage of value on various levels, the DeLone & McLean model (DeLone & McLean, 2003) was chosen as a basis for quality constructs reflecting user perceived value. The quality is divided into information quality and system quality reflecting new IT's engineering-oriented performance characteristics (DeLone & McLean, 1992) and service quality reflecting the quality of for example, the support resources. In addition to system and information quality is was determined to include a construct to reflect net benefits from IT success literature (see Seddon, 1997; Rai et al., 2002) as it is regarded as one factor affecting user satisfaction and reflecting perceived value. A construct reflecting net benefits in Seddon model (Seddon, 1997) and its updated version (Rai et al., 2002) is perceived usefulness. It affects users similarly to UTAUT models' (Venkatesh et al., 2003; Venkatesh et al., 2012) performance expectancy revolving around expected and perceived benefits provided by the system use to the user was determined important for perceived value construct. To describe this aspect of value generation a new construct called "system impact" was theorized and included to the research framework. System impact is the users' perception of the new IT's usefulness in relation to their work. Finally, to

reflect Sisu's user perceived value, there are three constructs: System quality, Information quality and system impact.

Generally, both students and staff members had a self-perception of open personality welcoming the change if it is justified and had apparent and positive impact overall. This premise is regarded as the base for expectations for the value the system impact. The general perception of system impact was negative as it had hindered productivity and workflow. Observably, the expected value for system impact had not realized. Both user groups were also able to point out that the negative impact had occurred due to poor usability and reliability (linked to system- and information quality) and additionally for staff members due to lack of seemingly important features and individual privileges overall. Moreover, outside of the Sisu system the introduction of KOVS system as a partially overlapping system had negatively affected the impact of the overall change in the user environment.

As for the system quality, both user groups had perceived it negatively. The Sisu system felt incomplete to a point in which it was deemed partially inoperable as it had "teething issues" with bugs and glitches. Perceived system quality was additionally affected by perceived poor usability of the system. Sisu was perceived overall burdensome to use and felt unintuitive adding to the frustration. It is worth to mention that some students had brought up a few individual features and the visual appearance which were perceived positively. The overall perception of and system quality for both user groups remained negative. Expectations for the system quality were not brought up directly in the empirical results. Although it can be interpreted that the expectations had been at least the lack of the mentioned negative aspects as it became apparent in the interviews when asked about what could have been done differently. Many found it difficult to come up with precise expectations for the system's performance. This could imply that the system quality is usually assessed in relation to the actual use experience rather than in advance independently. Also, the system intentionality was understood mostly on strategic level which may have made it more difficult to form expectations for the system on day-to-day level in forehand. It is hard to assess whether the system quality would be perceived positively or neutrally in the absence of problems.

As for the information quality, both students and staff members had perceived it negatively in general. The lacking information authenticity and quantity was brought up by both user groups. The perception was that there was too much irrelevant information available and false information was generally present. In some cases, the false information could not be corrected due to missing data flow charts. Lacking information authenticity could be usually linked to user error within the system but in Sisu system's case the information was affected also by correct tasks performed but simply on the, later identified wrong page/calendar view. The lacking information quality negatively affected the perceived reliability of the Sisu system and system impact. Again, discussing the expectations for information quality is problematic. In the empirical results these expectations were left hidden perhaps for similar reasons as mentioned

earlier in regards of expectations for system quality and again it is hard to determine whether the information quality was perceived positively or negatively in the absence of these issues encountered.

Finally, Schwarz et al. (2014) highlights the importance of responsive user support response aiding users to see the value and moderate the evaluation process in the assess phase. It happens as the user has minimum requirements, needs and desires and the IT department may help fulfilling such feelings (Schwarz et al., 2014). User support is also prevalent in the updated DeLone and McLean's IT success model (DeLone & McLean, 2003). This implication was observed only partially present in the empirical results. Generally, for students, the user support seemed to have neutral effect in the assess phase. Problems were solved mostly independently or with peers by reading instructions without further support from the IT department. Instructions as a form of user support did not seem to have affected the perception of realizing value in any way though. It may have gotten them through the issues but the underlying major problems affecting the perceived value did not disappear. For staff members in general the user support had a negative effect as the support was requested and needed but unavailable due to heavy congestion as the resources allocated to the user support were unmatched with the number of requests incoming. It is impossible to assess whether the IT department could have had effects similar to the theoretical implications even if it had had the resources to effectively engage in interaction and was perceived adequate. In the empirical results suggest that the problems with the user support availability and adequacy added to the feelings of dissatisfaction and thus it was left as an affecting construct for a typical staff member.

The empirical results suggest that the determined constructs for perceived value extracted from IT success literature were able to describe the generation and realization of perceived value. They were also observed to behave accordingly to their theoretical implications in the empirical results: both the system quality and information quality had seemingly affected both the user satisfaction and perceived usefulness. On average, neither students nor staff members have yet been able to achieve all the theorized goals and is able to theoretically advance to further phases of the acceptance process. The empirical results suggest that both user groups are at this phase, assessing the value of Sisu system and it has not yet realized for them in practice. The negative user experience and poor perceived value had affected the affective states clearly negatively and increased the feeling of dissatisfaction of both user groups. This phase is iterative in nature as the evaluation continues as the system updates and there are no alternatives or rolling back to the old system. It is noteworthy that the observation of both user groups remaining in the assess phase may make it more difficult to examine the following phases reliably with this study's sampling.

5.1.4 Be given and Submit phases

The last phase of the acceptance process includes two parallel psychological processes, namely be given and submit, taking place simultaneously. In the submit sub-phase, if the benefits of the new IT are clear, the user begins to move towards a positive affective state being satisfied and routinization of the use. Full routinization is theoretically impossible until the value of the new IT has realized. Through satisfaction and routinization, the user moves towards in-depth use of the system and continues looking for new ways to utilize the new IT without doubting the IT. This in-depth utilization of the system differentiates these two processes from one another. (Schwarz et al., 2014.)

Schwarz et al. (2014) argue that in the be given phase the clear benefits of the new IT should enable the users to determine whether they are willing to adapt their work patterns and routines accordingly with the new IT. Willingness should indicate positive affective state and satisfaction. (Schwarz et al., 2014). In the empirical results the situation was observed to be much more complex. Generally, both students and staff members do not see the value of the Sisu system, yet at least. Both user groups were also in negative affective state and dissatisfied which seems to be in line with the theoretical implications for the causality of seeing value (perceived usefulness) and satisfaction in the Schwarz et al.'s (2014) paper and in the IT success literature (see Seddon, 1997; Rai et al., 2002). Nevertheless, both user groups felt indifferent about the willingness and motivation to adapt accordingly. They were not happy about it but did not want to outright reject adapting as using the Sisu system was necessary for their job were it studying or working. The theoretical implication of the requirement of visible benefits before evaluating the willingness to adapt was seemingly not supported in the empirical results as the users were not unwilling to adapt despite not seeing the promised value realizing and being dissatisfied. On the other hand, it could be argued that the mandatory context and necessity does not allow for rejecting the new system and being unwilling to adapt. Another possibility is that the ability to continue work in some form was in fact the minimum value required to allow users to accept and adapt the new IT but there was no empirical evidence for it beyond this notion. It seems that in a mandatory context the willingness and motivation to adapt is not as important as it could be in another context and its effect was perceived neutral.

The mandatory context was observed to have effect on the users preventing users from rejecting the new IT despite the negative affective state, feelings of dissatisfaction and missing realizing perceived value. It was determined that the necessity should thus be added as an affecting construct to the be given phase.

In both user groups the usage of the system revolved around the minimum required level even though the perception in every case was that the Sisu system was a permanent and continual part of work routines. The full routinization had not happened which is matched with the theoretical implication by Schwarz et al. (2014) which states that full routinization cannot occur until the

value can be seen and the user is in positive affective state. The observation that the system use is not fully routinized and not using the Sisu system deeply implies that the gap between the two parallel phases is not crossed which is not surprising as on average neither students nor staff members theoretically should have reached these phases in the first place.

Another construct perceivably influencing the affective state of students in general was perceived potential. The perceived potential stems from the acceptance of the system intentionality and increases feelings of understanding and sympathy acknowledging that there is a possibility for the things to turn out for the better in the future. The positive effect of the perceived potential was marginalized by the other negatively affecting factors. For staff members potential did not provide positive effects in general which could be as a result of not reacting as positively to the system intentionality. The notion of the potential as an affecting construct was also included in the Schwarz et al.'s (2014) acceptance process thus remaining confirmed in by the empirical results.

It is hard to evaluate the be give and submit phases as the empirical results suggests that the users are not in either of the two phases yet. Identifying user affecting constructs was deemed challenging. There was no evidence of disproving the theoretical implication of the requirement of seeing the benefits and value of the system before the affective state can move towards positive and satisfaction can emerge. Theoretically neither of the two user groups should be in positive affective state, satisfied or especially willing to adapt and this is observable in the empirical results. The interesting part was that despite the lack of routinization, positive attitudes and realizing value, both students and staff members considered Sisu system as a permanent and continual part of their work routines on average. This was likely due to the mandatory context of the situation as in the interviews it was stated in most cases that they have no choice or control over the situation. This finding supports the importance of highlighting the necessity as an affecting construct in both the be given- and submit phases.

