

## HYBRID DISTANCE LEARNING DURING COVID-19 IN BULGARIA

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**ABSTRACT.** COVID-19 is a time of challenge for the educational system. System's adaptation is due to already built platforms but a single approach of the universities is missing. The created apparent chaos however proves that it can respond to the requirements of the Ministry of Education and the speed of adaptation of teachers and students depends on their technical knowledge and access to Internet. The paper follows the recommendations for hybrid or mixed learning from the book and practice of Martha Cleveland-Innes of the University of Athabasca (Guide to Blended Learning), and is, as well, a result of my participation in a distance course on the subject, aimed towards improving the education of teachers from all over the world and mostly towards developing countries. The thesis is that the hybrid or mixed learning in the version of completely applying a distance model of education is most suitable for the time of the pandemic. Universities in Bulgaria have been examined as well as the systems that they apply. A concrete model of mixed education after the example of the Military Academy has been offered. Different educational platforms used in Bulgaria have been compared.

**Keywords:** educational system, hybrid learning, Bulgaria

### ХИБРИДНО ДИСТАНЦИОННО ОБУЧЕНИЕ ПО ВРЕМЕ НА COVID-19 В БЪЛГАРИЯ

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**РЕЗЮМЕ.** COVID-19 е време на предизвикателство за образователната система, но това не означава, че е време на криза, защото самата система се пригоди достатъчно бързо. Адапцията и се дължи на изградени вече платформи, но липсва единство в подхода на университетите. Така получените се привиден хаос обаче доказва, че може да отговори на изискванията на министерството на образованието, а скоростта с която преподаватели и студенти трябва да се адаптират зависи от техническата им грамотност и достъпа до интернет. Темата следва препоръките за хибридно или смесено обучение от книгата и практиката на Марта Кливланд Инес от Университет Атабаска (Guide to Blended Learning), както и е резултат от индивидуалното ми участие в дистанционен курс по предмета, целящ подобряване обучението на преподаватели от цял свят и най-вече насочен към развиващите се страни. Тезата е, че най-пригодно за времето на пандемията се оказва хибридно или смесено обучение във версията на напълно дистанционен модел. Разгледани са университети в България и системите, които те прилагат. Предлага се и конкретен модел на смесено обучение по примера на Военна академия. Сравнени са различните платформи за обучение, използвани в България.

**Ключови думи:** образователна система, хибридно обучение, България

### Introduction

The aim of the paper is to prove the viability of the hybrid distance education during COVID-19 in Bulgaria. Such a design of education has been offered in the example of the Military Academy in Bulgaria as a combination of synchronous and asynchronous activities.

The analysis shows that a variety of platforms have been used at the universities in Bulgaria and these platforms have been compared. Despite the apparent chaos, the importance of the paper is in coming to the conclusion that first, the educational system in Bulgaria has successfully adapted to the COVID-19 challenge and second, that the choice of LMS or computer apps depends on the individual choice and needs of the university.

### A sample design for hybrid education

#### Design Parameters

The resources that are required include classrooms at the Academy, as well as the system of academic communication of the Academy (based on a Content Management System),

composed of internet (site of the Academy), extranet (MS Office 365, BlackBoard, student accounts, shared documents) and intranet<sup>1</sup> (internal communication).

#### Design Plan

Table 1: Design plan of hybrid education

Activity description	Technology requirements/OER	Teaching/facilitation requirements
Online, asynchronous activity	BlackBoard LMS	-materials for Blackboard accessible in extranet -coordination with administrator to deal with account issues -uploaded summaries of lectures -weekly discussion board -quizzes using MS Forms

<sup>1</sup> It is not used for teaching/learning purposes.

Synchronous online and face-to-face activity	MS Teams-Office 365	-videos and digital bulletin posted in extranet about work with MS Office - coordination with administrator to deal with account issues and group membership issues for MS Teams -conducting guided discussions both online and in class
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### Blend structure and activity integration

