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Original Paper

Modern forms of accounting teaching and obtaining professional knowledge of students: case study

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ABSTRACT

To limit the spread of COVID-19 disease universities and schools revised the mode of delivery from contact teaching to distance teaching. The implementation of educational activities by the distance method replaces the direct contact of the teacher with the students and places increased emphasis on the quality and comprehensibility of study materials and their availability for students. The aim of the paper is to present a modern form of an accounting teaching through a case study of distance teaching in the course Single-entry bookkeeping system at the Faculty of Economics and Management of the Slovak University of Agriculture in Nitra. Seminars from the course Single-entry bookkeeping system are realized in an accounting software, so it was necessary to find the optimal solution to ensure the distance teaching. We chose to make video tutorials using software which allows to record activities on the desktop together with the teacher as a narrator. Video tutorials allow students working in a demo version of the taught accounting software to gain professional knowledge and skills with working in the accounting software and as well as within the distance learning. The paper also evaluates the examination results from the course Simple-entry bookkeeping system for the last four academic years. The evaluation showed, that in the academic year 2020/2021 when the distance teaching started, the highest success rate on the first term and at the same time the worst average grade was achieved by students.

KEYWORDS: accounting, distance teaching, software, video tutorials

JEL CLASSIFICATION: A22, C10, I21, I23, M41

INTRODUCTION

One of the priority directions of the process of informatization of modern society is the informatization of education - the process of providing the sphere education methodology and practice of development and optimal use of modern, or, as they are called, new information and communication technologies [13]. The main aim of education at universities is the

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training of qualified graduates who will be able to apply in professional areas of the labour market. New information and knowledge are currently available through the Internet, social networks, media and multimedia tools. It is therefore necessary for higher education to be provided through information and communication technologies [11]. Information and communication technologies are also booming in the modernization of the creation of new study materials. Their introduction was also stimulated by the creation of new alternative methods and forms of teaching, the creation of new study materials - electronic study materials, materials intended for self-testing and testing of knowledge, or materials intended for the creation of seminar papers [8]. The inclusion of e-learning methods in education enables teachers to create modern learning resources, to provide support in the self-study of students, and motivate them to acquire knowledge actively [10].

Until recently, distance education in Slovakia was perceived as a passive use of the Internet through websites that serve to publish information about the study and a specific educational institution, as well as to publish organizational information related to the study. In today's higher education, the lecture form of teaching has clearly prevailed so far, when students sit in desks and passively accept the knowledge presented to them by the lecturer [5]. At state universities in Slovakia, the development in the field of online education was not very fast. Continuous problems with the lack of funding, the lack of qualified teachers and, consequently, the quality of teaching have been a long-term barrier to innovation [12].

COVID-19 disease is a global phenomenon that is exerting its influence on a lot more than just health sector. Educational institutes were also part of the lockdown that followed the outbreak [2]. The epidemic situation and the adaption of measures against the spread of COVID-19 disease required the interruption in full-time study at the universities and the immediate transition to the distance teaching and learning [3, 4]. The ongoing public health crisis has brought far-reaching influence to the teaching reform in universities and online teaching has become a new normal [6, 9]. There were some problems in online teaching, such as network jam, interference in home learning and lack of learning monitoring, however, timely online training, abundant online resources, convenient live broadcast tools and stable teaching platform had ensured the orderly development of the online teaching. In the post-epidemic era, online teaching will be integrated with offline teaching, which become "normalized" [1, 14]. The online teaching should meet most of the criteria of face-to-face teaching [7]. There is the need for professional development and institutional support for teachers who transition from a traditional to an online teaching environment, regardless of whether is a voluntary or forced shift [3].