Overall, this study could not identify new requirements or aspects enabling movement between acceptance process phases but there was support for existing "enablers" which can be seen supporting the overall theoretical acceptance process structure presented by Schwarz et al. (2014) for IT acceptance. Another aspect supporting the process structure was that the both user groups seemed to have advanced "chronologically" so that there were no observable gaps (theoretically uncompleted phases) in between theoretically completed phases. It may be valid to assume that the theorized goals or so called "enablers" therefore were prevalent in the empirical results as well. Nevertheless, in the empirical results it was observed that the grasp phase was observed to overlap at least partially with the assess phase as the learning took time and allowed the users to start assessing the system quality, impact to work and value at the same time implying that the phases could happen at least partially parallel blurring the exact moment of movement between the phases. Moreover, the movement towards neutral or positive affective state as an "enabler" for

movement between the receive and grasp phase was only partially present in the empirical results. The learning process started despite the attitudes and expectations being generally negative for staff members. Perhaps due to the mandatory context of the situation. Generally, student were in a neutral affective state in the receive phase, but it was only temporary turned quickly towards negative as the user progressed into the learning phase. It did not prevent the student's movement forward. Interestingly, the movement towards positive affective state as an enabler for movement between assess and be given phases was seemingly apparent in the empirical results. The invisible value of the system and negative experiences prevented the movement towards positive affective state and satisfaction. Additionally, the empirical results implied that the movement had not yet occurred between the phases implying that the movement towards affective state could be prevalent. Nevertheless, it is hard to determine which factors in reality affect the movement in the case of Sisu system as there was no record of any user being theoretically in the fourth phase yet. Thus, this "enabler" cannot be completely overlooked. The overall situation with identified affecting variables are illustrated in the following figure. (see Figure 11)

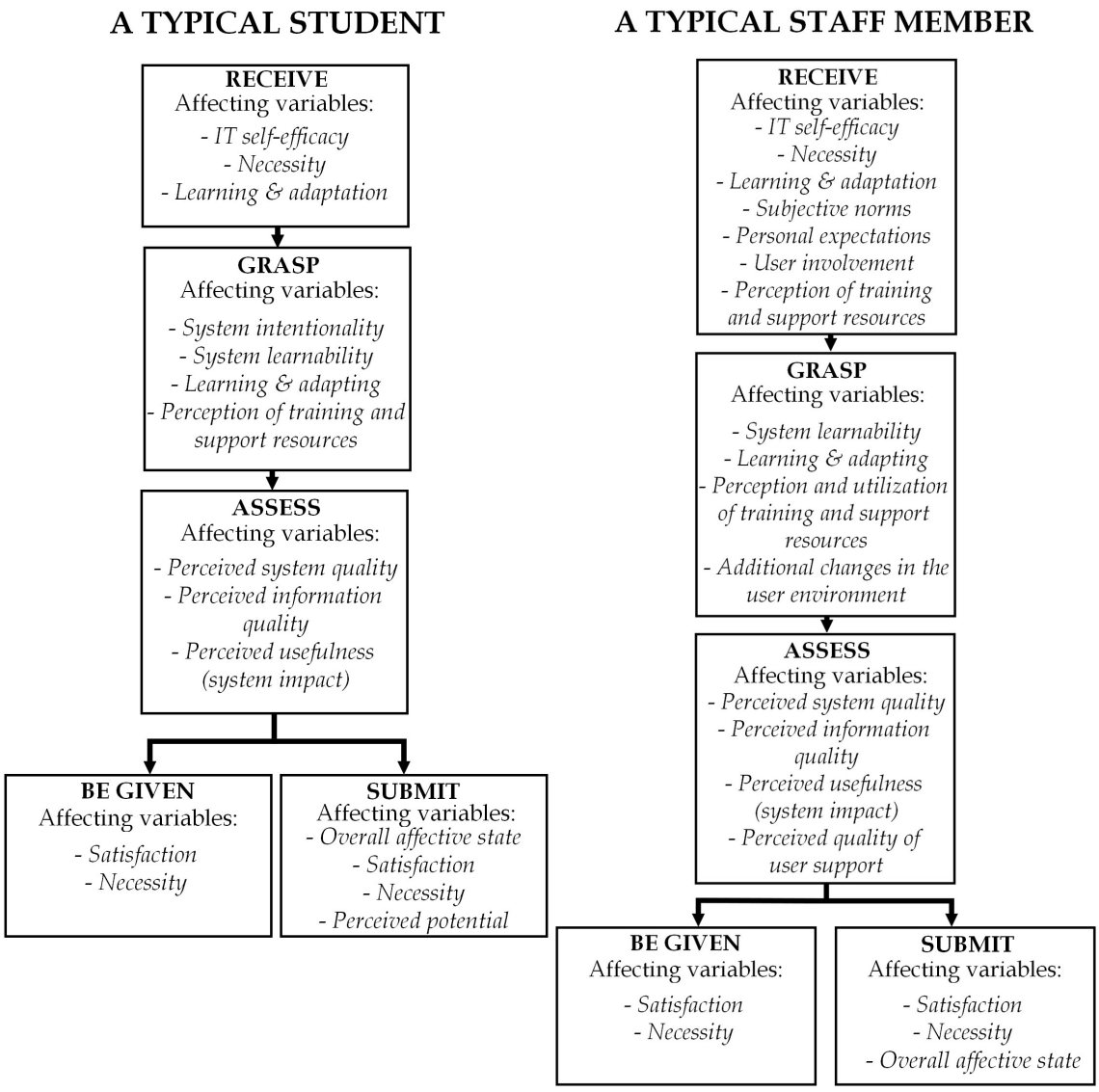

Figure 11: Identified affecting variables (constructs) for both user groups

5.1.5 Additional observations

Additionally, the empirical results provided findings outside of the acceptance process. Our findings suggest that the PPM model does not provide much insights in context of this research. Only a handful of PPM elements could be identified from the empirical results. Most of these elements were simply overall mooring variables. No push factors, pushing users from Korppi system to Sisu system or pull factors, pulling users from using Korppi to use Sisu system could be identified. This could indicate that the in a situation where switching behavior happens on organizational lev-el, where the actor is the University of Jyväskylä rather than individual within it, the model has not perceivably had significant effect on the individuals per se.

Some of the individual interviewees reported using some sort of "shadow systems", avoiding the use of the new system. Usage of such systems was justified by the unreliability and inoperability of the Sisu system. The two identified use cases for shadow systems was 1) using personal third-party calendar instead of the Sisu calendar and 2) searching information elsewhere for example from the university's and/or faculty's website. The usage of shadow systems was interesting and not surprising considering the overall level of satisfaction and perceived quality of Sisu system. It implies that the willingness to adapt was not always met with an indifferent attitude. The reported cases of using shadow systems were nevertheless rare enough for it not to make it to the theoretical framework and to the user group archetypes. More surprising is that the usage of shadow systems was rare considered the overall attitudes and perceptions of users and the topic could be further examined in future research.
Many of the interviewees had pointed out that to their perception the university had belittled their negative experiences as change resistance and deliberate tort seemingly blaming the users for their own difficulties. In this study it was observed that both user groups had self-perceptions of open and capable personalities in relation to IT and had taken the system into use and learned the use despite the difficulties as best as they could. Perhaps the debate in defense of the previous Korppi system and reporting of the difficulties and problems had been misinterpreted as change resistance by the university's Digital services and management? Or perhaps users had misinterpreted the university's message and answer aggressive? Nonetheless the level of communication between the users and the organization seems to have been insufficient and lacking understanding for both parties as prevalent by this notion.

5.2 Nascent framework for Sisu acceptance in the University of Jyväskylä

The framework presented follows Schwarz et al.'s (2014) process-based view of IT acceptance. The framework includes all the five theorized phases: 1) receive, 2) grasp, 3) assess, 4a) be given and 4b) submit. Different sets of variables were observed to have affected the two user group archetypes (a typical student and a typical staff member). This is illustrated in the framework by three types of affecting variables: 1) affecting both the typical student and -staff member, 2) affecting only the typical student and 3) affecting only the typical staff member. Each phase is briefly summarized in separate paragraphs. All the framework elements are based on the results combining the empirical results and literature providing a simple but holistic illustration of the research results on a construct level. The framework is presented in the following figure (see figure 12).

