Цифровой нарратив как основа технологии обучения иноязычной профессиональной коммуникации студентов естественно-научных факультетов

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Аннотация.   В статье представлено междисциплинарное исследование вопросов обучения профессиональному общению студентов-нелингвистов. Исследование нацелено на разработку технологии обучения иностранному языку на основе теорий медиаобразования, цифровой риторики и цифрового нарратива. Технология прошла апробацию на физико-математическом факультете (МГОУ) и положительно оценена благодаря использованию цифрового контента, разработке ситуаций профессионального общения, научной обоснованности и актуальности.

Ключевые слова: цифровое обучение, профессиональная коммуникация, междисциплинарное исследование, цифровой нарратив, студенты физико-математического факультета

Digital Storytelling as a Technological Framework for Teaching Foreign Language Professional Communication to Science Students

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Abstract.   The article presents an interdisciplinary study of the issues involved in teaching professional communication to science undergraduates. The study is aimed to develop a technology for the FL course and is rooted in the theories of media education, digital rhetoric, and digital storytelling. The technology was tested at the faculty of Physics and Mathematics (MGOU) and has proven itself due to its use of digital content, designed professional situations, scientific validity and topicality.

Keywords: digital education, professional communication, interdisciplinary study, digital storytelling, physics and math students

Педагогические науки

INTRODUCTION

The sweeping growth of information technology is changing patterns of human's life and society as a whole. The fourth industrial revolution which has led to an inevitable technological turn of the society requires reconsideration of many aspects of social existence including transformation of the traditional educational system [Ugur, 2020].

These transformations would include looking-for and integration of the technologies and formats which are considered to be appropriate educational tools by the new digital generation with different in-take and assimilation of information through the diverse means of verbal and non-verbal communication [Hockly, 2011]. Modern educators should pose a question whether the traditional methods and learning content comply with the challenges of the new times and the needs of the netizens whose natural habitat is computer-mediated communication.

The new educational paradigm anticipates the shift of a classical educational model to life-long learning, which implies the interaction of traditional and innovative approaches. While the former ensures that students acquire abstract and theoretical knowledge, the latter enables developing creative skills and cognitive interests.

On the whole, the study is to provide the methodological rationale for the development of FL communicative skills by means of digital education as well as to present the practical course of FLT on the digital storytelling basis [Brenner, 2014; Robin, 2008].

Nowadays the mediasystem is undergoing profound transformations rooted not only in the sophisticated communicative technology of the media environment but also in its cross-cultural turn as well as in dominant position of an author's consciousness which reflects realities by means of speech [Masterman,1998; Masterman, 1997; Masterman,1994]. It is the author's speech behaviour and his / her media image that are involved in the ongoing processes which raise the issue of the rhetorical status of a media persona [Warren, Wakefield, Mills, 2013]. The current interdisciplinary trend in rhetoric research has become discernible both in Russian and foreign schools of thought [Baldwin, Ching, 2016; Dudacek, 2015; Fisher,1989; Eyman,2015]. Neo-rhetoric, communicative studies [Crosswhite,2010], narratology [Shmid, 2010], the theory of verbal persuasion [Naumann,1995] are believed to be closely intertwined these days and, thus, the functions of rhetoric are expanding from the art of debate to structuring and describing the processes of mental-verbal interaction.

Theory and methodology of FLT is going along with the development of technological innovations. In the past decade it has embraced the achievements of the related sciences which are incorporating the research in Information technology into humanitarian disciplines such as Psychology, Cultural studies, Rhetoric. This process has led to the rise of the new interdisciplinary avenues of research, i.e., multimedia FLT [Shu,2020; Butarbutar,2021], digital Rhetoric [Shmid, 2010; Boyle, Brown, Ceraso 2018; McKee, 2005], media education [Chawinga, 2017]. The British media educator Len Masterman insisted on the intrinsic relationship between an author, means of textual codification, representations of external reality and a target audience [Masterman,1998], and also maintained that the acquired knowledge should be viewed as the result of critical investigation and a teacher-student dialogue [Masterman,1997].

