

Is personalization the key to high customer conversion for university websites?

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ABSTRACT

With the online user's number on the rise, more and more people are researching their products or services of interest online; potential students of higher education are no exception to this. The university website is the main source that prospective students will be using in order to gain impressions and vital information about their potential future university and make their choice of study. In this paper, Personalization has been discussed as the tool that can indeed improve the usability of the website and thus lead to higher prospective student's conversion online. Further, the paper has considered Artificial Intelligence as an enabling technology of the personalization, so that this process is automated. Through literature review, I have analyzed the current state of AI and its possible application in the personalization domain. Moreover, through the literature review, the current hypothesis about personalization and website usability were analyzed. To test the before mentioned this paper conducted a quantitative analysis of the Google Analytics of the University of Twente and further, qualitative analysis based on semi-structured expert interviews from the latter university. Findings fit with the previously analyzed literature, thus that personalization would be able to improve the usability of the website and thus the online student conversion rates would increase. The new insights gained are that personalization is of bigger importance especially to smaller universities, as they usually aim for a more personalized experience. Future research could build upon the current findings and test them in practice.

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Keywords

Artificial intelligence, personalization, profiling, usability, consumer conversion.

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1. INTRODUCTION

Currently, there are more businesses operating than ever before, with an even greater focus on digital transformation. According to the 2018 Digital Scoreboard, 70% of the companies have invested in the digitalization process (European Commission, 2018). All those companies are in need of new customers, they all will be competing with each other for a bigger market share for their products or services. To achieve this the companies will be using marketing, which is known as the process by which companies create value for their customers in order to capture value from them in response (Kotler et al 2013: 5). The process of acquiring new customers is referred to as Customer Acquisition and it is the first step of the customer life cycle, thus the most important and vital for the growth of the enterprise (Lawrence Ang & Francis Buttle, 2006). Customer conversion is another important variable for the business as this shows how many of the attracted customers have performed a specific activity predefined by the company's goals (Huei Huang Kuan, G., Bock and V. Vathanophas., 2005). However, there has been more focus on customer retention strategies and activities, rather than on acquiring new customers. This is evident by the fact that less than half have of the companies have dedicated customer acquisition strategies or even a budget for this activity (Lawrence Ang & Francis Buttle, 2006). In order, a company to grow it should attract prospective customers and convert them so that they buy their product or use the offered service. This could be carried through different environments using different tools appropriate for the type of business. Particularly in this study, the focus would be on the online service environment, and concretely about the higher education institutions. The main interaction online between prospective students and universities happen through the website of the university. This being said, one can see the great importance of this fact to the online prospective students' conversion. One of the possible ways of increasing the online students' conversion via the universities' websites discussed in this study would be personalization, which has the benefits of showing the right information at the right time to the user (J. Blom, 2000). This approach will be discussed to be implemented via Artificial Intelligence.

Literature has already explored to some extent the possibilities and applications of AI such as Machine Learning. One of the more common usages of Machine Learning and Data Mining is providing personalized content based on defined behavior profiles and thus improving the overall experience of the customers (Sarabjot Anand, Bamshad Mobasher., 2003). However, most of the personalization applications were focused on recommending products (ACM, 1997) and search engine personalized results (Poo, Chng, & Jie-Mein Goh, 2003) and not to such a great length on service providers' websites from organizations such as Universities.

There is a gap in the academic literature about the application of personalization to service-oriented organizations' websites, by using Artificial Intelligence as enabling technology. This paper would bring this gap closer, as it will explore the application of personalization on service-oriented organizations' websites such as universities. To do so, the paper will first explore the current literature on these topics and afterward perform an analysis of a Google Analytics data in order to show the current problems with the website and common patterns of behaviors of the web page users. Furthermore, interviews with experts would be conducted and results analyzed in order to assess the chance of this technology being applied to higher education institution' websites and its benefits. The research will outline the opportunities, complications, benefits of such an application, and will lay out the possibilities for future researches.

Research Question

"Can universities improve student conversion by providing personalized webpages based on prospective students' behavioral profiles?"

Sub-questions:

- 1. How can AI improve the personalization process?*
- 2. What is the chance of the application of personalization using AI technology?*
- 3. Will personalized web page improve the usability of a website and thus the student/customer conversion?*

2 Literature review

In this chapter, a literature review will be conducted. The structure will list all the topics that were already outlined in Chapter 2 – Methodology, Figure 2. As a result, a research gap will be identified and addressed.

2.1 Customer Recruitment

As stated by one of the gurus in the management studies named Peter Drucker, the sole purpose of a business is to create a customer (Drucker 1973). Thus, one of the domains that enable this activity to be performed is known as Customer Acquisition.

The customer could be identified as suspect, prospect or first-time consumer (Christopher, Payne and Ballantyne 1991). A suspect is a person who the business did not yet rank as a prospect. In this study, the focus will be on the prospect customer, in our case specifically prospective students. According to Levitt 1996, customers' acquisition is of great importance for the company as customers could be only managed for profit once they were acquired.

Customer acquisition could be seen as of great importance to higher education institutions, as they need new students each year for their study programs. In this case, they should be constantly involved and investing in student acquisition, as this is needed for their continuation. Higher education institutions cannot survive without the acquisition of new students every year.

Customer acquisition is defined in three contexts: traditional marketing environment, online e-commerce marketing environment and online service marketing environment such as universities. Even though online e-commerce and online service environments share some similarities, online service businesses usually require customers to invest more time in order to make their decision and dedicate themselves to the chosen service. In this study, I will focus on the online service-marketing environment as higher education institutions are part of the very same one. Buttle 2004, has outlined three main activities part of the customer acquisition process namely: targeting of potential customers, communication and what to offer them. In this paper, I will focus on what higher education institution can offer prospective students. One of the services that they could provide for their prospective customers, which could improve the students' conversion, is personalization. The personalization of websites is argued that improves the usability of the website thus the conversion rates. The personalization could be done by previously profiling the set of prospective students using AI technology. Thus, the following points will analyze the literature on those topics.

2.2 Profiling

As the main approach to increasing the students conversion online discussed in this paper is personalization in this part I will explore how this technology could be performed by using profiling method in order to find out what the customer needs and interests are, and therefore provide the customer with the content

that will suit his needs (Godoy & Amandi, 2005). Profiling until now has been discussed for an instance by academics in terms of fraud detection in the cellular phone industry by using data mining (T. Fawcett and F. Provost., 1996). Jojo & Sugana, 2013 have explored how a search engine can learn a user's preference automatically based on the area of interest and how it can use the user preference to personalize web search engine results.

As already stated above profiling process is indeed essential to providing service personalization. This is especially true nowadays when the customers are spending immense time online and their purchasing activities are taking place in the very same environment more often than before. Companies can identify and rank their customers based on their profiles. User profiles are the online identity or representation of the users and they are the products of the above-mentioned user profiling process. The user profile is defined as the bundle of the whole information available regarding the user such as their interests, needs, online behavior, preferences and settings (Trusov & Ma, 2016).

Traditional user profiling was performed initially in offline environments and nowadays it falls short of profiling users online as it cannot fully grasp and analyze the amount of the available data (Cufoglu, 2014). Thus, online user profiling has evolved as a term on its own. Online user profiling is defined by Kanoje, Girase, & Mukhopadhyay, 2014 as the process of collecting and analyzing data for the customer by monitoring their activities online, known also as online customer behavior. This indeed is one of the main difference of online user profiling compared to traditional one, namely the users' online behavior.

There are generally two types of user profiling defined by scholars until now, namely Implicit and Explicit (Kanoje, Girase, & Mukhopadhyay, 2014). Those two types are based on the way that the data of a user is being collected.

Explicit user profiling is occurring when the user is being asked via a message by the website whether he is willing or unwilling to share personal information of his. Based on his response the website would collect or not collect the data. This turned out to be one of the downsides of explicit user profiling as users tend to not be willing to share their personal data, thus websites could not perform user profiling activities for all the users. Moreover, explicit user profiling could be inaccurate as users tend to not present correct information when filling out a form for example, which could lead the algorithms to wrongful assumptions and outcomes (Cufoglu, 2014).

