USER EXPERIENCE RESEARCH USING A WEB-APPLICATION UX-QUESTIONNAIRE

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The publication updates the issue of the quality of interface development and highlights the main problems in the study of user experience. The work contains an overview of the methodology for solving UX problems, namely the Evaluative Research Method. In summary, the results of this study once again emphasize the importance of user experience in business and in the interface design process.

Keywords: interface design, UX, Evaluative Method, data, research.

The process of modern interface design in addition to solving various problems also includes reducing costs and design time, improving the quality of proposed solution, simplicity of software exploitation, studying and implementing new technologies and tools. Without applying of UX research, development becomes more expensive and longer, and the results of work are unpredictable [1]. My project can solve these problems - it allows you to get information about user needs and useful insights that can be used during product development. The analytical part of the project will be useful in the creation of new and support/improvement of existing digital products, namely: in studying the target audience of the designed product and determining user preferences, using a wide range of research.

To fulfil these aspects of interface design, user experience (UX) research is conducted. UX is defined by how user interacts with the product, system or service, and his feelings during the process [2]. The main criteria are a person's perception of usefulness, ease of use and efficiency. User Experience is a set of emotions, actions and results that a person receives when interacting with a site, product or program [3]. That is, the experience of interaction. For example, if you use a website, the basis of its popularity and success is the design of the user experience. That is, intuitive, consistent with buttons and other elements familiar to people. Only by taking into account these factors, a web designer will be able to create an interesting and attractive design for any project [4].

In order to implement UX research more qualitatively, there are methodologies that make it possible to study problem in depth. My project is based on the Evaluative Research Method. This is a type of research used to evaluate a product or concept. It consist of collecting data and then processing it to help improve the expected result [5]. The process of collecting data from respondents makes it possible to evaluate the product from the point of view of a potential user, identify weaknesses and strengths [6].

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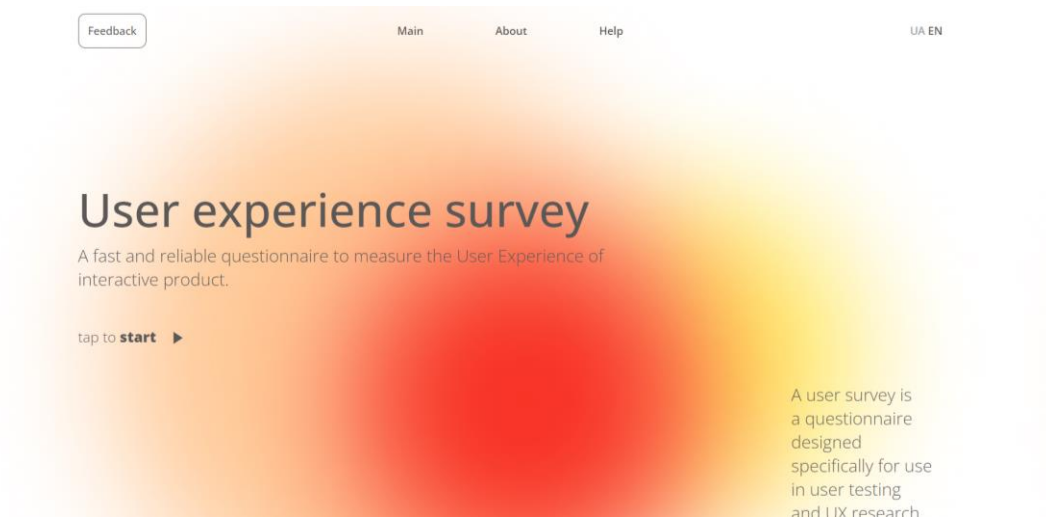When the user has passed the survey (Fig.1) consisting of 26 questions, the received data begins to be processed (Fig.2).

