

USING MOBILE APPLICATIONS IN TEACHING GEOGRAPHY

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Abstract: This article highlights the importance of geographical mobile applications and the methods of their use in teaching geography. In addition, the article provides guidelines for the use of geographical mobile applications. These mobile applications provide students with interesting information about the Earth and the Solar System during the learning process.

Keywords: mobile application, geography lessons, nature, innovation, electronic resources, educational technologies, coordinates, learning effectiveness, Solar System

Introduction. Today, the process of applying modern technologies in the field of education is developing rapidly. The use of interactive approaches and innovative tools, particularly mobile applications, in teaching geography not only improves the quality of education but also increases students' interest in the subject. Through mobile applications, it is possible to study geographical areas using 3D maps, monitor climate and natural resources in real time, and participate in virtual expeditions [3]. In this way, the possibilities of traditional teaching methods are expanded, making the educational process more interactive and effective.

Main Part. Mobile applications can be effectively used as a tool in teaching geography because they provide students with an interactive experience and make the learning process more engaging and beneficial. With the help of mobile applications, students can acquire geographical knowledge in real time [2, 5]. The following aspects demonstrate the effectiveness of mobile applications in geography lessons:

Interactive Maps: Mobile applications enable students to study locations, regions, and their characteristics around the world through virtual maps. For example, applications such as Google Earth allow students to view geographical objects in a 3D format and zoom in on them. This provides students with a deeper understanding and helps them comprehend the learning material visually.

Geographic Information Systems (GIS): Mobile applications incorporating GIS technologies provide students with practical experience in collecting, analyzing, and presenting data. Through GIS, students can learn to analyze geographical information in the same way as professional specialists.

Geographical Tests and Quizzes: Mobile applications allow students to participate in various geography-related tests and quizzes. This approach helps reinforce their knowledge and increases their interest in the subject. Through tests and quizzes, students can identify gaps in their knowledge.

Student Interaction: Some mobile applications allow students to communicate with each other, exchange ideas, and collaboratively solve geographical problems. Such approaches help students understand the importance of teamwork and discussion, enabling them to acquire geographical knowledge more deeply.

Below are some applications that can be used in geography lessons [3, 4]:

Maps.me is a free map and navigation application designed for mobile devices, allowing users to access geographical information without an Internet connection. The application is particularly useful for travelers because it enables users to download maps in advance. Maps.me provides navigation routes for driving, walking, and cycling. It uses GPS services to identify the best routes and recommend the shortest and most convenient paths.

GPS Fields Area Measure is a mobile application designed for measuring and calculating land areas. It is mainly used by farmers, builders, architects, landscape designers, and professionals in many other fields. The application enables users to measure land areas quickly and easily, thereby improving work efficiency. Users place points on the map (such as the corners or boundaries of a land plot), and the application automatically calculates the area. This feature ensures accurate measurement of both distance and area, even when the shape of the land is complex.

All in One Offline Maps is a mobile application that primarily provides offline maps and navigation features. It allows users to access maps even when there is no Internet connection. This application is especially useful for travelers and those who frequently use maps. By installing it on a mobile device, users can navigate in remote areas or perform quick navigation tasks. Before using the application in offline mode, users should remember to download the necessary regional maps, as these maps must be stored on the device.

Sky Map is a mobile application that helps users identify celestial bodies and observe them in real time. It is mainly used for identifying stars, planets, constellations, and other astronomical objects according to their position in the sky. Initially developed by Google, it is now maintained as an open-source project.

Its main functions include:

Planning and Observation: By pointing the device toward the sky, the application displays the stars and planets visible at that particular time.

Searching for Stars and Planets: Through a special search function, users can locate any desired object (for example, Mars or Orion).

Sky According to Your Location: Using the device's GPS function, the application displays a sky map corresponding to the user's location.

Returning to Historical Time: Users can select a past or future date to see how the sky appeared or will appear.

Solar System mobile applications are used for managing, monitoring, and designing solar energy systems. These applications mainly offer the following functions.

Solar System Scope is a mobile and web application that provides interactive information about the Solar System. It is highly beneficial for those interested in astronomy and specializes in creating visual simulations of the Solar System.

The Solar System Scope application not only helps students learn astronomy but is also useful for teachers in making lessons more engaging and serving as a visual teaching aid. In addition, it is an excellent resource for amateur astronomers and space enthusiasts.

SolarEdge Monitoring is a platform designed for managing SolarEdge systems. The SolarEdge company primarily manufactures inverters and monitoring systems for harnessing solar energy. SolarEdge Monitoring supports the supervision of solar panel performance.

3D Earth Pro is a mobile application that provides a 3D model of the Earth and displays real-time weather, time, and astronomical information. The application enables users to explore the Earth interactively through advanced technologies and design features.

The application is available on Google Play and the App Store. While the free version offers basic functions, the Pro version provides more information and additional services.

Each application supports visual learning through maps, 3D models, or real-time data. Applications such as Maps.me and All in One Offline Maps function even without Internet access. Each application enables users to work with geographical regions or locations. The applications are optimized for mobile devices, and their interfaces are simple and user-friendly.

Each application has its own specialized purpose: some are designed for navigation (Maps.me), others for developing astronomical skills (Sky Map and Solar System Scope), or for measuring land areas (GPS Fields Area Measure).

By using mobile applications, students can mark their own regions on maps and develop geographical analysis skills by comparing data such as climate, relief, and population density. This enhances their independent thinking and problem-solving abilities. Mobile applications also help teachers diversify the teaching process. Through visual materials and interactive tasks, it becomes possible to develop approaches suitable for students with different learning styles. Moreover, these applications provide opportunities for independent learning, which corresponds to the principle of lifelong learning.

Conclusion. In conclusion, the use of mobile applications in teaching geography contributes to improving students' knowledge, encouraging independent research, and organizing lessons in an interactive and modern way. At the same time, mobile technologies make it possible to effectively master not only theoretical but also practical knowledge. In the future, the development of more national resources and mobile applications in the Uzbek language will further contribute to improving the quality of education.

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