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THE IMPORTANCE OF USER RESEARCH METHODS IN USER EXPERIENCE DESIGN

ZNACZENIE BADAŃ Z UŻYTKOWNIKAMI W PROJEKTOWANIU *USER EXPERIENCE*

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Abstract: Any aspect related to the user's feelings when using or imagining the use of the product is referred to as User Experience (UX). The task of today's organizations is to model the user experience in such a way that when interacting with the product, the user feels only positive emotions. However, User Experience design also requires testing the created solutions, which often turns out to be a barrier for enterprises due to the high cost of research. The purpose of this article is to present the importance of user research methods in User Experience design. The article will present the subject of UX design as a direction of application development, research methods with users in UX design and the essence of research in User Experience modeling. In order to achieve the set goal, the article uses an analysis of literature and Internet sources. After the completed analyses, it can be concluded that research with users generates added value for User Experience design on the part of both users and employees.

Keywords: User Experience (UX), interaction design, research methods, user, requirements.

Streszczenie: Wszelkie aspekty związane z odczuciami użytkownika podczas korzystania lub wyobrażenia korzystania z produktu określa się mianem *User Experience* (UX). Zadaniem dzisiejszych organizacji jest zamodelowanie doświadczenia użytkownika w taki sposób, aby podczas interakcji z produktem odczuwał on jedynie pozytywne emocje. Jednakże

projektowanie *User Experience* wymaga także przetestowania stworzonych rozwiązań, co często okazuje się barierą dla przedsiębiorstw. Celem niniejszego artykułu jest przedstawienie znaczenia badań z użytkownikami w projektowaniu *User Experience*. W artykule zaprezentowano tematykę projektowania UX jako kierunku rozwoju aplikacji, metod badawczych z użytkownikami w projektowaniu UX oraz istotę badań w modelowaniu doświadczenia użytkownika. Aby zrealizować postawiony cel, w opracowaniu wykorzystano analizę literatury i źródeł internetowych. Po przeprowadzonych analizach można stwierdzić, że badania z użytkownikami generują wartość dodaną dla projektowania *User Experience* ze strony zarówno użytkowników, jak i pracowników.

Słowa kluczowe: *User Experience* (UX), projektowanie interakcji, metody badawcze, użytkownik, wymagania.

1. Introduction

User Experience (UX) is defined as the whole of the user's feelings when using or imagining the situation of using a product, service, or system. Currently, providing the user with a pleasant interaction with the product is the basic task of the organization's employees. A multitude of solutions gives customers the opportunity to choose. The task of the company is to find a way to interest the customer in the product; this can be the appropriate design of the interaction. However, to complete the right design, the organization must allow the user to enter the design process through research.

The purpose of this article was to indicate the importance of user research methods in User Experience design. To achieve the presented goal, analyses of domestic and foreign literature and Internet sources were carried out. The authors' contribution to this article can be defined as the identification of a research gap based on a literature analysis.

The structure of the article is as follows. The next section focuses on User Experience design as a direction of application development, while in the next, research methods with the participation of users used during User Experience design are indicated. The last section discusses the essence of research in UX design, and at the end the conclusions are presented.

2. UX design as a direction of application development

Many entrepreneurs are interested in the importance of User Experience design. It seems that as it was not so widespread in the past, the lack of a User Experience design specialist will perhaps not change anything in customer reviews. This approach may turn out to be very wrong because User Experience design has accompanied the development of business for many years (Stevens, 2021).

When most companies have realised the importance of designing the User Experience, it is necessary to think about how to create an ideal product that

will bring the user only positive feelings during its use. At this stage, it should be emphasised that there is no perfect product. Diversity among people means that organizations will never be able to produce a product that meets everyone's expectations. However, people have certain characteristics that can allow designers to model the User Experience so that as many people as possible enjoy using a given product.