Implicit user profiling, however, manages to overcome the drawback of Explicit user profiling by monitoring the activity of the users online, but this, in fact, raises concerns about the privacy of the users (Caudill & Murphy, 2012). Implicit user profiling defined by Kanoje et al., 2014 is the collection of data by monitoring and observing the online users' activities and interactions with the website or system in use. This type of user profiling provides more detailed data than the Explicit method and allows a better picture of the user to be built. As mentioned before privacy concerns have arisen because of the way that data is collected under this method, therefore regulations have been developed in order to ensure that the customers' privacy is being cared about and protected (Dam & de Velden, 2015). Another drawback of the implicit approach is that its accuracy depends on the amount of data collected. This means that if they're not a sufficient amount of data the results could be inaccurate or misinterpreted. To respond to the drawback of those two methods a Hybrid approach has been developed which combines both of them (Khosrow-pour, 2009).

Having already discussed the user profiling approaches in the now, I will be discussing user profiling methods – Content-Based Method and Collaborative method. The content-based method

assumes that if the user is being presented to the same type of factors or circumstances they will show the same type of response or behavior (D. Godoy and A. Amandi, 2005). This method works based on the past behavior of the user. Thus, recommendations based on this method take into account previous users' choices and cannot, for example, filter out single occurrences only. There are different types of content-based techniques. Those being: Vector-Space model, Latent Semantic model, Learning Information Agents, and Neural Network Agents (S. Steward and J. Davies, 1997). From the abovementioned, four different techniques for this study of great importance will be the Learning Information Agent or also referred to as LIA. Learning Information Agent is a content-based technique that uses Artificial Intelligence and Neural Networks in the profiling process (S. Steward and J. Davies, 1997). In general, this technique allows for an automated information gathering via the World Wide Web, which is used to then update the users' profiles.

As profiling approaches and methods have already, being listed and explained the paper is going to continue further with the personalization activities, which in fact are going to be built upon the profiling process.

2.3 Personalization

Providing personalized experience online is of great importance because of a number of facts. One of them being that the loyalty to the service provider is higher when the service is chosen online rather than offline (V. Shankara., K.Smith, A. Rangaswamy., 2003). Another fact being the constantly growing number of people that are researching online the product they want to buy or service, using web tools, and then base their decision on their findings (Interconnected World: Shopping and personal finance 2012). Furthermore, the majority of people agree that when making their buying decisions they are influenced by the internet (The Nielsen Company 2013: 17).

As one can see from the facts mentioned above, having an online presence is of an essence for the business' growth. Nowadays, with the rapid growth of the number of people using the web, the number of websites keeps growing as well as their complexity. Web users visit in their normal day to day life a number of websites, thus having a well-designed and performing website would be the variable making the difference if the user will stay on the website or not. With the increased complexity of websites, the usability of them becomes even more of an important factor. The higher the usability of a website the higher the conversion rate would be (Beri & Parminder, 2013). Moreover, another study shows that with the increase of usability, the customer's loyalty and satisfaction increased as well (Flavián, Guinalú, & Gurrea, 2006). Iwaarden et al. found out that 70% of the users leave the website if the page response exceeds 12seconds. Thus even putting greater emphasis on website performance and usability.

One of the approaches that could be used in order to increase the website's usability and thus customer conversion is personalizing its content to the customer's needs and interest. In the last few years, personalization has become an important feature when talking about one-to-one marketing (D. Peppers, M. Rogers., 1993), recommendation systems (ACM, 1997) and personalized web content. Furthermore, it is argued that personalization has a number of important advantage compared to the more traditional segmentation method (D. Peppers, M. Rogers., 1993). Personalization could greatly improve the usability of the website as customers would not have to spend longer times in searching for what they are looking for, as they will be shown the content that is relevant for them at this specific time (Shepherd, S., 2018).

Personalization is the process in which the content shown changes the functionality or distinctiveness of a system (in our case website) in order to increase the personal relevance of the above mentioned to the individual user (J. Blom, 2000). In this way, the content shown to the users will be personalized so that it is relevant to the user and fits his needs and preferences. There are two types of users' personalization, those being Implicit and Explicit. The implicit method is when the data is being collected implicitly by observing click streams data, website interactions such as scrolling, downloading or saving (D. Kelly and J. Teevan, 2003). In this method, the user is unaware of the data collection and cannot influence it by providing biased data. The other method referred to as Explicit method the user is aware of the data collection and is participating in the process. The users would fill out questionnaires; ratings would be taken into account and feedbacks given (D. Kelly and J. Teevan, 2003). Here the accuracy of the used method is dependent on the amount of the information available to collect from the users' online behavior. Online behavior is defined as the behavior exhibited by the users in reaction to the system under different factors and influences (Cao, 2014).

Till now in the academic literature, there has been a focus on personalizing mobile services, online services such as video on demand and personalized TV programs and advertisements (Cufoglu, 2014). However, it has been stated that the personalization of a web site is also of great importance (Jojo & Sugana, 2013).

In this part, personalization has been defined as a process and instances where it has been explored as to how can be applied. Further, the use of AI in profiling and personalization will be discussed.

2.4 Artificial Intelligence

Artificial Intelligence could be used as an enabling technology for profiling as it could automate the process, improve accuracy and make use of the big amount of data that companies collect from their customers.

The term Artificial Intelligence was coined in 1956 by John McCarthy during the Dartmouth Summer Research Project (Solomonoff, 2011.). Since then Artificial Intelligence never stopped evolving, becoming today one of the biggest technological advancements. Even before this technology was coined as a term and officially recognized by scientists and scholars it was already gaining popularity and was being envisioned in Wizard of Oz and Metropolis where a robot impersonated a human behavior (Anyoha, R., 2019).

Nowadays, Artificial Intelligence could be found almost everywhere even in our daily life. One of the most famous applications of AI is indeed Big Data (IBM, 2019.). With even more advanced computational power and tremendously big amount of data being collected and analyzed every day, AI is becoming more and more powerful by learning from the data collected (Siau & Yang, 2017). Practical application can be seen in areas such as Marketing, Banking, and Technology developments.

However, currently, there is still quite a doubt for the companies whether to adopt this technology or not. Recent researches show that only 18% of companies do understand and have adopted AI. Whereas 33% know a bit about AI, another 16% experiment with this technology without fully understanding and lastly 34% of the companies do not know about AI (H. C. (2019).). This shows that a technology with such an impressive potential is not yet fully understood and applied in practice, where it could make a significant difference in the operations, quality, and capacity of a company. A reason for this is that the application of AI

technology in everyday business is still quite expensive and the benefits of it are not evident immediately (Sterne, 2017).

AI at the beginning of the adoption process is financially demanding and needs time to collect enough data so that it could become useful and help the business develop and advance. After this initial phase of slower development and funding though, AI could greatly improve or change the current business model of the company and help run their operations with fewer funds needed and time (Sterne, 2017).

In recent times, almost every company performs some kind of digital marketing activities, it is inevitable that AI will become a bigger part of the digital marketing (Leefflang, Verhoef, Dahlström, & Freundt, 2014). Currently, it is already being applied, but not to its fullest potential. More specifically, it could be applied in improving the customer conversion by catering to the customer needs with personalized content and improving their satisfaction with the usability of the website (Econsultancy, 2018).

2.4.1 History of AI

The academic research started notably with the contribution of Alan Turing, who was a mathematician and computer scientist, explored the mathematical possibilities of the new technology – Artificial Intelligence. Unfortunately, at this time computers were not yet powerful and reachable enough to apply his findings. Thus, he developed a logical framework and published a paper about it in the 1950s (Tate, K, 2014). After Turing, Allen Newell, Cliff Shaw, and Herbert Simon proofed the concept of the so-called Logic Theorist. This program was able to mimic one of the most important skills of humans which differentiate us from computers – problem-solving (Anyoha, R., 2019). This turned out to be the very first artificial intelligence program and it was presented in 1956, six years after the developed framework from Alan Turing was published (Tate, K, 2014). This was the moment when Artificial Intelligence not only became a term but also was seen as something possible and achievable. However, a clear path for the future developments was not made, nor a common standard method for this technology, but this event was the one that defined the research into Artificial Intelligence for the next quarter of the century (University of Washington, 2006).

