Master's thesis – Master Business Administration (double degree)

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Using User Adoption Platforms at IT training providers can alter the learning effectiveness of their services.

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I embarked on my professional career after completing all the Innovation Management, Entrepreneurship & Sustainability double degree courses taught in Enschede and Berlin. This meant that immediately after my return from Berlin, I combined the demands of my master's thesis with my responsibilities in the company that had hired me. Balancing these two parts led to several challenges, as I had to fulfil the roles of a student working on my thesis and a professional in an actual company. This situation resulted in my inability to meet the initially intended timeframe for completing my master's thesis. I am incredibly grateful to Luuk Ijland for his guidance and for steering me towards focusing on finishing my thesis.

I enjoyed working on the topic of this thesis, and my interest deepened with each bit of progress I made. The freedom I had to conduct my research significantly boosted my confidence in its success. The findings of this thesis will contribute positively to ExplainiT's future service enhancements.

Abstract

Digital transformation can be seen as an incremental or disruptive change process, fundamentally altering how people interact with information technologies [Henriette et al., 2016]. Successful user adoption of digital technologies is essential to tackle this change process. This adoption can transform an organisation's existing business model, making it more sustainable for the future [Henriette et al., 2016]. Without adapting to these changing environments in which organisations, teams, and employees operate, chances are high that managers and organisations will fail to reach their goals [Longenecker et al., 2007]. Furthermore, adapting to these changes is insufficient; continuous adjustments to strategies and operations are crucial to align with the new reality [Kennerly and Neely, 2003].

To bridge the gap outlined above, IT training providers play a vital role. They educate organisations, teams, and employees, enabling them to work with the information technologies within their context correctly. However, IT training providers and the organisations they serve face a growing challenge. The technologies employees must work with are evolving rapidly, making knowledge about how to use them quickly obsolete.

A trend within the IT training market is the increasing use of software applications by training providers to develop training materials. A potential solution to this challenge is using a User Adoption Platform (UAP). Beyond addressing the problem of outdated materials, integrating UAPs within services carries implications for the format of IT training providers' offerings. This leads to a fundamental question: How does this integration impact the format and the learning effectiveness of the services offered by IT training providers?

Glossary of terms

Concrete Experience (CE)

Learners engage in either new experiences or reimagine past ones. In this mode, each learner actively participates in an activity or task. Active engagement within the activity is essential to acquiring new knowledge [Kolb, 1984].

Reflective Observation (RO)

Learners reflect upon the activity, enabling them to ask questions and discuss their experiences with others. Communication plays a crucial role in identifying disparities between the learner's existing knowledge and the activity they were involved in. [Kolb, 1984].

Abstract Conceptualisation (AC)

Learners make sense of the knowledge they have gained. Transition to this mode occurs when learners begin concluding their encountered activities. This involves interpreting their experiences and comparing them with their current knowledge of the concept [Kolb, 1984].

Active Experimentation (AE)

This is considered the testing phase. Learners return to their daily situations with their acquired knowledge [Kolb, 1984].

User Adoption Platform (UAP)

A User Adoption Platform is a central platform within an organisation that contains instructions, manuals, and courses to improve people's ability to work with all software applications [SelfGuide, 2023].

Business-to-Business (B2B)

A particular type of transaction between one business and another business [U.S. Chamber of Commerce, 2023].

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1. Introduction

1.1 Research Background

In a world marked by the ongoing fourth industrial revolution and the digital transformation currently unfolding, individuals and organisations are undergoing fundamental changes in their operating methods [Ghobakhloo, 2020]. This digital transformation can be viewed as a process involving incremental or disruptive changes, influencing how people interact with information technologies [Henriette et al., 2016]. Successful user adoption of digital technologies is essential to tackle this change process, as it can ultimately reshape an organisation's existing business model into a more sustainable one [Henriette et al., 2016]. Neglecting adaptation to these evolving environments in which organisations, teams, and employees function increases the risk that managers and organisations will fail to reach their objectives [Longenecker et al., 2007]. More than merely adapting to these changes is required for organisations to thrive; it also demands an ongoing adjustment of their strategies and operations to align with the new situation [Kennerly and Neely, 2003].

The digital transformation is primarily driven by the rapid evolution of three categories of technologies: internet technologies, analytical technologies, and mobile technologies, with cloud technologies playing a fundamental role in accelerating their development [Henriette et al., 2016]. Organisations must adapt to these changes within their IT environments because the effective utilisation of IT services is closely linked to an organisation's revenue generation [Jacob et al., 2019]. Consequently, it is increasingly essential for organisations to educate themselves and their employees on correctly working with their information technologies.

In response to this need for education, IT training providers offer their services to organisations, teams, and employees, equipping them with the knowledge to work correctly with their information technologies [ExplainiT, 2023]. However, IT training providers and the

organisations they serve are facing an increasing challenge. The technologies that employees must work with are evolving and changing rapidly, leading to knowledge of how to operate these technologies quickly obsolete [Janssen and Joha, 2012]. This challenge has implications for the training materials IT-training providers obtain from suppliers and create themselves. Consequently, they are struggling to provide their customers with up-to-date training materials, and thus, the customers are not receiving education most efficiently and effectively [SelfGuide, 2023]. This situation has compelled IT training providers to seek future-proof solutions, enabling them to deliver up-to-date materials aligned with their educational methods.

A notable trend in the IT training market is IT training providers' adoption of software applications to create training materials. One potential solution is using a User Adoption Platform (UAP). IT training providers use these UAPs to produce and maintain up-to-date materials for their services. In addition to resolving the challenge of outdated materials, this shift also carries significant implications for the format of IT training providers' services. Traditional IT training providers must adapt their offerings as these UAPs need to be integrated into the services. This raises the question: How does this integration impact the format and the learning effectiveness of the services provided by IT training providers? This question is also in line with the research of Moreno et al. (2016), which states that the success of the integration depends on how the technology is embedded and adopted into their learning activities.

This research aims to explore if and how the adoption of User Adoption Platforms by IT training providers influences the learning effectiveness of their services. This results in the following two central research questions, both in the context of IT training providers and their services offered.

Q1: "Does the integration of User Adoption Platforms lead to a higher learning effectiveness?"

Q2: "How does the integration of User Adoption Platforms lead to a different learning effectiveness?"

1.2 Structure of Thesis

This thesis's primary structure is divided into two main sections: "Extend of differences in Learning Effectiveness" and "Explanation of differences in Learning Effectiveness." The "Extend of differences in Learning Effectiveness" section focuses on the actual difference in learning effectiveness between the traditional service provided by the IT training provider and the new service of the IT training provider, incorporating the UAP. This section aims to address the first central research question.

The second section of the thesis pertains to the "Explanation of differences in Learning Effectiveness" of the service. After establishing the distinctions in learning effectiveness between the traditional and new IT training services, this section focuses on the reasons behind these differences. Consequently, the second section of the thesis provides insights and answers to the second central research question.

1.3 Theoretical Contribution

The theoretical contribution of this research is applying Kolb's Experiential Learning Theory in an IT training provider context and showing whether there is altered learning effectiveness while using a User Adoption Platform. In other words, it aims to examine the effects of integrating a User Adoption Platform into the services of an IT training provider on the learning effectiveness of their offerings and whether these effects align with the principles of the experiential learning theory proposed by Kolb. This examination involves an assessment of both the traditional service and the new service, which includes the User Adoption Platform.

To achieve this, propositions will consider whether there will be a positive, negative, or no impact on the learning effectiveness. The empirical research will determine whether these hypotheses align with real-world outcomes.

In essence, the theoretical contribution of this study provides new evidence suggesting that Kolb's theory may also be relevant in contexts where User Adoption Platforms are utilised for educational purposes. This perspective aligns with Makadok et al. (2018), who highlight that most theoretical contributions either extend, clarify, or apply established theories in novel and innovative ways. This research will apply Kolb's set theory in a different context.

1.4 Practical Contribution

The practical contribution of this research lies in determining whether the incorporation of User Adoption Platforms within an IT training provider's service enhances the learning effectiveness of the services offered. This has implications for the stakeholders involved, including the learners/customers, the teachers facilitating the services, and the IT training provider.

For learners/customers, this could result in a more effective learning experience compared to services offered by other IT training providers. This heightened learning effectiveness may incentivise potential customers to seek training from an IT training provider that integrates a User Adoption Platform within their services.

Furthermore, this research also carries significance for teachers utilising User Adoption Platforms in their teaching methods. If changes are made to the format of the IT training provider's services, leading to increased learning effectiveness, it would also benefit the teachers. Their ability to facilitate more effective learning experiences would be positively impacted.

The IT training provider, too, might use the findings of this research for commercial purposes. Demonstrating that their services are more effective in learning outcomes than competitors can serve as a persuasive tool when attracting prospective customers. Such evidence can make it easier to convince potential clients to choose and utilise their services.

2. Theoretical Background

In this research section, it is crucial to comprehensively explain the concepts mentioned in the two central research questions. This is essential for acquiring the necessary background knowledge to conduct the research and formulate a response to the research question.

2.1 Learning Effectiveness

Learning effectiveness is the degree to which learning outcomes have been achieved or that the learning is effective [Blicker, 2009]. Learning effectiveness results from carefully structured learning systems involving learners, students, educators, and educational institutions. The effectiveness measurement may depend on the learners' perception of their progress and can also incorporate assessments defined by instructors or educational institutions [TEL Education, 2023]. Learning effectiveness addresses the fundamental question: "Have I acquired more knowledge than I possessed previously, and how does this newfound knowledge benefit me?" [TEL Education, 2023].

Learning effectiveness is a product of well-executed pedagogical practices, as Joy and Garcia (2000) described. The ultimate goal is to discover an optimal combination of instructional strategies that yield the most favourable learning outcomes. Assessing learning effectiveness involves the evaluation of specific design elements encompassing cognitive, teaching, and social presence within the learning environment, as noted by Garrison et al. (2000). These design elements primarily focus on promoting and facilitating higher-order thinking skills through the critical analysis and inquiry of information, as highlighted by Garrison (2003).

When learners or students encounter new information, they engage in a process of evaluation, seeking to establish connections between their existing knowledge and the newly acquired information. Once these connections are established, learners draw inferences and judge based on the newly acquired knowledge [Kafai and Resnick, 1996]. Enhancing learning effectiveness

requires learners to think critically, analyse situations, seek evidence, and recognise the relationships between their prior knowledge and new situations [Sigala, 2002].

Crucially, when it comes to enhancing learning effectiveness through software, it is not solely the technology itself that influences outcomes; instead, it is the implementation of the technology that has the most significant impact. In this context, the role of the teacher remains central to the effectiveness of the learning process. Teachers should serve as facilitators, guiding the pace of learning while learners are actively engaged in the process [Salmon, 2002].

2.2 Kolb's Experiential Learning Theory

Kolb's experiential learning theory is used to measure learning effectiveness. Some studies state that learning experiences and activities based on Kolb's Experiential Learning Theory enhance student learning outcomes [Konak et al., 2013]. In addition, Kolb's theory is one of the most popular and most frequently cited educational theories and analyses whether an offered method can be seen as effective learning [Sharlanova, 2004].

Kolb's experiential learning theory, introduced over two decades ago, is widely recognised as one of the most prominent educational theories. It offers a well-defined framework for designing teaching and learning experiences, closely aligned with a constructivist perspective on knowledge acquisition [Abdulwahed and Nagy, 2009]. This theory can be described as follows: "the process by which knowledge is generated through the transformation of experience. Knowledge emerges from the fusion of grasping and transforming experiences" [Kolb, 1984, p.41].