One of the most important human senses is sight. The human eye scans the screen of the device in a way that corresponds to the order in which words are written in the language used (Weinschenk and Kaczmarek, 2020). If, while reading some content, the human eye encounters an obstacle in the form of, for example, a flashing advertisement, it ceases to carry out its task for a moment, but then it returns to its performance in the same way. This feature indicates the importance of matching the user's interaction with the system when considering the language that a given target group uses. It is also worth noting that people look for typical system elements by a specific appearance and similar locations, e.g. the 'page off' button is identified with a cross, while the eye menu is usually searched for on the left. Such aspects allow designers to facilitate the process of using the systems by considering similar characteristics of people. Changes to typical elements can cause the user's confusion and dissatisfaction, thus it is not worth making modifications in them, even if it seems a good option.

Another distinctive feature of users is web browsing, and rarely, their detailed reading. Websites are often viewed on the way to work, e.g. on public transport. When the users are not looking for anything specific on the page, they also do not pay much attention to the whole text. Their eyes focus on headlines or keywords that it automatically pays attention to, e.g. promotion, discount. Such actions are caused by the fast pace of life of many people, so it is worth taking this into account when designing the User Experience (Krug, 2014).

When discussing aspects of reading, designers must remember to provide the user with a font of the right size, color, as well as type. It is worth providing the user with the ability to change the font size according to their preferences. The type of font is selected according to the type of information presented – another font will be used on the portal with announcements, and another in a scientific journal.

Users would like to see on the screen only what interests them, and any information filters are especially appreciated, and thanks to which they can customise the displayed content to their liking. For this reason, when designing the system interface, the filtering criteria should be discussed in detail during research with users. Some of the criteria proposed by the users may seem trivial to the designer, but in fact they are desired by the user.

One of the ways that the users will be more willing to employ is the designed system which applies the user motivation by showing the progress they have made. Currently, self-improvement and development are playing an increasingly important role. Observing progress motivates people to continue using the system.

To sum up, the importance of User Experience design in applications nowadays is very high. The users have access to many products, but the pleasure of using them varies significantly. Thanks to the UX designer, the company can create a product that satisfies customers.

3. Research methods in User Experience with the participation of users

In User Experience design, many research methods can be used, with the participation of both users and experts. Focusing on user research methods, Figure 1 shows the classification of some of the research methods used in UX.

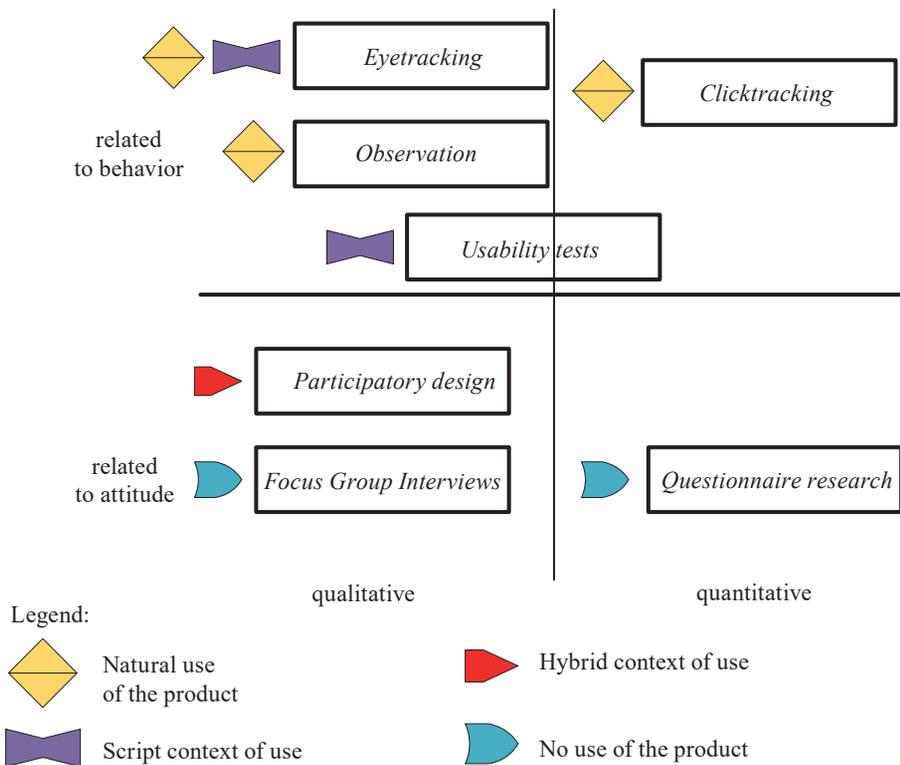


Fig. 1. Classification of research methods in User Experience design

Source: own elaboration based on: (Rohrer, 2014).

