

Textbook: Focus on Students' National Identity

Applying Ideas of The Instructional Design to Developing E-learning Materials for University Students

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Abstract

Education just like all other spheres of our life is undergoing digital transformations. Traditional education media are giving way to e-learning resources that are gaining popularity both among educators and students. Educators face a challenging task of developing e-learning materials to satisfy their requirements but find out that traditional general didactic principles and teaching methods can not be applied to designing digital materials without proper adaptation. The article aims to show how to apply Instructional Design models and concepts to developing e-learning materials for foreign language teaching. The authors emphasize the importance of the Analysis stage of the ADDIE model at which the education needs of the target audience are identified and specified and the education goals are set. The paper shows how to apply the SMART and CLEAR models to setting goals. The paper suggests that the learning habits and preferences of the target audience have to be considered as well. The authors describe the research results obtained with the help of various methods and show how they affected the design of the course materials they developed. The authors conclude that proper consideration of the target audience's needs and evaluation of the e-learning materials in the teaching process are key to the successful course design.

Keywords: e-learning materials, course design models, needs analysis

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Introduction

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The success of teaching / learning a foreign language or any other subject at any age, at any educational institution, in any format depends on many factors, and having a good textbook is one of them. Traditionally, a textbook has been looked upon as an education medium, a storage device, a model of a teaching curriculum and a model of a training course. A conventional teaching / learning process has been organised around a textbook - a textbook proposes the contents of a course, a sequence of topics within this course and forms and formats of working with the suggested materials. So, a teacher / a lecturer builds a lesson around a particular unit of a textbook, gives class assignments and homework provided by the textbook; students revise the material of the lesson they attended or get the main ideas of the lesson they missed with the help of a textbook. Textbooks also include consolidation and self-control tasks and provide materials for further self-studies. All a conventional educator has had to do is to choose a textbook (an educational package) that meets the curriculum requirements for their educational institution.

Nowadays, the situation is changing dramatically. For educational institutions providing general educational courses there are a lot of textbooks available, each them being of different quality and developed to satisfy different requirements. So, educators are having a tough time selecting an educational package that meets their needs. There are also educational institutions providing further (vocational) training and higher education and professional training that are entitled to developing their own curricula and, thereby, they need teaching / learning materials to suit the curricula. In the sphere of vocational and professional training, be it further or higher education, market demand for specialists, professional requirements, demand for training services are changing very quickly (Petrova, Zorina, Kreer, 2019) so textbooks (educational packages) should be constantly updated and redesigned to keep pace with the changing environments. Therefore, educators are facing a problem of designing, developing and updating their own educational packages. Quite frequently, educators resort to developing e-learning materials because of time constraints, cost reasons and motivational reasons.

Purpose and objectives of the study

The authors aim to describe an approach to developing e-learning materials suitable for a specific target audience and to show how the course contents, education media and educational formats can be tailored to the audience's needs.

Literature review

A printed version of a textbook has been a reliable and well-tested education medium for centuries. However, it is believed to be losing its popularity to electronic or digital textbooks - textbooks printed,

stored or sent in an electronic or digital format on a computer or in the Internet (Meriam-Webster.com, 2014). Although the publishing industry is still growing, it is undergoing digital transformations just like other industries. The market share of digital books (compared to printed books) in the USA is estimated to be 20-25%, in Germany it is 4,5%, in France - 8,7%. The majority of e-books are fiction books, but the market share of e-textbooks and academic literature is also growing. Some publishing houses have already suffered significant financial losses due to a decrease in the sales of printed textbooks caused by the growth of e-learning resources (Global E-Book Market Analysis 2020). The increasing market share of e-books and e-learning resources is attributed to the rising volume and choice of gadgets and devices available in the market that help to enjoy them and to the growing number of on-line training courses that are bound to use e-learning resources as well. However, comparatively low popularity of e-books, according to experts, can be explained by the existing reading habits (E-Books Market in Europe 2018-2020).

