

Smart Media Education Projects in Polytechnic Education as Resource for Developing Corporate Television at the Russian Flagship University

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Abstract. The article presents the experience gained from implementing smart projects in media education carried out by students within the framework of polytechnic education programs. The main goal of such projects is creating media products in the form of infographics, video, topical animated visuals commissioned by the administration of the flagship university located in the regional centre of the Russian Federation. The article contains the description of the experience obtained by Reshetnev Siberian State University of Science and Technology (Reshetnev University) in Krasnoyarsk, Russia. The researchers suppose that implementation of smart media education projects allows achieving two significant effects: budget savings from developing corporate university media content; and reaching high-quality educational outcomes in polytechnic education programs. An important condition for implementation of such activities is observance of such principles as flexibility, adaptability, variability and technological effectiveness in the context of the key ideas of smart education.

1. Introduction

Universities in modern Russia, as well as around the world, are the driving force forming the socio-cultural, scientific and technical vectors of the nation's development. One of the trends in the state policy of the Russian Federation is creation of the so-called flagship universities in the regions by merging the existing higher education organizations into large research and education centers. The stage of formation of a new organization of this type involves inevitable changes in its structure, governing bodies and media environment. In such conditions, a new flagship university is experiencing certain difficulties, associated primarily with limited labor and financial resources. The factor of saving budget and labor forces becomes particularly important for the university administration in the context of solving the key tasks by means of minimum resources.

In conditions of fierce competition among universities that provide polytechnic education, intangible assets are of great importance. The defining factor in developing the corporate culture, and the resource contributing to the consolidation of students, teachers and employees of the educational

organization are corporate media. Taking into consideration the external environment and internal characteristic features, corporate mass media help create a positive image both within the university and on a larger scale, within the information and education environment of a particular city, region, country. Today, corporate television is part of the corporate media system operating in organizations and companies of various types. This trend remains relevant for educational institutions – almost every university wants to organize its own unique media environment.

The quality of media content of environment of the flagship polytechnic university can testify to the level of professional skills of its developers, position of the administration, effectiveness in the field of information policy management, influence the internal and external image of the organization, and contribute to solving strategic tasks of innovative development.

Today, innovative technologies in education, united under the general term "smart education", are becoming increasingly popular in the scientific and pedagogical community. At the same time, it is believed that smart education is one of the most appropriate paradigms for training in a digital society saturated with information technology. It can be assumed that it is logical to carry out research work when implementing polytechnic education programs, using the principles of smart education and the methods of organizing media project activities, generically indicating them as "smart media education projects". Thus, it seems significant to consider the process of developing corporate television of a Russian flagship university offering polytechnic education programs, from the point of view of finding internal resources, which do not require additional expenditures such as large staff costs for a special department (e.g. media center). Such as smart media education projects. It is a good decision taking into account the specific features of the organization: the personnel potential in the form of highly qualified scientific and pedagogical staff (teachers of IT disciplines) and a large number of students of technical and humanitarian areas, necessary for accomplishing such projects.

2. Literature review

In Russian and foreign works the phenomenon of developing media content is described in the area of culture study and pedagogical research. Russian scientists E.A. Bondarenko, A.A. Zhurin, L.S. Zaznobina developed media education tools and technologies and gave their detailed justification [1-4]. Considerable attention is given to media development. The key features of professional media activities were identified by A.S. Sumskaya, A.S. Perevalova, O.N. Tkachenko and N.Yu. Khlyzova [5-8]. Scientific works of Fateeva I.A., I.V. Chelysheva, S.V. Kharitonova, I.V. Zhilavskaya present theoretical concepts in the field of media education theory as the basis of media education projects [2; 9-11]. S. Boss, J. Krauss, D. Buckingham and other substantiated and developed various media education tools and technologies [6;12-17]. The approach to developing corporate university media environment suggested by S.V. Kharitonova [10] is of particular interest. Corporate media is defined as a multifunctional mechanism, the main purpose of which is to promote the norms and rules common for all employees, corporate philosophy, understanding the mission and strategic objectives of the organization as the main part of the corporate internal culture, from the one side; and an advertising campaign tool, from the other.