The methods related to attitude return a set of features of the studied group looking at their preference, while those related to behaviour present a picture of user behaviour. Quantitative studies return data in a short period of time, and they are used where answers in the form of numbers are needed. If the answers to

specific questions about a given problem are required, qualitative research will be appropriate.

Four contexts of use were defined by Rohrer. The first of the proposed contexts is the natural use of the product, where one does not interact with the user. Another context is the script context of use, which provides information about the specific functionalities of a given product. The third context of use is the non-use of the product. The last context is called a hybrid context of use, and focuses on the creative use of the product by the user. In this way, it is possible to obtain valuable insights from the user, which the enterprise can use to improve its product (Rohrer, 2014).

Among the qualitative methods, one can distinguish eye-tracking and observations, as well as focused group interviews, which are related to posture. Quantitative methods that can be used are questionnaire research, click-tracking or usability tests. The last of the listed methods can also be qualitative.

The first of the described methods is eye-tracking. Its main assumption is to obtain a path that shows how the human eye moves when using the product. As a result, the company obtains information on what the users pay special attention to. Thanks to this, it is possible to improve the interface in places where the user does not pay special attention to it (Bergstrom and Schall, 2014).

The second research method is click-tracking. By creating a special heat map that provides information on which areas of the system are most exploited, the company can draw useful conclusions. Usually designers are concerned about which elements of the product are most often omitted or not used. As a result, it is possible to focus on key elements or improve those that are worse (Myhill, 2014).

Another method is observation. Its assumption is to observe the user while using the product. Without interacting with him/her, designers can obtain information about what causes the biggest problems, as well as how the user reacts to individual elements of the entire system. In this way, the company can find an answer to the question of how much the product is understandable to the user.

The fourth research method is participatory design, which consists in obtaining ideas or opinions on a specific problem. This process involves people from inside and outside the organization.

Another method involves usability tests, which consist in creating special scenarios that the user must perform. In addition to this, the assumption is that the user is given the freedom to use the system, and the interaction with the researcher consists in asking questions and receiving answers, based on which the most reliable results are obtained (Rees, 2013).

The sixth method is focus group interviews, which consist in creating groups of respondents and a moderator, as well as presenting a problem that needs to be solved. The next stage of the study is a conversation between the participants, which ultimately results in solving a given case.

The last research method is questionnaire research, also one of the most popular methods. It consists in constructing appropriate questions that are answered by

the respondents later. Attention should be paid to their wording, as they must be understood by each of the respondents.

To sum up, User Experience designers have many research methods to choose from, but their multitude may cause problems with choosing the right one, so it is worth using more than one research method.

4. The significance of research in UX design

After the designers have become acquainted with the business model of the organization, collected the requirements, and create the prototypes, the stage of conducting research with the participation of the users takes place (Levy, 2017). This is an extremely difficult stage in User Experience design, because it requires a lot of experience and a high level of empathy from the person conducting the study. Designing a solution may seem intuitive for the designer, but the user can perceive the product in a completely different way (Mościchowska and Rogoś-Turek, 2015), hence proper research with the users is so important in User Experience design. The goal is to unify the definition of the problem and test the built prototypes. The process of conducting the research is shown in Figure 2.

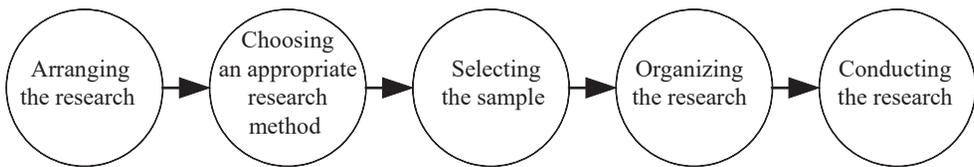


Fig. 2. The process of conducting research with users in the User Experience

Source: own elaboration based on: (Mościchowska and Rogoś-Turek, 2015).