There are **two versions of the blend**: one is when the course is fully online and the other uses both online and face-to-face classes. In the first case-the fully online model, there is a combination of both synchronous (online guided discussions in the form of tutorials) and asynchronous (reflexive reading of lecture materials followed by quizzes as well as a weekly discussion board) activities. In the second case-that resembles a blended block model, there is a combination of both online study and face-to-face discussion. The difference from the traditional blended block model is that lectures are online and tutorials are face-to-face. The intention is to use the Community of Inquiry (CoI) theoretical framework during the discussion sessions through: 1) asking questions to suggested readings or phase of active inquiry to find relationships between concepts and variables, 2) finding answers themselves through guided discussions, 3) discussion of a topic where learners identify questions, methods, problems and answers. The structure resembles that of a blended online class model and a flipped classroom<sup>2</sup> as a version of it. It can easily transform in blended MOOC (massive open online course) if the course starts to be offered for other institutions as well. Depending on the access of technology of students a SAMR (substitution, augmentation, modification, redefinition to describe how technology can be progressively integrated into the classroom<sup>3</sup>) model may be applied for the online form for example as a final paper requirement of the course. Wikis (or collaborative writing spaces constructed around interlinked webpages<sup>4</sup>) could also be part of this final course requirement.

### Design Rationale

The design could be applied both during pandemics/natural disasters that require strictly a distance type of education and as a supplement of the normal face-to-face discussions in class. This flexibility of the design makes it adaptable to different teaching requirements. In addition, it encourages both thoughtful reflection activities and interaction through discussions where competition and collaboration are stimulated. The design uses a student centered approach.

<sup>2</sup> The flipped classroom reverses the traditional class structure of listening to a lecture in class and completing homework activities at home. Students instead have a video lecture online and come to class to work as a group. p.16 Guide to...

<sup>3</sup> p.18 Guide to...

<sup>4</sup> p.41 Guide to...

## Results for the Universities in Bulgaria

In the sphere of higher education, for the purposes of the current paper, the decisions of more than 20 universities in Bulgaria have been examined. The starting point is the list of higher education institutions on the website of the National Agency for Assessment and Accreditation. As a result, it has been established that all of them have been conducting distance or online education but there is not a uniform criteria for efficiency assessment as the reliance is upon different virtual platforms and instruments. Several main platforms stand out: Zoom, Moodle, Microsoft Teams, Classroom Google, Meet Google, BigBlueButton, Skype, Blackboard, E-learning.

Among the first that have introduced such a learning by means of an Order of March 9, 2020 are the Georgi Rakovski Military Academy and the American University in Blagoevgrad, on March 13-the St. Kliment Ohridski Sofia University and the Todor Kableshkov Higher Transportation School, on March 16-the Nikola Yonkov Vaptzarov Naval Academy, Varna and the University of National and World Economy, on March 19-Technical University Varna, on March 20-the Varna Free University and the Stara Zagora Trakia University, on March 25-the Paisii Hilendarski Plovdiv University, on March 30-the Luben Karavelov Higher Construction School, Sofia[9].

With a letter № 9104-47/14.04.2020 to all universities, the Minister of education and science recommends the exams and councils of the collective bodies to be conducted via electronically based platforms BigBlueButtons and Microsoft Office 365 with a videoconference connection option. Despite that, a big part of the universities have introduced different systems for online application and submitting exam applications.

- Zoom has been used by the Agrarian University. Moodle has been used by: the Burgas Free University [10], the Todor Kableshkov Higher Transportation School [11], the New Bulgarian University, the St. Kliment Ohridski Sofia University [12], the Stara Zagora Trakia University and others.

- Microsoft Teams has been used by the Georgi Rakovski Military Academy, the Burgas Free University, the Angel Kanchev Ruse University in a combination with BigBlueButton as well as by the University of National and World Economy [13].

- Classroom Google, Meet Google have been used by: the Chernorizetz Hrabar Varna Free University[14], the Nikola Yonkov Vaptzarov Naval Academy, Varna.

- The Paisii Hilendarski Plovdiv University uses Google G Suite for Education [15].

- Blackboard has been used by: Georgi Rakovski Military Academy-Sofia, and Neofit Rilski Southwest University, Blagoevgrad. [16]

- E-learning has been used by: Technical University Varna, [17] and the University of Architecture, Construction and Geodesy [18].

Broadly, the platforms may be divided in two types: for distance education and for online learning.

**The distance education** usually works best with older students that have a constant access to technology at home and will work responsively alone with themselves. It however needs a resource prepared in advance before the crisis as well as preliminary provision of all educational materials. That is why the online learning perfectly complements it and they should be both conducted together as a mix.

The online learning has been built by systems for educational management called Learning management systems as both types of online learning: synchronous (happening at the same time for the teacher and the trained) and asynchronous (happening at any time and not necessarily in a group but with the feedback of a teacher) must complement each other. The online and the hybrid education present an opportunity for a more independent work, creativity and innovation.