Effective learners should engage in four distinct learning modes: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE) [Kolb, 1984]. The most favourable learning outcomes occur when individuals maintain a well-balanced engagement with these four learning modes throughout their learning journey, as

Lu et al. (2007) noted. It is worth noting that learners can enter this cycle at any of the four modes or stages [Kolb, 1984]. For a visual representation of Kolb's experiential learning cycle and its associated learning styles, refer to Figure 1.
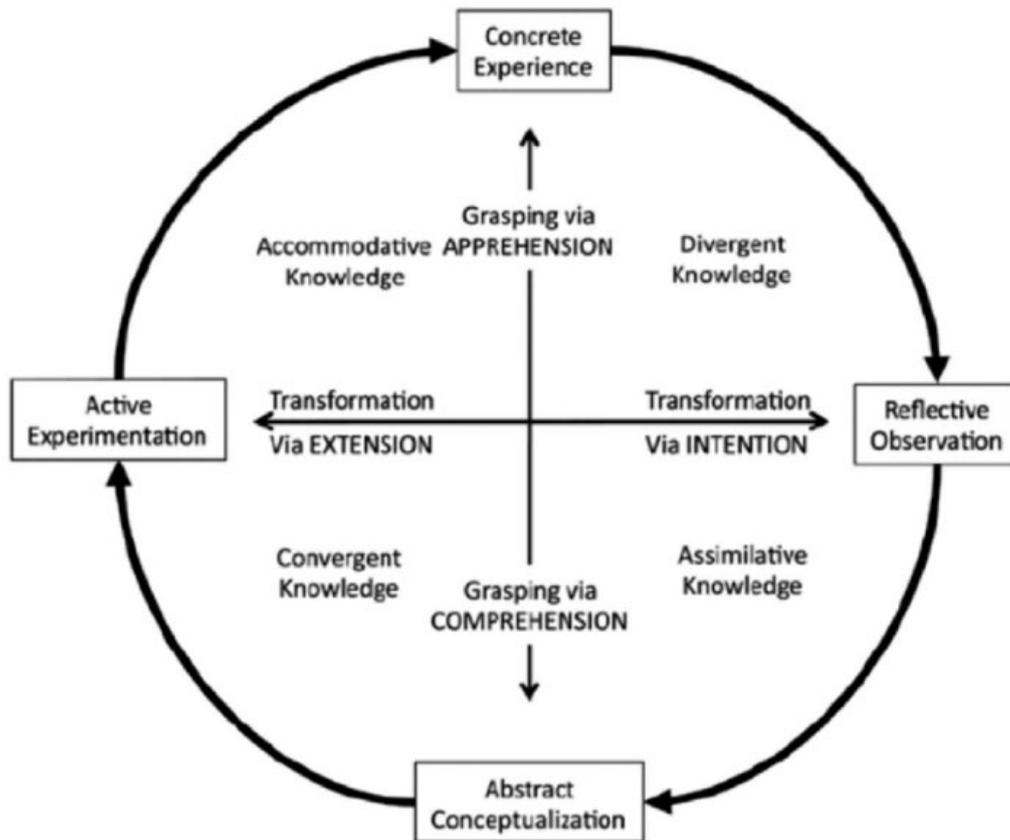
Figure 1 - Experiential Learning Cycle [Kolb, 1984]

Kolb's theory revolves around the concept that individuals should initially detect, depict, or grasp knowledge before embarking on a construction phase to complete the learning process. In this context, construction transforms received information into a mental model through experiential knowledge. In essence, the optimal learning experience, as he proposed, encompasses a journey through all the different modes found within the experiential learning cycle illustrated in Figure 1.

Figure 1 features two distinct axes, the vertical and horizontal, representing various dimensions of Kolb's theory. The vertical axis delineates the dimension of knowledge acquisition, signifying whether knowledge is acquired through direct experience (concrete experience)

through conceptual understanding (abstract conceptualisation) or somewhere in between these two extremes [Abdulwahed and Nagy, 2009]. Meanwhile, the horizontal axis within Figure 1 represents the dimension of knowledge construction. Knowledge can be grasped through deliberate contemplation (reflective observation) or extension (active experimentation) [Abdulwahed and Nagy, 2009].

To achieve effective learning, one must go through the entire cycle and all its distinct modes [Kolb, 1984]. Experiential learning is a knowledge-building process entailing a dynamic interplay between the four modes of the learning cycle: experiencing, reflecting, thinking, and acting. Learners must continually select which learning abilities to apply in a given context. Apprehension and comprehension are autonomous modes of knowledge acquisition, while intention and extension are autonomous modes of an experience transformation.

Learning from an experiment, representing the transformative phase of knowledge construction, begins with grasping information [McCarthy, 2016]. All four modes are equally vital within the learning process, and a combination of these modes contributes to a higher level of learning throughout the process [McCarthy, 2016].

Prior research indicates that experiential learning yields positive outcomes, asserting that when learners actively engage in the learning process, their learning experiences are optimised [Smart and Csapo, 2007]. The following section will delve into the specifics of the four distinct modes proposed by Kolb.

The first mode to explore is the concrete experience mode, where learners either engage in new or reimagine past experiences. In this mode, each learner actively participates in an activity or task, as emphasised by Kolb (1984). He underscores the critical role of involvement in the learning process, asserting that merely reading or observing is insufficient. To acquire new knowledge, active engagement within the activity is essential.

The second mode, the reflective observation mode, follows active participation in the concrete experience mode. In this phase, learners reflect upon the activity, enabling them to ask questions and discuss their experiences with others, according to Kolb (1984). Communication plays a crucial role at this stage, facilitating the identification of disparities between the learner's existing knowledge and the activity they were involved in.

The third mode in Kolb's framework is abstract conceptualisation. In this mode, learners make sense of the knowledge they have gained, as Kolb (1984) describes. Transition to this mode occurs when learners begin concluding their encountered activities. This involves interpreting their experiences and comparing them with their current concept knowledge.

The final mode in Kolb's model is the Active Experimentation mode, often considered the testing phase. As Kolb (1984) points out, after this phase of the intervention, learners return to their daily situations armed with the knowledge they have acquired. By implementing this newfound knowledge, learners ensure that the information is retained for future use.

2.3 User Adoption Platform

The concept of a User Adoption Platform is relatively new, resulting in a limited body of literature or established theory surrounding it. Companies themselves coin the term "User Adoption Platform" to define the products they develop. To grasp its essence more comprehensively, let us explore two definitions of a UAP.

Firstly, dissecting "User," "Adoption," and "Platform" sheds light on this phenomenon. "User" refers to an individual or learner utilising the technology. "Adoption" signifies the deliberate choice to embrace, follow, or employ something [Oxford Languages Dictionary, 2023]. "Platform" denotes a centralised foundation upon which the technology is constructed.

The second definition is the one that is used by the organisation that created SelfGuide, the UAP, which is used within this research: A User Adoption Platform (UAP) is a central platform

within an organisation that contains instructions, manuals, and courses to improve people's ability to work with all software applications [SelfGuide, 2023]. In the context of this study, the User Adoption Platform employed is SelfGuide. SelfGuide is a versatile tool designed to develop and maintain software instructions, exercises, user guides, and courses for various software applications [SelfGuide, 2023]. Working with SelfGuide is characterised by its user-friendly nature, demanding minimal effort from content creators and offering an intuitive learning experience for learners. It applies to training and supporting learners across various scenarios, including their day-to-day tasks, software migrations and implementations, and onboarding processes. As previously mentioned, SelfGuide endorses the creation of four distinct content types, which will be explained in more detail below.

The first content type is the instruction, a visual, step-by-step guide for performing tasks within a software application. Instructions are built upon the computer screen, providing additional information on the necessary actions and their rationale. Learners progress through these instructions at their own pace, with visuals tailored to match the software configuration of their organisation.
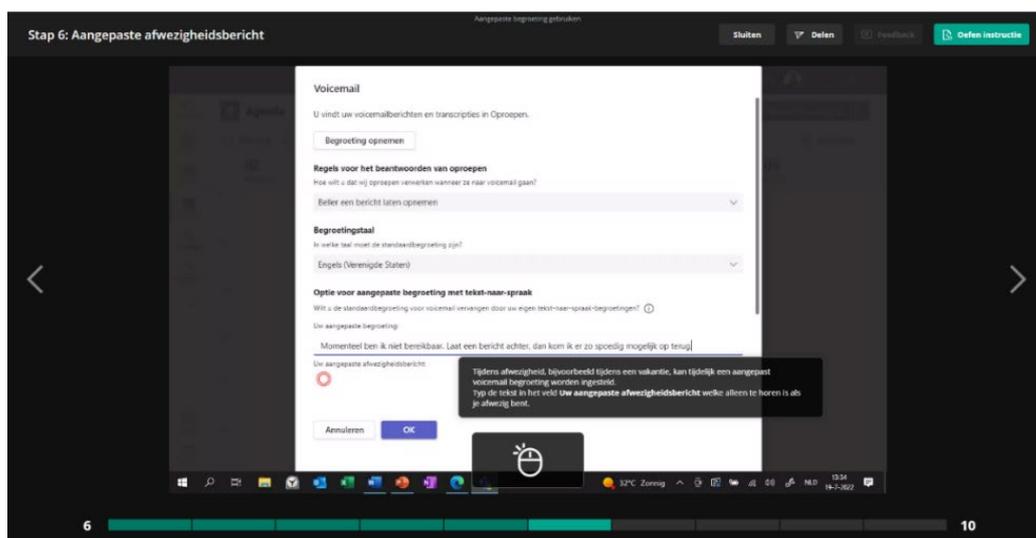
Figure 2 - SelfGuide Instruction [SelfGuide, 2023]

The second content type is the exercise, sharing the same format as an instruction but with a distinctive feature: learners are expected to execute specific tasks independently. While instructions outline what needs to be done at each step, exercises require learners to actively respond by performing the tasks themselves. This interactive approach allows learners to practice without accessing the live system, minimising potential disruptions.
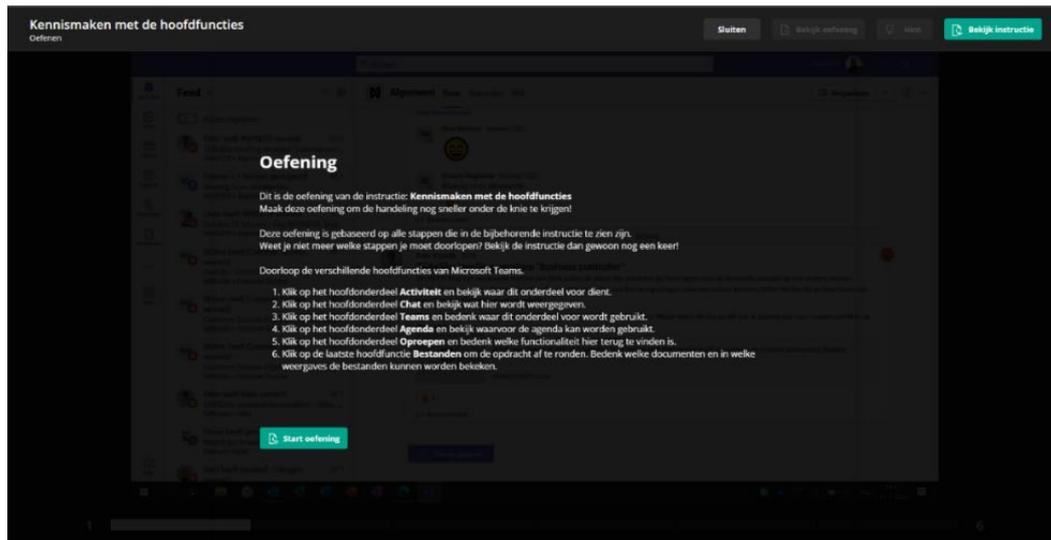
Figure 3 - SelfGuide Exercise [SelfGuide, 2023]