After the discoveries of the 1970s, Artificial Intelligence went through ups and downs. One of the biggest problems that AI faced was the limitations of the computational power that was available at this time. Later around the 2000s when computers became more powerful, some of the initial goals of this technology were becoming achievable. For example, a computer - IBM's Deep Blue (University of Washington, 2006), defeated the grand master of chess Gary Kasparov. The problem previously faced, computational power, was limiting the abilities of AI thus the potential of AI was solely dependent on the current capabilities of a computer (Anyoha, R., 2019). That win of IBM's computer showed how far computational power has gone, and what possibilities it has given the AI technology.

2.4.2 Machine Learning

Machine Learning is one of the major subfields of AI, which was established in 1959 by Artur Samuel, one of the pioneers in this field and he defined it as the ability of the computers to learn and develop without being explicitly programmed to do so (El Naqa & Murphy, 2015). Tom Mitchell framed this as:

"A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P if its performance at tasks in T, as measured by P, improves with experience E."

This being said one could see that the potential of a technology that learns on its own independently and does not need a human

intervention can be indefinite. Machines dissimilar to the human does not need sleep, does not get tired, stays focused without a chance of a distraction, can process large amounts of data without being overloaded (El Naqa & Murphy, 2015). Thus, machines are becoming smarter than humans to such an extent that they learn just as humans through experience (Donal Michie, 1968). Machine learning programs are programs, which adjust their actions according to the data that they have reached, thus making them adaptable constantly (Donal Michie, 1968). Example of a ML program identifying behavioral patterns of web site users (Christopher M. 2006).

As Machine Learning is a subfield of Artificial Intelligence, Deep Learning is a subset of Machine Learning. Deep Learning programs are usually associated with even greater accuracy for resolving challenges than ML (John A. Bullinaria, 2005). One of the biggest challenges for Machine learning programs is that they need in most cases a substantial amount of data – Big Data: large data sets being beyond the capabilities of traditional databases to capture, manage and process the data collected (Sundsøy, 2014);, in order to become able to learn and act accordingly (Christopher M. 2006). Moreover, they need this amount of data as mean to minimize their chance of mistakes (Sundsøy et al., 2014).

Having stated the possibilities of the ML and DL technologies one can foresee that this subfield of Artificial Intelligence will be irreplaceable and vital part of many industries. Especially in Marketing and Personalization activities, as the ability to analyze such huge amounts of data could lead to new insights, which previously were not known.

2.4.3 Predictive Analytics

As much as Predictive Analytics has similarities to Machine Learning, they are as well different. ML works with the current inflow of data that is being analyzed and adjusted to the outcomes (John A. Bullinaria, 2005). While Predictive Analytics also needs large amounts of data and analyzes it, it does so based on past data which is input by humans, thus it cannot run independently and needs human intervention (Hair, 2007). It analyses the data based on statistical modeling and draws assumptions based on the collected and analyzed data (Nyce, 2007). However, even after drawing out assumptions, human experts are still needed to explore the relation between the cause and the effect further.

One of the main fields of application of Predictive Analytics is in Marketing and optimization of campaigns, services, products (Hair, 2007). Based on this PA could be used in identifying ways of more accurate website personalization and thus help increase customer satisfaction with the usage of the website.

2.5 Artificial Intelligence and Personalization

One of the fields where AI could be greatly beneficial is digital marketing seen as a whole. This is a main field in the business environment that underwent a significant change in methods of application and action is marketing (Leeflang, Verhoef, Dahlström, & Freundt, 2014). Because of the digitalization, the need for Digital Marketing became more and more evident and thus it became a reality. Lipiäinen, H. (2014)., explained in great lengths the implications of this new field, such as the redevelopment of business models, strategies, approaches, and concepts, which till now were applicable in the marketing field. Moreover, Lipiäinen, H. (2014)., stated the need for digital marketing and its benefits, which makes this domain so important.

Artificial Intelligence could be applied to so many different fields as previously mentioned. One of them is in the personalization activities for services or products. In this paper, the focus will be

on the personalization of services and more specifically website personalization.

Personalization has become an important term in the online business environment with the introduction of CRM systems in the 1990s (Tnooz & Boxever, 2015). Customer Relationship Management systems collect customer data such as personal information, past purchases, messages, interaction with the company through different channels. This CRM system then could be used for personalization activities and providing more personalized services or products to the customers (Tnooz & Boxever, 2015).

When companies started using personalization, the extent to which they could personalize their activities was limited, because of the lack of tools and technologies (Quick, T., 2018). Moreover, personalization was not happening in real time, data had to be first collected, then analyzed and afterward conclusions were drawn and actions taken (Quick, T., 2018). Further, the personalization process was not automatic as nowadays with the use of Artificial Intelligence. Another obstacle with personalization before the use of AI is the level of segmentation, while by using AI a company could go into deeper and more extensive segmentation, before that this process was limited. Another drawback of the pre-AI personalization process was that the content could not be personalized unless the user was registered on the website (Tnooz & Boxever, 2015). Nowadays by using AI technologies such as beacon technology, the websites can perform automated personalization to non-registered users as well. This is greatly beneficial, as non-registered users will also have personalized content, which will thus increase the conversion rate.

With the use of AI, websites could be personalized in real time, using customer's data in a complex way, which was not previously available (Aime, P., 2018). The real-time ability to use personalization is powerful and useful and it can prompt to users call to action buttons in the exact time that they would be willing to click them, something that is not possible without the use of AI algorithms.

Personalizing web pages entails that the content shown on the page would be relevant at the exact moment for the customer and cater to his needs (Shepherd, S., 2018). This will increase the customer experience, as the webpage will be better, more understandable, more relevant information will be shown thus being more helpful, and the customer would be more productive which will help him utilize his time (Shepherd, S., 2018). It is proven that people online have a short span of attention and if they do not find what they are searching for in a short time period they will just leave the website (Wertz, J., 2017). In the case of service providers such as Universities, people not finding the right information that is already online, would contact support staff and ask them questions, which could have been avoided by using personalized web pages. A web page can be personalized based on previously identified behavioral attributes. Identifying behaviors is a profiling activity done by clustering customers with similar history and patterns of behavior in the same cluster (Eirinaki & Vazirgiannis, 2003). This activity could be done either statically or dynamically (Poo et al., 2003). Furthermore, using Machine Learning could help to identify the patterns of behavior in a large amount of data available, and thus create the clusters of behavior (DGU, 2018). Each cluster will be assigned to a stage in the customer journey. Each stage part of the customer journey process will entail different needs that shall be catered. Based on those needs defined by the cluster and its position in the customer journey the webpage will be personalized with relevant information and CTA instruments. Artificial Intelligence could be used in order to better understand

the customer needs and foresee what will the customer need in the exact stage of his customer journey (Aime, P., 2018).

The main goal of personalizing of the webpages is to provide better customer service and usability and thus increase the conversations on the website. Despite the benefits that the use of Artificial Intelligence driven personalization offers, yet only 7% of the companies are having this as their priority (D. M, 2019). This shows that most of the companies are still not realizing the importance of providing personalized content to their customers, thus this could be leading to lower conversion rates. The need for customized experience is shown by a survey, which found out that 57% of the consumers are willing to provide their personal data in order to have personalized services (D. M, 2019).

Personalization is a key in the modern world of e-commerce nowadays, but more and more service-oriented organizations start to see its potential in improving their customer service, and thus the satisfaction of their clients (Tnooz & Boxever, 2015). Such an organization is the University, by providing personalized web pages, based on the behavioral type to which the prospective student is assigned, typically big and complex websites could be turned into a positive and hassle-free experience for the students. This would indeed help with the retention of more students and improving their experience, furthermore, the students will have fewer misunderstandings and need to contact the information centers of the university, which would be left with more time to focus on inquiries that are more serious.