The Russian market of e-books is estimated to be quite small compared to European or American markets. However, in Russia, even before the pandemic of COVID-19, the number of on-line educational platforms and courses was increasing steadily. It was caused partly by efforts of the government that issued the decree to create "The digital educational environment" (Ukaz Prezidenta № 203, 2017, Postanovleniye Pravitel'stva № 1836, 2020) and by the demands of the labour market forcing people in employment and those still seeking for it to create their own professional and personal development plans using different educational formats and services (Petrova, Zorina, Kreer, 2019). In 2020 the Russian government allocated about 1 billion roubles to creating valuable content for the digital educational environment (Rasporyazheniye Pravitel'stva № 3345-p, 2020). These facts allow us to forecast a significant increase in demand for any type of software for e-learning and, consequently, a dramatic rise in the number of e-learning materials and resources in Russia.

Educators started using technological innovations like computer games, podcasts, animations, e-dictionaries along with printed materials in foreign language teaching long before the pandemic of COVID-19, when there was no need to resort to on-line teaching / learning and students could attend classes and interact with their teachers and classmates off-line. Students were engaged in technology-tied activities in all the spheres of their lives (interactive computer games, downloading video and music files on computers, uploading files to various social networks etc). Therefore, it was believed that they expected to come across some technology in their learning as well. Research showed that traditional teaching techniques sometimes happened to fail because they didn't meet the students' learning expectations (Martin-Gutierrez, Mora, Anorbe-Diaz, Gonzales-Marrero, 2017, Peixoto, Pinto, Krassmann, Melo, Cabral, Bessa, 2019). So, technology and e-learning materials were first used purely for motivational reasons.

Developers of educational materials also paid attention to developing e-learning resources because they wanted to assist and, obviously, attract people who were engaged in studying foreign languages in unconventional ways outside the traditional educational framework. For example, in 2010 Cambridge University Press started the official YouTube channel of Cambridge Assessment English that provides videos, resource materials, assessment tests etc. for its subscribers.

New educational formats and educational trends encourage the development of digital resources. UNESCO promotes the development of massive open online courses (MOOCs) that are viewed as a means of increasing access and affordability for learners from both developed and developing countries to quality education and training which, in turn, is extremely important for achieving Sustainable Development Goals (SDGs). Education is recognized as SDG 4 - "to ensure inclusive and equitable quality education and promote life-long learning opportunities for all" (Make the SDGs a Reality, 2021). UNESCO calls for governments, policy makers, educators, businesses to invest in creating MOOCs both for general education and vocational training (Patru, Balaji, 2016, UNESCO CI, 2019, UNESCO Education Sector Position Paper, 2004). It is also noted that MOOCs can become a useful tool for fighting high unemployment both in developed and developing countries because they will be able to provide access to vocational training courses to unemployed people seeking to get new professional qualifications and help to reduce the disconnect between the skills and aptitudes of university graduates and the needs of the industry sectors in a particular country. In developed countries people in employment show great interest in MOOCs and any other on-line courses because they want to improve their employability and earning potential. Headhunters acknowledge that knowing a foreign language increases candidates' chances to find higher-paying jobs and a high level of proficiency in a foreign language raises the chances of promotion (Petuhova, 2017). Such consumers of educational services demand flexible personalized solutions to satisfy their educational needs (Petrova, Zorina, Kreer, 2019). Publishing houses like Oxford University Press, Macmillan and the others have recognized these needs and offer content for Learning Management Systems (LMS) that helps users get access to learning materials at any time, from anywhere and progress at a pace most suitable for them. Many big businesses both in Russia and abroad are known to have their own assessment and training centers and to have developed their own online training courses. The best-known American example is the MacDonal'd's University. In Russia, companies like Sberbank, Rosatom and Gazprom have training centres and develop on-line and off-line courses and content for learning many subjects, including foreign languages, for their employees. Sometimes, the content is created by their own specialists or this function is outsourced to other organizations or available ready-made resources are bought from external developers.

However, for reasons stated above, the content designed and developed for general public use or for a specific company may not be suitable for a particular university or college, or even a private language

school. That's the reason we see a lot of e-learning resources in the market and have to admit that not all of them are of high quality and can help their consumers gain the desired knowledge and acquire the skills necessary to achieve their educational goals. The lack of quality learning materials has been observed on a global scale, and one of the issues raised by UNESCO is quality assurance and certification of content created for MOOCs and on-line platforms (Patru, Balaji, 2016).

