

CHALLENGES OF DIGITAL AGE CURRICULUM CONVERGENCE

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Abstract

Curriculum planning for foreign language teaching is a complex process. Since 2000, with the introduction of the Bologna Process in higher education and the emergence of the Common European Framework for Languages, which aimed at multiculturalism and multilingualism, even greater emphasis has been placed on the effectiveness of curriculum design in foreign language teaching. In addition to curricular changes, technological changes in the educational landscape have been happening at a rapid pace, which suggests that educational institutions should integrate ICT (information and communication technologies) into teaching curricula in order to teach optimally since the use of ICT as a teaching aid helps in obtaining, exchanging, analysing and organizing information. The use of ICT makes it easier for teachers to use electronic versions of educational and teaching aids; availability of additional materials; performing tests and assessment; and conducting practice-oriented language skills exercises related to research activities. The use of ICT in foreign language learning not only increases opportunities for effective communication but stakeholders develop not only their language skills but also a broader knowledge of the successful use of ICT for learning strategies, and 21st century skills. New directions in education not only include ICT but the process of learning and teaching is completely transferred online. The aim of this paper is to show which phases should be completed and which concepts should be included in the planning and design of the curriculum so that it converges from the traditional form to the online form of learning and teaching. Comparative analysis of theoretical sources and previous research, a conceptual framework for planning and designing online curriculum has been defined and the perspectives for further interdisciplinary research have been indicated.

Keywords: curriculum design, curriculum convergence, online curriculum, foreign language learning.

1 INTRODUCTION

At the beginning of the 21st century, with the introduction of the Bologna Process in higher education, a change in curriculum planning in foreign language teaching has occurred. The convergence of the traditional English language curriculum in relation to other fields of study is accelerated by the Bologna Process because it promotes multiculturalism and multilingualism, and at the same time English in the international context acquires the role of "lingua franca" [1]. The standardization of teaching levels and evaluation criteria was consolidated by the Council of Europe in 2001 with the Common European Framework of Reference for Languages at the European level [2], which promotes high efficiency of foreign language teaching that requires precise curriculum conceptualization. In the traditional design of the English language curriculum, Nunan [3] includes three key elements: initial planning, selection of content and methodology, and evaluation. It thus continues a series of studies by English language curriculum experts [4], who have taken over the four basic curriculum components from Tyler [5]: objectives, content, methodology and assessment.

In addition to the choice of information curriculum concepts, modern curricula include the selection and integration of information and communication technology (ICT) as technological changes in the educational landscape occur at a rapid pace [6]. In order to achieve communication competence as the ultimate goal of foreign language learning, ICT enables students to use authentic language templates, thus exposing them to the use of language in authentic sociological and cultural online contexts, as confirmed by contemporary research which indicates that the use of authentic materials enables the development of all four language skills [7] and gives priority to communicative tasks in multilingual communities [8]. One of the main reasons for this growing appreciation of educational technologies in foreign language teaching practices is the fact that it allows students to learn from native language templates on websites, exposing them to different types of language use in real life contexts. Online language education is flexible and adaptable, it enables the use of improved, individualized and authentic materials and it gives priority to communicative tasks and multilingual communities, therefore encourages and gives priority to autonomous learning [8].

In addition to traditional face-to-face (F2F) teaching, there are several forms of instruction by using ICT in the digital environment, which is an important aspect for understanding the design of the digital curriculum. Technology-enhanced instruction implies a form of learning in which F2F teaching dominates while technology is used for independent students' tasks in a smaller proportion. Blended instruction is a form of teaching in which there is a greater emphasis on online teaching, although it is combined with F2F teaching. Open/online instruction is a form of learning that takes place entirely online in the digital context [8].

2 METHODOLOGY

As a condition for the success of online education, it is crucial to research and compare existing e-learning models in order to develop effective curriculum planning and design that contributes to the development of students' competencies and skills.

The aim of this paper is to analyze the development of educational research on curriculum concepts in order to develop an appropriate conceptual model of the digital curriculum, which includes successful methodological perspectives and knowledge transfer in online university teaching practice. This paper provides an overview of the evolution of educational research conducted on e-learning, based on a comparison of traditional digital curricula, as it identifies the concepts and processes of digital transformation of education by applying text analysis methodology.

The following research questions are addressed:

- 1 In which concepts do traditional and digital curricula differ?
- 2 What concepts does the digital curriculum contain?