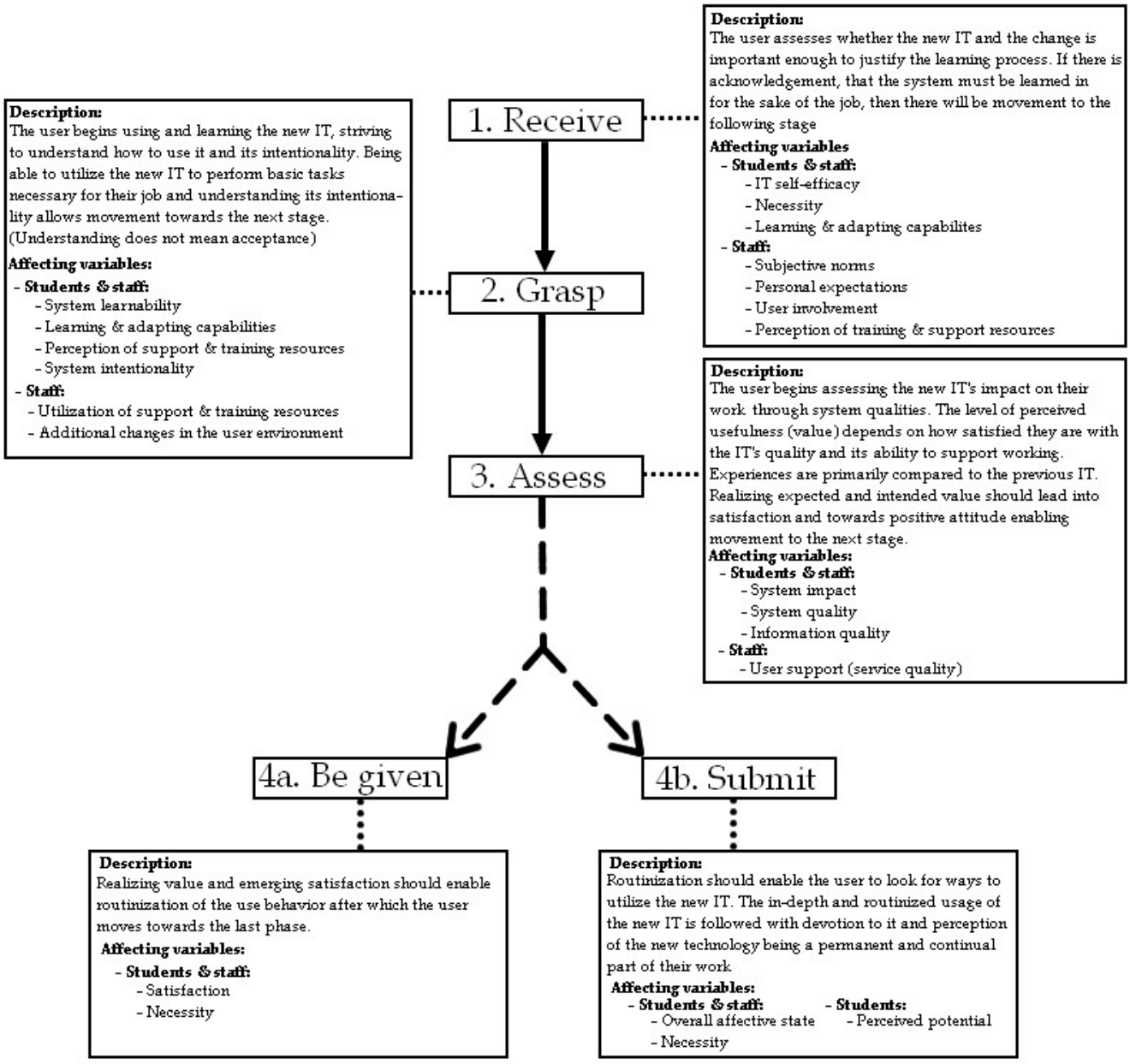

Figure 12: User acceptance of the Sisu system in the University of Jyväskylä

In the receive phase the assessment of the Sisu system's and the change's importance was mainly driven by the necessity of the situation as there was no choice for the users. There was little choice left to determine the Sisu system unimportant. Nevertheless, user's perception of higher IT self-efficacy and learning and adapting capabilities allowed to remain self-confident early on. Additionally, staff members' assessment and attitudes were heavily affected in general by the personal expectations which seemed to have been formed by the level of user involvement in the development project, subjective norms and

perceptions of the training and support resources. As an enabler, the shifting affective state toward neutrality or positivity seemed to not be as important as theorized, again due to the mandatory context.

In the grasp phase the learning of using the Sisu system was affected by the system's qualities associated with learnability such as levels of intuitiveness and complexity, user's individual capabilities to learn and adapt, and perception of support and training resources. Additionally, for staff members the actual utilization of the perceived support and training resources and additional major changes in the user environment (being engaged into multiple learning processes) affected the learnability of the Sisu system on average. Sisu's intentionality was known by both user groups but perceived hard to grasp on day-to-day work level which may have hindered the assess phase.

In the assess phase the perceived value assessment was affected by system- and information quality and the evaluation of the Sisu's perceived usefulness (system impact) for their work as well as comparison to the previous system. Additionally, staff members' assessment was affected on average by the service quality, namely the perceived quality of the user support. For both user groups the expected system value had not realized, and both remained in the negative affective state, feeling dissatisfied, implying that the movement towards the next phase has not yet happened. In the framework this is illustrated with the dashed line depicting theorized but no realized movement.

In the be given phase the routinization had happened only on the most necessary level concentrating on the core processes. This level of routinization has happened only due to the mandatory context of the situation as the user is not especially willing to routinize the use due to negative affective state.

Similarly, the lack of routinization seemed to have prevented the movement towards the last phase. None of the interviewees had the perception of the use behavior being versatile nor routinized but it was perceived permanent and continual out of necessity. Additionally, students' overall affective state was in the end slightly affected by the acceptance of the system intentionality and seeing potential in the future for the system as it became evident in the discussion.

6 CONCLUSION

This chapter provides an overview of the topic of this research, its methods and findings. The practical and theoretical implications are discussed. Lastly, the limitations of this study and further topics for future research are presented and discussed.

6.1 Conclusion

The topic of this study was to examine users' experiences in the context of acceptance and use of the University of Jyväskylä's new student information management system called Sisu. The study was conducted as a qualitative case study to recognize, understand and explain behavior in this single context-specific situation. The research questions were:

1. How has the acceptance of and initial use of the Sisu progressed? What successes and/or failure have occurred?
    a. Why is that?
2. How is the acceptance of Sisu system perceived and are there any differences in perceptions between the different groups of users?
    a. Why is that?

Literature was analyzed to form the theoretical basis for the research framework and interview structure. The case setting was overviewed, and methods justified based on that overview together with the theoretical basis. Afterwards the empirical part of the study was carried out via semi-structured interviews of eighteen Sisu system users after which the analysis of the interview data commenced which provided extensive results.

As for the first research question, the results showed that the Sisu system's deployment was well in progress but the one word to illustrate the deployment process and user experience so far would be: problematic. Both the typical student and the typical staff member had taken the Sisu system into use managed to learn how to use the new system despite the issues. Sisu system's learnability

was overall perceived poorly due to poor system quality: perceived unintuitiveness, illogicality and complexity of system tasks and confusing terminology. Additionally, staff members' learning process was generally hindered by inadequate user support and training resources in availability and perceived quality as well as additional major changes in the user environment, thus being engaged in multiple demanding acceptance processes simultaneously. Through personal learning skills and cooperative efforts with peers, users had overall managed to learn how to perform most important day-to-day tasks. Sisu system's impact on individuals' work was generally perceived negatively. Workflows were badly disrupted for a too long period of time and productivity had decreased due to difficult and long learning process and again due to poor perceived system quality. Sisu's usability and reliability was overall perceived negatively. Staff members' experience was also affected by revoked administrative privileges which hindered and slowed down work processes. Accumulating work overall had increased stress levels and also affected mental well-being negatively in both user groups. Due to negative user experiences, poor perceived quality and unmet expectations users have overall remained dissatisfied and in negative affective state. The value of the Sisu system has not yet realized to the users. Regarding the expectations, the system intentionality was understood on the level the university management had communicated it: on strategic, national level. Intentionality on a more practical grassroots level was left unclear which may have affected the user expectations and further hindered the individual value assessment processes. It was unclear to the users what kind of value the system is promised to provide to everyday work compared to the previous. It was also mentioned in the interviews that users, especially staff members had not been satisfied with the quality and level of communication between the management and users which was perceivably not transparent and aggressive. The use of Sisu system has not routinized beyond the few most used task or features. The system is not in-depth use. The reasoning for these two observations is theorized to be unrealized system value and negative affective state and dissatisfaction.

As for the second research question, there were differences observed between the students and staff members. Both user groups seem to remain at the same stage in the acceptance process: use not routinized, utilization of core features only and system value remains unrealized. The perception is overall quite similar: negative and dissatisfied. Students are still seemingly slightly more indulgent towards the Sisu system and trustful for the future as they seem to understand and agree with the Sisu system's intentionality, seeing more potential in it. Staff members were observed to be more skeptical and cynical about the situation. This could have been a result of students being generally less interested in the university IT having close to no expectations in forehand overall which itself was possibly associated with the attitudes of student life and -role being more temporary in nature as opposed to years-, even decades long careers of staff members. Student did typically not consider being involved in the development of Sisu important perhaps for similar reasoning. Lastly, students

did not generally utilize user support nor training resources as extensively as a staff members and did not perceive them as important because of differing learning methods, again as opposed to staff members on average, who deemed such resources critical.

As for theoretical implications this study was able to identify new affecting variables observed in the empirical results in this study's organizational context, namely inclusion of additional changes in user environment and necessity. In the beginning the user satisfaction and movement towards neutral and positive affective state as an "enabler" between theoretical phases seems to have less importance as presented in literature. Both of these findings may have emerged due to the mandatory organizational context of the study. Additionally, existing affecting constructs were observed to have been affecting also other phases in Schwarz et al.'s (2014) acceptance process model. These theoretical implications were illustrated in the study's nascent framework (see figure 12).

Overall, the results of this study enable examination of the user acceptance in the university of Jyväskylä. The results may assist the University of Jyväskylä in planning the future for the Sisu system and addressing the problems encountered and provide guidelines for future research on the Sisu system as discussed later in the following chapter (6.3). Additionally, this study's results and setting could assist in localized research conducted in other institutes planning the implementation of the Sisu system and perhaps even in planning of the deployment project. For scholars, the study results, especially the theoretical implications may provide a foundation for future research of IT acceptance process-view in mandatory organizational context.

6.2 Limitations of the study

Despite the extensive results there were some limitations for this study. Firstly, the sampling was relatively small consisting of only eighteen interviewees, ten students and eight staff members. There were 2600 staff members of which 900 were researchers and 800 were teachers and over 15000 students in the University of Jyväskylä in 2018 (University of Jyväskylä, 2018). Thus, there is a relatively small amount of people representing a great mass possibly affecting the results. The results may differ in another group of eighteen people selected.

Secondly, of the eight staff members selected for the sampling, three were members of the faculty of information technology. This may have affected the results as so strong presence was apparent by IT professionals. It is noteworthy, that the individual results were seemingly still quite similar compared to the rest of the staff members from other faculties in general. The reason for the greater amount of staff members from IT faculty was partially a result of staff members seemingly being overall less interested in participating this study upon request, perhaps being too busy with their personal work. IT faculty members seemed to have been more inclined to even answer invitations for participation compared to the rest of the staff as invitations were sent to multiple fac-

ulties. For example, it is possible that the perception of the importance of user involvement and interest showed towards university IT present in the empirical results may have been affected by this factor.

Thirdly, of the students selected for the study, it turned out that most had completed at least one IT related course during their studies despite them being from various faculties. This may have also affected their attitudes and experiences therefore affecting the results. It would be interesting to study the acceptance of students and staff members who have no particular academic- nor professional experience of IT in general.