Researchers and educators suggest that low quality of some existing e-learning resources can be explained by the fact that creators of such resources either don't follow the general didactic principles while developing them or rely on using traditional forms and methods of teaching in the innovative technological environment without adapting them properly (Didakticheskiye osnovy, 2021). Therefore, one of the challenges facing the potential creators of e-learning materials should be the adaptation of didactic principles and teaching methods to e-teaching.

Methodology

Instructional Design is a relatively new approach to creating teaching / learning materials in a digital or a physical form. It involves using several models, namely ADDIE, SMART, SAM and the others in the process of developing any course content in any format requested. Some basic principles of these models correspond to the general didactic principles adapted for the use in the digital environment. Other principles were able to come to life only thanks to the widespread of digital innovations. We implemented these models and principles and UNESCO's guidelines on creating MOOCs in the process of designing our own e-learning materials.

To successfully complete the task, one has to set the goals. The SMART model for setting goals suggests that the goals should be

- Specific
- Measurable
- Achievable
- Resource-bound
- Time-bound

Our Specific goal was to develop the contents and the necessary information provisions, materials for interim and final assessments for the Course Programs “General English”, “Business English” and “Professional English”. Our goals were Measurable because the Course Programs included indicators of training standards, which, according to the Federal State Educational Standards, are competences specific for each course and indicators of the levels of competence mastery (Dudina, 2015). Our goals were Achievable because we specified quantitative indicators for each level in the form of compulsory and optional glossaries and sets of grammar structures for each topical unit. To ensure the successful mastery of the listed competences we provided samples of exercises aimed at achieving each indicator and each level. We digitized the library Resources and made other Resources available with the help of the university digital environment. While deciding on what type of digital solutions to implement, we had to consider our own technological Resources and the Resources our students may have including gadgets and access to the broadband Internet as the Internet bandwidth could restrain access to some digital resources offered within the framework of the course (Patru, Balaji, 2016). All our Course Programs were Time-bound because they were tailored to the curricula of different majors / areas of degree training.

To make sure we have set the goals correctly and the project will be successfully completed, we used the CLEAR criteria. The goals are CLEAR if they are

- Challenging
- Legal
- Environmentally sound
- Agreed
- Recorded

At the beginning of each Course Program the entrance level of knowledge and skills required for the course participants was specified. So, the course contents built upon this level to reach the next / higher level according to CEFR. That made our goals Challenging. The course contents, indicators of training standards were developed in compliance with the requirements of the Federal State Educational Standards, so they were Legal. The goals were Environmentally sound because the course aimed at developing skills and aptitudes natural and relevant for the students of the given age and the given level of preparation in the safe and healthy teaching / learning environment. All the course developers Agreed on the type and formats of contents (texts, types of assignments, assessment materials) we planned to develop and our

Course Programs were officially approved of by the university authorities. Finally, our goals were Recorded in the Course Programs so that all course developers could keep an eye on them in order to better comply with them.

After setting the goals, we used ADDIE and SAM models for content development. The ADDIE model is a popular standard linear model which involves

- Analysis
- Design
- Development
- Implementation
- Evaluation

The Analysis stage is the most important because along with analysing the subject and the content area (under our circumstances, this type of analysis was not required as we had the approved Course Programs) developers have to analyse the target audience - to assess the entrance level of foreign language mastery and the level of the competence development required for the course; moreover, special attention has to be paid to the development of soft skills required for different educational formats as it has been noted that the set of soft skills necessary for enjoying educational formats - both on-lone and off-line - varies depending on the age and the educational experience of the students and can significantly affect the possibility of a successful course completion (Patru, Balaji, 2016). Learning habits and preferences of the target audiences also have to be taken into account.

The Design stage, as well as the other stages, fully depends on the research results received at the previous stage. At this stage decisions are made on the content necessary for achieving the Program goals, namely texts and types of assignments and assessment procedures, as well as on the forms and formats of teaching.

The Development stage involves developing the necessary teaching / learning materials.

The Implementation stage involves either uploading the contents (or their elements) into the LMS available in the university or having some materials printed and distributed to the audience and the process of teaching itself. During this stage developers monitor the students' responses to various materials offered within the framework of the course.

The Evaluation stage involves comparing the goals and the projected results with the actual results students show after the course is completed. The actual results received after the course do not necessarily match the projected results. So, at this stage the efficiency of the selected contents is assessed and the necessary improvements can be made. This work can be carried out with the help of the Backward Design / Understanding By Design model.