The first group of instructional design models included in the comparison in this paper (Table 1) refers to models from the 1970s. Since in that period there were no instructional models that relate exclusively to online teaching, they can be generally applicable. The models that are significantly present in the scientific literature, and are based on learning outcomes and relevance were selected [9]. ADDIE model whose author is unknown, has wide application to different groups of courses [10] as it contains broad educational concepts. Although Dick, Carey, and Carey argue that their model is applicable to online teaching, many critics dispute that model as it is teacher-centered, assuming the student is a consumer of the content and materials and not actively involved in learning process [11].

Table 1. Traditional instructional design models.

ADDIE	1970	<ul style="list-style-type: none"> • Analysis • Design • Development • Implementation • Evaluation 	<ul style="list-style-type: none"> • the basis for many future models
Dick, Carey, and Carey's model	1978	<ul style="list-style-type: none"> • real world setting • learners' needs • learners' prior knowledge level • integrates learning and performance context 	<ul style="list-style-type: none"> • well accepted in higher education • well researched

Although distance education existed much earlier, online teaching or e-learning appeared in the early 1990s. A review of literature indicates that there are several online teaching models that are most commonly cited and contain standards relevant to e-learning. These are: (1) Alonso, Lopez, Manrique, and Vines' E-Learning instructional model, (2) the Instructional Design Model for Online Learning (IDOL), (3) Roblyer's online and blended learning design theory, (4) the online instruction rubric by Quality Online Learning and Teaching (QOLT), and (5) Quality Matters (QM) Publisher Rubric and Online Learning Consortium (OLC) Rubric [8] [11].

Detailed concepts of each model or rubric are explained in Table 2. The described models derive from the traditional ADDIE and Dick, Carey and Carey models and suggest how to organize traditional, online and blended teaching practices, but the application of each one of them independently today is no longer practical due to the rapid changes in technology. The rubrics described serve to check the

standards of online education at the university level and are an excellent guide in designing online courses.

Table 2. Online instructional design models.

Alonso, Lopez, Manrique, and Vines' E-Learning instructional model	2005	<ul style="list-style-type: none"> • Analysis • Design • Development • Implementation • Execution • Evaluation • Review 	<ul style="list-style-type: none"> • web-based e-learning education model with a blended learning approach
the Instructional Design Model for Online Learning (IDOL)	2007	<ul style="list-style-type: none"> • Analysis • Strategy • Evaluation 	<ul style="list-style-type: none"> • presents 24 pedagogical considerations when designing an online learning in higher education
The online instruction rubric by Quality Online Learning and Teaching (QOLT)	2010	<ul style="list-style-type: none"> • course "self-evaluation" tool - advising instructors how to revise an existing course • a way to design a new course for the online environment, following the rubric as a road map 	<ul style="list-style-type: none"> • California State University System
Quality Matters (QM) Publisher Rubric	2014	<ul style="list-style-type: none"> • course overview and introduction • learning objectives and competencies • course development and instructional design • instructional material • course activities and learner interaction • course technology • learner support • accessibility and usability 	<ul style="list-style-type: none"> • assure the quality of online and blended instruction
Online Learning Consortium (OLC) Rubric	2014	<ul style="list-style-type: none"> • institutional support • technology support • course development and • instructional design • course structure • teaching and learning • social and student engagement • faculty support • student support 	<ul style="list-style-type: none"> • guide in online course design

Goertler [8] (Table 3) offers an online model of language curriculum design in five different areas which, in addition to traditional concepts of design, technology and learning outcomes, contains detailed roles of students, teachers and administrative staff as well as communication practices during online teaching with the emphasis on synchronous-asynchronous dichotomy.

He advocates that technology is indispensable as a medium of online teaching, but curricular planning must be guided by pedagogical principles prior to technological ones. He points out that asynchronous teaching is the most common form of teaching in an online environment because it includes interpretive and presentation tasks and lectures, while synchronous forms should not be neglected because they provide the most common interpersonal forms of communication.

Table 3. Online language curriculum design.

