🔓 Research Article

THE MAIN PEDAGOGICAL REQUIREMENTS AND CRITERIA FOR ORGANIZING TRAINING FOR THE DEVELOPMENT OF PUPILS' PROFESSIONAL COMPETENCE USING MULTIMEDIA ELECTRONIC EDUCATIONAL RESOURCES

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ABSTRACT

In the conditions of modern development of education, the training of pupils with the skills and abilities of socio-psychological and professional adaptation in a rapidly changing world comes to the fore. Education becomes not only a means for the most adequate reflection of the requirements of a market economy and a new society, but also a way to achieve, form the creative, spiritual needs of the individual. Changing the foundations of education is accompanied by a global process of reorientation of the result of education. Therefore, the article presents the investigation of the pedagogical requirements and criteria for the organization of training in the development of professional competence of pupils with the usage of multimedia electronic educational resources. The result of the research depicts that multimedia electronic educational resources are valuable source in improving pupils' professional competence. In addition, the presented requirements and criteria are beneficial in organizing training in the development of professional competence of pupils for multimedia electronic educational resources.

KEYWORDS

Competence, professional competence, education, technology, multimedia, sources, requirements, criteria.

INTRODUCTION

Competence is the level of knowledge, skills, experience necessary to perform the professional duties of a specialist. In order to become a competent specialist, a pupil must master certain competencies.

Consider the concept of competence from different points of view:

First, from the point of view of the learning process, competence is primarily a result of learning that can be tangible and applied in action. During the study of the module, pupils master certain competencies - specific knowledge, skills. By applying this specific level of knowledge and skills independently in action, pupils gain experience that, by repeating themselves, can develop into professional ones. From the point of view of professional activity, competence is a system of knowledge, skills, experience; the level of readiness for conscientious performance of professional duties. It is these prerequisites that determine whether a specialist is competent, whether he is ready to apply the received theoretical arsenal of information, knowledge and skills in practice. But how a specialist will apply all this in professional activities depends on the totality of the professional and personal qualities of the pupil [1].

From his desire and readiness, he responsibly relates to the performance of official functions. In the modern labor market, the employer needs specialists who have the ability to solve a specific production problem efficiently, quickly, that is, competently. It can be said with confidence that competence is a complex, multifaceted, complex, integrated indicator that characterizes the professional level of a specialist in a certain field, obtained by him for a given period of time, taking into account the professional and personal qualities of a specialist. Thus, competence is not only the ability to apply knowledge, skills, use experience, but the professional and personal qualities of a person, which consists in the mutual combination of the necessary knowledge, skills, experience, responsibility.

According to Afanasiev, from the point of view of the educational process, competence is an integrated result of learning, expressed in the readiness of the subject to effectively use internal and external resources to perform professional activities in typical and non-standard situations. Where the subject is a student who must acquire the necessary competencies to perform a certain kind of professional activity [2].

Also, competence can be considered as a characteristic of the professionalism of a future specialist - a pupil. In this case, it can be represented as a complex integrated indicator, summed up by: professional and personal qualities of the pupil. Summing up, competence is the knowledge and skills necessary to perform a professional task.

According to Mayer, meaningful learning in a multimedia environment consists of the learners "selecting words and selecting images from the presented material, organising words and organising images into coherent mental representations, and integrating the resulting verbal and visual representations with one another" [6, p.4-5].

According to Stemler, successful instructional multimedia (a) gets the learner's attention, (b) helps the learner to find and organise pertinent information, and (c) helps the learner to integrate information into his or her knowledge base. This process of attending, organising, and integrating is closely aligned with Mayer's model of selecting, organising and attending. Stemler argues that multimedia supports these processes through five features of multimedia: (a) screen design (visual elements: 3 colour, text, graphics, and animation), (b) learner control and navigation, (c) use of feedback, (d) pupils' interactivity, and (e) video and audio elements [7, p.336-339].

Newby et al mention three criteria for evaluating instructional material: effectiveness, efficiency, and appeal [8, p.758-759].

A chunk of multimedia learning material has a higher degree of "cognitive efficiency" if the user has to exert minimal effort to learn the presented material.

(For example, text presented in the user's first language promotes a higher degree of learning efficiency than text presented in the learner's second language.)

A chunk of multimedia learning material has a high degree of "perceptual efficiency" if the user has to exert minimal effort to perceive the presented material.

(For example, medium-contrast text creates a higher degree of perceptual efficiency than low-contrast text.)

A chunk of multimedia learning material has a higher degree of "technological efficiency" if it takes less computational resources to present that material.

(For example, digital text can be more technologically efficient than digital audio because transmitting digital text over a network and presenting it to the user takes less CPU cycles, less memory, and less bandwidth than transmitting the same amount of text but read out and recorded as audio.)

Educational multimedia resources can be subdivided into four typical educational multimedia application areas: [4, p.179-212].