Table 2: Differences between online and distance education

Differences	Online	Distance
1.location	Together in a virtual class-room	Independent work online
2.interaction	Regular, mixed education	LMS-learning management system
3. method of teaching	Face-to-face	Provision of teaching materials

In universities that have officially introduced only a distance education system of the type of Moodle, Blackboard, E-learning, the teachers start using the different online communication systems as Microsoft Teams and Zoom at their own discretion which hinders the students.

### The Case of the Military Academy

That is why at the Georgi Rakovski Military Academy we have run an experiment of creating a system for academic communication that integrates in itself a content management system of the website of Military Academy, Blackboard Learn for distance education and the applications of Microsoft Office 365 Education including the classrooms of Microsoft Teams for online education and other valuable resources as the academic library.

The content management system is based on WordPress CMS with an open source and serves for generating, organizing, publishing and editing digital content. That is the public site of the Military Academy with RNDG.BG domain, based on the PHP language and works with MySQL database that give the necessary freedom for an easy modification and refinement of the system in case of a need.

On the other hand, Wordpress has been chosen also because of the fact that there is a large society of volunteers and many plug-ins created around it, that make it very easy for work. From a functional point of view the content in the site of the Military Academy is structurally organized as every faculty, institute and department receives its own blog where to publish their content according to their rights and needs.

On the one hand the system for academic communication (SAC) of the Georgi Rakovski Military Academy is a system of people, software and procedures and on the other hand, it is a system of sub-systems: Internet, Extranet and Intranet:

- The RNDG.BG web site is visible for the public in **Internet** and is accessible from all over the world.
- The role of **Extranet** is played by a page built on SharePoint, also accessible from all over the world but only for employers, lecturers and students of the Military Academy that have an account certified by a business email ending with the rndg.bg domain and a private password. With the help of this account they can access all Microsoft applications, the

academic library, the data bases of Scopus and Web of Science, Blackboard Learn, a bulletin with COVID-19 helpful materials and the different documents gathered in a common cloud space.

- The **Intranet** is a private infrastructure and a network, accessible only from work devices located in the area of the Military Academy (for example the quality management system where orders and protocols are uploaded and so on).

The result of the experiment shows that the system for academic communication has been used very intensively during the peak of the crisis but its usage continues even after that.

Every day, information related to COVID-19 has been uploaded in the content management system and main communication with the director of the Military Academy Major-general doctor Grudi Angelov has been performed through the uploaded information under the "News" section.

By an Order, the Military Academy, transitions to a mixed-distance and online education happen on March 9, 2020, i.e. only a day after the face-to-face classes stop and the latter do not have an interruption in practice.

The educational materials have been mostly uploaded in the Blackboard distance education system while the online lectures, faculty and academic councils have been held in Microsoft Teams.

Besides that, a general group for group messaging has been used in the business mail for sending emails via Outlook of Office 365, and the digital bulletins with work advices have been sent in it.

### Comparison between the Educational Platforms Used in Bulgarian Universities

Some of the platforms are LMSs, others are computer apps for chats and calls. LMSs are technologies that still have not reached their potential in the Information Age. They are defined as systemic infrastructures or a framework, managing the learning process of an organization.<sup>5</sup> They provide the transition from the Industrial to the Information Age by the use of new approaches to instruction. The potential of the LMSs is in the application of computers to education. They use computer applications that are responsible not only for delivering instructional content but also for individual and organizational assessment, progress tracking and supervision. The LMS encompasses everything from course registration to course administration, tracking of performance and reporting of lessons learned.

#### Computer apps for chats/calls: MS Teams vs. Zoom

Table 3: Comparison between Zoom and MS Teams

	Zoom	MS Teams
1.type of collaboration	Internal+external	Internal-only Office 365 subscribers
2. audience of video chats	Up to 1,000 participants	Up to 250 people

<sup>5</sup> An argument for clarity: what are learning management systems, what are they not, and what should they become? William R. Watson, Sunnie Lee Watson, *ech Trends*, Springer Verlag, 2007, 51(2), pp.28-34., <https://hal.archives-ouvertes.fr/file/index/docid/692067/filename/Watson-2007.pdf>

3.charge	Paid for unlimited calls	Free of charge for MS Office users
4. pros	High participation outside of work	Secure internal collaboration, smooth integration
5. cons	Security concerns	Restriction of users' participation in video calls, only internal users