6.3 Topics for further research

The extensive and interesting results of this study provide versatile foundation for future research. Firstly, the theoretical implications and the framework may provide interesting baseline for scholars to continue onwards from and concentrate in different research contexts, especially in the mandatory organizational situations which is seemingly less apparent in the literature. Quantitative studies may provide validity for the theoretical implications in a greater scale. There were multiple implications apparent in the results which require further research and attention which may strengthen or deem them unnecessary. There are also more precise points of interest for further qualitative research. For example, what is the relationship between willingness and motivation to adapt, the necessity and user attitudes in a mandatory organizational context overall. Also, the sequential nature of the process phases could be further examined whether the movement between phases is purely sequential or overlapping and to which degree.

Secondly, for more localized and practical purposes, the University of Jyväskylä could perhaps utilize the results of this study to plan the future of the Sisu system as it provides focal points for angles for approaching the prevalent issues in the user acceptance of Sisu system. For example, future cognitive user experience and -behavior research revolving around the issues identified in the results of this study could provide guidelines for system improvements and development which could strengthen Sisu system's position, level of use routinization and user satisfaction. For other interesting topics identified for further localized research, students' perceived overall uninterest in university IT and use of shadow systems in university context could provide rich results for the university.

Thirdly, there are multiple institutions planning the deployment of the Sisu system. This study may provide foundations also for further localized research in those institutions and assist in planning of the deployment based on the experiences gained in the University of Jyväskylä. The research setting could be duplicated in other institutions and tested whether the results are similar in other universities across the nation.

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APPENDIX 1: INTERVIEW QUESTIONS & STRUCTURE

NOTE: There are main topics and questions are written on raised bullets and possible adjusting questions on indented bullets under each theme (acceptance process stages)

0.0 Introductions, reviewing and schedule, and basic information regarding the interviews

0.1 Qualification (Basic questions about qualification)

- FOR UTAUT: Gender & age? (Would it be important?)
- Mikä on roolisi Jyväskylän yliopistossa tällä hetkellä? (Opiskelija/työntekijä/muu?)
- What is your role at the University of Jyväskylä currently? (Student/staff/other?)
    - Kuinka pitkään ko. Rooli on ollut ajankohtainen?
    - For how long have you occupied that role?
    - Onko sinulla ollut aiemmin/tällä hetkellä eri rooleja?
    - Have you occupied other roles previously/currently?
- Oletko käyttänyt ja käytätkö tällä hetkellä aktiivisesti sekä Korppi- että Sisu-järjestelmää?
- Have you used and do you actively use both the Korppi and Sisu systems currently?

0.2 Receive

- Millaiseksi kuvailisit itseäsi yliopiston IT-järjestelmien ja teknologian käyttäjänä?
- How would you describe yourself as university IT and IS user? (PERSONALITY/SELF-EFFICACY)
    - Millaisena koet uuden oppimisen ja mukautumisen, kun on kyse uusista teknologioista?
    - How do you perceive learning adaptation new technologies?
    - Koetko tämän koskevan myös Sisu-järjestelmää?
    - Do feel the same way about Sisu-system specifically?

- Miten kuvailisit lähelläsi olevien ihmisten suhtautumista Sisu-järjestelmään ja muihin yliopiston IT-järjestelmiin ja teknologioihin?
- How would you describe the attitudes towards Sisu-system and other IT/IS in the university? (SOCIAL INFLUENCE/SUBJECTIVE NORMS)

- Koetko, että sinut huomioitiin Sisun käyttöönottoprojektissa yliopiston ja/tai Sisu-kehittäjän toimesta?
- Do you feel that you were taken into account by the university and Sisu-developer during the implementation of the new system? (USER INVOLVEMENT)
    - Miten?
    - How?

0.3 Grasp

- Tiedätkö miksi Sisu-järjestelmä otettiin käyttöön ja kuinka se vaikuttaa sinun jokapäiväisiin tekemisiin?
- Do you know why the Sisu-system has been deployed to the university and how it affects your tasks? (SYSTEM INTENTIONALITY)
    - Oletko käyttänyt Korppi järjestelmää?
    - Have you used Korppi system?
        - Mihin käytit järjestelmää? Millaisia toimintoja?
        - Which activities did you perform? What kind of functions?
        - Käytätkö edelleen Korppi järjestelmää?
        - Do you still use Korppi system?
            -Mihin tarkoitukseen? Miksi?
            -For what purpose? Why?

    - Oletko käyttänyt Sisu järjestelmää? Käytätkö sitä aktiivisesti tällä hetkellä?
    - Have you used Sisu system? Are you actively using it right now?
        - Mihin olet käyttänyt / käytät järjestelmää?
        - What kind of activities have you performed / performing with the system?

- Miten kuvailisit sinulle yliopiston ja Sisu-kehittäjän tarjoamia resursseja, tukea ja koulutusta liittyen Sisun käyttöönottoon?
- How would you describe the resources, support and training (i.e. training meetings & instructions) offered to you by the university and Sisu-developer regarding Sisu implementation? (PERCEIVED RESOURCE AVAILABILITY)
    - Oletko hyödyntänyt näitä? Miksi? Mikset?
    - Have you utilized them? Why? Why not?

0.4 Assess

- Oletko kokenut Sisun käyttämisen opiskelun välineenä positiivisena tai negatiivisena tekijänä?
- Have you perceived that Sisu has affected positively or negatively to the student-related tasks? (PERCEIVED USEFULNESS)

- Miten kuvailisit Sisun vaikutusta työsi tuottavuuteen?
- How would you describe the effect for Sisu to the productivity of your work? (PERCEIVED USEFULNESS)

- Kuinka helppoa Sisun käyttö on sinulle?
- How easy is using Sisu to you? (EASE OF USE)

- Miten kuvailisit Sisun käyttäjäystävällisyyttä esim. käyttöliittymä?
- How would you describe user friendliness of Sisu? (UI for example?) (EASE OF USE)

- Miten kuvailisit Sisusta saadun informaation tarkkuutta ja miten se on vastannut tarpeitasi?
- How would you describe the information accuracy and has the information been sufficient to be able to do your tasks? (INFORMATION, SYSTEM & SERVICE QUALITY)

- Oletko joutunut kohtaamaan järjestelmässä ongelmia joiden kanssa olet joutunut työskentelemään?
- Has there occured any errors that you have had to work around? (INFORMATION, SYSTEM & SERVICE QUALITY)

- Miten olet kokenut sisun käyttäjätuen laatua ja onnistumista?
- How have you thought about Sisu's service quality and success? (INFORMATION, SYSTEM & SERVICE QUALITY)

- Miten kuvailisit tyytyväisyyttäsi Sisuun?
- How would you describe how satisfied are you with Sisu? (USER SATISFACTION)

- Miten odotuksesi ovat poikenneet Sisun varsinaisesta käyttökokemuksesta?
- How have your expectations been confirmed in actual use? (USER SATISFACTION)

- Mitkä esille tulleista asioista koet henkilökohtaisesti merkittävimmiksi?

- Which of the emerged matters do you perceive as the most important? (Concerning each of the questions above), (PPM THEORY= Which was the mooring variable in each case)

0.5 Be given

- Koetko olevasi halukas ja motivoitunut mukauttamaan työ- ja toiminta-rutiinejasi yliopistolla Sisu-järjestelmän vaatimalla tavalla?
- Do you feel being willing and motivated to adapt your work and activity routines in the university to that required by the Sisu system? (VALUE PERCEPTION & COMPARISON OF REALIZED AND THEORIZED VALUE)

0.6 Submit

- Mikä on yleinen mielipiteesi Sisun käyttöönotosta ja järjestelmästä yliopistossa?
- What is your overall opinion of the implementation of Sisu project and the system itself? (INDIVIDUAL AFFECTIVE STATE)
    - Tilanne tällä hetkellä? Potentiaali tulevaisuudessa? Mitä olisi mielestäsi voinut tehdä eri tavalla? Miten sinua olisi voitu tukea paremmin järjestelmän käyttöönotossa? Koetko, että Sisu on pysyvä osa työ- ja toimintarutiinejasi yliopistolla? Miksi? Miksi et?
    - How do you perceive the situation currently? Is there any potential in the future? What could've been done otherwise? How could you've been supported better in the implementation process? Do you consider Sisu as a permanent and continual part of your working- and activity routines at the university? Why? Why not?

APPENDIX 2: USER ARCHETYPES MATRIX

PHASE → / USER TYPE ↓	RECEIVE		GRASP	
Typical student	IT self-efficacy ++ Necessity ++ Learning & adaptation ++ Subjective norms (expectations) Personal expectations User involvement	A typical student is very capable IT user and quick learner feeling initially confident to manage with Sisu system. The subjective norms had been mostly neutral prior to the implementation but turned highly negative during the initial use. He was not involeved in the development in any way and perhaps did not even have interest doing so or saw its importance. Affective state seems neutral. Necessity drives the student to use Sisu system, as there is no alternatives but he is open-minded towards the change.	Utilization of training & support resources System learnability - - System intentionality + Perception of training and support resources + Learning & adaptation ++	A typical student has encountered severe problems learning to use the Sisu system due to its unintuitive, complex and incomplete perception. He barely manages to perform basic necessary tasks barely despite the unfluent and unenjoyable user experience through independed learning and with peer support, perhaps as a last resort by utilizing training and support resources. The quality and availability of such resource was perceived well. A typical student understands the system intententionality on theoretical organizational level and accepts it but its realization into practice remains unclear. Affective state has perceivably shifted towards negative due to the negative initial experiences.
Typical staff member	IT self-efficacy ++ Necessity ++ Learning & adaptation ++ Subjective norms (expectations) - - Personal expectations - User involvement - - Perception of training and support resources -	A typical staff member is an experienced university IT user and understands that it is a prominent part of job. Thus he is more interested in the university IT and has perhaps actively participated in new IT projects if possible to give feedback and inputs. Expectations for the Sisu has been negative; fearful and concerned as the experiences from other institutes and staff members who had already experiences of Sisu had been mostly that. Also the lacking quality of training strengthened negative expectations. A typical staff member had been given a opportunity to give feedback, input and wishes for Sisu system but the university or developer had perceivably shown great disregard towards them. Organization necessity is the driving factor for the Sisu use. Affective state seems slightly negative.	Learning & adaptation ++ System learnability - - Perception of training and support resources - - Additional changes in the user environment Utilization of support and training resources - System intentionality	A typical staff member perceived the learning of Sisu hard as the system had felt incomplete, unintuitive, inoperable and complex in accordance with early expectations. Additionally, there were now three systems used for operations previously managed under one system causing problems in learnability. Training and support resources were considered critical for survival but deemed inadequate in quality and lacking in availability hindering learning and getting grasp of Sisu, its benefits and its intentionality on practical level despite of the university's efforts to emphasize it on the organizational level which was widely understood. Overall, despite the problems a typical staff member has managed to learn how to manage basic day-to-day task in cooperation with peers and independently.