Generally, the analysis of academic and methodological sources suggests that the integration of media education and FL courses be the most promising technology for the time being as both are concerned with information exchange. This alliance might foster not only better speech production but also formation and development of FL communicative and media-cultural competences [Martens, Hobbs, 2015].

THE THEORETICAL ASPECTS OF TEACHING PROFESSIONAL COMMUNICATION TO NON-LINGUIST STUDENTS

The FLT programmes for non-linguist students provide for renovation of educational technologies aimed at professional competences [Komochkina, Selezneva, Akimova, 2020]. These technologies include media educational classes based on problem-solving, heuristic, gamified methods which enable developing students' individuality, independent ways of thinking and creativity through direct involvement in perception, interpretation and structural analysis of a professional media text.

Current trends in linguistic education

One of the latest tendencies in FLT is the switch-over to blended learning which means using e-environment and distant learning technologies such as online courses, social networks, web 2.0 services, virtual classes with project-based teaching.

The cutting-edge educational technologies such as blended learning, instructional design, flipped classroom, online assessment, multimedia and others are thought to accelerate the process of

"perestroika" in education. In addition, general public online courses, mobile and cloud technologies, gamification, simulators as well as interactive content also contribute to the evolving processes.

Digital storytelling and its benefits for FLT to non-linguist students

Having been recently integrated into tertiary non-linguist education digital storytelling is one of those interactive digital methods which is worth special notice. It has been arousing a growing interest among Russian and foreign researchers who focus on virtual and augmented realities, robotics and AI, game design and immersive technologies in terms of storytelling [Shu, 2020; Butarbutar, 2021; Lisenbee, Ford, 2018; Kim, Lee, 2018].

The practice of storytelling goes back to the 1990ies when it became widely applied in advertising, marketing, personnel management and journalism. The use of the technology in FLT to Science undergraduates is still under development and needs further theoretical and practical investigation. Nevertheless, some rewarding attempts made by the teachers of FL departments should be noted [Komochkina, Selezneva, Akimova, 2020; Galskova, Komochkina, Selezneva, 2020].

Digital storytelling enables students to develop information literacy as well as communicative skills, combine and synthesize different sources. The benefits of this method for mastering professional-communication include more opportunities for experimenting, immediate feedback, vivid and comprehensive visualization of information, abundance of resources, quick access to data needed as well as total involvement of participants and an individual approach [Brenner, 2014].

Digital storytelling comprises a wide range of tools which aim at constructing a many-faceted view of the contemporary world [Shu, 2020; Butarbutar, 2021; Lisenbee, Ford, 2018; Kim, Lee, 2018]. This technique could be presented in various formats such as presentations, video frames, e-publications with digital content, infographics etc. In class students could be offered to run a short video project with the algorithm of its implementation previously established, which tends to improve students' regulatory abilities of goal-setting, planning, control, correction and assessment. Online services with spectacular gobos of animated characters, embedded animation and other instruments (-SparkolPro, PowToon, Moovly, GoAnimate, Plotagon etc.) are recommended to be used for generating a plot or a story. One of the most powerful tools to be used for activating vocabulary is the augmented reality application, namely, Quiver, by means of which students could animate their painted drawings based on the Science topics they study («Scientific discoveries», «Units of measurement», «Man and Universe», «The Standard Model», «Predicting about the future», «Quantum computers», «Renewables»). A complex of exercises, formulaic expressions and scenarios for self-expression discussed in more detail in [Komochkina, Selezneva, Akimova, 2020; Galskova, Komochkina, Selezneva, 2020; Klochkova, Komochkina, 2016] should be also recommended.