Fig. 1a. User interface of the web application

Fig. 1b. Structure of the web-application

												Дані													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
6	7	2	1	2	6	6	6	2	3	6	2	5	6	5	5	2	2	2	6	2	6	2	2	2	6
7	7	1	1	1	7	7	7	1	1	7	1	7	7	1	7	1	1	1	7	1	7	1	1	1	1
7	7	2	1	1	5	6	2	2	2	5	1	5	6	6	6	2	3	2	6	3	6	2	3	3	6
6	6	4	2	3	4	4	6	2	3	5	1	7	5	6	6	1	4	1	7	1	6	2	4	3	4
6	3	4	5	2	4	5	5	2	4	5	2	5	5	4	5	2	3	2	6	3	6	2	3	3	4
3	6	2	7	4	4	4	6	2	4	4	4	4	3	4	3	5	5	4	4	2	6	2	4	3	6
7	5	4	5	1	4	5	4	3	3	6	1	6	7	4	7	1	3	1	7	2	6	2	4	1	6
5	6	4	3	1	4	4	6	3	2	4	3	6	4	6	5	1	4	2	5	1	7	3	4	4	5
7	7	1	1	1	5	6	4	1	4	4	1	7	7	7	7	2	4	1	7	2	7	3	1	1	4
6	7	6	6	5	5	5	3	5	6	6	1	7	6	5	6	2	2	2	6	1	7	1	2	1	1
5	5	6	6	2	4	5	3	4	2	5	3	5	5	5	5	1	4	2	5	3	5	6	2	2	6
6	6	4	2	2	5	5	5	4	3	4	2	5	4	4	5	3	4	2	5	2	4	3	3	3	4
5	4	3	2	3	6	6	5	2	3	5	2	5	5	4	6	2	3	3	6	2	6	4	6	3	4
6	6	2	2	3	6	6	6	2	2	6	2	6	6	3	6	2	3	2	6	2	6	2	2	2	3
7	7	4	1	3	5	7	5	1	4	7	1	7	7	7	7	1	3	1	7	1	7	1	1	1	1
7	7	1	1	1	6	6	4	3	3	6	2	7	7	7	7	1	1	1	5	2	7	1	1	1	7
2	6	3	3	4	3	2	6	6	5	2	7	4	1	5	1	2	6	2	7	3	6	1	4	4	5

Fig. 2. Received data

The order of positive and negative values for an element is randomized. For measurement, half of the elements start with a positive number and half start with a negative number [7]. For example, +3 means the most positive value, and -3 means the most negative value (Fig. 3).

												Трансформовані дані													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
2	3	2	3	2	2	2	2	2	1	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3	-3	3	3	3	3	3	3	3	3	3	3	-3
3	3	2	3	3	1	2	-2	2	2	1	3	1	2	2	2	1	2	2	1	2	2	1	1	2	
2	2	0	2	1	0	0	2	2	1	1	3	3	1	2	2	3	0	3	3	3	2	2	0	1	0
2	-1	0	-1	2	0	1	1	2	0	1	2	1	1	0	1	2	1	2	2	1	2	2	1	1	0
-1	2	2	-3	0	0	0	2	2	0	0	0	0	-1	0	-1	-1	-1	0	0	2	2	2	0	1	2
3	1	0	-1	3	0	1	0	1	1	2	3	2	3	0	3	3	1	3	3	2	2	2	0	3	2
1	2	0	1	3	0	0	2	1	2	0	1	2	0	2	1	3	0	2	1	3	3	1	0	0	1
3	3	3	3	3	1	2	0	3	0	0	3	3	3	3	3	2	0	3	3	2	3	1	3	3	0
2	3	-2	-2	-1	1	1	-1	-1	-2	2	3	3	2	1	2	2	2	2	3	3	3	3	2	2	-3
1	1	-2	-2	2	0	1	-1	0	2	1	1	1	1	1	1	3	0	2	1	1	1	-2	2	2	2
2	2	0	2	2	1	1	1	0	1	0	2	1	0	0	1	1	0	2	1	2	0	1	1	1	0
1	0	1	2	1	2	2	1	2	1	1	2	1	1	0	2	2	1	1	2	2	2	0	-2	1	0
2	2	2	2	1	2	2	2	2	2	2	2	2	2	-1	2	2	1	2	2	2	2	2	2	2	-1
3	3	0	3	1	1	3	1	3	0	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	-3
3	3	3	3	3	2	2	0	1	1	2	2	3	3	3	3	3	3	1	2	3	3	3	3	3	3
-2	2	1	1	0	-1	-2	2	-2	-1	-2	-3	0	-3	1	-3	2	-2	2	3	1	2	3	0	0	1

Fig. 3. Transformed data

The level of quality and convenience of the user experience is determined, as well as areas of improvement [8]. It is possible to compare two versions of the same product, as well as determine the average statistical values of 6 main aspects (Fig.4), which include the following criteria:

1) *Attractiveness:*
   (annoying/enjoyable; bad/good; unlikable/pleasing; unpleasant/pleasant; unattractive/attractive; unfriendly/friendly);
2) *Perspicuity:*
   (not understandable/understandable; difficult to learn/easy to learn; complicated/easy; confusing/clear)
3) *Efficiency:*
   (slow/fast; inefficient/efficient; impractical/practical; cluttered/organized);
4) *Dependability:*
   (unpredictable/predictable; obstructive/supportive; not secure/secure; does not meet expectations/meet expectations);
5) *Stimulation:*
   (inferior/valuable; boring/exciting; not interesting/interesting; demotivating/motivating);
6) *Novelty:*
   (dull/creative; conventional/inventive; usual/leading edge; conservative/innovative)