(red)	Negative force: Theoretically hindering acceptance process
(green)	Positive force: Theoretically facilitating moving forward in acceptance process
(grey)	Neutral force: Theoretically does not affect aceptance process

(MATRIX CONTINUED ON THE NEXT PAGE)

ASSESS		BE GIVEN		SUBMIT	
User support System impact - - Usability - - Reliability - -	Sisu has had a negative impact on typical student's workflow and productivity. The usability has been perceived negatively with the exception of visual appearance. There is a lack of confidence and reliability of the system due to issues in information quality and authenticity. Overall, Sisu hinders the performance of a typical student. Despite the issues encountered he did not utilize user support beyond reading instructive documentation offered by the university. Problems had been solved independently or together with peers by reading instructions. User support was not peceived to be able to solve the issues related to system impact or usability. A typical user is slightly dissatisfied due to the negative experiences and the promised value has not realized for him yet.	Satisfaction - Necessity + Willing & motivated to adapt	A typical student is neither especially willing and motivated nor unwilling and unmotivated to adapt his work routines accordingly to that required by Sisu system. Adaptation is perceived as a necessity and something that they have no influence over. For him the survival and graduation is the priority and it requires only the utilization of some core functions of the new system and routinization has occurred only on that level. A typical student remains in dissatisfied state implying a negative affective state.	Sisu as a permanen & continual part of work and routines Potential ++ Necessity ++ Overall opinion (affective state) -	A typical student does not think that the Sisu system is, at its current state, working properly and is satisficing for the organization. The overall opinion of the situation is that the system feels incomplete and has primarily negative effect on performance. The project is percieved rushed and inadequately planned. A typical student sees potential in the system nevertheless as the intentionality is understood and accepted, although it is yet to be realized in practice. Sisu is regarded as a permanent and continual part of work and routines but the routinzation currently considers only core functions of the system.
System impact - - User support - Usability - - Reliability - -	Overall, Sisu has had a negative impact on typical staff member's workflow and productivity due to poor usability, reliability and lack of administrative privileges. The user support was perceived inadequate and too congested in the most critical phase of the project when it was deemed most important. A typical staff member is in clearly dissatisfied state due to the poor perceived performance and impact of Sisu system and the changes in the user environment with the introduction of multiple partially overlapping systems. The intended system value has not realized for a typical staff member in practice and he has not shown signs of moving towards a neutral and positive affective states and satisfaction.	Satisfaction - - Willing & motivated to adapt Necessity ++	A typical staff member is neither especially willing and motivated nor unwilling and unmotivated to adapt his work routines accordingly to that required by Sisu system. Adaption is perceived forced by the main administration. Due to Sisu system's hindering influence on his productivity, workload and well-being of the typical staff member he remains clearly dissatisfied and in negative affective state.	Overall opinion (affective state) - - Potential Sisu as a permanen & continual part of work and routines Necessity ++	A typical staff member does not think that the Sisu system is currently working properly and is satisficing for the organization. The overall opinion of the situation is that the implementation of Sisu was rushed and catastrophic for individuals' performance within the university affecting ultimately organizational performance. Moreover, the implementation of KOVS system as a partially overlapping system is also hindering the performance. A typical staff member is unsure of the system potential, on the one hand the intentionality is understood but on the other hand there are fears for the future and success of the system. Routinization has occurred on minimum level concentrating on necessary core features and a typical staff member remains in negative affective state and dissatisfied overall.

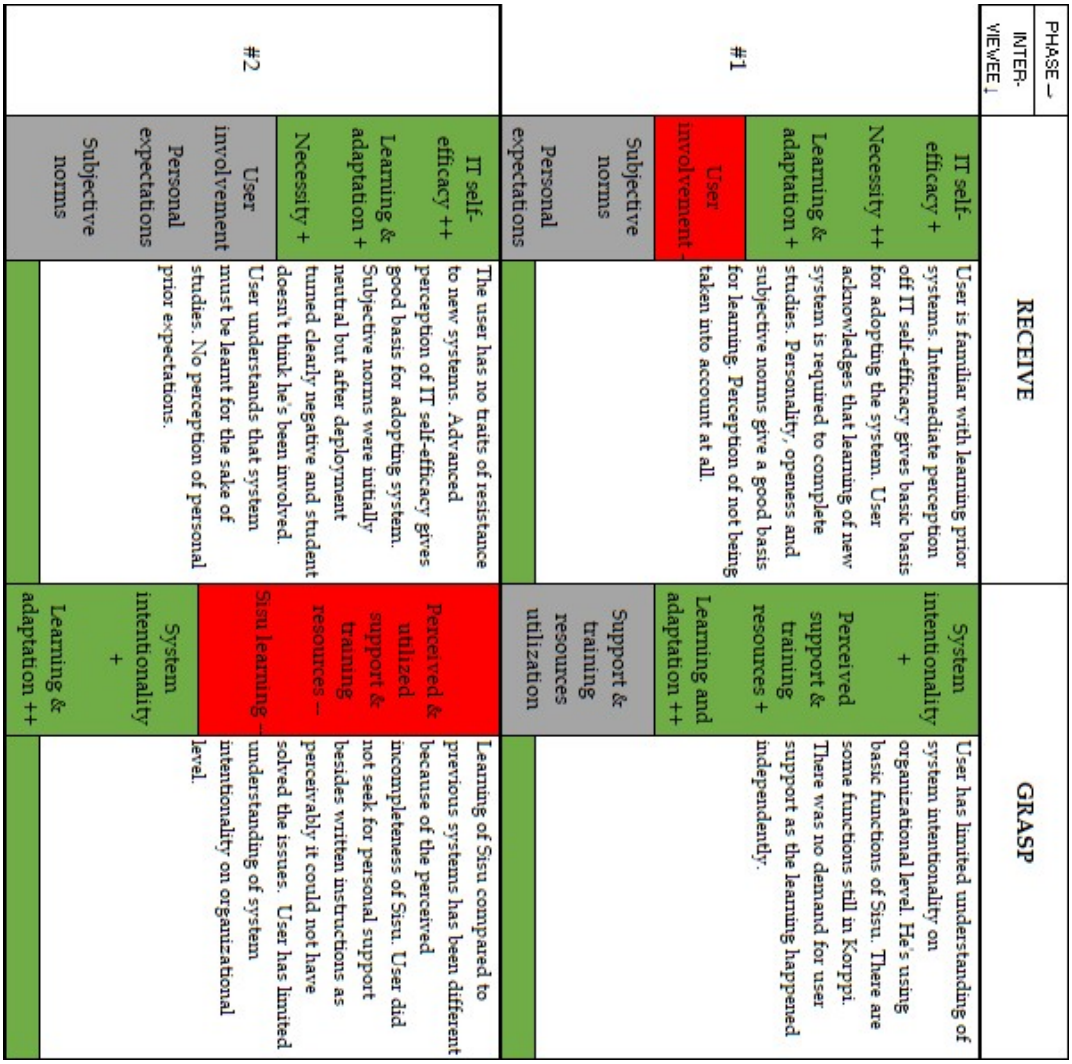
	"++" = Significant positive effect*	"-" = modererate negative effect*
	"+" = Moderate positive effect*	"--" = Significant negative effect*
	* Based on users' personal evaluation reported/interpreted.	

APPENDIX 3: STUDENT PROFILE MATRIX

	Negative force: Theoretically hindering acceptance process
	Positive force: Theoretically facilitating moving forward in acceptance process
	Neutral force: Theoretically does not affect aceptance process

"++" = Significant positive effect*	"-" = modererate negative effect*
"+" = Moderate positive effect*	"--" = Significant negative effect*

* Based on users' personal evaluation reported/interpreted.



ASSESS		BE GIVEN		SUBMIT	
Reliability + System impact Usability -- User support -	Perception about Sisu if both positive and negative. There are some pros like good usability for mobile devices but also major problems appeared in basic functions. As a study tool the effect is perceived as neutral. Study planning tool was problematic in the beginning. In general satisfaction level is still clearly positive. Individual has found some value from the system.	Willing and motivated to adapt Satisfaction Necessity +	User does not think that new system affects to working routines. User has already gained some routine to new system but only on the few most required core functions out of necessity	Overall opinion (affective state) Sisu as permanent & continual part of work routines Perceived potential + Necessity +	Overall opinion includes both positive and negative. Slight potential is discovered. Only limited functions are in use and while there is some value and routinization to the system he has not fully surrendered to the IT. User acknowledges that there is no alternative for Sisu so it's permanent solution.
System impact -- Usability -- Reliability - User support	System has affected negatively to studying because overlapping systems create problems. Impact clearly has been negative. Usability includes both positive and negative. There are some major problems like monitoring of studies isn't possible and some modules have been missing. System is not yet delivering value. System lacks important functions. User is not moving to positive affective state.	Willing and motivated to adapt Satisfaction - Necessity +	System has affected negatively to studying because overlapping systems create problems. Impact clearly has been negative. Usability includes both positive and negative. There are some major problems like monitoring of studies isn't possible and some modules have been missing. System is not yet delivering value. System lacks important functions. User is not moving to positive affective state.	Overall opinion (affective state) Permanent & continual part of work and routines Perceived potential ++ Necessity +	Both positive and negative elements in system but neutral opinion to change itself. Major potential is seen by the student in the future. There is reason to believe that next autumn Sisu will bee in better shape.