Zoom and MS Teams are the two most widely used for chats, audio and video calls.<sup>6</sup> MS Teams has the initial advantage because of the fact that it was recommended for use during the pandemic by an official letter from the Bulgarian minister of education. As the comparison shows MS Teams has the advantage as well of being more secure and allowing the smooth integration with calendars and email accounts, Office apps such as Word, Excel and Powerpoint, seamless file searches, backups and collaboration. In terms of security, Zoom has the most drawbacks, both because of the increase in security vulnerabilities and the so called “Zoombombers” (entering private video conferences by default).<sup>7</sup> Zoom’s advantage is mostly its ability to handle large events outside of work, especially when it comes to videoconferencing. Its screen supports up to 49 videos. In terms of meetings while MS Teams allows scheduling of meetings, accessing past meeting notes/recordings, inviting external guests to an active meeting and sharing meeting agendas before a meeting Zoom allows transcript generation, recording of meetings, co-annotation as a collaboration tool and simultaneous screen sharing.

The general conclusion is that usually companies use Teams internally and Zoom for communication outside the company. So they both complement each other.

**LMS Comparison: Google Classroom vs. Moodle**

Table 4: Comparison between Google Classroom and Moodle

	Google Classroom	Moodle
1.pros	Collaboration, easiness, integration	Flexibility, mobile app
2.cons	Not available for business	Ads in free accounts, restricted number of users, weaknesses of the interface
3.conclusion	Mostly intended for schools	Intended for teachers

Google Classroom focuses mostly on collaboration and it is very easy to set up classes and assignments. It also integrates not only with other Google products but with educational apps as well. However, it is not available for business and does not

offer accounts for parents. Generally, it is a learning management solution intended for schools and used for both online and classroom courses.<sup>8</sup> Moodle has lots of options where teachers can choose their content/activities. However, the ads in free accounts could be distracting and its plans for schools accommodate only up to 500 users and the interface is not always intuitive. Generally, it is an open source platform designed for teachers to build their curriculum.

Both are LMS but designed for different purposes, with different approach to online learning. Google Classroom is designed for users not familiar to LMS and can accommodate more than 500 students while Moodle requires more technical knowledge but has more restricted number of users. Google Classroom’s advantage as part of Google’s suite of applications for education is that it is free and easy to use, collaboration friendly, with more integration options. It is a cloud-based software but has limited tech support for users. Moodle on the other hand is modular which means that teachers can build their curriculum and customize interface. It is both cloud-based and with on-premise deployment and has a mobile application.<sup>9</sup> Another advantage is that it offers unlimited course and activities. Its drawbacks are that it is paid for more students, has small storage limit and smaller list of integrations, one of which is BigBlueButton.

**LMS Comparison Continued: BigBlueButton vs. Microsoft 365**

BigBlueButton is a web conferencing system designed for online learning as a virtual classroom. BigBlueButton provides real-time sharing of audio, video, slides, chat, and screen. Students are engaged through the sharing of emoji icons, polling, and breakout rooms.<sup>10</sup> Synchronous learning tools should feel like part of the management system (LMS). And BigBlueButton is learning tools interoperability (LTI) 1.0 compliant for widest adoption. Some of its software features are the LMS integration, the student portal and the virtual whiteboard.

The overview<sup>11</sup> shows that Microsoft 365, formerly Office 365, provides web, desktop, and mobile apps for Outlook, Word, Excel, PowerPoint, OneNote, Publisher, Skype, OneDrive, Exchange Online, and more. BigBlueButton is an open-source web conferencing and social collaboration software utilized by educational institutions for providing e-learning facilities

They support different platforms. While Microsoft 365 is supporting more platforms, BigBlueButton is supporting just the web-based platform. Also Microsoft 365 has more customer support including phone and online support and BigBlueButton has only knowledge base and video tutorials.

