

Thesis summary

Eleonóra Tarpataki

**Quality assurance in higher education, the
impact of the changing ecosystem on course
development**

Ph.D thesis

Supervisor:

László Péter Lakatos, Ph.D.

associate professor

Budapest, 2025

Doctoral School of Business and Management

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I. Research background and justification of the topic

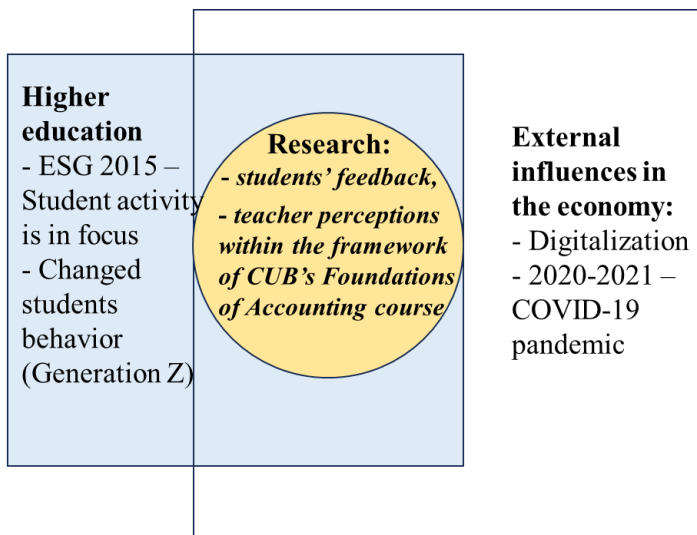
The starting point for my research was my experience as a teacher in adult and higher education and my previous professional practice in finance and accounting spanning more than twenty-five years. The combination of practical and teaching perspectives allowed me to examine the teaching and learning of accounting from both an applied and a pedagogical point of view. As a lecturer at the Department of Accounting at Corvinus University of Budapest, I am particularly interested in developing the Fundamentals of Accounting course from the perspective of how to provide both sufficient motivation and a professional foundation for students studying finance and accounting and other business courses.

The interpretative framework of this paper is the higher education quality assurance system, which examines the quality of higher education in the complex unity of teaching, research, management, student services, and community engagement (Eaton, 2021) (Kayyali, 2023). With the development of the economy and higher education, the increased number of non-traditional student groups has forced a paradigm shift from traditional, teacher-centered pedagogy to learning-based, student-centered education, which is becoming the norm in quality assurance processes and is resulting in changing teaching roles (Kozma, 2024).

The COVID-19 pandemic has accelerated development in certain areas of higher education, such as the wider use of online tools, but at the same time has created obstacles to education in other areas, such as personal relationships, communication, and collaboration. It is important to take a step back after new methodological developments and evaluate the results, examining from a distance how well they contribute to the achievement of targeted learning outcomes and how well they meet the needs of students. (Tarpataki & Mikáczó, 2022) (Jordan & Samuels, 2020).

In reviewing the research environment, the focus was on the changes brought about by the rise of student-centered learning/teaching, digitalization trends, and the shock effect of the COVID-19 pandemic on higher education. Institutional responses to technological and methodological challenges have not only provided short-term solutions but are also shaping educational methodologies in the longer term.

1. Figure: Doctoral research and its environment (own ed.)



My empirical study focuses on the "Foundations of Accounting"¹ course at Corvinus University of Budapest, because:

- It is taught in almost all undergraduate economics programs,

¹ The subjects taught in Hungarian and English are as follows: Foundations of Accounting, Analysis of Accounting Statements, Elements of Accounting, Foundations of Accounting, Understanding Financial Statements (hereinafter, in the case of general references to Foundations of Accounting taught at Corvinus University of Budapest, I also include these subjects).

- It develops competencies that can be used in other subjects,
- The computational or quantitative characteristics of the subject can cause students to experience anticipatory anxiety, which can affect their performance (van der Heijden, 2017) (Clark & Schwartz, 1989), so it is worth using a variety of teaching methods that best suit different learning styles, thereby reducing increased student anxiety;
- It forms the basis for further courses as a foundational subject,
- It is also the basis for leadership and entrepreneurial competencies.
- It is completely new to most students, who have little prior knowledge, which allows me to largely isolate the results of student feedback from one of the external components of their performance in the subject, namely prior knowledge of accounting.