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#3	IT self-efficacy + Necessity + Learning & adaptation - Subjective Norms -- Personal expectations User involvement -	There was no problem in using previous systems and perception of IT self-efficacy is intermediate. Some confusion about lerning of systems have happened in the past. Clearly negative subjective norms. Not taken into account at all. User feels negative about the system but acknowledges that it is needed to finish studies.	System intentionality - Perception & utilization of support & training resources -- System learnability --	There is no understanding about the reasons behind the system. Support resources have been perceived scarce and not able to solve the emerging issues. Learning of Sisu has been very difficult compared to previous systems. Study planning has not succeeded at all. Some basic functions are in use but not many are yet to be learned.
#4	IT self-efficacy + User involvement + Personal expectations Subjective norms Learning & adaptation - Subjective Norms --	User's IT self efficacy is intermediate. Has no recent experience of adopting new systems but had positive expectations which turned out negative after deployment. Subjective norms shifted negative but again after the deployment. Support had been offered and received by the user which was perceived as being involved. Acknowledges that applicaton must be learned for the sake of job.	Perceived & utilized support & training resources + System learnability - System intentionality - Learning & adaptation -	Perception of good availability of support resources. User can complete the basic tasks necessary for the job and learned the use mainly through utilization of user support resources. Does not understand why the system was implemented. Learning Sisu has been difficult and there has been some problems with previous systems as well.

ASSESS		BE GIVEN		SUBMIT	
System impact -- Usability -- User support -	Impact and usability have been strongly negative as Sisu has slowed down study procesess. The interface has been perceived as the biggest problem of them all. User doesn't see value in the system and attitude is negative.	Willing and motivated to adapt - Satisfaction -	User is not willing or motivated. Tries to work without having to touch Sisu. Routines are disrupted. Usage of the system is not continual but rather occasional.	Perceived potential + Overall opinion (affective state) -- Permanent & continual part of work and routines -	Some potential is discovered but that requires major changes. Overall opinion is clearly negative. Not part of the work routines in any way. No value has been found and there is no satisfaction in use. User is not using system deeply nor faithfully. Affective state state remains negative.
Reliability					
System impact - Usability - Reliability -	Effect to working has been negative. The change has disturbed studies. Positive and negative things showed up in usability. Issues with logging in and session timing out without warning. User support was helpful and despite of problems, which had perceivably diminished the effect of negative system impact. The user feels satisfied despite the negatives as the system allowed to complete most critical tasks required succesfully.	Willing and motivated to adapt Satisfaction +	User sees no difference in routines. This can be considered so that individual has fully changed their routines. Also he conciders the new system as the way to do things and with these conciderations user has a positive affective state toward the IT. Despite having found problems there was positive perception of system in the use.	Overall opinion (affective state) + Potential + Permanent & continual part of work and routines +	The user has perceived that the system provides at least the minimum value and is somewhat satisfied but deep use of the system is lacking. There are only certain functions in use and it limits the experience to Sisu but this was acknowledged to be only temporary as the system updates.
User support ++					

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#5	Subjective norms Personal expectations IT self-efficacy + Learning & adaptation + User involvement +	The user is already neutral affective state and does not want to resist the change imposed by the university seemingly implying that she acknowledges that the system must be learned for the sake of the job. The change had not been resisted within peers either. Expectations and subjective norms had been neutral.The user had a perception of being taken into account as there had been user support available and visible for the users.	Learning & adaptation ++ System intentionality + Perceived support & training resources + Utilized support & training resources -	The user has not encountered serious problems implying that basic necessary tasks are mastered and understands partially why the system was implemented (on organizational level). Did not utilize support & training resources because they were deemed unnecessary.
#6	IT self-efficacy ++ Learning & adaptation + Necessity + User involvement Personal expectations Subjective norms	The individual has negative perceptions regarding the system and found the usage dissatisfying but finds learning and adaptation of the new system imposed by the university relatively easy. He feels indifferent towards the changes the new system imposes to his work routines. The user acknowledges the necessity of learning the new system and does not report objecting the change. There were no prior expectations and talk around the new system was initially neutral. The user felt not taken into account but also did not regard it as important as he was not interested in the system	System intentionality + Sisu learnability + Perceived support & training resources + Utilized support & training resources -	The individual has some understanding of the reasoning behind the new system on organizational level. Learning to use the system has been perceived easy and he has not had any problems with completing necessary tasks with the system. Support & training resources were perceived to be there but ultimately deemed unnecessary.

ASSESS		BE GIVEN		SUBMIT	
System impact User support Usability - Reliability -	Perception of Sisu system having had primarily neutral effect on work flow and progress. Everything necessary can be completed with the new system. Some problems have occurred and information has not been as trustworthy as desired but primarily the system delivers at least minimum value and user is satisfied and moving towards positive affective state.	Willing and motivated to adapt + Satisfaction +	The individual is willing and motivated to change the way of making things, studying and performing related activities although the new system is forced, because she wants to make things easier for herself. The user is also satisfied implying positive affective state. The system seems to deliver the minimum value (no negative system impact).	Overall opinion (affective state) + perceived potential ++ Permanent & continual part of work and routines +	The individual is faithfully using the system regularly and committed into it. She is satisfied and the use of the new system is routinized. The user is in neutral/positive affective state; there is nothing extraordinary that is new in regards to the old Korppi system but it gets the job done. The user does NOT use the system deeply but has reported using only some critical functions at this time because of the system incompleteness and still missing
Raliability + User support System impact - Usability -	The individual reports that the new system has had negative impact into the studies compared to the old and that although the system is easy to use and has correct information he feels slightly dissatisfied with it as it breaks his workflow and is too complex. This implies that the user may not see the realized value of the system and remains in slightly dissatisfied affective state.	Willing and motivated to adapt Satisfaction -	The individual has changed his routines as required out of necessity but has not shown to move towards positive affective state. Routinization revolves around the bare minimum.	Perceived potential + Overall opinion (affective state) Permanent & continual part of work and routines	The individual is faithfully using the system but is not devoted nor sees the value at this stage. For him, the usage of the system has routinized out of compulsion. Uses only core functions of the system.

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#7	IT self-efficacy + Learning & adaptation + Necessity + User involvement Subjective norms Personal expectations	The user has taken the system into usage without objection and tried extensively to learn it and solve major problems. He seemingly acknowledges that the system and its use must be learned for the sake of the job implying that he is working on moving towards neutral affective state. Was not taken into account personally but was not interested participating either.	System learnability - Perceived & utilized training & support resources - System intentionality + Learning & adaptation ++ Utilization of support resources via peer ++	The individual has some understanding of the reasoning for the system on organizational level. Perceived availability of support was inadequate despite the need as the system was perceived hard to learn. He has managed to perform basic tasks necessary for his job after major issues through support by a peer (girlfriend) who had utilized support and training resources.
#8	Subjective norms User involvement Personal expectations IT self-efficacy ++ Learning & adaptation +	The user has taken the system into use without objective and has begun learning it and solving problems related to the use out of necessity without particular expectations. Was not involved in the project and seemed neutral about the lack of inclusion.	System learnability - Perceived training & support resources - System intentionality + Learning & adaptation ++ Utilization of support & training resources +	Through the use of support/training resources and learning the system independently, the user has gained a understanding how to use the system to complete basic tasks necessary and has some understanding of the intentionality of the new system (organizational level). There was a perception of inadequate amount of support for the learning process and the learning had to happen mostly independently.

ASSESS		BE GIVEN		SUBMIT	
System impact Usability - Reliability - User support -	The user is still slightly dissatisfied to the quality of Sisu system. It has had negative impact on his workflow and work productivity. There have been some problems or inadequacies related to information authenticity and some problems requiring special attention. However, there are some positive aspect to Sisu system. Namely some single functional- and user interface features. Perception of user support is negative. Thus implying that the individual does not see that the system delivers the minimum value which may prevent movement towards positive affective state and safisfaction.	Necessity + Satisfaction -- Willing and motivated to adapt -	The user is not willing nor motivated to change their routines as the system does not deliver value. The routinization has happened but out of necessity only. The usage behavior happens only out of necessity. User has no positive affective state	Potential + Overall opinion - Permanent & continual part of work and routines -	The user has not achieved the objectives of the system, he is not faithfully using it nor devoted to it nor sees the minimum value of it. He is not satisfied and in negative affective state. Routinization of some core features has occurred out of necessity. There is potential in the system though and its core intentionality on organizational level was understood and accepted.
User support System impact - Usability - Reliability -	The user has been slightly dissatisfied with the new system as it has had negative effect on study-related work and productivity. There has been issues in usability and information authenticity, in user support and expectations were not met. The user has positive perception of the visual modern appearance. These imply, that the user has not been able to see the theorized value realizing and is not in satisfied perhaps preventing movement towards positive affective state.	Willing and motivated to adapt + Necessity + Satisfaction -	The user is willing and motivated to adapt work routines accordingly with the Sisu system, because he accepts the intentionality of the system and the value it potentially could provide. He considers the new system as the way to do thing but is not in positive affective state nor satisfied.	Potential + Permanent & continual part of work and routines + Overall opinion -	The user is not satisfied, nor devoted, nor using the system deeply as only critical features of Sisu system are utilized. The user is not satisfied nor in positive affective state. The basic use is routinized but out of necessity.