MATERIAL AND METHODS

The course Single-entry bookkeeping system is a compulsory elective course at the bachelor's degree in the 5th semester. It is offered for six study programs at the Faculty of Economics and Management (study programs: Accounting, Business Economics, Trade Entrepreneurship, Environmental Economics and Management, International Business with Agrarian Commodities) and one study program at the Faculty of Agrobiological and Food Resources (study program: Sustainable Agriculture and Rural Development). The course is taught in full-time and part-time form of study. The scope of the course is in the full-time form of study 2 hours of lectures and 2 hours of seminars per week, i.e. a total of 52 hours per semester of study. The scope of the course in the external form of study is 10 hours of lectures

and 10 hours of seminars, i.e. a total of 20 hours per semester of study. After successful completion of the course, the student will gain an ECTS grade and 6 credits. In the current academic year 2021/2022, 95 full-time students and 8 part-time students are enrolled in the course of Single-entry bookkeeping system. This course is important for students who are considering a sole trader business. After completing this course, students will be able to record accounting transactions and complete the financial statements of self-employed persons. Students will be able to analyse income and expenses of self-employed persons and how it affects tax base, work out tax base and income tax and also prepare a tax return.

The Mann-Whitney U Test was used in the analysis of the educational outputs of the course Single-entry bookkeeping system. This test belongs to the category of non-parametric statistical tests and is used to compare the medians of two independent samples. In our case, the observed characters are the characters X, Y, where X indicates the mark from the exam test in one academic year and the character Y indicates the mark from the exam test in the second academic year. The null hypothesis will be tested:

H₀: The medians of marks obtained in the Single-entry bookkeeping system exam are equal in each year.

An alternative hypothesis is:

H₁: The medians of marks obtained in the Single-entry bookkeeping system exam vary from year to year.

RESULTS AND DISCUSSION

Implementation of economic software in accounting teaching

The cooperation with the software company Kros was established in 2020. This company provided free educational licenses of Alfa plus, Omega and Olymp economic software. In the last academic year, Alfa plus accounting software became a part of the teaching process in the Simple-entry bookkeeping system course. This accounting software offers a solution for single-entry bookkeeping, tax records or flat-rate expenses. It allows to account for income and expenses, issue invoices, orders, or tax returns. Regarding the development of the epidemic situation in the autumn of 2020, the Slovak University of Agriculture decided to educate students by the distance method. Taking into account the measures, it was necessary to consider how the seminars from the course Single-entry bookkeeping system will take place, as the necessary software for single-entry bookkeeping was installed in the classroom in the building of the Faculty of Economics and Management. The software company Kros offers the opportunity to try single-entry bookkeeping in the Alfa plus accounting software through a free demo version, which allows to fully account for a period of three months. This demo version provided a solution to the problem of how to enable students to work in an accounting software within distance learning.

Organization of distance accounting teaching

Before starting online teaching, it was necessary to consider which way of conducting lectures and seminars would be the most suitable for ensuring quality distance education. The lectures were given as "live" lectures through the Microsoft Teams application. Regarding the

seminars to be conducted in the accounting software, the following requirements were set in order to search for the optimal solution:

- Students must be able to follow the teacher's work in the accounting software.
- Students must be allowed to listen to the teacher's accompanying word at the same time.
- Students must be allowed to take notes during the teaching.
- Students must be able to solve tasks in the demo version of the taught accounting software simultaneously with the teacher.

The requirements set in this way showed that the originally considered "live" teaching in the accounting software through the Microsoft Teams application with the possibility of sharing the screen of the teacher's computer during his work in the accounting software will not allow to meet all these requirements. Therefore, we chose to make video tutorials that allow students working in the demo version of accounting software to acquire skills with working in the accounting software as well as in the distance education.

Video tutorials were made using OBS Studio software, which was recommended by the Centre of Information Technologies of the Faculty of Economics and Management of SUA in Nitra for this purpose. It is open source software that allows:

- record desktop and desktop activity along with computer audio to video format,
- record sound from the microphone - the accompanying word of the teacher,
- upload a webcam image,
- upload unlimited videos,
- convert recordings to mp4 format,
- pause video recording,
- easy operation with keyboard shortcuts.

During the preparation of video tutorials for working in the accounting software, the need arose to find a tool for video editing, which would facilitate the work of creating video tutorials. From the available freeware software, MiniTool MovieMaker was chosen, which allows:

- merge multiple videos into one,
- split one video into several,
- remove unwanted parts from a video.

MiniTool MovieMaker offers a simple user interface suitable for beginners and allows to edit videos without a watermark as well.