The complexity of the difficulties and opportunities inherent in teaching the subject, as well as the need for diversity in teaching methods, prompted me to examine students' learning preferences for the tools used in teaching at a systemic level.

At the same time, I considered it important to record not only student feedback, but also the experiences and perceptions of the instructors who teach the Foundations of Accounting course and are actively involved in course development.

The long-term goal of the research is to explore adaptable experiences and results that support the development of similar courses in higher education in economics, increase the effectiveness of learning, and strengthen student success.

II. Methods

II.1 Literature research

The research is based on an extensive review of the literature focusing on topics closely related to quality assurance in higher education, student-centered learning and teaching, digitization, and university accounting education, which form the framework of the research. In light of the literature review and the research objectives and questions, the research was structured as follows:

- Defining the research focus: the aim was to interpret the changes in higher education, the impact of digitization processes, and the information available in the field of accounting education (subject development) in a comprehensive context.
- Literature review: after defining the key concepts and search terms, I used Google Scholar and EBSCO online search engines to search for literature. I also had access to printed literature sources from the BCE library and my own collection.
- Analysis, synthesis, and processing of literature.

II. 2 Quantitative research, Questionnaires

During my doctoral research, I used both qualitative and quantitative methods to get a complex picture of the results of developing the Fundamentals of Accounting course.

As part of the quantitative data collection, I conducted anonymous, voluntary questionnaires among students over eight consecutive semesters. The purpose of the questionnaires was to find out which teaching methods best support their learning process. In the spring semester of 2019/20, I conducted the first survey among students

of the Foundations of Accounting course². I sent the questionnaire (Google form) to the students after the exams and received 126 responses in the first semester. In total, I received 1,358 responses from students in Hungarian and English language courses over the eight semesters.

The questionnaire contained only one demographic question (male/female), but I also asked about their previous studies in accounting and, in the English-language questionnaire, about their level of English proficiency. In the next section of the questionnaire, students responded on a Likert scale of 1 to 5 to what extent the given knowledge transfer tool helped their learning in the given semester. Each semester, for both Hungarian and English-language courses, I consulted with the course coordinator to determine which methodological elements were available to students and how their scope had changed or expanded, and the questionnaire was modified accordingly. In the last section, I gave them the opportunity to provide constructive feedback, particularly regarding their suggestions for retaining the methodological elements developed for the online period in future semesters.

Hypotheses established during the questionnaire:

H1: From the perspective of student learning, the various knowledge transfer methods can be ranked in order of preference within the framework of the Fundamentals of Accounting course.

H2: There is a difference in student preferences between the various knowledge transfer methods during the online and offline teaching periods in the Fundamentals of Accounting course.

H3: Groups can be identified in terms of student preferences for the various knowledge transfer methods in the Fundamentals of Accounting course.

² During the semester, after March 15, we switched to online education due to COVID-19.

H4: There is a correlation between students' online activity and their final grades.

The H4 hypothesis was tested by taking into account the online activity of 1,104 students studying Foundations of Accounting in the English-language program during the six semesters between the spring semester of 2020/21 and the fall semester of 2023/24 (Moodle, Kahoot!) and their final grades. I added the frequency of participation in Kahoot! tests and the students' final grades to the logged system usage activity groups available in the Moodle report. I used statistical methods in SPSS to examine the correlation in the database created from this (Sajtos & Mitev, 2007).

II.3 Qualitative research

In economics education, one of the most important tasks for teachers when teaching foundational subjects is to maintain student motivation and commitment. This helps to reduce dropout rates and ensures that the foundational subject can effectively fulfill its role and that deeper learning can take place as widely as possible. This knowledge can also be used later when studying other subjects. That is why I asked both students and teachers about their experiences and impressions of online and offline teaching.

I involved all teaching colleagues who teach the Foundations of Accounting, either in Hungarian or English, in the research. I conducted the interviews on Teams in the summer of 2021, when we were already three semesters into online education, but it was not yet clear how higher education would continue due to the COVID-19 pandemic.

Thus, qualitative data collection took the form of semi-structured interviews with twenty teachers, focusing on their experiences of the emergency digital transition during the COVID-19 period, as well as their motivations and methodological decisions. The interviews were recorded with the verbal consent of the interviewees,

and the recordings were transcribed using Alrite software, followed by re-listening to the interviews and refining the transcripts.