Microsoft 365 can have 9 screenshots at a time and BigBlueButton-3 screenshots at a time. In terms of pricing,

<sup>6</sup>Microsoft Teams VS. Zoom, <https://velocitmsp.com/blog/>

<sup>7</sup>MICROSOFT TEAMS VS. ZOOM, WHICH IS BETTER FOR MY TEAM?, [https://7n7.b66.myftpupload.com/wp-content/uploads/2020/05/VelocIT\\_WP\\_052120\\_v2.pdf](https://7n7.b66.myftpupload.com/wp-content/uploads/2020/05/VelocIT_WP_052120_v2.pdf)

<sup>8</sup>Google Classroom vs. Moodle: Key Features and Services Comparison, Melissa Pardo-Bunte, April 25, 2017, <https://www.betterbuys.com/lms/google-classroom-vs-moodle/>

<sup>9</sup>GOOGLE CLASSROOM VS. MOODLE COMPARISON 2020, Arthur Zuckerman, April 1, 2020, <https://comparecamp.com/google-classroom-vs-moodle-comparison/>

<sup>10</sup>BigBlueButton, ENGAGE YOUR ONLINE STUDENTS, <https://www.saasworthy.com/product/bigbluebutton>

<sup>11</sup>Microsoft 365 vs BigBlueButton Comparison, <https://www.getapp.com/collaboration-software/a/microsoft-office-365/compare/bigbluebutton/>

Microsoft 365 is subscription based and BigBlueButton is free of charge.

According to the user reviews of Microsoft 365: 98% would recommend this app while 80% would recommend BigBlueButton. The latter is less recommended in the categories Ease of use, Features and Customer support. With Microsoft 365 it is especially easy to share documents and folders with coworkers or links with a document to anyone. Among some of the negative features of Microsoft 365 is the poor audio quality during calls, inability to pin important posts, problems with customer service. The total key features are 70 with Microsoft 365 and 20 with BigBlueButton. The total integrations are 709 with Microsoft 365 and 18 with BigBlueButton.

**Blackboard vs. Moodle**

The Blackboard (WebCT) is an open source LMS like Moodle. Both serve as three types of tools: communication, productivity and student involvement. Blackboard is a comprehensive and flexible platform which is more popular than Moodle, i.e. with more users.<sup>12</sup> Moodle is an open source (free) course management system (CMS) that can build a LMS. As a communication tool both can serve as discussion forums (using posts), notification dashboards for courses, and can exchange files. However Blackboard has no email notification. As productivity tool both have a calendar/progress review option, searching within course and a module page. As student involvement tool, both can organize groups, perform community networking, access the course menu, submit assignments, and customize grading options.

Table 5: Comparison between Moodle and Blackboard

	<b>Moodle</b>	<b>Blackboard</b>
<b>1.Admin</b>	Open source, free integration with Google, modular	Paid, e-Commerce integration, limited users
<b>2.Teacher</b>	Teachers can create courses and track performance	Teachers set goals for students, Blended learning option
<b>3.Student</b>	Old interface, interactive courses, good architecture	Interactive courses, offline activity

These are probably the two most widely used and both have different useful features. Moodle’s advantage is that it is free and supports student-centered learning based on enhanced user experience. It allows a large number of users and has a modular framework. Blackboard’s advantage is the in-house eCommerce integration when it comes to selling courses and has a Blended learning option (allowing online and offline mixing of training). Both allow sharing and uploading interactive courses.<sup>13</sup>

<sup>12</sup>A Study of Comparison between Moodle and Blackboard based on Case Studies for Better LMS, P.Subramanian,N. Zainuddin, S.Alatawi, T.Javabdeh and Ab Razak Hussin, JOURNAL OF INFORMATION SYSTEMS RESEARCH AND INNOVATION, [https://www.moodlebites.com/pluginfile.php/26295/mod\\_resource/content/1/Pub4\\_ComparisonBetweenMoodleAndBlackboard.pdf](https://www.moodlebites.com/pluginfile.php/26295/mod_resource/content/1/Pub4_ComparisonBetweenMoodleAndBlackboard.pdf)

<sup>13</sup>Which LMS is Better For You- Moodle or Blackboard?, October 16, 2017, <https://edwiser.org/blog/moodle-versus-blackboard/>

**Conclusion**

LMS provide successful online learning. The simplest definition of LMS is “a software application that automates the administration, tracking, and reporting of training events”<sup>14</sup>. In other words LMS is a framework, a type of integrated information system whose main problem is that of the feedback with the students. The choice of a LMS depends on the individual preference.

Each of the LMS or app listed in the paper has its advantages and drawbacks. All of them complement each other and serve different purposes. They mostly provide the adaptation of the universities to the distance type of education during COVID-19. A future task however is the unification of the platforms used, more in-depth analysis of the feedback of students and recommendations for improvement of possible weaknesses. Despite the weaknesses however, the hybrid form of education will continue to be in use as the most appropriate answer during times of crises that impede the face-to-face classes.

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<sup>14</sup> p.27, *ibid*