| Шкала середніх значень					
Attractiveness	Perspicuity	Efficiency	Dependability	Stimulation	Novelty
1.83	2.25	2.00	2.00	2.00	1.50
3.00	3.00	3.00	3.00	3.00	0.00
2.00	2.00	2.00	0.75	1.75	2.00
1.50	2.50	2.25	2.25	0.25	0.75
1.33	0.00	2.00	1.50	1.00	0.00
-0.33	0.25	1.50	0.25	-0.25	1.00
2.50	1.00	2.00	2.00	1.25	0.75
0.50	2.00	1.50	1.75	0.75	1.25
3.00	2.75	2.50	1.25	1.50	1.50
2.33	1.75	1.75	1.25	0.75	-1.50
1.33	0.25	0.00	1.25	0.75	0.75
1.17	1.75	0.50	1.00	1.00	0.25
0.83	1.25	1.50	1.25	1.50	0.50
2.00	2.00	2.00	2.00	1.50	0.50
3.00	3.00	3.00	2.50	1.50	0.00
2.83	2.75	2.00	2.00	2.50	2.50
-1.83	1.00	1.50	1.00	-1.25	0.50

Fig. 4 Scale of average values
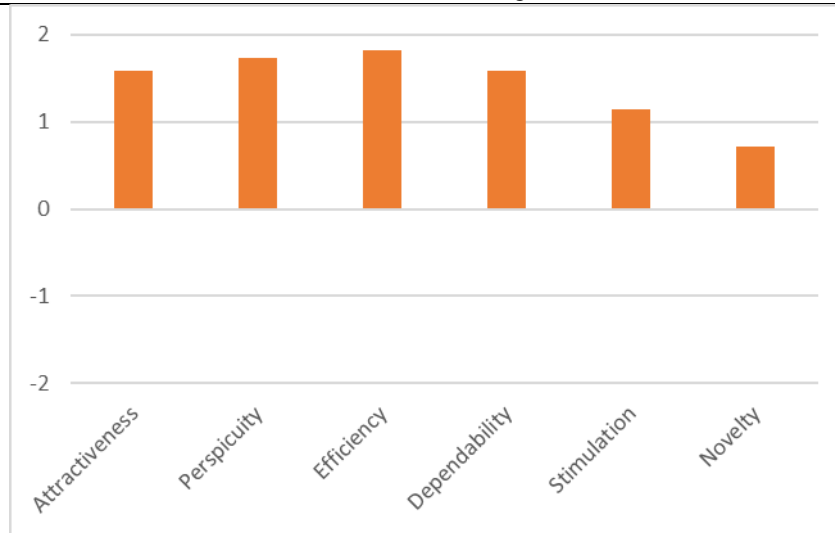
Fig. 5. Average statistical values of main aspects.

Fig. 5 shows the distribution of answers to individual questions. If there are items that show polarization in responses (many negative, many positive, or many neutral responses), this can help gain a deeper understanding of aspects of the product that are perceived as quite positive by one subset of participants and quite negative by another subset [9].

| №	Пункт	1	2	3	4	5	6	7	Аспект
1	annoying/enjoyable	0	1	1	0	3	6	6	Attractiveness
2	not understandable/understandable	0	0	1	1	2	6	7	Perspicuity
3	dull/creative	0	2	0	6	2	4	3	Novelty
4	difficult to learn/easy to learn	1	2	2	0	2	4	6	Perspicuity
5	inferior/valuable	0	0	1	2	4	4	6	Stimulation
6	boring/exciting	0	0	1	6	5	4	1	Stimulation
7	not interesting/interesting	0	1	0	3	5	6	2	Stimulation
8	unpredictable/predictable	0	1	2	3	4	6	1	Dependability
9	slow/fast	0	1	1	2	3	7	3	Efficiency
10	conventional/inventive	0	1	1	4	6	4	1	Novelty
11	obstructive/supportive	0	1	0	4	5	5	2	Dependability
12	bad/good	1	0	0	1	2	6	7	Attractiveness
13	complicated/easy	0	0	0	2	6	3	6	Perspicuity
14	unlikable/pleasing	1	0	1	2	4	4	5	Attractiveness
15	usual/leading edge	1	0	1	5	4	3	3	Novelty
16	unpleasant/pleasant	1	0	1	0	5	5	5	Attractiveness
17	not secure/secure	0	0	1	0	1	8	7	Dependability
18	demotivating/motivating	0	1	1	5	6	2	2	Stimulation
19	does not meet expectations/meets expectations	0	0	0	1	1	9	6	Dependability
20	inefficient/efficient	0	0	0	1	4	6	6	Efficiency
21	confusing/clear	0	0	0	0	4	8	5	Perspicuity
22	impractical/practical	0	0	0	1	1	9	6	Efficiency
23	cluttered/organized	0	1	0	1	3	7	5	Efficiency
24	unattractive/attractive	0	1	0	5	3	4	4	Attractiveness
25	unfriendly/friendly	0	0	0	2	6	3	6	Attractiveness
26	conservative/innovative	3	0	1	5	2	5	1	Novelty