I organized the answers to the questions by teacher and by question, either with a summary of the content or with quotes from the interview. To ensure research credibility and reliability, I validated the transcripts, summaries, and codes derived from the recordings with four interviewees, and also had them checked by an independent research colleague (triangulation) (Miles & Huberman, 1994).

Research questions:

- 1) Can we identify areas of the curriculum within the subject that could be made available (also) in an online format, taking into account student preferences?
- 2) Can we reach different conclusions if the method of knowledge transfer is not in the native language, i.e., if students learn the subject in a foreign language?
- 3) What are the advantages and disadvantages of synchronous and asynchronous online education in the case of the subject Fundamentals of Accounting (a compulsory undergraduate course taught in Hungarian and English), taking into account student preferences?
- 4) How do teachers interpret the concept of modern teaching materials after the digital transition, and what experiences have they gained in relation to online teaching material development?

Before analyzing the interviews, I briefly reviewed the relevant literature, in which researchers pointed out that online and blended learning require a different pedagogical approach than traditional face-to-face teaching. The preparedness of instructors influences the quality of both online and blended courses (Gurley, 2018; Tondeur et al., 2023; Zhao et al., 2021).

The aim of the methodological approach was not to generalize, but to gain a deeper understanding of how teachers interpret changes,

what learning support elements students respond positively to, and how these fit in with the principles of quality assurance and student-centered learning.

III. Scientific results of the thesis

I applied the TPACK framework³ described in detail in the theoretical subchapter of the thesis to classify the knowledge transfer methodological elements following the development of the Foundations of Accounting course. This provided a good basis for, among other things, naming groups of students (clusters) with similar learning preferences. Furthermore, during the analysis of the teacher interviews, the model proved to be a useful framework not only for educational planning, but also for interpreting teacher adaptability.

III.1. Quantitative research results

H1: I conducted the study related to hypothesis H1 in two ways: once for the entire population (9 semesters, all students participating in Hungarian and English language courses), and once divided into Hungarian and English language courses, which was necessary because the teaching methodology material for the two types of courses differed. There were only four methods that were used in both Hungarian and English courses in all semesters examined: a) publication of lecture slides in PDF format on the Moodle platform; b) detailed example exercises in PDF format also available on the Moodle course platform;

³ Technological Pedagogical And Content Knowledge (TPACK) (Mishra & Koehler, 2006; Petko et al., 2025) The aim of TPACK is to present the basic levels of competence and their interactions that are necessary for the effective integration of technology in education. According to the model, subject-specific (content) knowledge, pedagogical methodological knowledge, and access to technological tools are essential in the teaching process; it also emphasizes that these components do not function separately, but in close connection with each other.

c) Moodle test – four practice tests to be completed at home; d) weekly Kahoot! competition. Of these, the publication of detailed example solutions in PDF format and the Moodle test were rated highest by students in terms of how much they helped their learning.

However, when I examined the semesters and the two courses (in Hungarian and English) separately,⁴ I found no confirmation that, from the perspective of student learning, the various knowledge transfer methods could be ranked in order of preference within the framework of the Foundations of Accounting course; so **I rejected research hypothesis H1.**

H2: When testing hypothesis H2, I sought to determine whether there was a difference between online and offline periods in terms of student preferences. I had nine comparable data points for Hungarian courses and ten for English courses. When comparing averages, I

⁴ a) Among the methodological elements available in the first semester of Hungarian-language training, students found **video lectures** to be particularly helpful (average: 4.5), followed closely by **weekly face-to-face seminars** and four **practice sample tests prior to the Moodle tests** (average: 4.18 and 4.14). (average: 4.18 and 4.14) were the weekly in-person seminars and the practice sample tests before the four Moodle tests. Moodle tests (average: 4.06) were ranked fourth, while in the last offline semester, the top three categories in terms of preference were **detailed sample solutions, face-to-face seminars, and practice examples from the exercise collection**

b) In the case of English-language courses, based on the combined data for the eight semesters examined, the most supportive (average: 4.81) were the **sample exams in Moodle**, followed by **detailed sample solutions** (average: 4.54), and in third place, with the same average (4.36 - 4.36), were the **in-person seminars** and **video lectures**. There were no methodological elements with an average rating below 3 in the questionnaire sample. The preference list is the same for the last three semesters examined: here, too, detailed sample solutions and in-person seminars are part of the list, but the third element is the sample exam available in Moodle, which can be completed without restriction.

considered differences greater than 0.4 to be significant, which is used in educational research to identify significant differences (Hattie, 2008). Table 1 contains the methodological tools for which I identified a difference greater than 0.4 in the average preference between the two periods, on the basis of which I accepted hypothesis H2, i.e., differences can be identified in student preferences between the various knowledge transfer methods in the online and offline teaching periods for the subject of Foundations of Accounting.