2.6 Usability of Websites

Online users experience the website in the same way as customers experience brick and mortar stores. It is the first point of touch on many occasions that the user/customers interact with the business. Thus, the website is identified as the primary user interface for businesses online (Straub, D. and R. Watson, 2001). As a store is needed to be welcoming and funds are invested in its design, the website needs to be useable and helpful to the customer. However, there has not been yet a concrete way in which usability could be measured and this is of great importance in order to improve the websites (DeLone, W.H. and E.R. McLean, 2003).

By definition usability of websites is referred to as the extent to which a specific product could be used by the customer in the intended way and achieve the goals of being effective, satisfying and efficient (International Organization for Standardization).

Measuring the usability of websites as stated above is still not a clear and profound procedure. Several scholars have developed tools or frameworks via which the usability could be measured. Alexei Dingli developed the so-called USEFUL framework, which aims to automate website usability evaluation process. Further, R. B. Kulkarni and S. K. Dixit created an interactive tool in order to “evaluate web applications for empirically derived measures and also introduced a tool to calculate the aesthetic parameters of web applications. The results of the questionnaire for the empirical analysis of the web applications included four factors namely content, navigation, security, and presentation.”- (Kulkarni, Dixit).

After explaining what website, usability is and how it can be measured, I will move further to explore the web metrics (Figure 3), which are correlated to the website’s usability and their effect on the conversion rate. Those metrics being page views, time on site and internal searches (WAA, 2007).

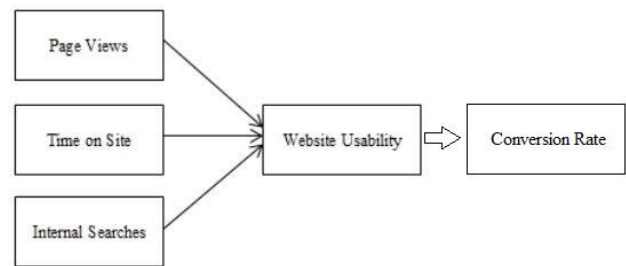


Figure 3. “Web analytics metrics affecting the website conversion rate” - *International Journal of Computer Applications*

As stated by previous scholars Web experience is related to website conversion improvement (WWS, 2000). As defined by Constantinides, 2004 web experience consist of 5 factors, those being: usability; interactivity; trust; aesthetics; and marketing mix. Thus, in this paper, the focus would be on one of those factors – website usability and its effect on customer conversion.

The first variable page views entail the number of times the pages have been seen. A page view is counted as such when a page has been loaded and displayed in front of the user (WAA, 2007). In instances where there are user visits to the website but not as high number of page visits, this could be a sign that the visitors have been expecting something different than what they are being shown or couldn’t find what they were searching for (Cufoglu, 2014). This is a clear sign of a usability problem.

The second web analytics metric taken into account is Time on site. This metric measure how long does the user stay on the web page (WAA, 2007). Traditionally longer span of view the page is a good sign as the user shows that he is interested into what he is being presented, but in some cases, it could be the sign that the user is struggling to navigate through the website (Cufoglu, 2014). Thus analyzes should be conducted thoroughly so that there are no wrong conclusion and decisions made.

The last metric discussed is the internal searches that are being made by the users. Almost every website has a search box in which users can type a keyword, which will show the webmaster for what is the user searching for (WAA, 2007). This could greatly help to improve the navigation of the website based on the user’s needs.

Until now customer conversion has been mentioned a few times, thus the term needs to be further explained. The term customer conversion is defined as a user of a website, which is set to complete a predetermined by the business target action. If the user is to complete the predetermined action, a conversion is counted. (Nielsen, 2013). Conversions could be specific actions such as clicking a button, downloading content or filling or a form or registering.

Visitors of the website could be identified as either new visitors or return visitors. However, it is proven that return visitors are of greater importance, as they tend to have a higher conversion rate than the new visitors (WAA, 2007).

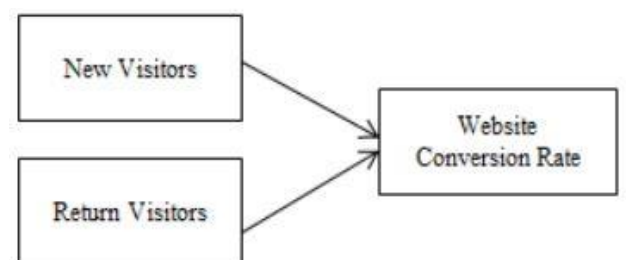


Figure 4. "Web analytics metrics affecting website conversion rate" - International Journal of Computer Applications

New visitors are defined as visitors who are active on the website for the first time. Those visitors are a sign for the traffic to the website and thus for the results of the marketing activities (WAA, 2007).

The second type of visitors is return visitors. They are of great significance as well, as this shows the number of visitors that have already been to the website but has returned and made a new visit. This entails that they have found the website useful and helpful thus they are paying more than one visit to the website (WAA, 2007). This is an important connection as it shows how website usability drives the number of return users higher and hence as already mentioned they tend to have higher conversion rates. The return visitors are so vital for the website not only because they are free traffic to the website as they have been already attracted to it before, but also they are more likely to convert than any other user (Cufoglu, 2014).

3. METHODOLOGY

The research methods used for this study are a systematic literature review, an expert survey and Google Analytics data analysis. A literature review will be conducted in the first part of the research and qualitative and quantitative data analysis based on Expert interviews and data will be performed in second. I have opted in for Experts interviews, in which I could get more into the depth of the topic of web pages personalization and its implications and benefits.

The study will first analyze the available literature on the topic. I will use a pyramid model, in which I will start with the general literature available on the subject and then narrow my field of analysis down, and then I will identify the knowledge gap and define clear objectives for future studies.

The literature review will be done based on the topic identified in my research question, thus personalization of web pages. This topic will be analyzed as to how this variable affects student conversion. To be able to fully explore the relationship between those two variables, I will need to take into consideration the topics outlined in the sub-questions, thus web site usability, personalization, and Artificial Intelligence. These topics will be explored as to what have scholars stated until now about those domains and furthermore, I will explore what relationships were identified between them. Based on this I will be able to outline the gap in the academic literature and identify future objectives of the research. The following chart represents the steps that I will undertake in order to perform the literature review:

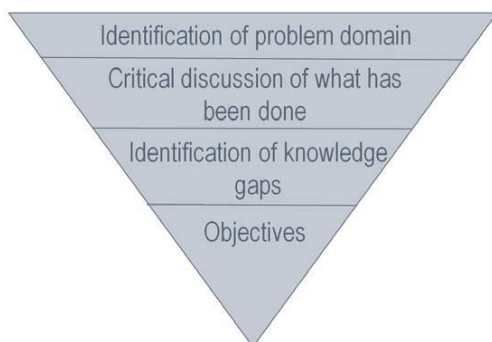


Figure 1. Literature Review Steps

To be able to perform a structure and explicit literature review I will first make a flow diagram, which will include all the topics of interest and their relation. Below you can find this diagram presented (Figure 2):

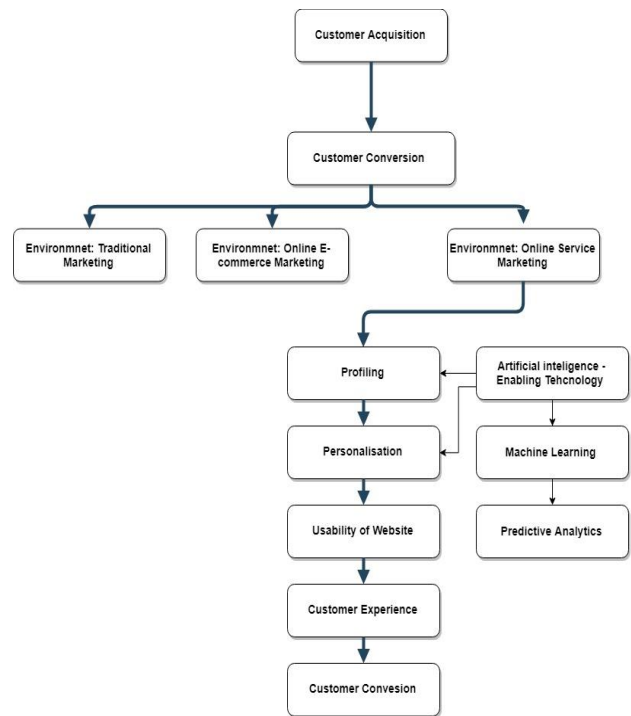


Figure 2. Literature Review Topics - Flow chart.