<i>Goertler (2019)</i>				
<i>Design:</i>	<i>Technology</i>	<i>Roles</i>	<i>Interactivity and Synchronicity</i>	<i>Outcomes, Evaluation and Assessment</i>
<ul style="list-style-type: none"> - Needs analysis - Circular planning and material development - Implementation - Evaluation - Revisions and adjustment 	<ul style="list-style-type: none"> - to present and access materials - to establish a community - to provide communication channels - to give feedback - to serve as a resource 	<ul style="list-style-type: none"> - teachers - students - administrators - support staff - technology 	<ul style="list-style-type: none"> - person to person interaction - student-technology interaction 	<ul style="list-style-type: none"> - goals of the course - the process of systematically collecting information about learning outcomes - systematic evaluation of the course

The modern approach to digital curricula design is a lengthy and carefully planned process that some authors acknowledged as classrooms closed around the world during the COVID-19 pandemic and the transition to e-learning was suddenly unavoidable. This situation has demonstrated the challenges of education systems facing digitization. Contemporary authors point out the differences in the process of digital curriculum planning and the "crisis" transition to e-learning, which established important concepts of the digital curriculum. Gacs et al. [12] indicate the process of compiling a foreign language digital curriculum that contains five stages of planning and design (Table 4) and it also provides guidelines for curriculum design when optimal planning time is not possible. In this case, if the "preparation" phase cannot be elaborated in detail, it is important to make an analysis of students' needs in order to determine learning outcomes. If in the middle of the semester instruction changes to entirely online mode, the course design possibilities are limited when it comes to the choice of platforms, network tools and their appearance. Design review is certainly recommended and necessary, but it is not possible in a quick transition to online teaching. The methods of conducting online classes should be carefully planned and selected, as well as the availability of teachers for communication with students as well as prompt feedback and assessment of students' work. During the planning of the digital curriculum, the importance of professional development of staff who develop this type of curriculum is emphasized and it is pointed out that curriculum planning of F2F teaching and e-learning at the institutional level should be in case of emergencies with the goal to achieve learning outcomes regardless of the type of instruction.

Table 4. Phases of digital curriculum planning and design.

<i>Gacs, Goertler & Spasova (2020)</i>				
<i>Preparation</i>	<i>Design</i>	<i>Design review</i>	<i>Teaching online</i>	<i>Supporting and evaluating online education</i>
<ul style="list-style-type: none"> - the student perspective - needs analysis - training, professional development and technology support 	<ul style="list-style-type: none"> - learning objectives - delivery format - platforms and tools - organizational structure - modes, skills, interaction types - assessment - evaluation plan 	<ul style="list-style-type: none"> - pilot - copyright review - accessibility check 	<ul style="list-style-type: none"> - establish communication practices - be visible, present and authentic - establishing a learning community - feedback - develop time management strategies - teach online learning strategies 	<ul style="list-style-type: none"> - release time or other compensation - professional development - curricular planning - evaluation practices

3 RESULTS

3.1 Differences and similarities of traditional and digital curriculum

Traditional and digital curricula include a *needs analysis* of students of a particular study program and courses within it. In order for education to be purposeful and efficient, it is necessary to put oneself in the position of students and analyze the knowledge and skills they will need in the labor market in the future. Modern technologies enable the collection of information about students and their personal goals and can provide insight into the development of course content and design. Learning analytics can also provide valuable data on the education profiles of different participants. Involving software agents in needs analysis can result in noticeable improvements in content quality, teaching methods, fewer dropouts, better support for participants, and improved assessment methods [13].

Learning outcomes are most often shaped in both traditional and digital curricula by the backwards design method, which is a teaching design strategy [14] that requires teachers to plan "backwards", starting with the desired learning outcomes and moving to teaching methods, assessment and other concepts contained in a curriculum. Backwards design can benefit any curriculum, but is particularly effective in online educational contexts because it implies the absence of F2F instruction and includes aspects that replace it.

The *methodology* of digital curricula includes, in addition to the types of teaching, the time aspect, i.e. whether teaching is conducted synchronously or asynchronously. The inclusion of synchronous activities encourages interpersonal communication and in the language curriculum the possibility of developing all four language skills [12]. An important aspect of conducting online teaching is the schedule of lectures and the weekly schedule of activities that teachers should elaborate in detail and get students acquainted with it in order for them to know exactly what is expected of them at which stage of the course [15].

Communication patterns are defined in the digital curriculum at the beginning of the semester so that students are familiar with how the teacher will communicate with them, share information but also how they will can contact him/her [12]. Interaction during the course can be between student and content, student and technology, student and student and student and teacher and it is important to achieve that each of them is relevant and communicative in e-learning [15]. By removing time and geographic barriers, online education can reach a wider audience than a face-to-face course, but a sense of community and personal connection must be carefully created in online environments where gestures, body language, common physical experience, and often even facial expressions cannot be observed [16]. Research in the field of massive open online courses (MOOC) shows that students often drop out and do not complete their studies if they are not socially involved in communication through discussion groups and equally important if there is no participation and presence of a teacher who is the moderator of the students' interpersonal communication success. Creating an online community in the form of small groups and collaborative assignments, through technology-mediated tasks, enables spoken and written language production and interpersonal communication that facilitates language learning and improves students' language skills [17].