Many famous scientists were interested in developing polytechnic education. In this context we can mention M. Franz, V.A. Calney, D.A. Mahotin, who believe that the total requirement of modern production is to ensure the maximum growth of creative abilities of a person, the leading function of a human is defined as developing organizational and creative students' qualities necessary for their successful work in various fields [18; 19].

The ideas of smart education have become considerably popular and attracted attention from the international scientific and pedagogical community and developers of information systems for education since the end of the 20th century. In recent years comprehensive educational projects aimed at increasing intellectual capital of countries have been implemented worldwide, primarily in Southeast Asia, Japan, Australia, Western Europe and America [20-25]. It should be noted that up to date there is no agreed definition of the term "smart education" in scientific and pedagogical publications. Therefore, in this study the authors rely on the approach described by S. Jang, where the

five key principles of Smart Education are Self-direction, Motivation, Adaptation and Flexibility, Resource enrichment and Technology-embedding [26; 27]. And a smart project is understood as a form of educational activity carried out according to the projecting pedagogical technology, having specific features of smart education.

The analysis of the studied literature made it possible to determine the key point of the study, the fact that smart media education projects in polytechnic education, by virtue of their specific features, can serve as a significant resource for developing corporate television at a flagship university. It is related to saving financial assets and the opportunity of achieving better educational outcomes by implementing reasonable effects of the projecting pedagogical technology [28], reinforced by the ideas of smart education.

Another important conclusion obtained on the basis of the analysis of scientific works is that the conditions for organizing smart media education projects are not specified, in the analyzed works they are described in a formal way; the description of information flows arising within the process of the projects implementation lacks integrity and is fragmented; the specific features of generating media content for flagship university corporate television is not sufficiently indicated; the criteria for evaluating the outcomes of smart media education projects for polytechnic education are not well articulated.

3. Methodology

On the basis of the prerequisites outlined in the previous sections of the article and the analysed scientific publications we determine the key task of the study, which is working out organizational and pedagogical conditions for implementing media education smart projects carried out by technical students on request from the target audience within the formation of media content for corporate television of a flagship university.

As part of the study, smart media education projects are aimed at formation polytechnic competencies, which are a set of demonstrated abilities for the integrated application of knowledge and methods of activity in the field of technical, humanitarian and social sciences in the process of independently supervised activities on developing a media product for university corporate television.

It was suggested that implementing smart media education projects by technical students of the flagship university as resources of media content for the flagship university corporate television will be effective if the following organizational and pedagogical conditions are provided. First, the external and internal requests of the target audience of the university corporate television have been identified and taken into account; the requests determine the content-related and technical requirements to the outcomes of media education projects. Second, targeted coordination of the process of implementing media education projects is carried out in accordance with the needs of the university corporate television and the principles of smart education. Finally, the information and education environment has been worked out, and is supervised by a teacher acting as a project manager; the environment includes a set of information and pedagogical tools for realization of the individual educational routes.

At the same time, the key point is that implementing of a smart project is aimed at students getting real experience in developing a media product (infographics for a student site or a group in social networks, a multimedia press release (“teaser”), a video about a university event or a topical animated visual of a social or popular science nature). This contributes to the formation of the students’ self-management abilities, the ability to comprehensively approach the choice of technologies for implementing a project, and the ability to carry out independent assessment of the quality of the achieved results (the product itself and the acquired competencies for its creation).

4. Results

At the stage of experiment it was decided to involve technical students of Reshetnev Siberian State University of Science and Technology (Reshetnev University) mastering a course in Information Technology as part of their educational program in Software Engineering and Automation of

Technological Processes and Production at in Krasnoyarsk (official university website <https://www.sibsau.ru/>).