Based on the developed diagram I will perform the literature review. The literature review will start with analyzing the Customer Acquisition process and look into profiling and personalization as one of the possible methods for improving customer conversion. Further, AI will be analyzed as an enabling technology of profiling and thus personalization. I will start by concentrating on Artificial Intelligence and its application as a whole in the Marketing industry. It will go further as to how AI could affect the current marketing techniques according to the literature. Further, it will be analyzed specific applications of AI such as Machine Learning and Predictive Learning and how this will shape the personalization process of web pages and profiling activities.

The articles used for the conduction of the literature review will be assessed for their quality based on their Relevance to the subject of the research and their Citations. The articles will include different types of research designs such as observational studies, experimental studies, quantitative studies, qualitative studies.

The search for the articles will be conducted online by using keywords. The keywords will be searched specifically but also by using their synonyms or different forms, as some authors could mention them differently. The articles will be collected through various internet libraries in the period of April 2019 – June 2019.

After conducting the literature review and as a result finding the gap in the current academic literature concerning the topic of the research question, the study will analyze the data collected through experts in the field in order to attempt to explore further the gap. Interview as defined by Maso, 1987 is "a form of conversation in which one person – the interviewer – restricts oneself to posing questions concerning behaviors, ideas, attitudes, and experiences with regard to social phenomena, to one or more others – the participants or interviewees – who mainly limit themselves to providing answers to these questions". The experts included in the interview process will be marketers at the University of Twente. Some of the respondents

would be more knowledgeable in the domain of AI as well, which would greatly benefit the study, as they would have a more knowledge-based opinion about AI used in the personalization activities. The interviews will be conducted with professionals from the Marketing department of University of Twente. The interviews will be recorded, and the interviewees asked for permission beforehand. The recorded files from the interview will be then used to transliterate the interview and afterward be analyzed. As an expected outcome, I would aim for outlining general opinions and patterns found in the answers of the interviewees. Based on this I would group them and describe the findings.

The interview would aim to examine the current online student conversion techniques used. This would help me to understand as to how much universities invest in customer conversion strategies and tools which shows how much do they consider this as an important part of the customer cycle. After determining the importance of customer conversion and current activities considering this domain the questions will aim to explore further the techniques used to increase the customer conversion online. The questions will be an attempt to outline whether the higher education institution has already in practice applied techniques for customer conversion and whether one of them is thus personalization. Further, the questions will explore the topic of website usability and the opinions of the experts will be collected on these topics. This will help me understand how do experts in the Marketing and communication department in higher education institutions perceive the use of personalization activities in order to improve student conversion. Moreover, the use of AI will be examined and its current state of the application in Higher Education Institutions in their marketing activities as a whole as well as their awareness of the need for adoption of such a technology. Moreover, the interview will focus on the practical chance of realization of personalized content using AI technology.

Quantitative data from the Google Analytics system of the University of Twente will be obtained, in order to be analyzed and used as supporting data for defining the needed personalization. The data will be quantitative data, and I will opt for finding general problems and paths of navigation on the website of the University of Twente, which will help me to understand the behavior of the website users, more specifically prospective students. Using Google Analytics could further see where students struggle to find what they need, also track their activity on the website and draw a conclusion based on this as to what possible personalization on websites could be implemented in the future, that will improve the customer experience, website usability and thus achieve higher customer conversion.

Having already outlined my research design several limitations emerge. The primary data collected will be specifically from the University of Twente (data set, interviews), thus my findings will be specifically applicable to this university. However, the general methodology and impact of the application of personalized websites should not vary greatly if applied in different higher education institutions. Another limitation is the quantity of analyzed data, as the data set will be limited in size, wrong assumptions could be drawn. Therefore, interviews with experts will be made, as well as a literature review to limit the possibility of wrongful assumptions.

Finally, after considering both of the literature review analysis and primary data analysis, the future of personalization will be outlined in correspondence to its application in personalizing websites content in order to improve the customer conversion.

4. DATA ANALYSIS

In this section, I will analyze the collected data. This will be done in two parts; first, I will analyze the collected data about the prospective students of University of Twente via Google Analytics. After this data has been analyzed and conclusions made, the second part of the Data Analysis chapter will be the expert interviews. As already discussed in the Methodology chapter, the experts will be from the M&C department of University of Twente and I will use the interviews in order to draw a clear picture as to how the experts perceive the role of personalization in student conversion and further the application of AI as enabling technology.

4.1 Quantitative Data Analysis – Google Analytics

The data collected through Google Analytics is for the period of 1st of March 2019 till 31st of May 2019. This 3-month period is considered substantial as a length to be eligible to represent the data needed to be analyzed for this study. In order to be able to draw insights into the most relevant data to this study, I have opted to use a segment of the total number of users recorded in this period. The chosen segment is Prospective Students, as this is the main topic of this research, I will analyze whether with improving the website’s usability the student conversion increases. In order to define the segment Prospective Students based on three variables and sequent values for each one of them presented in Figure 5.

Page Title	Event Category	Page/Exit screen
OSIRIS Application - Welcome	Chat - SI - English	/en/education/master/programmes/
Find your scholarship University of Twente	Chat - SI - Dutch	/onderwijs/pre-university/pre-u/begeleiding/profielwerkstuk-helptdesk/
Financial matters Cost of living MSc University of Twente	PDF download	www.utwente.nl/en/education/master/admission-requirements/deadlines
Online Open Day 15 May - University of Twente	OSIRIS application	
All Bachelor's programmes Overview Bachelor's programmes BSc University of Twente	CTA button	
MSc programmes University of Twente		

Figure 5. “Prospective Student Segment definition variables.”

The segment will be based on the Title Page visited by the student, the Event Category that they have activated such as chat with the Information office and finally the page link visited (Figure 5). In the case of page Title, it only counts when the user has visited the specific page, whereas in the page link visited the system counts the user if this part of the link is present in the whole link, which allows for a wider variety of connected pages to be counted. All the analysis will be executed using the above-mentioned segment of prospective students.

Firstly, the analysis will be conducted in accordance with the discussed literature, thus being the metrics that affect customer conversion. The mentioned variables that influence website conversion are new and return visitors. The return visitors are argued to be more valuable to the company as they also tend to have a higher conversion rate. This was confirmed by our set of data.

User Type	Acquisition		Behaviour				Conversions
	Users	New Users	Sessions	Bounce Rate	Pages/Session	Avg. Session Duration	Goal Conversion Rate
Prospective Students	146,625 % of Total: 49.88% (293,974)	126,565 % of Total: 53.57% (235,975)	139,782 % of Total: 35.87% (389,442)	48.96% Avg. for View: 40.60% (33.59%)	4.26 Avg. for View: 5.01 (29.06%)	00:04:01 Avg. for View: 00:07:12 (44.26%)	34.47% Avg. for View: 47.76% (27.83%)
1. New Visitor	127,170 (86.42%)	126,565 (100.00%)	122,483 (97.62%)	51.75%	3.93	00:03:28	31.94%
2. Returning Visitor	19,980 (13.58%)	0 (0.00%)	17,299 (12.38%)	29.21%	6.59	00:07:53	52.99%

Figure 6. “New versus Return users’ Conversion Rate.”

As one can observe from Figure 6 the conversion rate of prospective students for the return users' category is 52.39% compared to 31.94% respectively for the new visitors. Further, we can see that the number of new visitors is 7 times higher than the return visitors thus out of 146 325 visitors in total only 13.58% of them or 19 980 users have returned to the website. This entails that those users were interested in the website content and found it useful thus, they returned. By observing this fact, one can see that it is vital to have returning users to the organization's website as they tend to also convert in higher rates compared to the new visitors. The next group of variables analyzed are the ones mentioned in Figure 4, thus Page Views, Time on Site and Internal Searches.