The third content category is a user guide, functioning as reference material for applications, teams, and processes. User guides draw from available instructions, offering structured, well-organized information enriched with contextual details [SelfGuide, 2023]. Learners can access this reference material anytime and anywhere to find answers to their queries regarding software application functionalities.
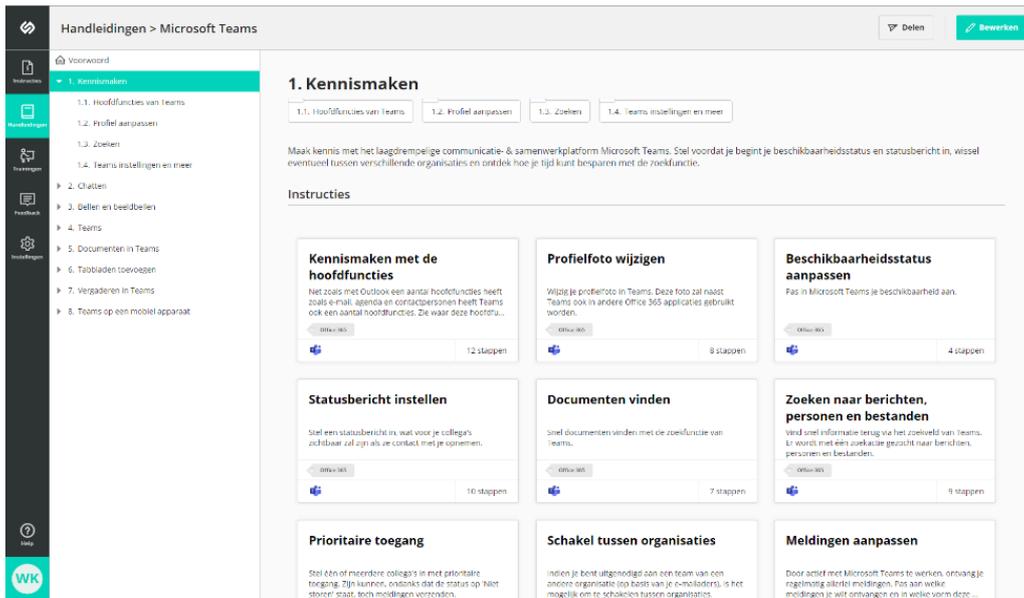
Figure 4 - SelfGuide User Guide [SelfGuide, 2023]

The final content type is a course, which groups available instructions and exercises related to a specific educational topic [SelfGuide, 2023]. Courses maintain a logical sequence of instructions and exercises to address learning goals in a structured manner.
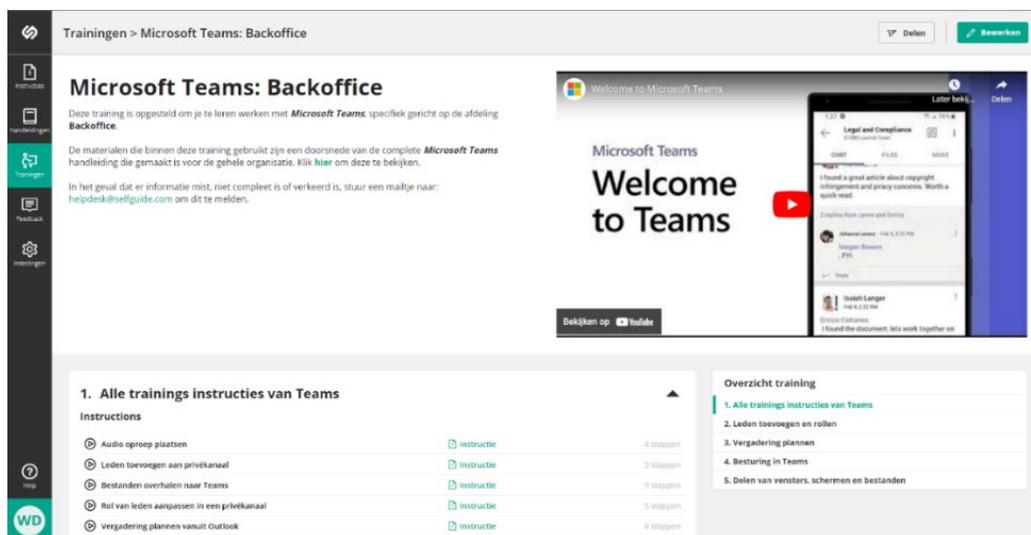
Figure 5 - SelfGuide Course [SelfGuide, 2023]

These instructions, exercises, user guides, and courses are created by subject matter experts who possess knowledge in the respective field. SelfGuide's primary objective is to provide learners with a consolidated platform for learning and practising software-related

functionalities. Instead of working in a live environment and relying on PowerPoint presentations and PDF documents, SelfGuide offers a unified format encompassing all necessary information to support learners [SelfGuide, 2023].

2.4 IT Training Provider

A training provider refers to any organisation or individual offering educational or training services as defined by UNESCO-UNEVOC (2023). In the context of this research, an IT training provider pertains to an entity or person delivering educational and training services related to IT software applications. Within the Netherlands, around 25 IT Training providers exist [Springest, 2023]. In this study, we specifically focus on ExplainiT as the chosen IT training provider. ExplainiT specialises in offering professional development training courses within the Dutch Business to Business (B2B) sector. Headquartered in Hengelo, the Netherlands, the company maintains a core team of 20 permanent staff members. Additionally, ExplainiT collaborates with approximately 250 freelance professionals who serve as instructors and experts in their respective fields. ExplainiT enjoys a strong reputation as a prominent player in the professional development training industry in the Netherlands [ExplainiT, 2023].

3. Setting Context, Hypothesis and Propositions

Within this part of the research, the traditional service and new service, including SelfGuide of the IT training provider, will be addressed according to Kolb's Experiential Learning theory. Both services will be assessed on their presumed learning effectiveness, and a hypothesis and multiple propositions will be drawn. This hypothesis and the propositions will be evaluated later in this research. According to Kolb, an overview of which service would bring a better learning experience will be created. Both services will be addressed by giving a general overview. They will also be described based on the four modes offered by Kolb: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation.

The overview of the traditional and new services has been gathered by talking to multiple teachers at ExplainiT. They have given an overall description of the traditional and new services.

3.1 Overview

In the traditional one-day Microsoft Teams session, participants engage in an in-person learning experience led by a qualified teacher. Each session is limited to ten participants to ensure everyone gets enough attention. The teachers employ a method that involves discussing the new or updated functionalities of Microsoft Teams, delving into their purpose and objectives. They provide real-time demonstrations of how these features work and guide participants through the process. Subsequently, participants can independently apply what they have learned, with the instructor offering guidance as needed. In case of questions, participants await their turn unless there are many questions, in which case the teacher addresses the entire group. This interactive process continues throughout the day until all the defined learning goals have been met.

At the conclusion of the session, participants are presented with an online questionnaire for feedback and an overall evaluation. Upon completing the questionnaire, they receive a certificate of participation and access to the presentation materials used during the day.

The new service also maintains a maximum of ten participants and is conducted in person by the same instructor(s). However, the usage of SelfGuide transforms the format of the service, altering the learning process.

In this new format, the instructor initially covers the new or updated Microsoft Teams functionalities, their functions, and objectives. The instructor also demonstrates and discusses these features. The critical difference is that participants do not just passively listen and click through Microsoft Teams; they actively practice the functions themselves. Moreover, instead of clicking through the actual system, participants engage within SelfGuide. They start by

following an instructional guide outlining the required actions. After completing this guide, they enter a practice mode and execute the tasks. A score is provided to assess the accuracy of their actions.

Should any aspects of the exercise still need clarification, participants can access the help feature or revisit the instruction. If questions persist, participants can ask the teacher a question, either individually or with the entire class. This approach encourages participants to attempt problem-solving independently before seeking the instructor's guidance. This interactive process continues until all the learning objectives of the training are addressed. At the end of the session, participants are invited to complete an online questionnaire to evaluate the service. Upon completion, they receive a certificate of completion.

Another big difference between the traditional and new services is that participants retain access to SelfGuide and its content for up to one year after training. This allows them to access instructional materials and exercises from home or the workplace, offering a resource for problem-solving or additional practice within Microsoft Teams.

3.2 Overall Learning Effectiveness

Hypothesis 1: *The learning effectiveness of the new service (including UAP) is higher than the learning effectiveness of the traditional service of the IT training provider.*

Figure 6 indicates the propositions that are created within this section. This illustration shows a better insight into the balance of the four modes within the traditional and new service. The different axis is not based on a defined scale but indicates which service performs better in which mode of Kolb.
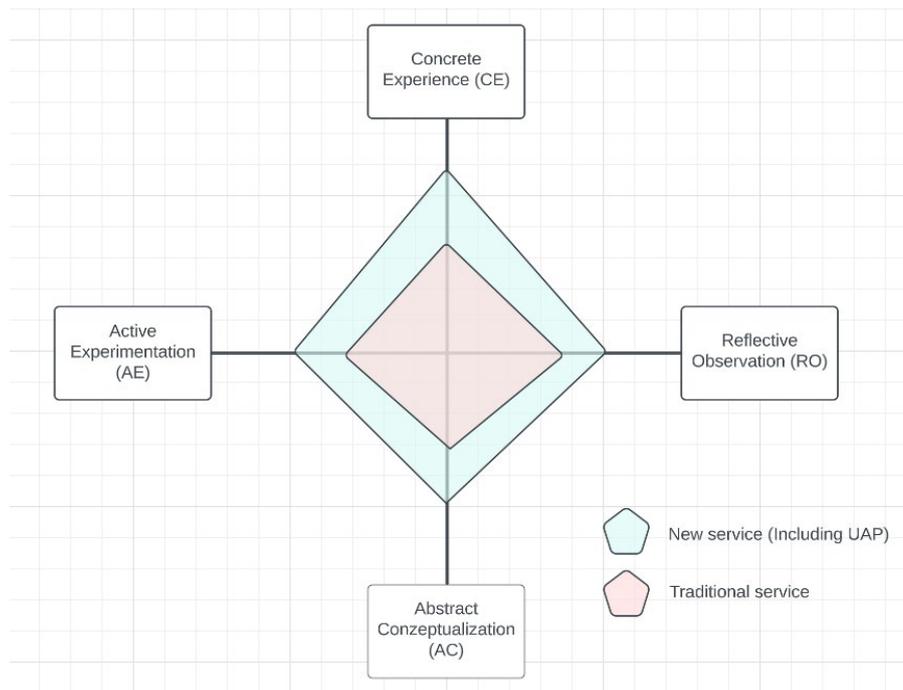
Figure 6 - Overview Theoretical Comparison

Optimal learning occurs if people balance the four learning modes during their learning experience [Lu et al. 2007]. Thus, if there is a better balance between all of the other modes within the new service of the IT training provider when compared to the traditional service, there will be a higher learning effectiveness. Based on this, hypothesis 1 is created regarding the overall learning effectiveness.