The first stage of research with the users is the preparation of the study itself; preparing a research plan is the first step. A well-prepared plan must contain such information as the purpose of the research/research problem, research method, planned group of respondents, type of data obtained, schedule and budget (Mościchowska and Rogoś-Turek, 2015).

The next stage of the research is the selection of the appropriate research method. This is a very difficult part because designers usually choose the methods they have used before, and do not necessarily match them to the solution being implemented. However, it is sometimes worth taking a chance and choosing a method that can bring the most interesting results. The types of test methods are presented in the previous section.

Next, the selection of the sample for research is carried out, which consists of several stages. First, it is necessary to determine the studied population – people who can be characterised by similar features relevant to the implementation of

research. Then the sample size is determined, after which the method of sample selection is chosen (Tomaszewski, 2015). User Experience design usually uses the technique of targeted selection. It consists in the non-random selection of a sample for the research based on criteria specified by those people conducting the study, for example, gender, age, or level of education.

When the selection of the sample has been completed, it is necessary to take care of the logistic aspects of the planned research, and a place is organized where the research will be carried out; remembering about the tools necessary to carry them out. Information on the place of conduct of the research, date, time, or duration should be provided to the test subjects in good time – Such information can be provided, for example, by e-mail, text message or traditional mail (Mościchowska and Rogoś-Turek, 2015).

The final stage of research is their implementation. When both the test takers and the test subjects know what their role is, they should proceed to perform the research. It is important not skimping on time for this stage, because properly conducted research can bring very important results for the success of the project.

The process of conducting research with the users takes a long time, but as can be seen by its complexity, it clarifies many ambiguities related to the designed solution. First, the research allows the organization to unify the definition of the group of recipients whom the product is to reach. It may turn out that the recipients initially considered as the target group, are not interested in the product, and in taking part or showing commitment to the research.

Project teams often face the reluctance of their superiors to carry out research because it involves additional costs. However, an organization cannot be described as user-centric if it does not engage the users in research. In addition, by conducting research with their participation, the company can be sure that it is designing a solution that meets the needs of customers, not the designers or their superiors.

Another advantage resulting from conducting research with the users is the intellectual development of employees, including increasing their level of empathy, which improves the working atmosphere in the company. In addition, conducting research for designers is an opportunity for huge development and noticing elements that they may not have observed before. This approach builds the employee's level of trust in the employer, which may result in increased employee loyalty to the organization (Mościchowska and Rogoś-Turek, 2015).

5. Conclusions

User Experience design allows an organization to be user-oriented, which is very important in business today. Research with the users helps with the interaction between the company and the user and allows designers to test the created concepts, as well as to generate innovative ideas that they would not have arrived at before. Despite the costly nature of the research, it is still worth carrying out because of the

countless benefits it brings. It is also worth emphasising that if the product does not meet the requirements of the users by providing them with an unsatisfactory interaction, the costs that the organization will incur in connection with the failure of the project will be incomparably higher than those intended for the implementation of research.

Thanks to the literature and Internet sources analysis, it can be concluded that research with the users is very important in User Experience design. The process of research consists of many activities and takes a long time, but it is still worth using it in organizations. In addition to the aspect related to meeting the requirements of the users, the company also improves the atmosphere in its teams, and employees have the chance to develop during the implementation of projects. It is also worth pointing that the selection of the appropriate research methods is very important in User Experience design. The choice should be made based on many factors such as the type of product or service, budget, time allocated for the research, and knowledge of the research method. However, it should be stressed that knowledge of the research method should not be the main factor of choice. The use of previously not applied research methods in the organization can bring many positive results, as well as expand the skills of the employees. The meticulously carried out research stage in User Experience design may allow the company to release a product or service successfully.

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