The ADDIE model is suitable in the situations when we have to develop the complete course at a time and, so focus on long-term planning and strategic decisions. SAM (Successive Approximation Model) is a model suitable in cases when long-term planning is too difficult or impossible to implement. According to SAM, the whole process can be divided into shorter stages - iterations - each iteration being a version of the final product which can be analyzed and improved. In our case, the Course Programs were broken into topical units, each unit being looked upon as an iteration. The educational goals for each unit were analyzed, the contents and assignments were developed, implemented and the actual results were assessed. We received an idea of what type of assignments worked best with our students, what had to be added to improve the results. The concept developed for one unit was later used for the design of other units.

The work on the course design and development fully depends on the results received at the Analysis stage. At this stage we had to find answers to the following questions:

- What is the entrance language level of the first year students who have entered the university?
- What level of the competence mastery do the students have?
- What type of learning activities do the students engage in when facing linguistic challenges?
- What learning skills important for the successful course completion do they have?
- What educational formats and education media do they prefer?

To carry out the needs' analysis, the authors employed various research methods at the Saint-Petersburg branch of the Financial University under the Government of the Russian Federation and the Department of secondary professional training of the Saint-Petersburg branch of the Financial University under the Government of the Russian Federation (college). In 2016-2020 they used the method of testing to find out the language proficiency level and the competences the students had when they were due to start mastering the course "General English". They also used the method of experiment to find out what learning skills the students had. The existing data research method and the observation method were employed to find out

what learning activities our students engaged in to deal with the given assignments and the method of survey was used to get to know what education media and educational formats the students preferred

Results

1. Levels of the language proficiency of the first-year students

The assessment tests developed for the students who entered either the university or the college show the following levels of the language proficiency:

- university students: 5% - A1 level, 10% - A1 / A2 level, 20% - A2 level, 30% - A2 / B1 level, 20% - B1 level, 10% - B1 / B2 level, 5% - B2 level

- college students: 5% - 0 level, 10% - A1 level, 20% - A1 / A2 level, 40% - A2 level, 20% - A2 / B1 level, 5% - B1 level.

2. Levels of competences required for the course

There are no entrance requirements for the competences to be mastered during the course. However, we wanted to see whether the students have any of such competences. The competences fall into two groups - general competences and professional competences. Attention was paid to general competences. The assessment tests developed to check certain indicators of the competence mastery showed the following:

- first-year university students: 60% of students - the threshold level of competence mastery, 35% of students - the advanced level competence mastery, 5% of students - the high level of competence mastery

- first-year college students: 20% of students - 0 level of the competence mastery, 50% of students - the threshold level of competence mastery, 30% of students - the advanced level of competence mastery.

The receptive skills (for example, understanding the main idea of the text, understanding the aim of the text, identifying specific information in the text, scanning and understanding information etc.) were better developed in both groups than the productive skills (summarizing texts, rendering texts, asking questions, describing an object / an event / an experience etc.).

3. Learning activities students engage in when facing linguistic challenges

We observed the ways the students work with texts presented in textbooks, the ways students prepare for discussions, the ways students make any written assignments. In all the cases mentioned students resort to translating unknown words, be it translating from English into Russian when dealing with texts assignments or translating from Russian into English when brain-storming ideas for discussions based on materials from textbooks, preparing monologues based on texts or rehearsing dialogues. When dealing with assignments which involve translating texts, more advanced students resort to translating separate words with the help of translation applications, while students with the low levels of language proficiency download whole texts into translation applications without trying to break the text into any meaningful pieces. When preparing monologues based on texts or brain-storming ideas for discussions students write their own ideas in their native language (Russian) first and then translate their notes into English looking up the words they need in the translation applications. Students never search for words they need in the text they have just read. The text is looked upon as a source of information rather than a linguistic medium containing vocabulary or grammar items they need.

We also analyzed written translation works students did as class or home assignments. This analysis showed the same results - students resorted to giving word-for-word translations with the help of translation applications rather than to topical vocabulary from texts.