3.3 Concrete Experience

Proposition 1: *"There is a higher level of Concrete Experience (CE) within the new service of the IT training provider when compared to the traditional service."*

Within the traditional service of ExplainiT, learners are guided through the new functionalities of Microsoft Teams. In the case of ExplainiT's Microsoft Teams training, the learning goals associated with these new functionalities are included in Appendix A.

The teacher introduces participants to these recently added or updated features in this learning journey. This is accomplished through a combination of presentations and demonstrations using

a projector or television screen. Following this introduction, learners will have the possibility to go through the system themselves. ExplainiT provides laptops equipped with a standard Microsoft Teams configuration for this purpose. Thus, it is essential to note that this might be something other than a real-world usage scenario.

Within the new service of ExplainiT, a shift has occurred. Instead of merely acquainting participants with these new functionalities and providing information, they are now forced to practice them. First, participants receive instructions on these new functionalities within SelfGuide, after which they transition to the practice mode to actively practice the functionality.

As stated in this research, Kolb believed that being actively involved is the key to effective learning. More than just reading or observing is required. The new service of ExplainiT forces participants to acquaint themselves with the learning materials and actively practice them. This adjustment significantly enhances the Concrete Experience phase within Kolb's Experiential Learning Cycle, leading to greater participant engagement and, thus, a more immersive learning experience. Based on this comparison, Proposition 1 is created.

3.4 Reflective Observation

Proposition 2: *There is a higher level of Reflective Observation (RO) within the new service of the IT training provider when compared to the traditional service.*

As previously emphasised in this research, encouraging learners to ask questions and engage in discussions with others is vital for effective learning. In ExplainiT's traditional service, learners can ask questions during the session. The teacher responds to these questions individually or addresses the entire class when multiple learners share similar questions. This approach facilitates reflection on the material learned and helps learners place the acquired knowledge in the correct context. Moreover, participants can seek clarification from their peers if any aspects

remain unclear, as there is room for discussion during the session. This collaborative process continues until all the learning objectives of the training are fulfilled.

In line with the Reflective Observation mode of the traditional service, learners in the new service of ExplainiT also have the option to ask the teacher questions or engage in discussions with fellow participants. However, the new service offers enhanced support mechanisms for participants.

If participants encounter difficulties during an exercise, they can utilise the SelfGuide's help functionality or refer to the provided instructional materials. Should any aspects remain unclear or questions arise regarding functionality, participants can directly approach the teacher individually or in a group setting for clarification. This approach streamlines the process of seeking assistance while simultaneously encouraging participants to attempt problem-solving independently before seeking the teacher's help. This interactive process continues until all the training's learning objectives are thoroughly addressed.

Furthermore, learners benefit from the convenience of accessing these materials even after the session. If questions arise in the days following the session, participants can revisit SelfGuide and access all the training materials covered during the service.

When one compares the traditional service and the new service in the context of Kolb's Reflective Observation mode, it is evident that learners receive more accessible support in the new service of ExplainiT. Rather than waiting for the teacher's response, learners are encouraged to seek answers to their questions proactively. If the instruction materials within SelfGuide do not answer the question, learners can still engage with the teacher or fellow participants for clarification. Moreover, the availability of training materials beyond the session extends learners' opportunities for reflection and problem-solving. Thus, the integration of SelfGuide in ExplainiT's service has a positive impact on Kolb's Reflective Observation mode. Proposition 2 is created based on the above comparisons.

3.5 Abstract Conceptualization

Proposition 3: *There is a higher level of Abstract Conceptualization (AC) within the new service of the IT training provider when compared to the traditional service.*

The traditional service provided by ExplainiT does not perfectly align with how learners must carry out their tasks in real-world scenarios. During these sessions, learners work on laptops using ExplainiT's standard configuration, requiring them to adapt and apply what they have learned to their daily activities.

The new service introduces several vital differences. Firstly, it encourages a more engaged approach during the session itself. Teachers do not provide immediate answers to questions; instead, they urge students to revisit instructions or utilise the practice mode of SelfGuide. This approach compels participants to reflect on the content and actively apply it within the context of the exercise. Secondly, the training is conducted within the Microsoft Teams configuration of the organisation for which the service is provided, as opposed to ExplainiT's standard setup. This increases familiarity and ensures a closer alignment with the learner's daily activities, making integrating and utilising the newly acquired functionalities easier.

Moreover, the availability of SelfGuide and content after the session significantly influences the Abstract Conceptualization mode. Participants can access and apply the materials in their day-to-day tasks, potentially affecting problem-solving methods and their work with Microsoft Teams. This, in turn, can influence the way participants generate new ideas and solutions.

As previously discussed in this research, the Abstract Conceptualization mode of Kolb's Experiential Learning Cycle involves categorising concepts and forming conclusions. The new service of ExplainiT provides learners with multiple additional tools to navigate this phase effectively. Firstly, it compels learners to reflect on the content and actively practice the functionalities. Secondly, it ensures that training occurs within the learner's configuration,

enhancing recognition and alignment with their work environment. Thirdly, it offers post-session access to SelfGuide content to address questions that arise afterwards.

In conclusion, the new service, including SelfGuide, positively impacts Kolb's Abstract Conceptualization mode, enhancing the learner's ability to apply, categorise, and conceptualise knowledge in real-world contexts. This leads to the formulation of proposition 3.

3.6 Active Experimentation

Proposition 4: *There is a higher level of Active Experimentation (AE) within the new service of the IT training provider when compared to the traditional service.*

Assessing the true impact of the traditional service on the Active Experimentation mode proves challenging because there is no visibility into whether learners apply the acquired skills in their practical work settings. Participants might need help to adapt to their work environments, which could differ significantly from what was taught during ExplainiT's traditional service.

Determining the effectiveness of the new service in the Active Experimentation mode also remains a challenge due to the need for insight into learners' practical application of the acquired skills. However, a factor influencing this mode is the personalised guidance provided by SelfGuide. This tool tailors instructions and exercises based on the learner's specific Microsoft Teams environment, making it easier for participants to integrate the newly acquired skills into their daily tasks seamlessly. This personalised approach ensures a one-on-one alignment with the materials covered in ExplainiT's new service.

In the Active Experimentation phase of Kolb's Experiential Learning Cycle, participants aim to implement their newly acquired skills in their daily routines. Both ExplainiT's traditional and new services face difficulty measuring impact since it is challenging to determine if learners apply the learned skills. Nonetheless, the introduction of SelfGuide has had a positive influence. By offering instructions and exercises tailored to each learner's Microsoft Teams environment,

SelfGuide facilitates a more direct application of the acquired skills in participants' daily activities, bridging the gap between training and practical implementation. This leads to the creation of proposition 4.

4. Extend of differences in Learning Effectiveness

This research section will delve into the delivery of ExplainiT's traditional and new services. When discussing service delivery, we will also explore the distinct aspects contributing to the variance in learning effectiveness between these services. This examination involves evaluating the service delivery by measuring the participants' knowledge levels before and after engaging with ExplainiT's new or traditional services.

4.1 Methodology

4.1.1 Overview

To address the first central research question - "*Does the integration of User Adoption Platforms lead to a higher learning effectiveness?"* - a comparison between the traditional and new services provided by ExplainiT must be made.

4.1.2 Data Collection

An experiment will be carried out to measure the difference in knowledge transfer during these services, establishing a cause-and-effect relationship. Participants who enter the research are randomly selected and are ordinary people working for an organisation receiving IT training from ExplainiT. The participants are all Dutch-speaking and are working in the Netherlands. There is no clear distinction between gender, age, and other characteristics.

A decision path, as depicted in Figure 7, developed by LoBiondo-Wood et al. (2013), contains a critical thinking decision path, which argues whether one has to select a true experimental or quasi-experimental design.
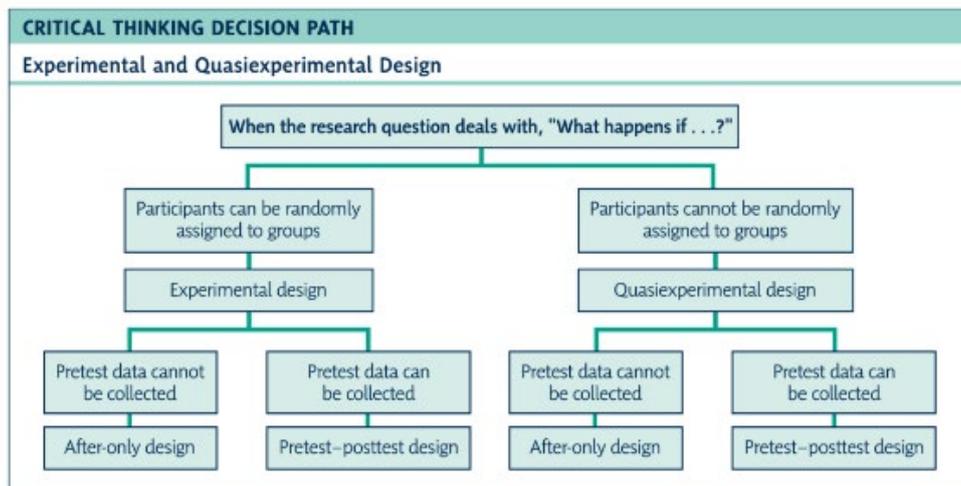
Figure 7- Critical Thinking Decision Path [LoBiondo-Wood et al., 2013]

When following the path of Figure 7, participants are randomly assigned to this experiment. Also, the pretest data can be collected. Thus, a pre-posttest design will be used.

Following the path in Figure 7, participants will be randomly assigned to the experiment. The pretest data will be collected, resulting in a pre-posttest design. Two groups, each comprising 20 participants, will participate in the research. One group will receive ExplainiT's traditional service, while the other will experience the modified service, including SelfGuide. Both groups will complete a pre-test before their training, offering insights into their current knowledge levels via a questionnaire featuring Likert-scale questions. These questions (Appendix B) are based on participants' beliefs, like, "How capable are you at adding or removing people during a Microsoft Teams meeting?"