According to the data available for the variable Page Views, the website of University of Twente had 363 260 unique page views and in total 596 167 page views accumulated from users in the pre-defined segment Prospective Students.

Page ?	Page Views ? ↓	Unique Page Views ?
Prospective Students	596,197 % of Total: 19.03% (3,133,743)	363,260 % of Total: 25.80% (1,408,200)

Figure 7. "Page views versus Unique page views"

The difference between the two variables in the table in Figure 7 is that the "Pageviews" variable counts every time a page is being shown whereas "Unique page views" count a view only once in the specific session by the user no matter how many times he visited the same page (Google, 2019). Here we can notice that the Page views are with 40% higher than the unique page views, which means that users are visiting specific pages more than once. In accordance with the literature, this would mean that users had a reason to visit the page once again and thus they tend to find the content on the website useful and helpful. Which once again is a sign for the state of the usability of the website.



Figure 8. Sessions – "Prospective versus All users"

Another observation is that on average the prospective students on the website usually have fewer sessions compared to all the users. This could be because they could not find what they are searching for and thus the website usability could be improved.

The next variable discussed from Figure 4 is Average time spent on the site by the user. According to research conducted by Databox states that the average time spent per session on the website by users is between 2 and 3 minutes (Albright, D., 2018).

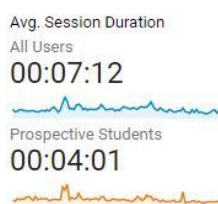


Figure 9. "Average Session Duration – Prospective versus All users"

As observed from Figure 9, the average time of the prospective student is 4 minutes whereas the average time of all the users is 7 minutes, which is 43% higher. These results can be interpreted as a sign for non-sufficiently usable website as prospective students who have not yet been accustomed to the website and their sessions earlier than all the users. Another observation though when comparing the results for the UT website is that on average it has higher session's durations compared to the average time per session reported by Databox (2-3 minutes). However this should not be interpreted as a sign for better usability as the data from Databox is not based on a specific industry as the Higher Education websites are part of, but rather it is a report for the website's performance on average. Thus, it could be the case that users usually spend more time in Higher Education Websites than in other types of websites.

Next, I will analyze the data for the Behavioral Patterns and look into how prospective users navigate through the website and thus identify which current problems could be improved by the application of personalization and thus improve the conversion. The data will be from Google Analytics' Behavior Flow chart. The flow chart (Figure 10) is configured to show the information about the behavior flow of the group of students defined in Figure 5 as prospective students.

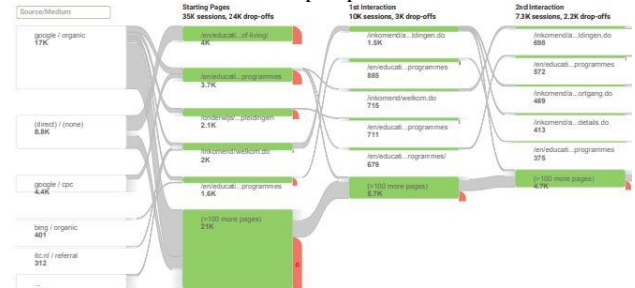


Figure 10. "Flow chart 2 Interactions"

In figure 10 I have included the first two interactions parts of the flow chart, however in the attachments at the end of this paper one can find the full flow chart including the full 10 interactions chart.

By analyzing the flow chart from figure 10, the first variable that is going to be looked into is the Drop-offs rate, which is the percentage of the visitors of a webpage which do not make further interactions with the website but leave it (Google, 2019). One can notice that the percentage of drop-offs is decreasing with each extra interaction with the website, the lower the drop-offs rate the better website performance. On the landing page the drop-offs rate is the highest with 68%, then with the 1st interaction is lowered to 30%, which is almost lower by half already than the initial drop-offs rate. By the 5th interaction, the drop-offs rate is lowered to 19.7% and by the 10th to 15.5%. From this analysis, one can notice that the drop-offs rates for the prospective students using the website of University of Twente are getting lower with every interaction they commit or in other words the further they advance in the website and more specific they become with the content that they are searching for the lower the drop-offs rate. Personalization could be one of the solutions that are able to lower to drop-offs rates by making the number of interactions needed before the needed content is found to a lower number. By personalizing the webpage content to the users' needs, the user would be presented with the most relevant to his needs information and content (J. Blom, 2000). By doing this the user will not need to navigate longer and further into the website by increasing the number of interactions needed in order to find the searched information and increasing the drop-offs rate.

Another insight that could be drawn out of the flow chart is that the drop-offs rate varied across different sources of traffic. The main traffic sources identified based on their quantity are Direct, Organic, Paid and Referral traffic. The referral traffic has the least drop-offs (39.1%) which is expected having in mind that the users were referred to this page, which implies that they were already searching for the same sort of information before being referred. The paid traffic, however, scores the highest percentage of drop-offs rates, that being 84% which could be a sign that the text of the ad does not give the right impression what information would the user be presented to by clicking on the add. The most important traffic sources though, as they bring the most users to the website are Organic and Direct. The overall drop-offs rate of the Organic source is 64.7% and for the Direct source being 79.5%. We can compare those numbers to the numbers presented by Institute, C. (2019), they state that the average drop-offs rates are considered to be in the range of 40% to 60%. This would mean that the Organic source is almost in the range of the average performance, whereas the Direct source is performing poorly with almost 20% higher drop-offs rates than the average.

By looking at the users and what pages are they visiting at each step of their interaction, one can see that the further the user advances in the website and the more pages he visits the more specific the content gets. For example by looking at figure 10 (in the attachments for the full chart) one can see that at the first interaction the most visited pages are generally such as Master or Bachelor pages, whereas at interaction number 10, the pages visited get more specific such as Offer of Admission, Deadlines or Required documents for a specific program. This shows that users sometimes have to go through several pages until they find what they are searching for, which indeed is responsible to some extent for the above average drop-offs rate at some stages (landing page). However, this could be improved by having a personalized webpage content, which will show for example to a master prospective student only the information useful for master students, which would help him to navigate through way much less quantity of content and thus make the search process easier and faster for him

4.2 Qualitative Data Analysis - Expert Interviews

Further, in this chapter, the Expert Interviews will be analyzed and conclusions are drawn based on the experts' opinions. The expert interviews were held in private rooms and the interviews were one to one semi-structured. The main goal of the interviews was to investigate the current usability problems of websites and if personalization is a vital solution to those problems. Further, if it were, would it improve the conversion of prospective students online? The interviewees chosen to be part of the interview process were a specialist in Digital Marketing including website moderation an expert in Marketing holding more of a management position. I chose to interview both, the more practical oriented specialist and managers so that I could explore the topic as a whole and get the most realistic picture of the topic. Both types of backgrounds were key for the study, as the Digital Marketing specialist could asses better how exactly personalization would affect website usability and whether it would help student conversion. Whereas from a management point of view personalization has been assessed as to how realistic, it is to be implemented in the Higher education institution and also to explore what is the current opinion of the management on this topic. Management views are of great importance as even if the specialists are stating that personalization would be greatly beneficial if implemented, in case of management disagrees then the implementation of this technology will not be possible. The interviews also explored what are the current customer acquisition strategies, as to

investigate how invested are the higher education institution in that kind of activities, which are directly connected to the general topic of discussion. Further, the Digital marketing specialists were asked as to how AI application would help personalization.

By looking into the current acquisition, strategies I could explore as to how much are universities already invested in this topic and to what extent they find it of importance. Personalization's main goal is to improve the student conversion's rates, which could be considered as an acquisition strategy and as part of current ones. A big percentage of the online marketing activities are directing the prospective students to the website, as one of the interviewees said it is the "backbone" of all the online activities.