4. Learning skills important for the successful completion of the course

For the successful course completion students need to be able to work independently, to be able to work in a team, to understand the assignments given to them, to follow the given instructions, to use external sources of information when preparing class or home assignments, to critically assess and evaluate the information they find, to compare, analyze and summarize the information from various sources. We observed that these learning skills are poorly developed in the majority of students (more than 65%). First-year students generally fail to understand the given instructions in about 40% of cases, although the students admitted to the university and college in the year of 2020 showed failure to understand the given instructions in 65% of cases. Students fail to follow the instructions in about 50% of cases explaining their failure either by misunderstanding the instructions or by considering them unimportant. Students use external sources of information in about 40% of cases and they try to critically assess the information they find in about 15% of cases (check the information they find in several sources). Students generally show very good skills of working in teams - consider everybody's opinions, distribute work between team members, assign appropriate roles to each other, motivate each other to meet the deadlines. However, about 50% of students find it difficult to work independently.

5. Educational formats and educational media students prefer

We found out that all the students support the idea of having the textbooks in a digital form. Digital learning materials can be accessed from their mobile devices at any place, they are not difficult to carry around. However, for serious work digital learning materials are considered to be inconvenient by about 50% of students. Such students prefer to print out the pages they need for a particular class or for completing a particular task as they need to make notes on the margins, underline the main ideas, translate new words etc. Those who do not print out their e-learning materials still resort to using paper media of various types (take down notes using paper note-books, for example). All the students believe it to be impossible to stop using paper media in the learning process in one form or another completely.

Students also mention that they are in favour of digital textbooks because they offer a complete experience of all available learning resources - together with texts and exercises there are audio and video files. Students find it inconvenient to have to listen to audiofiles using extra devices - CD or MP3 players, or looking for the files they need on the Internet on the textbook website. The usability of textbook websites is considered quite low as stable access to the Internet is not always available. But learning materials in a digital form can be downloaded on any digital device and accessed in place where there is no Internet access.

Although the students admit that the on-line educational format has certain advantages (for example, not having to travel to and from the university saves a lot of time, they can sleep longer in the morning), the traditional off-line format is believed to be the most suitable for a number of reasons. The most frequent reasons mentioned by the students are the following: a) students feel more inclined to studying when they are in the classroom with their teacher and peers than when they are relaxing in their bedrooms, parks or cafes; b) students feel more motivated to study when there is someone else to motivate them - their teacher or peers; c) students lack self-discipline and, thus, need a teacher to monitor their discipline and attendance; d) students need to interact with their teachers to get extra instructions, comments and constructive feedback on the work they do; e) students need to interact with their peers about their studies. As we can see, the first three reasons mentioned are psychological and relate to the students' existing learning habits.

Conclusion

The analysis of learning preferences and habits of the target audience showed that we needed to design and develop a course to be stored on a digital medium available for downloading by the course participants.

Only certain elements of this course (assessment materials) could be downloaded into the LMS available at the university as students require a high level of mentoring and coaching for the successful course completion (this idea is in line with UNESCO's conclusion about the necessity of high level of mentoring for students with poorly developed learning skills).

Grammar exercises developed for the course “General English” are specially marked to show the level of difficulty (*elementary, **advanced, ***high). A teacher can choose a folder that suits the group with a certain level of the language proficiency.

Texts for topical units within the course are also selected according to the levels of the language proficiency identified at the entrance assessment. For the college students texts are taken from pre-intermediate textbooks, for university students texts are taken from both pre-intermediate and intermediate textbooks. For every text we designed extra vocabulary exercises involving translation (for example, an assignment to find the English equivalents to the Russian words and phrases from the given text). Special attention was paid to different types of assignments involving the development of productive skills - they ranged from assignments requiring to write something using specific vocabulary and grammar items to compiling glossaries for each text and topic and setting vocabulary criteria for a successful project presentation. To complete each topical unit successfully, students have to develop a project and to present it to a group working either independently or in a small team. The whole process of working on a project is broken down into stages, so, by doing special assignments for each class students prepare a piece of work for their final project.

It can be concluded that the analysis of the target audiences allows the developers of the course to find the most effective solutions to satisfy the educational requirements and assist the learners in achieving their educational goals. Our experience also shows that e-teaching materials allow greater flexibility for the course creators in developing and allocating tasks to the learners with different levels of the language proficiency. Besides, our findings demonstrate the importance of the evaluation procedures of the course contents as they allow to introduce the necessary improvements and to handle issues unforeseen at the analysis and design stages.

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