THE PROGRAMME FOR THE COURSE "THE BASICS OF FL PROFESSIONAL COMMUNICATION FOR ENGINEERING STUDENTS"

Methodically, the FLT of professional communication to non-linguist students is meant to consider the entity of three components, i.e., communication, interaction and perception. It is now common knowledge that mastery of oral speech practice can be acquired through the development of communication skills and various types of specialized competencies that allow FL communication on a broad scope of issues, ranging from everyday topics to professional problems.

Methodological, psychological and linguistic components of the course

The course "The basics of FL professional communication for Engineering students" is aimed at developing professional communicative skills of the 3-year students of Physics and Math department (MGOU) during 72 hours of auditory and autonomous work.

The distinctive feature of the course "The basics of FL professional communication for Engineering students" includes a combination of several components such as, firstly, topically relevant grammar and vocabulary (Simple, Progressive, Perfect Tenses, Passive & Active Voice, Means of Comparison, Ways of expressing Certainty/Uncertainty, Real/Unreal conditionals), speech formulae for presentations ('the figure shows', 'The physicists have been struggling to marry <…>', 'The trouble is that recent astronomical observations<…>', 'Scientists have recently proved that <…>', 'We may never find any direct evidence of <…>'), discussion motivating exercises (e.g. Discuss with a partner: 'What is all matter around us made up of? 'Are we alone in the Universe?' etc.), highlights of the information input and, finally, the assessment in the form of storytelling.

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Methodologically, the course highlights the basic strategic means of story construction, i.e.:

1. Planoutlining (aims, subject, assumptions, background information, sourcing);

2. The expression of a personal viewpoint;

3. The scientific validity of a subject under discussion;

4. The linguistic means of presentation (terminology, vocabulary and grammar inventory, exact wording);

5. Compositional structuring of a text (paragraphing, key points, signposting language);

6. Providing a soundtrack.

The ideas of the British researcher L. Masterman on the integration of media education into academic courses could broaden significantly the scope of topics for discussion with non-linguist students. These topics would include:

1. science influencers in mass media;

2. the validity of scientific principles and means of testing used in advertising;

3. the introduction of popular science programmes into academic curriculum;

4. the creative use of audio and video materials in students' presentations;

5. the positioning of a researcher in the academic community (talking shops, conference report structure, ceremony routines, checking-in / out at a hotel, question-answer exchange etc.).

In terms of linguistic constituents the course has been extended by introducing new elements such as the study of common conventional codes, rhetoric means of mass media, the analysis of media presentation matter, i.e., sound bites, TV series, documentaries; audio and visual media communication; critical approaches in literature and media education; techniques of persuasion and linguistic manipulation in mass media.

The illustrative examples of professional communication teaching would include the following exercises:

– Use 4–5 different mass media sources to find thematically similar materials; analyze them to create a media text of your own with the view of 3 A's: audience (who you write for), assignment (the goal of writing), available material (sources at your disposal);

– Compare the coverage of one and the same event in different media reports to identify similarities and differences;

– Define the concept of a film-maker by analyzing the characters' behavior, means of emotional expressiveness, special effects, narrative language;

– Listen to the soundbite and present its gist as a (micro)text (an abstract, an interview) for a conference, a website etc.;

– Listen to the speaking engagement of a public person and write a speech for him / her.

Psychologically, listening to authentic samples of storytelling would be a powerful incentive for students to compose their own narratives. Some off-the-shelf sources could be used for that purpose such as online courses placed with the platform Coursera, TED Talks along with the materials prepared by the MGOU lecturers and posted on the local university e-educational environment (EOS).

The stages of a storytelling compilation

In practice the course takes three stages, each of which is meant to solve a methodological task.

The first stage ("Personal portfolio") aims at revision and consolidation of the vocabulary and grammar within the module "Man and the Universe". The methodical aids include a piece of a video footage "Life on the Mars: an interview with the aerospace engineer Bobak Ferdowsi" (Ted.com) and the linguistic analysis of the fragment along with the exercises in the student book "Insight into the structure" [Klochkova, Komochkina, 2016], and, finally, preparing questions for a real-life interview and compilation of a relevant vocabulary (approx. 24 academic hrs).