Current acquisition strategies and practices in place for University of Twente are both Offline and Online. All offline materials recently have also shifted to a more personal touch as mentioned by the interviewees the students have written most of the information in the brochures and flyers about their experiences. This is done so that the prospective students could better identify themselves with the shared information. Further, the UT has also set specific target countries for their acquisition strategies both Offline and Online. Moreover, the M&C department is taking into account the different requirements for recruitment from the different faculties, as each faculty has a persona of interest.

Taking into account yearly goals, faculty-specific requirements and countries of interest the M&C department executes the online customer acquisition strategies incorporating all of those factors. Currently, they are conducting their online recruitment through a few channels. As the Digital marketer stated the most used channel to attract prospective students is Google AdWords where every faculty and study program has an individual set up campaign with different goals and priorities. Another channel though not solely used for prospective students is the Social Media, which is also used to sustain the current community online of students, researchers and staff from the UT. Emails, as mentioned by the specialist, is also an effective method of gaining prospective students, but there is a limitation as the results of the email marketing are dependent on the database of emails, thus a priority is to grow the database. Both Email campaigns and Google AdWords redirect prospective students to the website where the conversion takes place. As we can see the website is indeed the "backbone" to the student's conversion online according to experts as this is the place where all the traffic from the different acquisition marketing channels is directed to, and the website's performance would be vital for the rate of the user's conversion. From the information collected regarding the current acquisition strategies, one can see the UT is already invested into acquiring prospective students and has acquisition strategies in place. This is proven by their activities both online and offline and the different approaches that they have for each target group. One could consider that the website is the most important part of the customer acquisition strategies, however, the experts state that each element part of the strategy should be executed in good manners in order that the goals and set targets are achieved. For example, if the promotion is executed perfectly via Google AdWords, Social Media, and Email marketing and there is a considerable amount of traffic directed to the website, but the website has a poor performance the rate of conversion would be rather low. On the other hand, without traffic, even the best performing website will not be able to reach the set goals.

After having already explored the current acquisition strategies and found out that the website is of a concern for the online customer conversion, now I am going to research the current problems that the M&C department has identified through website reports, experts' opinions and focus groups studies.

Currently, the UT has established re-occurring website performance measurements, which indicates the importance of the website to the university's acquisition activities. Overall, the website currently contains a large amount of data, and almost every question that a prospective student could have is already answered on the website. However, because this vast quantity of information users have been found to struggle with navigation through the website. By conducting a focus group study it was found out that on the main page of the website filled with information, half of the users would not scroll more than 30% of it. This means that more than 70% of the information on the page becomes obsolete as the user do not even see it. Moreover, through other researches, it was found out that often users are confused where exactly are they on the website, because of the depth that they went into the website in order to find information. Another problem is that users did not know where to find specific information. This comes as evidence for the information that I have already analyzed through Google Analytics, where the drop-offs rate were high in the first few interactions, as users struggle to find information and wouldn't continue using the website. Having to go through several pages (interactions) in order to find information do not only increases the drop-offs rates but it also leaves the users, which continued surfing through the website with bad user experience. They get not only confused, where they are on the website but also frustrated, as they already had to go through so many pages until they could reach the searched information.

Now I am going to explore further what action have they taken recently to improve the abovementioned finding of the performance of the website. The digital team has already found out that one of the main problems of the website is indeed its usability. They have invested in solving this problem through various approaches, one of them being the introduction of chatbots. The chatbots goal is to help users find the information they are searching for on the website easier and faster. Further, the website also got an improved search button which tackles the same problem. However, those improvements are enhancing the usability of the website but solely cannot greatly improve it. Thus from those finding, I could understand the M&C department takes the usability of the website into account already and it's investing in improving it continuously, which would mean that they would be open to implementing new methods for improving the usability.

I have already explored as to all their current activities regarding the topic of the usability of the website and its effect on the online conversion, and their attitude towards it. After doing that I have proposed to the interviewees the idea of applying personalization activities to the website, which could make the experience of the user more personal and improve the usability of the website as the information on it would be better managed and presented only when needed. The overall opinion of the experts was that this would indeed greatly improve the usability of the website and thus lead to higher rates of customer conversion. However, one of the interviews, the digital marketing expert mentioned that the costs of implementing this technology would be of great importance for determining whether it will be implemented and applied. Further, the university website has already implemented personalization technology to their website but not to such an extensive way, which is possible, so the base is already in place but there is still lots of opportunities to expand the current activities. The current personalization is based on whether the user is identified as a current/prospective student or an employee. Based on that the website reorders the information displayed on the general page of the website. However, this is not as extensive as other higher education websites where the whole website is personalized based on the individual user's preferences. For

example, the website is personalized for a Master student interested in the study Business from a Non-EU country. The interviewees agreed that this would be the next step in expanding the current personalization activities and making them more extensive. The expert in digital marketing, however, stated that in his opinion a more usable website would not be a major factor in improving the conversion rates, whereas the interviewee taking a manager role disagreed on this topic. According to the interviewee for a university that is rather small, personalization plays a big role in attracting students to it. Moreover, the current strategy of the UT is to provide an overall personalized experience to its students, thus personalized web experience is being one of them. Furthermore, when competing with bigger more well-known universities each touchpoint of interaction with the university greatly contributes to the attitude and final decision of the student. Even what is more that most of the international students do not have the chance to visit the university personally or talk to a representative, so in that case, their main touch point is indeed happening online and through the website in many cases. The expert from the manager point of view also mentioned that before the focus of the UT was more on attracting more students so the budget was also spent in this direction. However, now the strategy has shifted towards the quality of the students rather than the quantity, as quantity strategy has the flow to gain not always the right students for the studies offered. Therefore, more personalized marketing is for what the university is aiming for. In this case, the website would enhance the student traffic and thus, the expert believes that there will not be a need for gaining a new budget but rather a reallocation of the current one. A further benefit of improved usability of the website is saving on human capital costs, as in many cases when users cannot find the searched information they would contact the student services of the university. The interviewees however all agreed that hiring external experts to conduct the personalization process would be needed, as the required knowledge to execute this task is not yet in-house. However, in the future, the goal would be to get this knowledge and expert sourced in-house. Briefly, it was also discussed whether AI practices could help the implementation and the automation of the personalization activities to which all of the experts agreed and saw the benefits of this, but as stated for personalization it would be executed by external experts.

4.3 Summary of Findings: Data analysis and Literature review

The main finding of the literature review was that digitalization is an important process for the businesses nowadays, thus the online activity and the website of an organization is of great importance (Straub, D. and R. Watson, 2001). A literature review first focused on the importance of customer recruitment and outlined the three main activities defined by Buttle, 2004 in this domain, out of which this paper focused on what a business can offer to its customers, in our case prospective students. The service tackled in this paper being personalization was portrayed by academic that it could indeed greatly contribute to the user experience online and thus be seen as a service of importance and value (Shepherd, S., 2018). The literature revealed that in order to increase the online conversion of the customers, the website should be usable and provide a good experience for the users (WWS, 2000). One of the approaches that could be used for this discussed by academics is personalization. Personalization is seen as a tool that could help websites provide the right information at the right time to the users, thus improving the website experience and the users' conversion (J. Blom, 2000). As literature revealed the importance and the benefits of personalization such as higher user conversion, and better customer experience, it was also discussed that even though this approach has benefits it has also drawbacks. One of them is

associated with its application. As in this paper, the application process discussed was Artificial Intelligence which as stated by scholars is financially demanding and needs time in order to be able to perform (Sterne, 2017).

In order to conclude the Data Analysis chapter, I will discuss the literature review in relation to the primary data analysis.

First off starting with the Quantitative Data Analysis, which was collected through the Google Analytics data of the website of University of Twente, it can be stated that personalization could improve the website usability and thus prospective student conversion, which is in accordance with the literature previously reviewed. For instance, personalization could improve the Return user rates, which as already shown contributes to higher conversion rates both by academics and by this analysis. Furthermore, it could help prospective students finding information that they are searching for before exiting the website and thus bring the average spend time on the website of prospective students closer to the average for all users. Another insight drawn from the flow chart is about the drop-offs rate and that according to the data, the drop-offs rate gets lower with each interaction of the website. This, in fact, shows that most of the users quit the website when they are struggling to find information and only a few continue forward – starting with 35k sessions on the landing page and having only 1 000 on the 10th interaction. Those findings support what WAA, 2007 stated, thus that in this case, by applying personalization to the website users could find information easier, which will lower the drop-offs rates and improve the website usability. Another instance in which personalization could be of help is improving the drop-offs rates for the traffic of users coming by “Direct method”, which currently is higher than the average reported by the Institute, C. (2019). Finally, by looking into the user navigation patterns it could be noticed what kind of pages the users visit on which interaction. Based on this if the website is personalized the user would be shown information upfront for which otherwise he has to go through several interactions before reaching.