The questionnaire aligns with the learning goals of the standard Microsoft Teams course of ExplainiT, and the questions are developed in collaboration with two experts/teachers in the field who also instruct the Microsoft Teams course. Following their IT training in both services, participants will undergo a post-test using the same questionnaire with Likert-scale questions based on their beliefs.
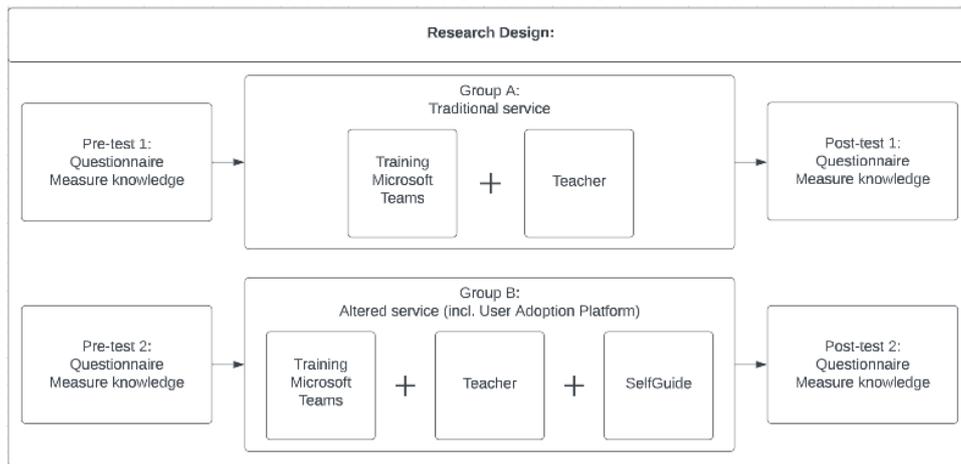
Figure 8 - Research Design

Participants will be selected through probability sampling, with their managers randomly allocating them to either the new or traditional service. Both services are of the same duration, taught by the same instructor, and cover identical information. Each service group will consist of 20 participants, totalling 40 participants in the study. The training "Microsoft Teams" by ExplainiT, focusing on the basic principles of Microsoft Teams, defines the service offered by the IT training provider in this research. The learning goals of the Microsoft Teams training (Appendix A) will be utilised consistently in this research.

4.1.3 Operationalization

Operationalisation involves several critical steps in this study. Firstly, it requires the identification of the core concepts under investigation. The first central research question, "*Does the integration of User Adoption Platforms lead to a higher learning effectiveness?*" centres on two primary concepts: "Integration of User Adoption Platform" and "Learning Effectiveness".

The second step in operationalisation consists of selecting variables that represent these concepts. In accordance with the research design, which involves a pre-posttest assessing participants' belief in their ability to perform a learning goal taught during the IT training service, two variables are chosen: 'Ability to perform action' and 'Use of UAP.'

The third step is the selection of indicators to represent these variables. 'Ability to perform action' is assessed through a single indicator: 'participants' confidence in their correct usage of the functionality'. Given the binary nature of this measurement (correct or incorrect usage), a single-item measure is sufficient, leaving little room for interpretation. This is measured through the use of a questionnaire. The questionnaire comprises 12 questions (Appendix B) that assess participants' confidence in performing specific tasks taught during the service. Respondents used a Likert scale ranging from 1 to 5, with 1 indicating the lowest and 5 representing the highest confidence level.

The second variable, 'Use of UAP,' is relatively straightforward because it is a binary choice: either 'yes' or 'no'. Measurement is uncomplicated since participants either access the traditional IT training service without UAP or the new service, including the UAP.

To measure the intended learning outcomes, constructive alignment is needed. Constructive alignment connects learning objectives, learning activities and assessments [Radboud University, 2023]. Within this research, the learning objectives are already set by the learning goals of the Microsoft Teams training. These objectives are the same for all participants of this research. The learning activities within this research are either the traditional or new services of the IT training provider.

The biggest challenge was finding a suitable assessment to judge whether the learners had mastered the learning objectives. No existing questionnaires could be found to measure whether the learning goals were adhered to. Because of this, a questionnaire had to be created. This questionnaire is based on the learning goals of the Microsoft Teams training and was discussed with the teachers who perform the service to determine whether the questions match the learning goals. As stated above, the questions are based on the belief that a learner can 'perform' a learning goal. Answers are given using a Likert scale ranging from 1 to 5.

Creating a custom measuring method took additional time within this research, but it also has advantages. Now, the learning goals can be measured using a tailored questionnaire which aligns perfectly with the learning goals of the Microsoft Teams training.

4.1.4 Data Analysis

Since there will be a quantitative data collection, descriptive analysis will measure the difference between the traditional and new services. Both services will be analysed based on their learning effectiveness. Participants will sign a consent in which they agree to participate in the research. Also, all inputs from the participants will be anonymised.

A two-sample T-test method will be employed to test whether the unknown population means of the two different groups are equal or not. Both groups have 20 participants, resulting in a pre-posttest research design with 40 participants. All participants will complete a questionnaire regarding their knowledge before and after the session. The primary measurement of interest is the knowledge gained during the session.

Before one jumps into the analysis, it is essential to look at the data. Is the two-sample T-test an appropriate method for this research? According to JMP Statistical Discovery LLC (2023). some assumptions should be met:

- Data values must be independent. One measurement should not affect another measurement;
- The data must be obtained through random sampling;
- Data should be normally distributed;
- The variance of both groups should be equal.

4.2 Results

In this research section, we will present and analyse the questionnaire results. The questionnaire was completed by 40 participants, with 20 responding before and after experiencing ExplainiT's

traditional service and another 20 participants doing the same for the new service. The following figures provide a comprehensive overview of the knowledge gained through traditional and new services. The average score for each question and aggregated data have been calculated to reveal the differences between the services. The "Difference" segment of the graph indicates the extent of knowledge gained for each question.
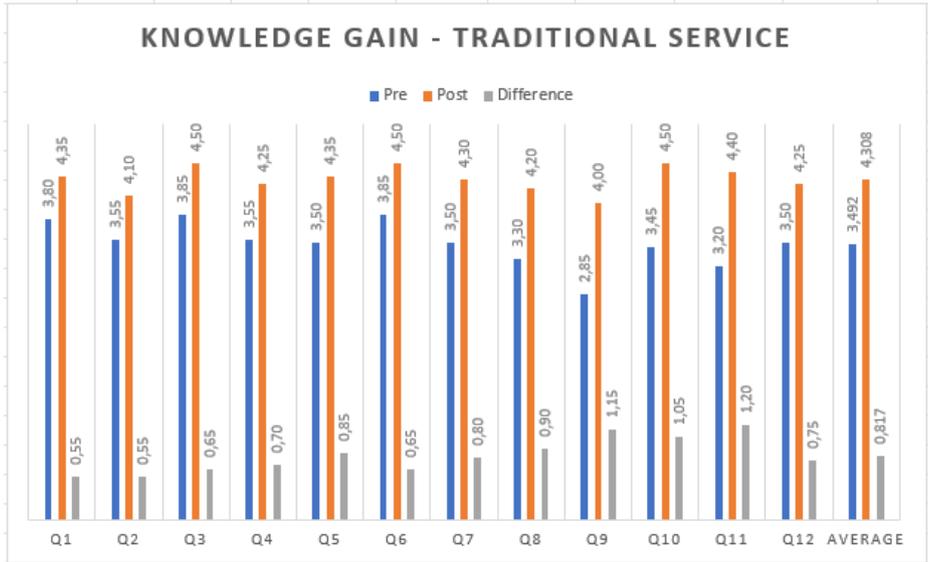
Figure 9 - Knowledge gain - Traditional service
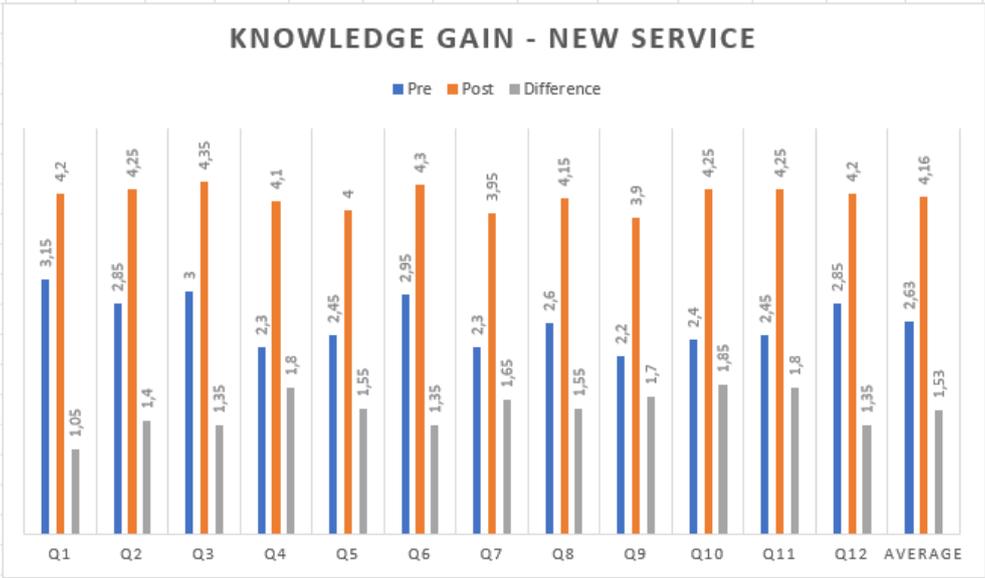
Figure 10 - Knowledge gain - New service

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As one can see, the knowledge gained from the new service is higher than that from the traditional service. However, a two-sample T-test was performed to test whether the usage of SelfGuide is significantly associated with learning effectiveness. The confidence interval is 95%, and the T-test analysis to test the significance of the relationship between the usage of SelfGuide and the knowledge gain can be found in Figures 9 and 10.

The two-sample T-test

The actual analysis will be done within this part of the research. First, the participants' data will be grouped by the type of service they received. Figures 11 and 12 contain the average knowledge gains per participant, based on the Likert scale, within the service they received.

Traditional Service		New Service	
Learner	*Knowledge gain*	*Learner*	*Knowledge gain*
Learner 1	1,17	Learner 21	1,83
Learner 2	0,92	Learner 22	1,92
Learner 3	0,58	Learner 23	1,58
Learner 4	0,42	Learner 24	1,58
Learner 5	1,58	Learner 25	1,75
Learner 6	1,17	Learner 26	0,75
Learner 7	1,58	Learner 27	1,00
Learner 8	0,83	Learner 28	1,83
Learner 9	1,50	Learner 29	0,08
Learner 10	0,83	Learner 30	1,75
Learner 11	0,58	Learner 31	1,08
Learner 12	0,67	Learner 32	1,00
Learner 13	0,42	Learner 33	1,17
Learner 14	0,67	Learner 34	1,00
Learner 15	0,50	Learner 35	1,92
Learner 16	0,58	Learner 36	1,67
Learner 17	0,83	Learner 37	1,83
Learner 18	0,17	Learner 38	1,75
Learner 19	0,75	Learner 39	1,75
Learner 20	0,58	Learner 40	2,00

Figure 11 - Values - Traditional service *Figure 12 - Values - New service*

There will be a further elaboration on the assumptions and if these are also met within this research, underneath the histograms and descriptive statistics of both groups. The figures below show the histograms and descriptive statistics of both groups.