As the students worked in the demo version of the accounting software according to the prepared video tutorials in the home environment, it was necessary to ensure control of their work in the accounting software. The given accounting software allows to transfer issued accounting documents, tax returns, accounting books and various print reports to pdf format. This function of the accounting software was used to control the work of students in this accounting software. Within the individual video instructions, students were given tasks, which they demonstrated by issuing the relevant accounting documents exported in pdf format and sharing with the teacher via the Microsoft OneDrive cloud storage, which is a part of Office 365. Accounting documents were issued by students so that their name appeared as the name of the employee who issued the accounting document at the relevant accounting documents (see Figure 1).

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Figure 1 The accounting document prepared by the accounting software
 Source: authors

Evaluation of examination results from the course Simple-entry bookkeeping system

The analysed data were obtained from the teaching of the course Single-entry bookkeeping system, while we focused on the results of examinations in the period from 2017 to 2021. In the first three assessed academic years, the full-time examination took place in a written form through open-ended questions tests. In the last assessed academic year 2020/2021, it was necessary to switch to the distance form of examination. The examination in the course Simple-entry bookkeeping system took place in the form of closed-ended questions tests with options from which to choose a correct response. These tests were created through Microsoft Forms. This web application can be used to easily create tests, surveys, polls and quizzes. An overview of the marks obtained is presented in Table 1.

Table 1 Evaluation of examination results in individual academic years

Academic year	Evaluation of examination results						Number of successfully completed students
	A	B	C	D	E	Average grade	
2017/2018	86	5	27	9	3	1.38	130
2018/2019	81	1	36	2	15	1.52	135
2019/2020	82	0	12	2	2	1.19	98
2020/2021	8	6	15	14	15	2.19	58

Source: authors

Graphic processing of students' success in the exam as regards the term order (1st, 2nd and 3rd term) is presented in Figure 2. In order to explain, we state that the 1st term is also called a "regular" term. The other two terms (2nd and 3rd) are also referred to as the "correction" term. We see that in the studied years, the highest success rate on the 1st term was achieved by

students in academic year 2020/2021. At the same time, we see that a minimum percentage of students participate in the 3rd term. As we can see, the worst average grade was achieved by students also in academic year 2020/2021 when the distance education started.

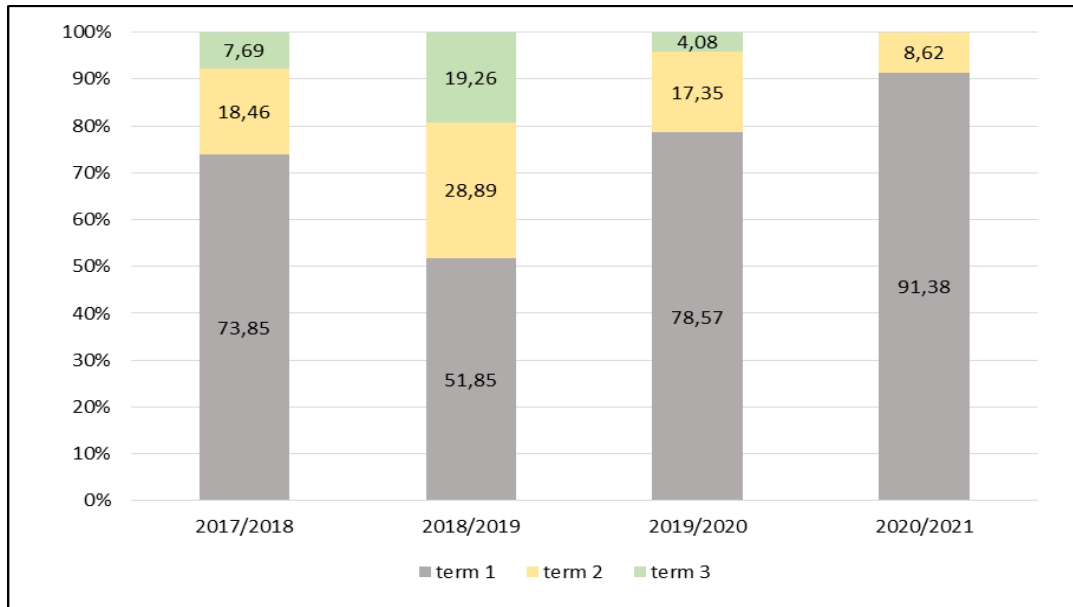


Figure 2 Students' success rate according to the term

Source: authors

Graphical representation of marks using box plot graphs (Figure 3) shows differences in comparison over the years. In academic years, the research teams had about the same number of students and the teaching took place in a contact form. In the years 2019/2020 and 2020/2021, the number of students in the research samples decreased, while in 2020/2021 the teaching took place only in a distance form.

