

FUTURE INFORMATICS TEACHERS' COMPETENCE ON CREATING INTERACTIVE APPLICATIONS

¹Mamarajabov M.E., ²Orinbayeva A.O.

¹Professor at Tashkent State Pedagogical Institute

²Doctoral candidate at Nukus State Pedagogical Institute

<https://doi.org/10.5281/zenodo.10284509>

Abstract. You can find information about the competence of future informatics teachers to create integrative applications, formation of necessary knowledge and skills to improve the educational process in this article.

Keywords: integrated applications, 3D, Android, interactive iOS, design, content, mobile application, competent.

The competence of future informatics teachers to create integrative applications will help them learn the necessary experiences and knowledge to improve the educational process. This will be more effective in turning students' knowledge into practice, using integrative methods and technologies.

The competence of computer science teachers to create integrated applications requires knowledge of pedagogical methods and technologies that facilitate the educational process. Teachers with this competency can use a variety of subjects and disciplines to integrate teaching methods and technologies that enhance students' practical skills and knowledge.

The skills of future computer science teachers to create integrated applications are important in improving the learning process and equipping students with the skills and knowledge they need to succeed in their careers. This competency enables teachers to use a wide range of pedagogical methods and technologies to create engaging and effective learning experiences that help them acquire practical skills and knowledge.

Developing interactive applications. It gives users a new and lasting impression of the 3D world discovery journey provided by the interactive application and its core components.

Interactive application and its main components

Interactive application and its main components		
Gamification	Digital art	VR/MR/AR
Applying game mechanics specially adapted to attract the audience.	Gaining real-time user insights and modeling of 2D/3D proprietary visuals to provide customized services.	Creating great experiences to improve educational efficiency and update educational resources.

Interactivity is an essential part of the application interface. Today, we are living in a world of touch panel devices, interactive applications and websites. We use them every day for different things and they make our life easier.

User-centered interactive design is based on understanding real users, including their experiences, goals, needs, desires, and tasks. This discipline approaches design from the user's perspective, while seeking to balance user needs with technological capabilities and educational goals.

In order for a mobile application to be of high quality, attract users and be useful, it must meet certain criteria.

The two main mobile app platforms in the market are Android and iOS.

When designing app interactions, it's important to ask for the user's gestures specific to the device's platform. Depending on the device, users use different gestures to perform certain tasks. Like any idea, an app should provide some value, solve a problem, and be as easy to use as possible.

When it comes to user interaction, the user reads the page content and manipulates limited information. On the other hand, a website provides visual and textual content that users can view and read, but does not affect their performance.

Most applications need to respond to the user in some way.

How to make an interactive application?

Successful cooperation with developers and designers and coordination of everything is one of the main things that lead us to a satisfying goal - creating an interactive application.

When building an app, it's important to articulate what we want a specific feature in the app to do and describe it in detail. An important question is how best to use interactivity to improve the user experience.

To ensure that the mobile app experience is convenient, fun and interactive (for Android and iOS mobile devices), the following steps should be taken:

Keeping it easy, simple and intuitive. Any interactive program should be so simple that you don't have to think about how to use it. The user must always control the application. Intuitive navigation, modern design, and high-resolution photos are important things to keep in mind when designing any app.

The minimum criteria that any app should fulfill is that it should be simple and easy to use. If the app is not usable enough, the number of users will decrease. If it takes a long time for the user to figure out how the system is being used, there is a high probability of quitting and uninstalling the program.

Usability should be considered from the user's point of view - how satisfied/frustrated the user is when using the application. "Usability" refers to the ease of access and use of the application. We measure usability throughout the development process of iOS and Android apps, from wireframes to prototypes to final delivery.

Like UX design, interaction design is also important. It has been created to provide smooth interactions between users and the environment.

However, there are some differences between them. For example, user experience design is responsible for every aspect of a user-oriented system or software. On the other hand, interaction design focuses only on the interaction between users and their computers/devices.

Stimulation of the senses. When formulating your app concept, consider other senses that help attract users to your app. Consider adding touch, movement or voice to the app for a more realistic experience?

Having a beautiful site is great, but it's also important for users to navigate the app easily.

Pay particular attention to the following:

Font size and color - choose fonts that are easy to read and large enough. Colors should be consistent for aesthetic appeal and ensure better readability.