Descriptive Statistics	
Mean	0,8167
Standard Error	0,089
Median	0,7083
Mode	0,8333
Standard Deviation	0,3979
Sample Variance	0,1583
Kurtosis	-0,105
Skewness	0,7564
Range	1,4167
Minimum	0,1667
Maximum	1,5833
Sum	16,333
Count	20
Confidence interval(95,0%)	0,3525
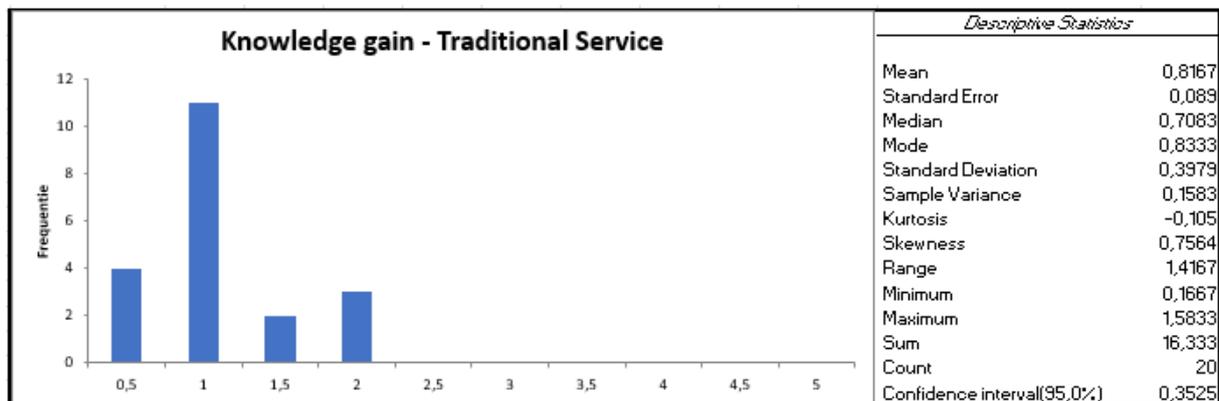
Figure 13 - Histogram - Traditional Service

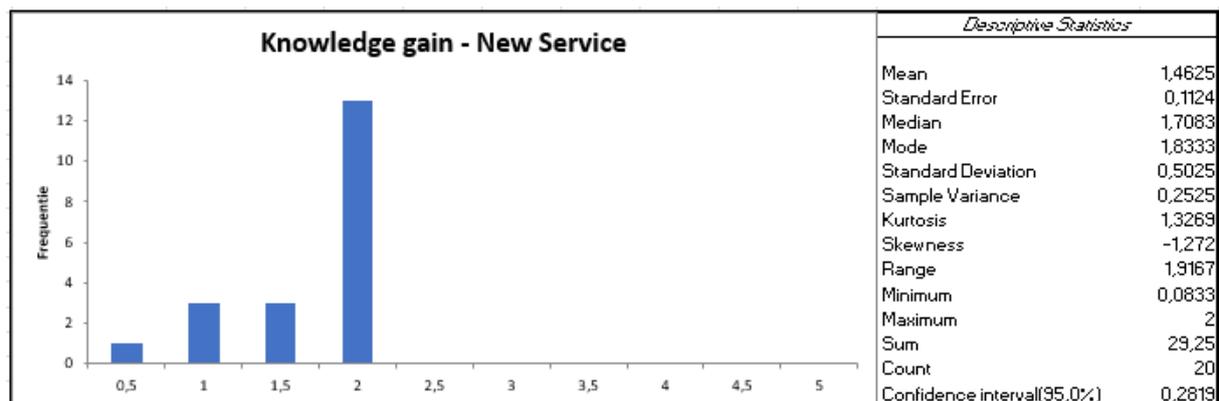| Descriptive Statistics	
Mean	1,4625
Standard Error	0,1124
Median	1,7083
Mode	1,8333
Standard Deviation	0,5025
Sample Variance	0,2525
Kurtosis	1,3269
Skewness	-1,272
Range	1,9167
Minimum	0,0833
Maximum	2
Sum	29,25
Count	20
Confidence interval(95,0%)	0,2819

Figure 14 - Histogram - New Service

With regard to the assumptions of the two sample T-test, the following answers give insight into whether it can be used for this research:

- The knowledge gained by one person does not depend on the knowledge gained by another person. The questionnaires were filled out individually; no communication was allowed during this process.

- The participants that entered the research are random people who receive the service of ExplainiT. No selection based on any characteristics was made within the formation of groups.

- The two histograms above are on the same scale. There are no unusual outliers, and the data looks bell-shaped, so a normal distribution seems acceptable.

To check whether the variances of both groups are the same, a F-test will be done:

- A null hypothesis is created: $Ho: S_1{}^2 = S_2{}^2$ and: $H1: S_1{}^2 \neq S_2{}^2$

- Calculation of the F-test statistic: $F = \frac{S_1{}^2}{S_2{}^2} = \frac{0,1583}{0,2525} = 0,6269$

- Degrees of freedom: $DF_1 = n_1 - 1 = 19$ and $DF_2 = n_2 - 1 = 19$

- Significance level: $\alpha = 0,05$

- Critical value of the F-statistic: 1.79384

- If $F > F_{critical}$ reject null hypothesis: 0,6269 is not bigger than 1,799384, thus, one cannot reject the null hypothesis.

- One can state with high confidence that the variances in the two services are equal.

With all of the answers regarding the fact that the two sample T-test might be usable within this research, one can conclude that it can be used. Thus, an overview of the average/ mean, standard deviation, and sample size will be given below to continue with the T-test.

Group	Size	Average	Standard Deviation
Traditional	20	0,8167	0,3979
New	20	1,4625	0,5025

Figure 15 - Overview Values

Without any testing, one can see that the averages for the traditional and new services are different. However, are these averages so different that the conclusion can be drawn regarding

higher learning effectiveness within the new service compared to the traditional service? This is what will be tested below.

The first step within the T-test is to calculate the test statistic, which is equal to the difference of the two averages/ means: $Difference\ in\ average = 1,4625 - 0,8167 = 0,6458$

The second step is to calculate the pooled standard deviation. To do this, one first needs the pooled variance of the two groups:

$$s_p{}^2 = \frac{\left((n_1-1)s_1{}^2\right)+\left((n_2-1)s_2{}^2\right)}{n_1+n_2-2} = \frac{(19*0,15833)+(19*0,2525)}{38} = 0,20544$$

The next step is to take the square root of the pooled variance of the two separate groups and calculate the standard deviation: $\sqrt{0,20544} = 0,45325$

Now that all of the parts of the test statistic: difference of averages, pooled standard deviation and sample sizes are calculated. The actual test statistic can be calculated:

$$t = \frac{0,6458}{0,45325 * \sqrt{\left(\frac{1}{20}+\frac{1}{20}\right)}} = 4,50518$$

The last value one needs to perform the two sample T-test is the theoretical value from the T-distribution. This value is based on 38 degrees of freedom and a significance level of 5%. If one looks for this value within the T-distribution table, the value 1,676 comes up. The calculated test statistic will now be compared with the theoretical value from the T-distribution to check the null hypothesis and alternative hypothesis. These hypotheses are stated here: $Ho: \mu_1 = \mu_2$ and $Ha: \mu_1 \neq \mu_2$.

To put these two these two hypotheses into words:

- Ho: The learning effectiveness of the new service (including SelfGuide) is equal to the learning effectiveness of the traditional service of the IT training provider.

- Ha: The learning effectiveness of the new service (including SelfGuide) is not equal to the learning effectiveness of the traditional service of the IT training provider.

So, to conclude the two sample T-test, the calculated value and the theoretical T-value are compared: $4,465 > 1,676$. Thus, the null hypothesis (Ho) can be rejected. One can confidently state that the learning effectiveness of the traditional and new services is unequal.

4.3 Conclusion – Extend of differences in Learning Effectiveness

The first central research question previously stated in this study is: "*Does the integration of User Adoption Platforms lead to a higher learning effectiveness?*"

To address this question, theoretical and empirical comparisons were conducted between the traditional service and the new service (incorporating SelfGuide) provided by the IT training provider. Theoretically, Kolb's experiential learning theory was used to evaluate the learning effectiveness of these two distinct services. Based on the findings in this theoretical phase, the following proposition was formulated: *"The learning effectiveness of the new service (including SelfGuide) is higher than the learning effectiveness of the traditional service of the IT training provider."*

After developing this hypothesis, which required evaluation, the empirical phase of the research was executed. In this practical section, 40 participants were divided into two groups, with 20 participants in each group. As outlined in the research design, all participants underwent the same training delivered by the same instructor. The sole difference between the two groups was the inclusion of the User Adoption Platform (SelfGuide).

Participants underwent a pre-post-test using a questionnaire to assess their knowledge before and after the service. Based on the results and the subsequent analysis, it was possible to test the hypothesis generated and provide an answer to the central research question. The proposition formulated during the research thus answers the first central research question:

"The learning effectiveness of the new service (including SelfGuide) is higher than the learning effectiveness of the traditional service of the IT training provider."

With a high degree of confidence, it can be concluded that the research hypothesis is accurate, and using a User Adoption Platform positively impacts the learning effectiveness of the services offered by an IT training provider.

5. Explanation of differences in Learning Effectiveness

This research section explores the reasons behind the distinctions between ExplainiT's traditional and new services. Semi-structured interviews were conducted with participants who entered ExplainiT's new service to gain deeper insights into these differences. These interviews aim to shed light on the factors contributing to the disparity between the traditional and new services offered by ExplainiT.

5.1 Methodology

5.1.1 Overview

In this research section, the initial step involves an analysis of SelfGuide and its distinctive features, which contribute to the differentiation between ExplainiT's traditional and new services.

The second component of this research phase involves formulating semi-structured interview questions designed to show how each SelfGuide feature influences the four modes of Kolb. These interviews will be conducted with participants engaged with ExplainiT's new service. This research stage aims to uncover the reasons behind the disparities between ExplainiT's new and traditional services and how these differences affect learning effectiveness. This will be achieved by examining participants' experiences and linking them to Kolb's Experiential Learning Cycle.

5.1.2 Data Collection

The "Explanation" portion of this thesis employs a qualitative approach to understand the variations in learning effectiveness better. Data will be collected through interviews with nine participants who have used ExplainiT's services. This number aligns with the recommended range of interviewees, which typically falls between 5 and 50, ensuring data saturation and the reliability of qualitative research [Dworkin, 1999].

Chapter 3 of this study sets the research context, describing the traditional and new ExplainiT services. Within this chapter, various features of SelfGuide are identified, discussed, and selected based on their impact on the service and its format. These features, in conjunction with Kolb's four learning modes will serve as the foundation for the interviews. For this research, the four modes of Kolb and the six selected features are the foundation for the interview questions. Table 2 gives an overview of this foundation.

Interview #1	Concrete Experience	Reflective Observation	Abstract Conceptualization	Active Experimentation
Organisation specific				
Practice mode				
Complete information				
Availability				
Format				
Up-to-date materials				

Table 1 – Foundation Interviews

The interview questions ask whether the interviewee thinks if and how the selected features influence a particular mode of Kolb positively or negatively. The interview is conducted chronologically, starting with questions related to the Concrete Experience mode and ending with questions related to the Active Experimentation mode.

Within the interview, the modes of Kolb will first be introduced and described by the interviewer to give the interviewee a good idea of what and how the feature might influence it. After presenting the mode of Kolb, the different features are described, and one by one, they are checked to see if and how they might have influenced the modes of Kolb. This will be repeated until all modes are discussed. The interview questions are added as Appendix C. All interviews will be conducted online through Microsoft Teams.

Selected features of SelfGuide:

The first selected feature is organization-specific. SelfGuide tailors learning materials to the specific needs of the customer. ExplainiT's expert trainers collaborate with the customer to create customised instructions, user guides, and courses that align with the learners' actual tasks and functionalities. Instead of using generic materials, learners benefit from organization-specific resources.

The second functionality is the practice mode. SelfGuide incorporates a practice mode that enables learners to apply the instructions actively. Learners can seamlessly switch between the instruction and the corresponding exercise. This aligns with Schank et al. (2013) research, emphasising the importance of learning "how to" rather than merely "knowing what." SelfGuide empowers learners to not only read but also practice the required tasks.