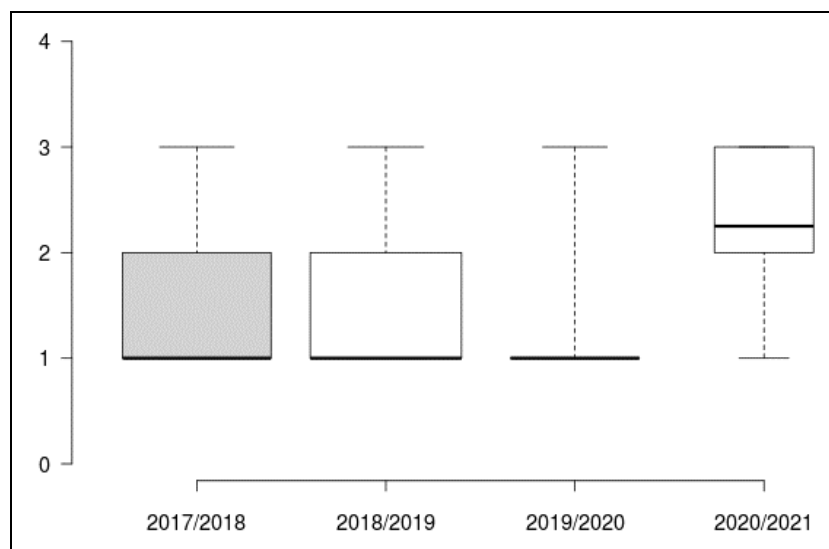


Figure 3 Box plot of examination results according to academic years

Source: authors

We used the Mann-Whitney U Test (Table 2) to verify statistically significant differences between the marks in the individual academic years. The test results confirmed that there were no statistically significant differences between 2017/2018 and 2018/2019 (p-value 0.242). In all other cases, the p-value is less than 0.05, which was the selected significance level of the used test. Thus, statistically significant differences in the marks from the exam were confirmed between the assessed years (except for the first case).

Table 2 Results of Mann-Whitney U Test

Compared years	2017/2018	2017/2018	2017/2018	2018/2019	2018/2019	2019/2020
	2018/2019	2019/2020	2020/2021	2019/2020	2020/2021	2020/2021
p-value	0.242	0.027*	0.000*	0.000*	0.000*	0.000*

Source: authors

CONCLUSIONS

In the distance form of education, it is necessary to place increased emphasis on the quality of teaching, as distance education replaces the direct contact with teacher's communication with students through information and communication technologies. In order to ensure quality distance learning within the course Single-entry bookkeeping system, we chose the creation of video tutorials that allowed students to gain skills with working in the accounting software in the home environment through a free demo version. It can be stated that this way of performing the seminars suited the students, as they had the opportunity to return to the video tutorials. Students consider this to be a great advantage compared to "live" teaching, when the issue of working in the accounting software would be explained to them once, without having to capture the whole sequence of work steps. Video tutorials enabled students to work and solve assigned tasks in the accounting software at an individual pace of their work.

Analysis of the test results showed that there were statistically significant differences between the assessed years in five out of six cases. In the last two assessed academic years, pandemic constraints have intervened in the teaching process. This was the main reason for the changes in teaching methods at the university, to which both students and teachers had to adapt very quickly. The evaluation also showed, that in the academic year 2020/2021 when the distance teaching started, the highest success rate on the regular term and at the same time the worst average grade was achieved by students.

Distance education will not fully replace the full-time method of the educational process, but the current situation has allowed us to gain valuable experience with online learning, which will certainly be used in the future.

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