At the end of the first stage students are supposed to make a short digital story about themselves or their friend / relative in the form of "a personal narrative".

The second stage ("Irrefutable scientific evidence") is supposed to cover the well-known discoveries in Physics and Maths (the history, unsolved issues etc.) as well as to consolidate the vocabulary and grammar related to the topics «Predictions about the future», «Certainty / Uncertainty», «Quantum computers».

Methodically the second stage provides for watching the video «How cyberattacks threaten real world peace» (TED.com), reading relevant articles, analyzing related vocabulary and grammar, doing exercises in the textbook "Insight into the structure" [Klochkova, Komochkina, 2016] and compilation of an individual active vocabulary (approx. 24 academic hrs.).

At the end of the second stage students are to prepare a short digital story about a scientist, his/her scientific discovery, its history, methods and findings in the form of historical documentaries.

The third stage ("My research statement") involves developing FL professional presentation skills which implies the ability to inform the targeted audience on the obtained results.

Methodically the course is supplied with the video footage "The compilation of an abstract in EL: grammar and vocabulary difficulties" (Coursera")

and is aimed at writing an abstract and a summary on «Measurement», «Standard Model», doing exercises in the textbook "Insight into the structure" [Klochkova, Komochkina,2016] and compilation of an individual active vocabulary (24 academic hrs.).

The stage is considered completed after presenting a short digital story on an individual research performance and findings in the form of a "Conference report", i.e., a story designed to inform or instruct the viewer on a particular concept or practice [Robin, 2008].

The subjective results of an experimental training

The approbation of the course "The basics of FL professional communication for Engineering students" took place at the FL department of MGOU in 2020/21 academic year and comprised 3 groups of 3-year students from Physics and Math faculty totalling 44 persons.

At the beginning of the course the students were offered to take part in questionnaire survey and answer questions such as "Are you interested in studying FL? Are you planning to use it in your future profession? Do you intend to participate in international conferences? Would you like to study the basics of FL professional communication? What is your language level? What is teachers' assessment of your FL level?" Regretfully, it should be stated that not more than 48 % of students were willing to enter the experimental testing of the technology under discussion whereas the others were reluctant to join the course due to the insufficient (Pre-Intermediate) knowledge of language. With the results of the survey taken into account as well as the preceding auditory performance of the students the micro-groups (3–4 persons each) were formed to be prepared for final assessment after completing 3 stages of the course.

At the end of the course the students presented 27 digital stories (both individual and group work) 4–7 minutes each. The stories covered a wide range of topics from a visit to a museum of Fine Arts, strategies of infographic teaching to animated cartoons containing instructions on conducting a physical experiment. After conducting an oral survey the teachers ascertained the growing interest of the students in FL learning by means of digital storytelling technology. Moreover, the interest in making such stories was shown by the students who did not take part in the experiment. As a result, it was agreed to hold a university-wide Olympics on digital storytelling next year.

CONCLUSION

The use of digital storytelling in linguistic education could be viewed in the context of reflecting over "creative education", "edutainment" which are based on psychological techniques, gaming methods, narratology, brand-new information and communicative technologies targeted to attract and retain the attention of learners by establishing an emotional contact with the object of study.

The integration of digital storytelling into traditional forms of educating boosts the development of the key competences most demanded in the contemporaneity, i.e., partnership interaction, critical thinking, creativity. A want of cross-platform solutions, an opportunity of autonomous analysis of various modes of information, the use of narrative techniques stimulate students' involvement in learning activity and facilitates the reception and retention of academic content.

It might be concluded that educational digital storytelling is a unique mode of communication with students of a new generation in familiar to them "digital" language. The interactive character of the technology as well as its narrative format with a vast variety of media tools appear to be the key to reaching out the young audience and retaining their attention. As project-based learning the digital storytelling method enables acquiring a wide range of competences relevant to the present-day world.

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