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#9	Self-efficacy ++ Learning & adaptation + Necessity + User involvement Personal expectations Subjective norms	The user perceives himself as a capable and open-minded IT-user. He has started learning and using Sisu despite the difficulties out of necessity implying that he acknowledges that the system must be learned and has taken it into use. There were no particular prior interest in the new system in forehand nor was it discussed other than on general level in neutral manner. The user did not feel involved but did not indicate whether it was a negative aspect perhaps due to the lack of interest.	System intentionality + Perceived & utilized support & training resources + System learnability -	The user gets everything necessary done with the system implying that he understands how to use the system to complete basic task necessary for his work although learning the use has been hard. He understands partially why the system was implemented purely on organzational level. Perception of adequate support / training resources for learning assisting the learning process.
#10	IT self-efficacy ++ Necessity ++ Learning & adaptation - Subjective norms Personal expectations User involvement	The user has traits of change resistance and has no motivation of learning the system deeply but understands that he must learn it to some minimum degree implying that he acknowledges the role of the new system and its imperative nature thus allowing theoretical movement towards the next phase. There were no particular prior expectations. Sisu was talked about cautiously but no particular expectations were brought up. There were mild concerns about the change. The user was not involved nor did he consider it important because of the self-perception of being an "unimportant individual", for example due to the disiterest towards the system and being so close to graduation.	System learnability - Learning & adaptation - System intentionality ++ Perceived & utilized support and training resources +	The user has a wider understanding of the system intentionality and understands how to complete minimum necessary tasks with the system. He has been supported in the implementation phase and has reported using primary functions of the system although does some things on other platforms. The learning process had been troublesome due to perception of poor learnability and personal traits but was succesfully assisted by the user support.

ASSESS		BE GIVEN		SUBMIT	
System impact	The user has somewhat indifferent overall perception of the system but feels that he can perform his task same as before implying that the system delivers at least the minimum value to him. The user is still in the process of moving towards satisfaction through realizing value of the system. But also signals that the satisfaction may not be in critical role for himself as he usually feels indifferent towards organizational IT.	Willing and motivated to adapt + Necessity +	The user is willing and motivated to adapt to the new system on the required level as he understands the reasoning for the system and it has had relatively a small effect on his work. The system seems to deliver the bare minimum value as the user is satisfied but also not particularly dissatisfied. The usage revolves around some core features. These imply that the user has or are in the process of changing his routines accordingly.	Overall opinion	The user is devoted (motivated and willing) to use the system. Sees the value (theorized and realized minimum) of it and has routinized its use. He is not using the system deeply but uses only some critical system features. Surprisingly, he is not in positive affective state nor feels satisfied nor dissatisfied despite of being motivated and willing to adapt and seeing some value.
Usability -- Reliability -		Satisfaction		Potential + Permanent & continual part of work and routines +	
User support					
User support +	Sisu system has had negative effect on student-related work but has not affected productivity. There are some positive aspects or elements but also major issues related to functionality, usability and information authenticity. User support received was satisfactory and the user has overall indifferent attitude towards the system and is motivated to survive with it. This could imply that the system provides minimum value to the user but he is not showing signs of moving towards a positive affective stage or satisfaction.	Necessity +	The user has not fully changed all routines but has found other ways to do things and "circle around Sisu" and is not motivated nor willing to adapt further than the minimum. Has neutral/indifferent affective state and attitude. Is theoretically not ready to move between stages	Overall opinion (affective state)	The user is not faithfully using the system, is not devoted nor especially satisfied (or dissatisfied). Many functions, such as the calendar, are used on other platforms or otherwise "circled around". The user is not in positive affective stage. Thus he has not achieved all the objectives of the system.
System impact - Usability -- Reliablity -		Willing and motivated to adapt Satisfaction		Potential ++ Permanent & continual part of work and routines +	

APPENDIX 4: STAFF MEMBER PROFILE MATRIX

	Negative force: Theoretically hindering acceptance process
	Positive force: Theoretically facilitating moving forward in acceptance process
	Neutral force: Theoretically does not affect aceptance process

"++" = Significant positive effect*	"-" = modererate negative effect*
"+" = Moderate positive effect*	"--" = Significant negative effect*

* Based on users' personal evaluation reported/interpreted.

PHASE →	RECEIVE		GRASP	
INTER-VIEWEE ↓				
#11	User involvement +	User has not been directly involved but taken in account on a general level. User's IT self efficacy is proficient so this should boost learning and adaption of the system. User's personality is very adaptive. Subjective norms have been perceived neutral and colleagues have been sincerely tring to absorb new system. Individual acknowledges that application must be learnt for the sake of the job and the necessity is apparent in the interview. Had heard about the flaws and problems beforehand affecting expectations.	System intentionality ++	User has received Sisu system as any other system. The user has been intellectually willing to comprehend the intentionality of the technology. Knowledge about background information was very comprehensive and specific. Support has been received. Information and education was given but it was dissatisfactory as the system was perveived as incomplete and help was available too late. Usage was learned primarily independently and was a highly problematic experience.
	Subjective norms +		Learning & adaptation ++	
	Personal expectations -		System learnability --	
	IT self-efficacy ++		Perceived and utilized of support/ training resources --	
	Learning & adaptation +			
	Necessity +			
#12	IT self-efficacy +	The user has self-perception of being one of the most experienced IT users at the university and has been developing university IT. Learning and adaption is perceived as easy/natural. Subjective norms are negative as the whole work environment is seemingly not in favour of Sisu. User thinks he's not been involved which was deemed harmful and perhaps disrespective. He acknowledges that even at some level he has to use the system out of necessity in his work. Expectations were negative due to knowledge about the project in forehand.	System learnability --	User has been resistant towards Sisu because he perceives it inoperable and because of overlapping systems. Sisu learning has therefore been more difficult than under "normal" circumstances. User tries to avoid it with another system. Support has been requested but is was dissatisfactory. Official roads to get help were almost blocked. Intention of system is widely understood. In time the user learned to use the system to complete the most critical tasks independently and inadequate support resources.
	Learning & adaptation +		Perceived and utilized support/ training resources --	
	Necessity ++		Additional changes in the user environment	
	Subjective norms --		System intentionality ++	
	User involvement -		Learning & adaptation +	
	Personal expectations --			

ASSESS		BE GIVEN		SUBMIT	
System impact - Usability -- Reliability - User support -	Impact of Sisu is perceived highly negative. There is no positive sides so far. Major problems with usability, user friendliness and information quality/ease of access. User support was reached but it was perceived inadequate. Overall satisfaction is low. User has not found realized value, oppositely worst expectation have realized.	Willing and motivated to adapt (conditional) Necessity ++ Satsifaction --	User is willing and motivated to apprehend the system as soon as it starts to offerr a better way to completing tasks. User has not fully changed their routines. New technology is not "the way we do things", yet and the use revolves around core features most critical out of necessity. User's not in a positive affective state and feels conditional about the change	Overall opinion (affective state) - Potential ++ Permanent & continual part of work and routines +	Overall opinion about Sisu is negative. User however sees potential in the future when the system will be further developed as its intentionality is accepted. User admits that Sisu is part of the working routine even though it is not even remotely complete. Value is not found in the system but quite opposite. Affective state is not positive and user is not faithfully useing the system
System impact - Usability -- User support - Reliability	Sisu is perceived as "the worst failure" that has happened in the history of JYU so the overall perception is negative. User support responded with "three-page e-mails" explaining how the user has used the system wrong, giving impressions that the user is to blame and not the system. Basic functions (e-mail list for example) cannot be found from the system without instructions. Command chains are referring to sevreal overlapping systems. Basic UI bugs exists. No real handling of support requests. The user sees no value in the system as it is and is strongly dissatisfied.	Necessity ++ Willing and motivated to adapt - Satisfaction --	User is no willing or motivated to adapt except the absolute minimum to be able to function as a teacher. Routinization has not happened beyond the minimum required. There is still severe effort not having to use Sisu. User is not in a positive affective state.	Overall opinion (affective state)- Potential - Permanent & continual part of work and routines -	Overall opinion is that Sisu is not usable.In the future user perceives that only reasonable act would be to replace current unusable systems. With right management however it could be possible to make Sisu usable but that is not in sight to happen (perceivably). User does not think that Sisu is part of the working routine because uses alternative systems in teaching. However some mandatory tasks remain is Sisu.

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#13	Subjective norms -- User involvement -- Personal expectations IT self-efficacy ++ Learning & adaptation +	User describer herself as an "early adopter". Has always been interested about "new things", and has wide angle to different kind of system deployment projects. With colleagues they have very open minded relation to new things. User acknowledges that application must be learned for the sake of the job. Had no tangible expectations forehand but had heard a lot of negative talk about the new system. Was not involved in the project and deemed it problematic as many problems could have been avoided if the end user was actually listened to.	System intentionality Learning & adaptation + System learnability - Perceived and utilized support/ training resources --	User knows that for nearly a decade it has been considered to replace Korppi but cannot name any reasons. Thinks there are not one but many reasons. Sisu has been negative experience for everyone. There was education for the system but at that stage system was not ready. Some functions were missing so they couldn't be taught. Also teaching personnel were not aware of all the functions and were lacking the vital information to fully educate the system. Self-perception is that the learning is still ongoing and the use is far from fluent.
#14	User involvement -- IT self-efficacy + Learning & adaptation + Necessity ++ Personal expectations + Subjective norms +	Self-perception of being a basic user but has been involved in university IT deployment. Has also studied IT. User has adopted various systems so she perceives hersef as a prominent adopter. In the beginning the atmosphere was positive because new systems are being welcomed with positive attitude. She also had positive expectations for the new system. But when using and the problems started it was negative. Because of the position that interviewee has she was invited to a discussion event but had no possibility to make difference to the system which was perceived problematic.	System intentionality System learnability -- Perceived and utilized support/ training resources - Additional changes in user environment --	The situation with Sisu is different however because there are two systems being deployed (Sisu and KOVS). Perceivably, no one knows how these two co-operate. But overall the adoption of Sisu has been different compared to Korppi. There are several reasons starting from bad interface design. Speculative understanding of reasons for the change. Has used support but was dissatisfied. Self-perception of not being able to manage with the system yet to continue working efficiently.