In conclusion of the qualitative data analysis this being the experts’ interviews, through which I found out that the UT is already having customer acquisition strategies and they include online acquisition ones especially as defined by Buttle, 2004. Moreover, online they have already recognized the importance of the website and how its usability affects student conversion, even though one of the experts argued that the effect is limited. Personalization was determined to be the possible tool that can indeed improve the usability of the website and that the M&C department has already implemented personalized experience on the website but to an extent and they are still discovering the possibilities and are at the beginning of this new promising phase. AI was determined as a possible enabling technology that would automate the process of personalization. The budget was determined to not be of a problem for this technology, as it would be relocated, which however by academics is stated to be usually problematic.

Overall taking into account both the quantitative analysis and the expert interviews, currently, the website faces numerous problems most of which are connected to the vast information on the website and the confusing navigation, both of which could be greatly improved by personalization. Furthermore, the experts agreed on the importance of this implementation and that it could improve the prospective student conversion online.

5. CONCLUSION

The relation between personalization and online prospective students’ conversion was the main focus of this paper. Personalization was discussed in terms of its application to Higher Education Institution’s website in order to improve its

performance and thus improve the prospective student’s conversion. Behavioral profiles were identified through literature and prime data analysis as a key to personalization. Furthermore, it was found out that personalization was already being applied to the webpage of the University of Twente, but yet the full potential of this technology has not been explored. Artificial Intelligence was seen as an enabling technology of the personalization process. Both the literature and the experts agreed on this topic, the experts extend this and stated that this would be executed through external experts, as the knowledge is not yet acquired in-house. Throughout the study, it was identified that indeed personalization could solve the current usability problems of the website and thus improve the online conversion. The main benefit of this approach identified through this study is that by personalizing the webpage, the users would be able to find the information that they are looking for easier and faster than before, thus reducing the drop-offs rate and in relation to this increase in the rate of customer conversion. Students’ conversion was found to be influenced positively by the increased website usability and thus increase with the theoretical application of personalization discussed in this paper. This was agreed both by experts and scholars. This technology though could be costly to implement but universities could relocate budget to it rather than gaining new. Personalization, however, as outlined by experts could reduce the expenses occurred for providing the customer experience through staff members, but by using AI personalized webpages, users would not be as often in contact with customer service staff, as most of their questions could be easily answered through the website’ information. Moreover, personalization is considered an important part of the overall online experience of the prospective students as in many cases that is the main channel in which they interact with the university. Nevertheless, personalization results could be hard to measure and specifically pinpoint concerning students conversion, as there could be other factors affecting this variable. In conclusion, personalization should be explored further in this context and experiments conducted where actual personalization practices are applied to the university’s website in practice so that the findings could be supported further.

6. DISCUSSION

In this section, I will discuss my findings and give my interpretation to them, further I will mention and the implications and limitation of this study and finally I will lay down my recommendations for future studies and for practical actions that business could take.

The results from this study indicate that indeed Personalization of the webpage content leads to better website usability. This was based both on literature and later confirmed by my data analysis and expert interviews. The literature’s statements were not focused on the higher education industry that is why I aimed for primary data analysis so that I can study this specific domain of interest. The data analysis showed that users struggle when they are presented with a big amount of data on a website, and get confused or even lost. My hypothesis was that personalization could improve website usability and thus the student’s conversion online. Firstly, I found out that the university that was the focus of my study already has in place customer acquisition strategies and invests into this activity, which as Levitt (1996) states is of great importance to one’s organization. The fact that the university had already those strategies in place meant that they will be more willing to invest in personalization, as this could be seen as an acquisition strategy as well. My findings met my expectations and confirmed what Shepherd, S., (2018) stated, thus that personalization improves the usability of a website. The data from Google Analytics showed how students struggle to navigate through the website as they need to make a number of

interactions before they could find their desired information. Wertz, J., (2017) stated that users online have an especially short span of attention and this was also confirmed by this study as the student had more than 50% drop-offs rates when they couldn't find the information that they needed. This further puts the emphasis as to how important is personalization to websites and especially ones as a university website. As stated by the experts one of the main tasks of a university's website is to provide information, and thus if this is the domain in which it struggles that could greatly affect the users' conversion online. What I further found out is the especially management perceives personalization not only as a tool to improve the website's usability but also as a unique selling point, which could attract more students. This comes as proof that indeed personalization is part of the customer acquisition strategies. That is true especially in the case of smaller and lesser-known universities, as they are struggling to attract students without investing in students' acquisition and promotion.

However, personalization was not only argued that improves the usability of a website, but it was also hypothesized that with the improved usability of a website the prospective students' drop-offs rates would be lowered. The experts confirmed that better usability would entail lower drop-offs rates and this would mean that students would reach easier to the information that they are looking for and thus convert. However, the effects of personalization are hard to measure in terms of increased students' conversion, as other factors could have an effect on this metric as well, and currently, it is still a struggle to specifically account the conversion rates increase or decrease to a single variable.

Artificial Intelligence was discussed as an enabling technology to the process of Personalization, and the literature review confirmed this. Aime, P., 2018 stated that indeed with the increasing quantity of information on the websites nowadays, personalization could help to order this information in a way that it suits the user's interests and with the development of the current technologies AI indeed could be seen as enabling technology in that case. Experts further agreed on this topic but noted that this would entail hiring external parties, as the knowledge to do so is not yet owned in-house.

Having already analyzed the main finding, I can state that the results build on existing literature and they further provide insights to personalization and its relation to website usability and prospective students' conversion online. Based on those findings universities should consider this and if they have not yet realized the importance of their website, and that as Straub, D. and R. Watson, 2001 states this is the main interface of the organization online, they would not be able to fully understand the idea behind the personalization and the added benefits. Thus, they will not be able to fully capture their customer value and could lose potential students. Smaller universities especially should take the personalization of their website into account when creating their customer acquisition strategies as this could be seen as a unique selling point and not only as a tool, which improves the usability of a website. Though most of the universities would need to hire external experts in order to apply this technology, most of them could do so by relocating budget rather than acquiring a new one. However, universities, which will not be able to relocate budget, would make their decision with a great emphasis on the price, as this would be perceived as the break-even point for the decision. AI would be an important part of the application process and indeed seen as an enabling technology, however, it could be an expensive technology to implement at first, therefore, it would also be a decision based on the costs matters.

This study was conducted with a great emphasis on the quality of the research and the applicability of the findings, however, some limitation does emerge. The generalizability of the results is limited due to the fact that the study was conducted with primary data solely collected from University of Twente, and not from a greater range and number of universities with different characteristics and backgrounds. Due to lack of available primary data, the results cannot confirm if in practice the usability of a website affects the prospective students' conversion online, even though both the literature review and expert interviews stated that there is a positive correlation between the variables.

Having that said, future research should focus on a larger sample of universities and further test in practice if by personalizing the website and improving its usability the users' conversion rate increases. Exploring this technology could be done through focus groups, which could help experts decide what the best approaches would be for the application and usage of personalization. For example, focus group could help experts decide whether to conduct the data gathering and thus profiling, which would be the basis for the personalization, implicitly or explicitly. The studies should take into account the finding that conversion rates are considered to be difficult to account to a specific variable, thus more thought should be put in the evaluation of the results in order to not face biased findings. Further future studies should focus on the process of the application of AI technology to the personalization process, as this is rather timely and expensive approach and if there is enough data and research into this domain, more organization like higher education institutions could adopt this technology.

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8. APPENDIX

Attachment 1