Fig. 6 Frequency values of grades
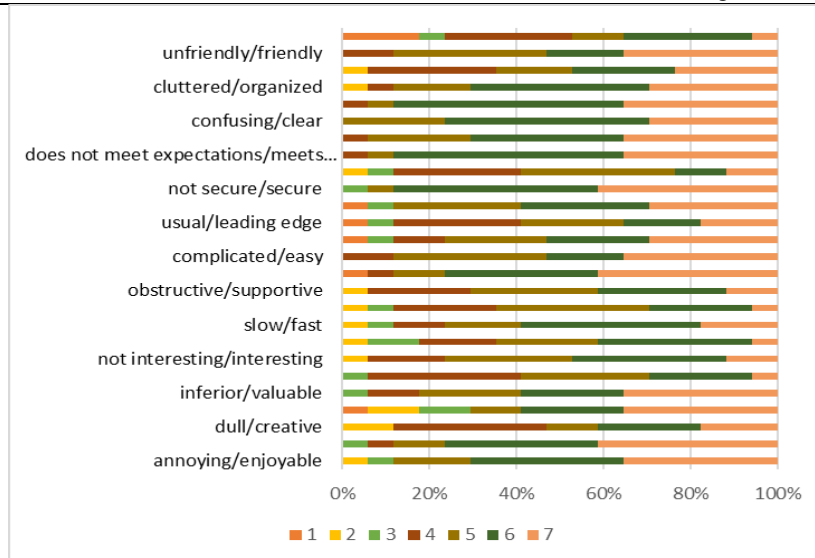
Fig. 7. Distribution of answers

According to the results of the research conducted on 20 respondents, the weakest aspect of the evaluation was Novelty (0.753), and the strongest was Efficiency (1.946). Novelty determines the degree of creativity and novelty of the selected design solution, so for qualitative improvement of the product it is worth reviewing this aspect [10]. Reliability means that the user can complete their tasks with the product quickly, efficiently and on time. The user interface looks organized.

From the diagram of the percentage distribution of responses, it can be seen that the majority of respondents give the product a positive rating (>5).

In conclusion I would like to say that the results of this study once again emphasize the importance of UX-survey in business and in the interface design process. This stage is an important part of product development, as it allows companies to identify areas of improvement and interaction with the user in general.

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ДОСЛІДЖЕННЯ ДОСВІДУ КОРИСТУВАЧІВ З ДОПОМОГОЮ ВЕБ-ЗАСТОСУНКУ UX-QUESTIONNAIRE

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Публікація актуалізує питання якості розробки інтерфейсів та висвітлює основні проблеми при дослідженні досвіду користувачів. Без застосування UX-досліджень розробка цифрових продуктів стає дорожчою та довшою, а результати роботи – непередбачуваними. Саме ці проблеми вирішує наш проект - дозволяє отримувати інформацію про потреби користувачів та корисні інсайти, які можна використовувати під час розробки продукту. Аналітична частина проекту буде корисна при створенні нових та супроводі/доопрацюванні існуючих цифрових продуктів, а саме: у вивченні цільової аудиторії проектованого продукту, визначенні переваг користувачів, використовуючи широке коло досліджень. Робота містить огляд методології вирішення проблем UX, а саме Evaluative Research Method. User Experience – це сукупність емоцій, дій та результатів, які людина отримує при контакті з сайтом, товаром або програмою. Тобто досвід взаємодії. Якщо брати сайт, основою його популярності та успіху стає дизайн користувацького досвіду. Тобто інтуїтивний, узгоджений щодо кнопок та інших звичних для людей елементів. Лише з урахуванням цих факторів веб-дизайнер зможе створити цікавий та привабливий для відвідувачів дизайн будь-якого проекту. Evaluative Research Method - це тип дослідження, який використовується для оцінки продукту чи концепції, полягає у зборі даних з подальшим опрацюванням, що допоможе покращити очікуваний результат. Процес збору даних від респондентів дає змогу оцінити продукт з точки зору потенційного користувача, виявити слабкі та сильні сторони для покращення продукту.

Результати даного дослідження ще раз підкреслюють важливість UX-survey у бізнесі та у процесі проектування інтерфейсу. Цей етап є важливою складовою розробки продукту, оскільки дозволяє компаніям визначити сфери вдосконалення, покращити продукт і взаємодію з користувачем.

Ключові слова: проектування інтерфейсів, UX, оцінювальний метод, дані, дослідження.