ASSESS		BE GIVEN		SUBMIT	
User support	The user deems Sisu as a negative aspect in her work. No positive effect of any kind. Sisu is not logical, things are too many clicks away. The vocabulary used in Sisu is misleading. The worst problem is the lack of user priviledges to do the requred functions that affects to working s a whole. Satisfaction is low because there are flaws that reveal the fact that developers have simply not recognized what is important for the students, teachers, etc. Value is not apparent.	Necessity ++	User is not willing nor motivated to change her routines. She thinks that it is wrong that the whole organization has to change because of bad system. Has not fully changed routines but utilizes only critical functions out of necessity. There is clearly negative approach to the new system and user does not see just a system as a new way to do things. User has not a positive state.	Permanent & continual part of work and routines +	Overall, user think's it is hard to believe what a failure Sisu has been and it's embarrassing. In future user sees no potential because of the fundamental problems in Sisu. Sisu system is perceived as a permanent part of work but only because there is no option.
System impact -- Usability -- Reliability -		Willing and motivated to adapt - Satisfaction --		Overall opinion (affective state) - Potential -	
User support	There is no another option but to stay positive. Still its better than pen and paper. productivity is clearly negative because it only creates more work. There are still after months of use several cases that the instructions are needed to complete tasks. Too many unnecessary steps. User is staying positive about the system but it cannot deliver value to her as it is disturbing teaching: adequate information is not available due to user priviledge policies for example. There is still need for instructions after months of use.	Willing and motivated to adapt Necessity ++	User feels indifferent about the willingess and motivation to adapt as she feels that it is impossible to resist. User has taken positive attitude consciously because she acknowledges that she must work with Sisu but is not satisfied. Routines have not fully changed because there is still often use for instructions to complete tasks.	Permanent & continual part of work and routines + Potential +	Overall opinion about deployment is negative. User thinks that there is some potential and that there is also no way turning back at this point. There must be a solution to combine Sisu and KOVS. They cannot function separately.
System impact -- Usability -- Reliability -		Satsifaction -		Overall opinion -	

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#15	IT self-efficacy + Necessity ++ User involvement - Learning & adaptation - Personal expectations - Subjective norms --	User is a long-term university staff member that has lots of experience from university IT development. Learning new IT is perceived sometimes problematic. Perception that the user was not involved which should have been done in the form of piloting. Has learnt the system for the sake of job out of necessity. Peer feedback has been very poor which is also reflecting own thoughts. The knowledge about previous systems is helpful but user if still some doubt about system deployment.	System intentionality System learnability -- Perceived and utilized support/ training resources - Additional changes in user environment - Learning & adaptation -	System intentionality is seen as forced and having shady details causing suspicions. The change is deemed unnecessary. Opinion is that this kind of systems should be possible to learn without teaching which turned out not true in this case. User can complete the basic tasks and has deep knowledge about the process of choosing the system. Learning was highly problematic and happened mostly independently/with peers as support resources were perceived inadequate. The system was perceived hard to learn due to poor usability and quality as well as due to introduction of many new systems.
#16	IT self-efficacy ++ Learning & adaptation + Necessity + Subjective norms -- User involvement - Personal expectations -	The user has taken the new system in open-minded and has participated its implementation in forefront through a reference group. Although she was taken into account officially, she feels that she was not heard as her suggestions never realized. She is a confident and capable IT user. It is clear that she acknowledges its importance and necessity to her work and role of it despite the negative user environment. Her personal expectations were shaped negative due to subjective norms and experiences gained in the reference group.	System intentionality ++ Learning & adaptation ++ System learnability - Perceived and utilized support/ training resources -	Learning the use of Sisu was perceived hard as the system was unintuitive and seemed even inoperable at times. There was not enough support / training resources available and offered resources were not on satisfactory level. Learning has happened mostly via trial-and-error independently. User support was also perceived crucial despite the lacking quality and availability. She still understands deeply the intentionality of the system and has adapted a widest variation of system features recorded on this study and thus knows how to perform tasks required by the work.

ASSESS		BE GIVEN		SUBMIT	
Reliability User support	Perception about Sisu is negative. The positive side of it is that it is bringing faculty together when everyone agrees about Sisu and its problems. System usability is perceived poor. Moving between different systems is disturbing and slows down processes. Different tasks are done in different systems and it is hard to remember which was where. doesn't feel that system is bringing value to him but quite opposite. System is disturbing his work and slows down processes.	Willing and motivated to adapt	It is hard to say about routines because using Sisu is relatively slight. User feels that there was no significant difference in routines due to slight usage. The user feels apparently indifferent about motivation and willingness to adapt. However in the use of the system user said that routinization have rarely occurred even around the most critical features and out of necessity. New system in not seen as just as a way we do things. The user remains dissatisfied.	Permanent & continual part of work and routines +	Overall opinion is that by now it should be fully working as it has been in use one and a half year. No more "teething issues" should be occurring anymore. It seems that there is not much potential in the future because the team that is developing Sisu seems too narrow. The best guess is that Sisu won't exist after four years.
System impact -- Usability -		Necessity ++		Overall opinion (affective state) - Potential -	
		Satisfaction --			
System impact -- Usability - Reliability - User support -	The user acknowledges that the system provides already some of the promised value. But at the moment it has not met the minimum threshold as functions intended to perform in the new system are still performed in the previous system. The user is in slightly dissatisfied with the system but sees the potential and value in the system and remains open minded. Usability and sustem impact has been negative still. The user support has failed to effectively respond. And information inaccuracies have been prominent.	Willing and motivated to adapt +-	The user has changed her routines and considers the new system as the way to do things. She implies not being especially motivated and willing to change arguing that the system should support procedures and not guide nor rearrange them. There is no evidence that she is in positive affective state.	Overall opinion (affective state) -	The user is faithfully and deeply using the system but is not devoted beyond the necessity. She has routinized Sisu's use and sees the potential value of it but remains in slightly negative affective state and feels rather indifferent about it currently as it simply does not work as intended
		Necessity ++		Potential + Permanent & continual part of work and routines +	
		Satisfaction -			

PHASE → / INTER-VIEWEE ↓	RECEIVE		GRASP	
#17	Learning & adaptation - Subjective norms - Personal expectations - IT self-efficacy + User involvement +	The user has open-mindedly started adapting and learning the system and although perceives himself as a conservative user. Has not shown traits of user resistance but he acknowledges that IT is an essential (required) tool. Subjective norms have been something this user has wondered upon as they give much more negative and severe image of the situation as he has perceived but they affected his initial prior expectations negative. This user feels that he was taken into account because of training / support.	System intentionality Utilized support/ training resources - Learning & adaptation - Perceived support/ training resources -	The user has partook in training sessions and feels that those helped him understanding how to do things in the new system although he felt that more could have been done in the support/training quality / availability context. He has reported of using intended functions of the new system and is managing. Learning was difficult but that may have been due to generally perceiving learning new IT possibly somewhat hard. He has somewhat speculative understanding of the system intentionality.
#18	IT self-efficacy + Learning & adaptation + Necessity ++ Subjective norms -- User involvement - Personal expectations --	The user open-mindedly took the new system into use. Even despite the early negative experiences she felt motivated learning the use of it implying that the user acknowledges the importance of learning the application for the sake of the work. Subjective norms were negative about the change and personal expectations slightly negative and cautious due to the heard details about the project and initial feedback. There was a feeling that the user was not taken into account in the project enough. She had participated usability testing but only after the system had been deployed and the results for improvements emerging there were still yet to realize.	System learnability - Additional changes in the user environment - System intentionality + Perceived and utilized support/ training resources + Learning & adaptation ++	The user is using the system to perform basic task fluently as she has learned to use the system in time. Learning had been hard due to lacking system quality: Sisu felt unintuitive and illogical to use. Additionally it was hard to remember which tasks were done in which systems as there were so many new systems in use. There has been a adequate amount of training and support resources available helping in that and she has been satisfied to the quality of them . She has a limited understanding of the system intentionality but understands the core premise of the system.

ASSESS		BE GIVEN		SUBMIT	
System impact Usability Reliablity User support	The user manages to perform daily tasks with the system so the minimum value has realized. Nothing extraordinary has yet been emerged. The user remains in indifferent affective state and is no particularly satisfied or dissatisfied perception implying the movement towards satisfaction and positive affective state is an ongoing process at this state.	Satisfaction Willing and motivated to adapt ++ Necessity ++	The user has changed routines accordingly and considers the new systems as a way to do things. He performs most necessary functions without major issues with it reporting of using only "the tip of the iceberg" of the system features. The user is motivated to adapt because he wants to make his job easier but has indifferent attitude towards the system and not in positive affective state.	Overall opinion (affective state) Potential + Permanent & continual part of work and routines +	The user has routinized the use of the system and is using it faithfully as a teaching tool. The user is not in positive affective state but has indifferent attitude towards the system.
User support System impact -- Usability -- Reliability --	Sisu has had negative perceived effect on work-related tasks and productivity. It has wide variety of major usability issues and the user support has sometimes failed to efficiently process these issues. Things have not gotten better in desired pace and the future seems uncertain. The user is able to use the system "somewhat OK" and can perform daily activities with it meaning that the system brings some value but it does not realize in entirety. The user has not shown movement towards neutral nor positive affective state.	Willing and motivated to adapt + Necessity ++ Satisfaction --	The user has changed her routines as the work is done now in the new system. She is willing motivated to change but still dissatisfied with the system not seeing the realized value. She is not in the positive affective state.	Overall opinion (affective state) - Potential + Permanent & continual part of work and routines +	The user sees the new system as a permanent and continual part of her work. She has routinized its use. She does not see the value in it as it has workflow and productivity breaking problems and remains slightly dissatisfied. She sees some potential of the system meaning that she can see the promised value and expects it to realize on some point.