1. Table: Changes in student preference ratings for educational support tools during online and offline periods (own ed.)

	Online average	Standard deviation	Offline average	Standard deviation	Difference between averages
FoA courses in Hungarian					
Ppt with voiceover (solution to exercises)	3,49	1,514	2,85	1,582	0,64
Group work (case studies)	2,70	1,449	3,34	1,326	-0,63
Detailed activity solutions in pdf	3,68	1,272	4,09	1,163	-0,42
Moodle test practice activities	4,24	1,007	3,79	1,266	0,45
FoA courses in English					
Weekly KAHOOT! championship tests	3,66	1,287	4,20	1,115	-0,54
Other practice exercises in Activity Kit	3,44	1,286	3,97	1,159	-0,53
Video lectures	4,65	0,650	4,16	1,111	0,49
Moodle test assignments	3,58	1,227	4,07	1,159	-0,48

H3: To test hypothesis H3, I performed cluster analysis in SPSS, then interpreted the knowledge transfer methods used in accordance with the dimensions of the TPACK model in order to reveal which knowledge elements play a decisive role in supporting the learning experience in which student groups. The following clusters emerged:

- Asynchronous, video-based learners who primarily preferred structured digital learning materials accompanied by teacher explanations;
- Students who required a structured, face-to-face or hybrid learning environment and responded in a balanced manner to pedagogical and technological support;
- Independent and performance-oriented students with high digital activity who actively participated in all aspects of the learning process;
- Groups showing minimal commitment, who did not value the methodological diversity of the courses and were characterized by low engagement.

Based on the analysis, it can be concluded that the majority of clusters with high learning commitment were characterized by the combined and strong presence of at least two TPACK dimensions. Groups where technological knowledge was integrated with pedagogical support and professional content stood out – these students were typically among the most active and reflective learners. Examples include cluster 3 for English-language online and offline education and cluster 2 for Hungarian classroom-based training. In other clusters, especially in groups with low commitment, either the technological or the pedagogical component was missing, and there were even clusters (e.g., Hungarian - online 2) where neither dimension was really dominant, which may indicate a low level of learning engagement.

Based on the cluster analysis, **I consider hypothesis H3 to be accepted, according to which groups can be identified in terms of student preferences for individual knowledge transfer methods in the subject of Foundations of Accounting.**

H4: To test hypothesis H4, I used the database of English language courses described in the previous chapter (methodology) and performed a principal component analysis in SPSS, which identified

two principal components. I examined the effect of these two factors ("Minimum" and "Interactive") on the students' final grades. Based on the value of the regression R² indicator, the two main components explain nearly 20% of the variability in grades. Furthermore, based on the standardized regression coefficients, it can be concluded that the effect size of the "Minimum" factor is moderate, more than twice that of the "Interactive" factor, which has a small effect size. However, the effect of both components is significant (p-value < 0.01) and positive, i.e., the more active the student was, the better their grade was likely to be. Based on the above, **I consider hypothesis H4 to be partially accepted, i.e., there is a clear positive but not strong relationship between students' activity measured on the online platform and their final grade.**

III.2. Qualitative research results

When analyzing the interviews with teachers, in addition to the research questions formulated, I sought answers to two further factors: teacher motivation and the challenges of online teaching.

The interviewees ranked **active student participation** and **interactivity** as the most important motivating factors for teachers, This was closely followed by the existence of an **atmosphere of trust** and **personal connection**, arousing student interest, and successfully involving students in the active learning process. A **good atmosphere, humor, and playfulness** were also mentioned as important components.

Teachers considered **the main challenges of online education** to be **technical obstacles** (infrastructure, appropriate hardware and software, and proficiency in using them) and **fear of the unknown** on the one hand, and **lack of student interest and interactivity** on the other. The latter also significantly undermined motivation.