The third feature is complete information. Like the organization-specific feature, complete information tailors materials to the customer's environment. In this case, SelfGuide ensures that all training objectives are comprehensively addressed. ExplainiT's field expert collaborates with the customer's contact person to define and cover all learning goals. This guarantees that learners receive the precise materials necessary to achieve their objectives.

The fourth feature is availability. SelfGuide's web-based nature ensures that learning materials are accessible anytime and anywhere. Learners can access materials whenever needed,

preventing situations where questions arise but resources are unavailable. Furthermore, the materials remain accessible for up to one year after ExplainiT's service, allowing learners to refer to them for post-training inquiries.

The fifth selected feature is format. SelfGuide employs a picture-based format within its instructions. Each step is presented as a screenshot of the entire software application interface, accompanied by clear instructions and additional contextual information in text form. This image-based learning model aligns with Whitley's (2013) research, which suggests that it enhances student comprehension.

The last feature that has been selected is up-to-date materials. SelfGuide enables ExplainiT to maintain and provide up-to-date learning materials to its customers. Learners have access to these materials for up to one year after training. SelfGuide's characteristics facilitate the regular updating of materials, ensuring that learners can adapt to changes in software applications' interfaces whenever updates occur.

5.1.3 Operationalization

Similar to the operationalisation process in the "Extend of differences in Learning Effectiveness" section of this research, it is essential to pinpoint the fundamental concepts under examination. In the context of the "Explanation of differences in Learning Effectiveness" section, we have identified the four distinct Kolb modes.

These concepts are represented through variables that align with the theoretical descriptions of each mode. The Concrete Experience mode is characterised by the variable of "involvement." Reflective Observation corresponds to the variable "ability to obtain answers." Abstract Conceptualization is encapsulated in the variable "ability to draw conclusions," and the Active Experimentation mode, which represents the final facet of the Kolb model, is embodied in the variable "ability to apply acquired knowledge."

5.1.4 Thematic Analysis

The analysis selected for this part of the research is a thematic analysis. This particular analytical approach has been chosen due to its suitability for extracting participants' viewpoints, opinions, and experiences from a qualitative dataset. The thematic analysis used is inductive and follows a semantic approach. In addition, the thematic analysis base is based on the steps developed by Braun and Clarke (2006). The following figure illustrates the six key steps involved to provide a concise overview of this process.
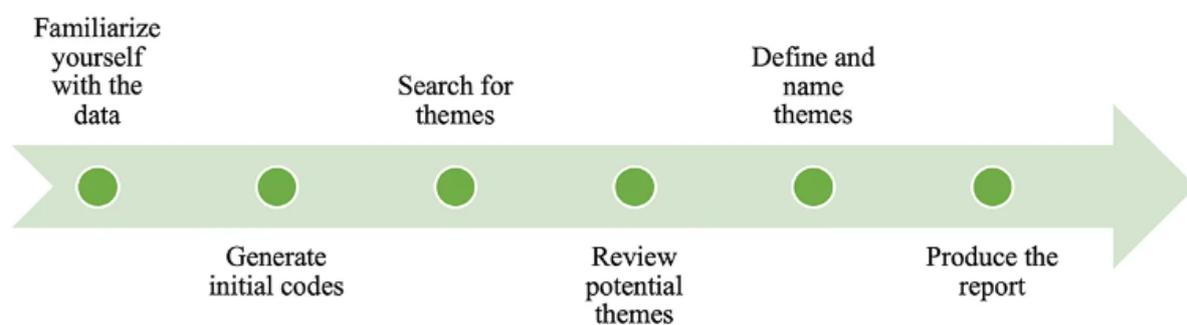

Figure 16 - Thematic Analysis [Braun and Clarke, 2006]

As outlined by Braun and Clarke (2006), a crucial initial step involves immersing oneself in the collected interview data. This process entails a thorough and active reading of the material, focusing on uncovering underlying meanings and patterns within the text. This preliminary stage precedes further research activities.

The first step is improving and correcting the transcriptions of all interviews so that they match the actual interview that took place. The transcription base came from the functionality of Microsoft Teams to automatically create transcriptions, but still, correcting and improving these texts was very time-consuming.

The subsequent phase entailed the creation of initial codes derived from the interview data, following Braun and Clarke's (2006) guidance: "Codes identify a feature of the data that appears interesting to the analyst and refer to the most basic segment or element of the raw data that can

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be meaningfully assessed in relation to the phenomenon." This was accomplished by aligning the interview responses with the predetermined questions designed to correspond to the critical aspects of the new ExplainiT service and the four Kolb modes. Thus, the coding process was methodically structured from the outset.

Moving forward in the thematic analysis, our focus shifted to identifying, examining, and defining themes based on the established codes. This was achieved by scrutinising the patterns discerned within the data. Themes were generated for each Kolb mode in conjunction with the selected features of the new ExplainiT service. The following table provides an overview of the themes formulated based on the codes and interview content.

	Concrete Experience	Reflective Observation	Abstract Conceptualization	Active Experimentation
Organisation specific	-Recognizability -Practice-oriented -Tailor-made -Less confusion	-Recognizability -Practice-oriented	-Recognizability -Practice-oriented	-Recognizability -Practice-oriented
Practice mode	-Practice immediately -Learning by doing -Active participation	-Self-reliant -Repetition		
Complete information		-No information overload -Easy access -High findability		
Availability			-Self-reliant -Easy access	-Self-reliant -Easy access
Format	-Visually oriented -Short and concise -Recognizability -Less text			
Up-to-date materials			-Recognizability -Convenient	-Recognizability -Convenient

Table 2 – Thematic Analysis Themes

5.2 Results

Within this section of the research, all modes of Kolb will be elaborated in their respective order. The results of whether and how the selected features of SelfGuide impact the new service of ExplainiT will be given. All answers are based on the interviews (Appendix D) and function as a summary of what was said by the interviewees.

5.2.1 Concrete Experience

As previously mentioned, the Concrete Experience mode in the learning process involves learners actively engaging in specific activities or tasks, as noted by Kolb (1984). Kolb emphasised that active involvement is the fundament of effective learning. Mere observation or passive reading is insufficient for acquiring new knowledge. Learners must immerse themselves in the activities to foster learning. Within the scope of this research, three features that have impacted this mode are selected: organization-specific, practice mode, and format. All selected features will be elaborated further below.

The first feature is organization-specific. The materials created within SelfGuide are custom-tailored to match the real-world environment of the customer. This tailored approach enhances recognition and aligns the learning goals with practical applications. As a result, learners experience less confusion, and all interviewees stated that when learning closely relates to their actual situations, their engagement in the learning process significantly increases.

The practice mode enables learners not only to consume materials but also to practice them. Almost all interviewees actively gave somewhat the same response regarding the practice mode; they stated that the practice mode is an enabler for learning by doing. Rather than merely absorbing content, learners immediately apply what they have learned, leading to heightened active participation.

SelfGuide's instructional materials utilise a picture-based format, a notable advantage since many individuals are visually oriented, as stated by most interviewees. Instead of slogging through extensive textual explanations of learning objectives, learners can grasp concepts through visual and experiential means. The consensus among most interviewees is that the format significantly enhances learner engagement. Viewing visual representations of required actions contributes to greater recognition and involvement.

5.2.2 Reflective Observation

Following active participation in the concrete experience mode, learners are encouraged to engage in reflection. Kolb's reflective observation mode facilitates this process by enabling learners to ask questions and discuss with others (Kolb, 1984). Kolb also emphasises the significance of communication at this stage, as it allows learners to find differences between their current knowledge and the activity they were involved in.

Within the reflective observation mode, the specific organisational characteristics of the new service play a crucial role in learner recognition. Most interviewees stated that when the materials closely resemble the actual environment, learners find it easier to assimilate the content and grasp the learning objectives. Furthermore, a more remarkable resemblance to the natural environment leads to a more practical orientation in the materials.

The practice mode, coupled with the ability to transition between instructional content and practice seamlessly, empowers learners to obtain answers to their questions. In contrast to the traditional ExplainiT service, where learners had to rely on teachers for answers, SelfGuide equips learners with the autonomy to seek answers independently. One interviewee explicitly stated that SelfGuide is effective in addressing "how-to" questions, but inquiries closely related to the context of learning goals still require teacher intervention.

Regarding the completeness of information, learners receive precisely the material required to master the learning objectives, a feature highly valued by interviewees. Interviewees unanimously state that insufficient information is bad, but an overload of information overwhelms learners. The consensus among interviewees is that the ideal situation is to provide learners with the right amount of information, facilitating the resolution of emerging questions and enhancing the findability of the necessary materials.

5.2.3 Abstract Conceptualization

Within Kolb's abstract conceptualisation mode, learners are tasked with the critical duty of synthesising the knowledge they have acquired (Kolb, 1984). This stage marks the transition from the previous mode, as learners begin to conclude their experiences, which involves interpreting their encounters and aligning them with their existing knowledge.

Once again, the interviewees state that within the abstract conceptualisation mode, the organization-specific feature bears a substantial impact, mirroring the themes observed in the previous modes: recognizability and a practice-oriented approach. These elements make it easier for learners to make sense of their learning experiences and consequently form conclusions regarding the encountered activities.

Another critical feature is availability. Some interviewees stated that it is essential for learners to access the materials at any time and from any location. This accessibility enables them to locate answers to questions that may arise later. In making sense of their learning, the availability of materials significantly enhances learners' ability to access information that strengthens their grasp of the subject matter.

Moreover, the importance of having up-to-date materials extends the availability feature. While having access to all materials is undoubtedly beneficial, its value hinges on the materials' actuality. Outdated materials are of limited use to learners. Therefore, should questions emerge

at a later stage, learners can turn to SelfGuide to find updated information, aiding in their process of making sense of the subject matter.

5.2.4 Active Experimentation

Kolb's Active Experimentation mode can be seen as the testing phase (Kolb, 1984). After the educational intervention, learners re-enter their everyday situations, but this time armed with the knowledge they have acquired. By applying this newfound knowledge in practical scenarios, learners secure its retention for future use.

Consistent with the other three Kolb modes, the organisation-specific aspect emphasises recognizability and a practice-oriented approach, as noted by interviewees. When learners return to their daily routines and confront unfamiliar tasks or questions, having materials that faithfully represent their environment proves invaluable.

Likewise, the attribute of availability aligns with the principles observed in Kolb's Abstract Conceptualization mode. It empowers learners to access materials whenever needed, facilitating the quest for answers to their inquiries.

Furthermore, the importance of up-to-date materials remains paramount. Mere access to materials is insufficient; having access to current, relevant resources is imperative to navigate the swiftly evolving landscape of software applications in their work environment.

5.3 Conclusion – Explanation of differences in Learning Effectiveness

In the preceding section of this research, we delved into the four distinctive modes of Kolb and examined how specific attributes of ExplainiT's new service influence these modes. Based on these insights, we will now address the hypotheses crafted regarding Kolb's modes to insight regarding their validity.

Proposition 1: *There is a higher level of concrete experience (CE) within the new service of the IT training provider when compared to the traditional service.*

Within Kolb's concrete experience mode, the focus is primarily on the degree of learner engagement in the learning process. Kolb states that the more actively a learner is involved, the more effective their knowledge acquisition becomes. As shown in the previous section, multiple themes that suggest a higher level of engagement in the new ExplainiT service are identified. The main drivers include recognizability, practice orientation, experiential learning, and the visual orientation of learners. Upon reviewing these findings, it becomes evident that there is a heightened level of engagement and, consequently, a higher degree of concrete experience. Therefore, proposition 1 holds.