Content – A web designer may or may not be responsible for creating the application copy. However, there are certain design elements in displaying copy for the user experience.

Headings - Organize your content using headings and subtitles to have a consistent experience while navigating the app.

Excerpts – Excerpts should be separated, short and recognizable.

Voice. A great way to communicate with the user and create user experience is voice. Tones can improve the overall user experience, confirm user actions, and provide feedback. For visual

applications, focus on using sound to improve any noise. Voice indicates whether the action performed by the user is successful or not.

In addition to sound and visual effects, tactile noises are not negligible. They are tactile and often include vibrations to convey feedback.

How does the user know that the application is doing its job at the click of a button? One way to do this is to change the button color or vibrate. This is one of the signs that a particular software has activated large gestures of user pressure.

As with the sound, it should not be overworked with vibration. The user wants a decent mobile phone, not an electric shock game.

Using intuitive knowledge. The most important feature of intuitive knowledge is that it is a phenomenon that is not related to our rational mind. On the contrary, its products are created by our subconscious mind. We can freely access the results of this process, but understand how they are formed. For example, the confirm and cancel buttons on iOS and Android devices are on opposite sides. Mixing these keys is like faucets turning the wrong way: the user keeps pressing the wrong key.

List of vertical cards. Scrolling vertical card lists by swiping is a way to allow the user to navigate. Cards simulate real-life objects and are very convenient for application interaction. Users can swipe horizontally or vertically through lists, drag, drop and reorder cards, or tap them to expand or navigate to another page.

Images and Buttons. Similarly, cards, images, and buttons are rich sources of app interaction on both Android and iOS platforms. Using hand gestures, users can intuitively control an image or button. Users should be able to zoom in and out, pan and drag the image. Button conditions often change when the user taps them, either highlighted or pressed.

Text input fields. Text fields should show users that they are clickable and interactive. They allow users to enter and edit text. The simplest act of making fields appear ready for keyboard input via a blinking cursor is also an application interaction.

Make fields, buttons, icons and links large enough. People with large fingers often struggle with apps with small fields and buttons.

Speed, feedback and responsiveness keys. The golden rule in iOS and Android app development is that actions should be immediate.

Feedback and response time are some of the "good" features of interaction design. Feedback is key to interaction design. The product created should communicate with the users and give them feedback on the task completed and what they should do next.

Unexpected interactions also help to surprise and enhance the user experience. Mobile devices are becoming more and more impressive with time, so finding creative ways to maximize the latest features will bring an even better user experience.

The value of early stage testing should never be underestimated. Through testing, we measure how users interact and use the app.

Different application requirements and usage. Lately, we rely a lot on mobile apps in our daily life. From ordering food to booking a ride, there's an app for everything. But not all mobile apps are created equal. Creating high-quality software that fully meets the needs of users is a complex process that involves careful planning and execution.

The success of a mobile app depends on several things, one of which is its non-functional and functional requirements. These are the assumptions, specifications, and constraints that define what a product should do, how it should act, and how it should look.

Functional and non-functional requirements. In the context of application development, requirements are functional and non-functional specifications that define the features, capabilities, and qualities that an application must have in order to meet the needs of users.

They are critical to the software development process because they serve as a blueprint for planning, building, and testing software. In order to build a powerful app, it's important to first determine what features you need. By collecting this information, the development team (programmer, designer, educator) can better understand the needs of the target audience and create the product accordingly. With this information, we and our organizing team can avoid misunderstandings, failures and unnecessary costs.

REFERENCES

1. U.Yuldashev, M.Mamarajabov va S.Tursunov “Pedagogik Web-dizayn” darslik, T-2013 yil.
2. DUET-Development of Uzbekistan English Teachers*- 2-том. CD va DVD материаллари, Тошкент.: 2008.
3. Нейпевода Н.Н. Стили и методы программирования. Лекции 2004 г. М.Ижевск: Институт компьютерных исследований. 2004 г. 328 с.
4. Mamatov D.N va Bekchonova Sh.B (2022 yil) “Pedagogik Web-dizayn”, Toshkent-2022 yil.
5. Michael S. Mikowski Josh C. Powell “Single Page Web Applications”, 2014.