Q1: The answer to research question Q1, whether we can identify areas of the curriculum within the subject that, taking student

preferences into account, would be worth making available (also) in online form, is a clear yes. Based on the responses from teachers and students, **theoretical lectures, exam preparation and practice exercises, Moodle tests, recorded video materials, and audio slideshows are suitable for online (mainly asynchronous) formats.**

The teaching materials recommended for retention or making available online (e.g., Moodle tests, video examples, audio slideshows) can be interpreted in the triple intersection of the TPACK model, as these forms of teaching simultaneously build technological competence, pedagogical purpose, and content structure. According to teachers' experience, these methodological elements not only meet student preferences but also effectively support independent learning and assessment.

Q2: For research question K2, in which I examined whether the methodological tools developed during the online period differ from those recommended for the offline period when students are learning the basics of accounting in a language other than their native language, **I was unable to obtain scientifically sound evidence** because only two of my twenty interview subjects taught exclusively in English and three taught in both languages.

Q3: Research question Q3 sought answers to the advantages and disadvantages of synchronous and asynchronous forms of education⁵ used in online education. In summary, the advantages of synchronous online education are real-time presence (and, in connection with this, the possibility of immediate questioning and personal contact), while the disadvantages are the difficulty of maintaining attention and the tiring, long-term online presence. The

⁵ In my thesis, synchronous education refers to real-time or live education conducted on an online platform, without recording, with the simultaneous presence of teachers and students, and by asynchronous education, I mean pre-recorded teaching materials that are available online in a structured form and accessible to students of the given institution at any time, with a deadline for the final exam.

advantages of asynchronous online education include flexibility, repeatability, and self-regulation of time, which are important elements of self-regulated learning for conscious students who take responsibility for their own learning. The disadvantages include passivity and poor time management.

Q4: When examining research question Q4, I explored the criteria for modern teaching materials in several dimensions and concluded that modernity does not mean technical development for its own sake, but rather serves to optimize the student learning experience and learning effectiveness.

In terms of content, according to the respondents, modern teaching materials are those that are based on current examples, relate to the real economic context, and are able to adapt to the students' life situations (e.g., practical examples, interactive situations).

From a methodological point of view, according to teachers, modernity is achieved when it is interactive, emphasizes student activity and problem solving, the curriculum is modular and well-structured, supports self-assessment and practice, allows for optional learning paths, is experiential, and can be combined with various digital tools.

From a quality assurance perspective, teachers interpret modern teaching materials as transparently supporting the achievement of learning outcomes, as well as student independence and development.

III.3. Summary, Conclusion

The research showed that the development of the Fundamentals of Accounting course closely follows changes in the higher education ecosystem, resulting in transformations in teaching methods, content approaches, and learning paths. The digital shift brought about by COVID-19 has raised not only technological but also pedagogical questions, emphasizing the need for conscious, value-creating digital content development while ensuring quality. Taking into account

student preferences and learning habits, the research showed that different types of teaching materials support different student clusters more effectively, for example, video and asynchronous materials suit technology-oriented students, while interactive forms of attendance suit pedagogically oriented students.

Based on interviews with instructors, it can be determined that modern teaching materials can be interpreted not only as technological innovation, but also as part of a student-centered educational system that supports experience and student activity. During the digital transition, the development of video materials, Moodle-based testing, and the expansion of the task repository were particularly important, while the instructors' own willingness to learn and technical self-training contributed significantly to the success. The quality assurance framework provides an opportunity to further develop the structure, content, and learning experience of the curriculum in the future, emphasizing the equivalent and integrated use of online and face-to-face formats.

Although the study was conducted within a narrower framework, its results may also be relevant for the development of other similar subjects. According to the paper, it is important in future subject development that the structure supports choice, develops the learning experience as well as the content, and treats the online format not merely as a supplement but as an equivalent alternative. These results can contribute to the more effective and sustainable integration of digital education in higher education.

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V. List of own (and co-authored) publications related to the topic

Professional journal articles

Tarpataki E., & Mikáczó É. I. (2022). Lépések az élményalapú oktatás irányába: A játékosítás határmezsgyéjén a számvitel alapjai tárgy oktatásában. *Vezetéstudomány / Budapest Management Review*, 53(12), Article 12. <https://doi.org/10.14267/VEZTUD.2022.12.04>

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Tarpataki Eleonóra: Egyetemi számvitel oktatás változása a 2020-as évek elején, Magyar Tudomány Ünnepe Konferencia, Budapest, 2023

Tarpataki Eleonóra: Egyetemi számvitel oktatás változása a pandémia után, Bosnyák János Emlékkonferencia Budapest, 2023. február 17.