The *teacher's presence* is an important factor in the digital design of e-learning course because its role in the online environment cannot be compared with that in F2F teaching. The most important aspect of a teacher's presence is feedback to students about their work. Since nonverbal communication is lacking, the teacher must be made available within a time frame known to students so that they can contact him or her and provide a quick and effective response to the tasks they have performed. It is therefore recommended that the teacher provides the students with his/her personal contact details and the time at which he/she is available for tutorials [15]. Research on MOOC has confirmed that the ineffective interpersonal student to student communication, due to the absence of participation and the presence of teacher in an online course, results in higher dropout rates [17].

3.2 Conceptual model of curriculum convergence

Based on the comparison of traditional and digital curricula, it has been noticed that there are concepts that should be included into e-learning curriculum design which resulted in the design of curriculum convergence model (Table 5). It is important to point out that the model was observed from the aspect of students and teachers so that the ultimate goal of the application would be effective and purposeful learning and teaching in an online environment, where the starting point is a traditional curriculum intended for online instruction.

Table 5. Curriculum convergence model.

<i>Learning outcomes</i>	<i>Methodology</i>	<i>Communication patterns</i>	<i>Assessment</i>
<ul style="list-style-type: none"> • needs analysis • course description • learning outcomes explained • assessment criteria • references/sources 	<ul style="list-style-type: none"> • type of instruction • synchronous/asynchronous teaching • schedule 	<ul style="list-style-type: none"> • contact and tutorials • feedback • workshops • discussion groups • interactive project tasks • technical support 	<ul style="list-style-type: none"> • time frame • frequency of formative and summative assessment • participation in classes/discussion groups/projects

In order to set and achieve *learning outcomes* of the digital curriculum, it is necessary to conduct needs analysis of students in each study program. In order for them to be acquainted with the teaching materials and what is expected of them, it is important to provide them with the detailed description of the course and explanation of the learning outcomes in order for them to be familiar with what expected achievements at the end of the course. In order for students to be familiar with the method of assessment, it is important to show them elaborated assessment criteria at the beginning of the course.

The *methodology* contained in the digital curriculum should include different types of instruction in the form of audio or video lessons and it is important to include a time frame, whether it will be conducted synchronously or asynchronously. To make it easier for students to follow classes and complete assignments, the teacher should provide them with a detailed schedule of lectures, pointing out how often and how long they will be held.

In order for the teacher to be available and present, it is necessary to establish *communication patterns* with students by sharing information about their contact and the time of online tutorials in which students can contact him/her. In order to retain students' attention, timely feedback should be provided on students' work or tasks they have performed. In order for students to connect and create an educational community, teacher should initiate workshops and discussion groups as a starting point for further student interaction and team work. Due to the online form of teaching, students have to be able to contact the administrative staff for technical support.

Since students' success in e-learning course is measured by summative and formative *assessment*, students have to be familiar with the schedule of individual assignments that are expected of them. Equally, the teacher introduces the criteria for participation in classes as well as the ways of monitoring their participation in workshops and discussion groups.

4 CONCLUSIONS

By comparing and analyzing traditional and digital curricula and their conceptualization, it was found that to some extent they contain the same concepts, but when using strictly online instruction, these concepts are applied differently. Each curriculum contains concepts of learning outcomes, methodology and evaluation, but in the digital curriculum it is extremely important to develop the synchronicity of lectures. What is more, the roles of teachers and students are changing in the online environment because there is no frequent interpersonal communication. Therefore, the teacher must pay attention to communication patterns with students, but also create a social network in which students can interact with each other. The experience during the COVID-19 pandemic, due to which many institutions have stopped F2F instruction and transferred to digital curriculum, has shown that when designing digital curricula, attention should be paid to flexibility and quality of instruction. In doing so, teachers must consider the planning, design, and evaluation processes of e-learning that will be developed in the future. Due to the technological, financial, institutional and time constraints, it is not a simple task to develop an e-learning course curriculum. The proposed model of convergence of the traditional to the digital curriculum in this paper can provide educational experts with effective guidance and evaluation in online instruction design. Not only can proper application of the model support the engagement, involvement, motivation and focus of students on online learning but it can also facilitate the process of planning and designing a digital curriculum for teachers.

ACKNOWLEDGEMENTS

Publication of this paper was supported by mentors and PhD students grant from the University North to which the authors of this article are grateful for the big support.

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