The topics and planned products of smart media education projects were defined by students themselves in accordance with the list proposed by the teacher, which was agreed with the university administration. The projects were implemented by students individually during the academic semester, within the specific periods indicated by customers (from 2 weeks to 3 months). In 2017-2018 academic year 12 projects were completed by students specializing in Software Engineering (in accordance with the individual schedules). In 2018-2019 academic year 15 projects were completed by 42 students specializing in Software Engineering and Automation of Technological Processes and Production. Each project team consisted of 2-6 participants average.

The work at smart media education projects involved several stages: defining a product, terms, roles, necessary resources, hardware and software (work in the role of a project manager); work with information and texts (the role of authors and editors); creative design (the role of a designer); software implementation (the role of an editor); internal evaluation of media products (the role of an expert). Team members assigned roles at different project stages in accordance with individual interests and wishes. Depending on the individual and collective activities being carried out, students were provided with interactive educational resources (mandatory and additional courses) for quality performance while developing media products. The courses were part of the university information and education environment (LMS, cloud Internet services).

The use of online services (LMS, Trello, Google documents, a group in a social network) during the experiment made it possible to control the process of student work at a time convenient for the a teacher; and provided an opportunity to study and review the project materials.

The assessment of the project outcomes was carried out by experts. The expertise of the resulting media products was completed in accordance with two key points. The first is the initial task to work out flagship university corporate television, and the quality of the presented media content. The second is the effectiveness of achieving learning outcomes in the course in Information Technology (part of Software Engineering and Automation of Technological Processes and Production education programs). The criteria for expertise were defined.

General criteria: degree of compliance of the media product with the original task; observance of copyright when using content elements; the possibility of publishing using various channels (website, social networks, cable university television, at the request of partner organizations on local television channels or plasma panels of educational organizations).

Technical criteria (application of the used software opportunities): adequate use of the chosen software tools; colorization and compliance with the rules of color design; the adequate use of elements of corporate identity (brand book); compliance with the conditions of cognitive load (average user perception time up to 7 minutes); logical information presentation.

Content criteria: structure (presence of introduction, main content, conclusions, indication of authors and general information richness); text quality (compliance with the required popular science or journalistic style, adequacy of figures of speech); the quality of sound design, if available (recording a speaker's speech, the relevance of music tracks, the adequacy of sound effects, synchronism, volume). Additional (for graphics and animation): drawing characters; visual background design; unique character of ideas and content used (authentic creation of all graphic elements); compliance with the principles of visual composition (modular mesh).

To simplify the expertise, the criteria were presented as a form to be filled in. Every project could score from 0 to 100 points. The score helped to identify qualitative characteristics of the work: 0-50 – low quality work, 51-75 – medium, 76 and more – high quality work. The final score for the media product was assigned on the basis of average values of expert assessment. The experts were teachers of information technology disciplines (7), administration representatives (5), senior university students (3).

Total amount of the completed projects is 27, 17 of them were recognized as high quality projects, 7 projects of medium quality, and 3 projects were estimated as low quality projects. We may conclude

that the results of the students' media project activities are in demand by the university for further use in the university media environment.

5. Discussion and conclusion

The key to successful university corporate television is the strategic planning of media environment management, coordinating the activities of all interested parties, taking into account the university life. The study shows that it is possible to overcome the lack of media content experienced by corporate university television by means of smart media education projects implemented by students of certain groups. This variant allows saving budgetary funds and corporate resources. In order for the outcomes of smart media education projects to meet the needs of the university corporate television, it is necessary to coordinate the process of implementing of such projects in accordance with the ideas of smart education. Organization of smart media education projects, supported by modern LMS and online services can ensure achievement of the required quality of educational outcomes within the programs of polytechnic education. Our experiment involved Software Engineering and Automation of Technological Processes and Production programs and demonstrated students' subject knowledge together with the competencies in project management, teamwork, and skills in applying humanitarian and social knowledge.

The involved student teams showed a great interest in mastering media technologies, the students admitted that participating in smart projects is useful for professional development, with special focus on the acquired skill in distant teamwork. The experts underlined that most of the students approached the task in a creative way, they demonstrated creativity in conditions which are not directly related to their future professional activity.

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