Eleonóra Tarpataki: Gamification & accounting, Embracing Change & Transformation Conference, Budapest, 2022

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dr. Mikáczó Éva – Tarpataki Eleonóra (2019): Módszertani megújulás IV. Bosnyák János emlékkonferencia előadás

VI. Annexes

Detailed description of the teaching methodologies used in the survey

Face-to-face lecture	A 90-minute lecture held in person (with students and teachers present) in a lecture hall on the university campus.
Video lecture	A lecture recorded in advance by a university staff member in a video room, then edited and published on the Moodle platform. Students could watch, rewind, slow down, and speed up the video as many times as they wanted. During offline semesters, we posted videos of the material covered so far one week before exams in English-language courses. During the online period, lectures were replaced, and students were asked to watch the relevant lecture before seminars. This method was available during the online period and the first three semesters of the offline period for Hungarian-language courses.
Lectures in ppt format (without audio)	The slides of the lectures are available to students in pdf format on the Moodle platform at the beginning of the relevant week (mainly to facilitate note-taking)
Ppt with voice-over (task solutions)	Detailed solutions to individual tasks in the example collection, supplemented with explanations, typically in the form of audio-narrated PowerPoint presentations recorded by the instructors. These can also be viewed, rewound, etc. at any time. In the Hungarian-language program, these were available during the online period to support student learning; the exercises to be solved in the seminar could also be followed in

	<p>this way. In English-language courses, tasks are available in this way (both online and offline) that are not solved in class but help students master the material.</p>
<p>Step-by-step numerical calculations in PDF format</p>	<p>Detailed solutions to class and/or other example exercises without instructor explanations can be downloaded in PDF format from the Moodle interface.</p>
<p>Numerical solutions in PDF format (final results only)</p>	<p>The final results of the tasks solved in class and/or other example tasks can be downloaded in PDF format from the Moodle course.</p>
<p>Moodle test practice activities</p>	<p>In both Hungarian and English language courses, there are two tests per quarter, i.e. a total of four, which can be completed within the deadlines specified in Moodle. The tests are varied and contain Moodle-supported task types (multiple choice, true/false, fill-in-the-blank, etc.), which students must complete as homework within 15-20 minutes. Each test can be attempted three times, and the best result is included in the final grade.</p>
<p>Other practice exercises in the example book</p>	<p>The Foundations of Accounting activity book and workbook, as well as the examples and practice exercises in the Activity Kit</p>
<p>Weekly seminar with the instructor - in person</p>	<p>A 90-minute seminar held in person (with students and instructor present) in a classroom on the university campus.</p>
<p>Weekly Teams seminar with the instructor - online</p>	<p>A 90-minute seminar held synchronously online (with students and instructor present at the same time) on the university's Teams platform at the scheduled time.</p>
<p>Weekly Kahoot! championship</p>	<p>A Kahoot! quiz played live in classrooms during the scheduled lecture or seminar time or during offline periods. quiz played live in classrooms</p>

	during the lecture or seminar schedule time (with students and instructor present at the same time) or offline, with questions compiled from the previous week's material. Typically used to review the course material, participation may be rewarded with extra points by instructors (up to 5% of the final grade).
Mandatory homework assignments	Typically, a minimum of two examples from four homework assignments per semester must be completed and uploaded to Moodle in order to complete the course (no points are awarded for this).
Optional homework assignments	There are some courses in Hungarian education where completing and uploading the optional homework assignments is optional. This does not affect the final grade.
Interactive video - for independent study	Animated videos created for more difficult course material, in which students must answer multiple-choice questions as the story progresses. If the answer is correct, the video continues. It can be viewed and completed at any time (designed to support learning, no points are awarded for it) and is made available to students on the Moodle platform along with the weekly material.
Sample (mock) exam/test in Moodle	In the English-language program, both the quarterly and semester exams are computer-based. Mock exams are available to students at least one week before the actual exam; their time frame, structure, and the style and type of examples are similar to those of the exam. Students can complete them as many times as they like; the correct answers are not shown, but they can infer the right and wrong answers from the points they receive. In the Hungarian-language program, a sample test is

	available to students before the four Moodle tests, which they can practice on as many times as they want.
Group work	In the Hungarian-language program, students are given one group work assignment, while in the English-language program they are given two. In both courses, students are provided with a "real" company formation and start-up documents, from which they must prepare the bookkeeping and financial statements (report). The second case study in the English-language course is a Harvard simulation. Students work in groups of 3-4 and give presentations.