• Text-Based applications

• Interactive applications

• Web applications

• Mobile (Smart) phones applications

Text-Based Applications Many multimedia applications provide efficient navigation through a large resource of primarily text-based information. These applications need to be searchable so that relevant information can be found easily and quickly. Development tools, which cater to this type of application generally, provide hypertext capabilities. Hypertext is similar to regular text, except that it contains information pointing to another point in an application.

Interactive Applications The majority of educational multimedia applications fall into the category of interactive, graphical applications. These applications are fully capable multimedia tools which can handle all media formats, as well as providing interactivity with the user. It is also offer a very high level language or interpreted scripting environment for navigation control and for enabling user inputs. This is often desirable in an education setting as it provides the ability to allow specific feedback to a user, keep track of results, and customize the application to a specific user as a function of responses. Although most applications provide these capabilities, some are better suited to complicated, interactive applications than others. Authoring tools, which cater to this type of application generally, included programing future, commands and functions provided in the scripting language.

Web Applications A new area of educational multimedia applications is emerging with the purpose of providing information to an audience over a wide geographical area. This is in part being made possible via the Internet in conjunction with new content management system (CMS). These systems compose an information distribution system providing services to 10-20 million people from commercial and academic organizations. Browsers are capable of retrieving information from all over the world via the Internet in the form of text, graphics, sounds, and movies. One of the important capabilities of the CMS is its support of hypertext, which allows users to maneuver quickly from one page to another with the click of a button. There is an enormous wealth of information available

on the Internet, and contributing to this body of information is, in essence, providing multimedia access to information. One of the serious drawbacks of this web technology is its lack of organization. There is a tremendous amount of information available, but finding information you are interested in can be difficult. If a multimedia application is to be implemented with a geographically diverse, academic audience as its recipients, this technology is very suitable.

Mobile (Smart) phones Applications Gale research group define mobile phone as an electronic telecommunications device that can make and receive telephone calls. It connects to a wireless communications network through radio wave or satellite transmissions (Gale Research, 2008, p. 658). Nowadays, in addition to telephony, mobile phones support a wide variety of other services, such as text messaging, MMS, email, Internet access, short-range wireless communications (infrared, Bluetooth), multimedia applications, gaming and photography. Mobile phones are also used to play all types of multimedia, e.g. play sounds, view images and watch videos. Mobile phones that offer these and more general computing capabilities are called smart phones. Mobile Applications are the software that runs on a mobile device and performs certain tasks for the user of the mobile phone.

The criteria for determining if a multimedia resource is a valuable learning resource:

- Determine if the resource is closely connected to the learning outcomes or objectives of the topic.
- Look at the accuracy of the resource, including if the information is error free or if an expert or other teacher has validated the resource.

- See if the creator of the resource is identified to see if the source has authority or is a reputable publisher.
- Determine if the resource is without bias or rhetoric.
- Look for the creation date of the resource to determine if the information is current.
- Look at the depth at which the topic is covered and the context for which the resource was designed. All resources on a particular topic are not suitable for every educational context or level. Determine if there is anything included in the resource that lessons the value of the resource for the context in which it will be used.
- Look for cultural issues. A vast majority of the resources have been created for an English speaking audience by someone in North America, Europe or Australia and may introduce cultural issues or may not be culturally relevant.
- Determine if the resource is engaging or interactive. Think about the difference between a resource that is engaging versus engaging and interactive.
- Requirements for the organization of training in the development of professional competence of pupils using multimedia electronic educational resources:
- Identify the value of interactive multimedia tools, including interactive websites, presentations, online discussions, blogs, wiki, wikibooks, ebooks, podcasting, videocasting, vodcasting and games in teaching and learning
- Develop social, intellectual and spatio-temporal skills, using interactive multimedia tools, especially games
- Apply interactive multimedia tools, especially digital games, to teaching and learning.

- Use low/high-tech interactive multimedia tools/games to introduce concepts from academic subjects (e.g. mathematics, science, social studies, etc.)
- Analyze different interactive multimedia tools developed using free and open-source or proprietary software, and evaluate their implications for and impact on teaching and learning
- Evaluate the impact and opportunities provided by open educational resources in teaching and learning processes

CONCLUSION

Professional competence is a system of knowledge, skills, experience; the level of readiness for conscientious performance of professional duties. It is these prerequisites that determine whether a specialist is competent, whether he is ready to apply the received theoretical arsenal of information, knowledge and skills in practice. In order to be a pupil with high professional competency, one should gain knowledge from different multimedia educational resources. This is due to the fact that multimedia educational resources include huge amount of sources based on modern applications and valuable sources. However, while selecting multimedia educational resources, one should follow the presented requirements and criteria so as to achieve the target goal.

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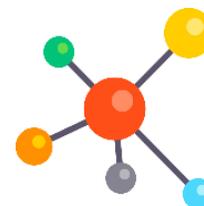
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