Proposition 2: *There is a higher level of reflective observation (RO) within the new service of the IT training provider when compared to the traditional service.*

Reflective observation primarily centres on a learner's ability to inquire about emerging questions and engage in discussions with others, contributing to a deeper understanding of the materials. The ease with which learners can access answers and reflect on their learning experiences directly impacts the level of reflective observation. The interviewees have highlighted several themes that indicate the ease of obtaining answers during the learning process. Notable factors include recognizability, practice orientation, self-reliance, high findability, and the absence of information overload. Considering these themes and their influence on ExplainiT's service, it is evident that there is a heightened level of reflective observation. Thus, proposition 2 can be seen as valid.

Proposition 3: *There is a higher level of abstract conceptualisation (AC) within the new service of the IT training provider when compared to the traditional service.*

Abstract conceptualisation revolves around learners' ability to make sense of the acquired knowledge and draw conclusions. Various interviewee-mentioned themes, such as recognizability, practice orientation, self-reliance, and convenience, impacted a learner's capacity to achieve this. Considering these factors, it is apparent that the new ExplainiT service

facilitates a learner's comprehension of materials, making it easier to form conclusions. Hence, proposition 3 stands true.

Proposition 4: *There is a higher level of active experimentation (AE) within the new service of the IT training provider when compared to the traditional service.*

Active experimentation, the final mode of Kolb, is centred around a learner's ability to apply newly acquired knowledge in practice. The higher the learner's capability to use their newfound knowledge, the greater the level of active experimentation. Themes highlighted by interviewees, such as recognizability, practice orientation, and convenience, suggest a higher level of active experimentation in the new ExplainiT service than in the traditional service. Consequently, proposition 4 can also be deemed valid.

6. Conclusion

As previously mentioned in this research, it has been established that *"The learning effectiveness of the new service (including SelfGuide) is higher than the learning effectiveness of the traditional service of the IT training provider."*. With a high level of confidence, one can say that the research hypothesis is accurate, indicating a positive influence of User Adoption Platforms on the learning effectiveness within the IT training provider's service.

We need to consolidate the four distinct propositions to address the second central research question, "How does the integration of User Adoption Platforms lead to a different learning effectiveness?". A combination of the four Kolb modes will show how using a User Adoption Platform transforms the learning effectiveness of the IT training provider's service.

Proposition 1 suggests that the new service yields a higher level of concrete experience (CE) than the traditional service. This is attributed to the active engagement of learners in the learning process, resulting in a more effective acquisition of new knowledge.

Proposition 2 posits that the new service fosters a higher level of reflective observation (RO) than the traditional service. Learners in the new service find it more convenient to ask questions and engage in discussions with others, enhancing their capacity for reflection.

Proposition 3 asserts that the new service achieves a higher level of abstract conceptualisation (AC) compared to the traditional service. Learners can better make sense of the material they have learned due to factors such as recognizability and self-reliance.

Proposition 4 suggests that the new service demonstrates a higher level of active experimentation (AE) in contrast to the traditional service. Learners in the new service are better equipped to put their newfound knowledge into practice, fostering an environment open for active experimentation.

Collectively, these propositions indicate that ExplainiT's new service provides a more effective and engaging learning experience across various learning modes compared to the traditional service.

7. Discussion

In an era of rapid change, IT training providers must adapt swiftly. Integrating User Adoption Platforms (UAPs) into their services emerges as a potential solution. However, this integration demands a recalibration of the offerings by IT training providers. This raises a crucial question: *"How does this integration impact the format and the learning effectiveness of the services provided by IT training providers?".* This research seeks to explore the influence of User Adoption Platforms on the learning effectiveness of IT training providers' services, encapsulated in two central research questions:

Q1: "Does integrating User Adoption Platforms enhance learning effectiveness?"

Q2: "In what ways does the integration of User Adoption Platforms alter learning effectiveness?"

Both questions are in the context of IT training providers and their services offered.

This research has established with a high level of confidence that *"The learning effectiveness of the new service (including SelfGuide) is higher than the learning effectiveness of the traditional service of the IT training provider."*.

Answering the second research question involves addressing four distinct propositions. These propositions, along with Kolb's modes, elucidate how UAP utilisation transforms the learning effectiveness of the services offered by IT training providers. All propositions within this research uphold validity, culminating in the finding that *"Collectively, these propositions indicate that ExplainiT's new service provides a more effective and engaging learning experience across various learning modes compared to the traditional service."*. This aligns with the understanding that optimal learning occurs when individuals balance the four learning modes during their learning experience [Lu et al. 2007].

The results mirror the initial expectations. All propositions and the hypothesis held. This alignment was foreseeable, considering integrating a UAP within the service correlates with improved learning effectiveness. For instance, Kolb (1984) stated that a higher level of concrete experience occurs when a learner is more actively involved in the learning process. One of the selected features of the UAP (SelfGuide) is practice mode, whose primary goal is to let learners practice instead of just reading. One can easily conclude that there will be a higher level of Concrete Experience. This was also the situation for the three other modes of Kolb.

This research's implications extend to applying Kolb's Experiential Learning Theory in an evolving domain. Additionally, it highlights how UAP usage can aid organisations in navigating challenges within an increasingly dynamic digital landscape.

However, certain limitations hinder the comprehensive scope of this study. The absence of information about participants' overall digital skills might imply that individuals with varying

digital proficiencies experience differing benefits from UAP utilisation. Understanding participants' digital skill levels could reveal why enhanced learning effectiveness varies and identify which individuals gain the most from the IT training provider's new service format. Another limitation involves using a bivariate analysis rather than a multivariate one, limiting the research's depth of understanding regarding variable relationships.

Future studies could explore the correlation between individuals' general digital proficiency and their engagement with a UAP to enrich comprehension derived from these findings. Different digital skill levels might yield varied perceptions of a UAP, resulting in diverse impacts. Understanding these dynamics could refine IT training provider services. For example, tailoring services to accommodate varying digital proficiencies could optimise outcomes based on these insights.

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Appendix

A: Learning Goals

Introduction:

- Define what Microsoft Teams is.

- Define how Microsoft Teams can be used.

- Know which devices Microsoft can be used on.

- Be able to search for persons, messages, and files successfully.

Chat and (video)call:

- Know what the basic chat functionalities are.

- Be able to manage messages and conversations.

- Be able to (video)call, transfer, and hold a consultation.

- Know how to share a document instead of mailing it.

- Be able to reach the right persons by mentioning them.

Collaboration:

- Be able to create, arrange, and manage teams.

- Know how to have conversations within channels.

- Be able to work simultaneously with others within documents.

- Know how to add OneNote and Planner as tabs within a channel.

Online meetings:

- Know how to plan a meeting through Teams or Outlook.

- Be able to organize a structured meeting with video and sound.

- Be able to have a meeting with people outside your organization.

- Know how to share your screen within a meeting.

B: Questionnaire questions

- Wat is jouw emailadres?

- Ik kan beschrijven wat Microsoft Teams is.

- Ik kan beschrijven hoe Microsoft Teams gebruikt kan worden.

- Ik weet op welke apparaten Microsoft Teams gebruikt kan worden.

- Ik ben in staat om succesvol naar personen, berichten en bestanden te zoeken binnen Microsoft Teams.

- Ik ben in staat om mijn beschikbaarheid aan te passen en status-berichten in te stellen binnen Microsoft Teams.

- Ik weet wat de basis chat functionaliteiten zijn binnen Microsoft Teams en kan deze gebruiken.

- Ik ben in staat om mijn berichten en gesprekken te beheren binnen Microsoft Teams.

- Ik ben in staat om de juiste personen te bereiken, door ze te vermelden, binnen Microsoft Teams.

- Ik ben in staat om teams te maken, rangschikken en beheren binnen Microsoft Teams.

- Ik ben in staat om gesprekken te voeren in kanalen binnen Microsoft Teams.

- Ik ben in staat om tegelijkertijd met anderen in een document te werken binnen Microsoft Teams.

- Ik ben in staat om een meeting te organiseren met mensen buiten mijn organisatie, binnen Microsoft Teams.

C: Interview questions

Concrete Experience:

Tot in welke mate de student betrokken is bij de activiteit of taak. Kolb geloofde dat de sleutel tot leren lag bij betrokkenheid. Het is niet voldoende voor studenten om enkel te lezen of te zien in de praktijk. Om nieuwe kennis te vergaren moeten studenten actief betrokken zijn bij de taak.

- Hoe heeft de mogelijkheid om direct de instructies/ materialen te oefenen invloed op jouw betrokkenheid bij de training die je gevolgd hebt?

- Heeft het organisatie specifieke karakter van de trainingsmaterialen invloed op jouw betrokkenheid bij de training die je gevolgd hebt? Indien ja, hoe dan?

- Heeft het format van het instructiemateriaal invloed op jouw betrokkenheid bij de training die je gevolgd hebt? Indien ja, hoe dan?

Reflective Observation:

Tot in welke mate zijn studenten in staat om vragen te stellen en de ervaringen te bespreken met anderen. Deze fase is belangrijk omdat de student dan verschillen kan identificeren tussen zijn eigen kennis en de trainingservaring.

- Hoe heeft de mogelijkheid om eenvoudig te kunnen switchen tussen de instructie en de oefening invloed op hoe je antwoord krijgt op jouw eventuele vragen die ontstaan tijdens de training?

- Heeft het organisatie specifieke karakter van de materialen invloed op hoe eenvoudig jij de besproken stof tot je neemt? Indien ja, hoe dan?

- Hoe beïnvloed het ontvangen / hebben van de exact juiste hoeveelheid informatie rondom de leerdoelen hoe jij deze tot je neemt? In andere woorden, niet te veel en niet te weinig informatie.

Abstract Conceptualization:

In deze fase bestaat leren uit theorieën, logica en ideeën, in plaats van gevoelens. Hieruit begrijpt een student problemen of bepaalde situaties. Tot welke mate is een student in staat om dit te doen?

- Heeft de toegang (tot één jaar na de training) tot alle materialen invloed op de mogelijkheid om antwoord te krijgen op vragen die later ontstaan? Indien ja, hoe dan?

- Heeft het hebben van up-to-date materialen invloed op hoe jij continu je kennis aanpast rondom de vernieuwde functionaliteiten/ interfaces die ontstaan binnen de softwareapplicatie die jij gebruikt? Indien ja, hoe dan?

- Heeft het organisatie specifieke karakter van de trainingsmaterialen invloed op hoe jij de besproken onderwerpen op je in laat werken? Indien ja, hoe dan?

Active Experimentation:

Dit wordt ook wel gezien als de test fase. Studenten keren terug naar hun normale werkzaamheden, met dit keer de mogelijkheid om de nieuwe geleerde kennis toe te passen in hun dagelijkse werkzaamheden. Tot in welke mate is wordt dit gedaan?

- Hoe heeft het organisatie specifieke karakter van de materialen die tijdens de training gebruikt worden invloed op hoe jij daadwerkelijk met de softwareapplicatie gaat werken tijdens jouw normale werkdagen?

- Hoe heeft het hebben van up-to-date materialen invloed op hoe jij correct werkt met de softwareapplicatie die jij gebruikt?

D: Interviews

The interviews are added in the file "Interviews", which is offered in combination with this paper.