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The Methodology for the Creation and Implementation of Evaluation Strategies during Educational process

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Prof. PhD. Vasile DOBREF, Naval Academy "Mircea cel Bătrân" Constanța, Romania

Captain PhD. Marius BUCUR
Naval Academy
"Mircea cel Bătrân"
Constanța, Romania

Captain Commander Assoc.
Prof.PhD.
Florențiu DELIU,
Naval Academy "Mircea cel
Bătrân" Constanța, Romania

Police Chief-Commissioner
PhD. Liviu-Gabriel DUMITRU
"Septimiu Mureșan" Police
School Cluj-Napoca, Romania

Police Chief-Commissioner
PhD. Alina-Viorica RAUS
"Septimiu Mureșan"
Police School Cluj-Napoca,
Romania

Police Chief-Commissioner
Olga-Călina BOIE
"Septimiu Mureșan"
Police School Cluj-Napoca,
Romania

Col.Mgr.
Lumír HENDRYCH-Police
College and Secondary Police
School Holesov, Cehia

Ph.D.Lt.col.Mgr. Eva
VICHLEDOVA
Police College and
Secondary Police School
Holesov, Cehia

Captain Assoc.Prof. PhD.
Nikolai VELIKOV
"Nikola Vaptsarov"
Naval Academy
Varna,Bulgaria

Assoc. Prof.PhD. Siyana
LUTZKANOVA
"Nikola Vaptsarov"
Naval Academy Varna, Bulgaria

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INTRODUCTION

The evaluation strategies used in the partner educational institutions from Romania (RO), Czech Republic (CZ) and Bulgaria (BG) are not enough adapted to the actual educational approach (online, blended and distance teaching and learning). One of the identified issues is related to the quality and efficiency of correcting and evaluating multiple choice written tests, applied online and offline, on paper or on computer, because of an insufficient digitalization and automatization of the evaluation process. Other issues are the security and the autonomy of the online learning systems, this being limited from the perspective of digitalized evaluation tools related to this type of learning.

For "Septimiu Mureșan" Police School (SAPSM) Cluj-Napoca, the main need refers to the evaluation process used for the candidates in the admittance exam and for the students, in their graduation exam. The written exam is evaluated using multiple choice written tests corrected and processed manually, with low efficiency. Also, SAPSM Cluj does not have nor use during the educational process of its students an online or offline automatized and digitalized evaluation system.

At the Czech partner level, there is no admittance exam similar to the Romanian one. The institution need is related only to the process of evaluation and correction of the tests applied during the training process carried out in the school.

The Naval Academies from RO and BG have a technical endowment and digital instruments more advanced than the police educational institutions. They are already using online educational platforms and have digital instruments for the online evaluation of multiple choice written tests with closed answers. Instead, they do not possess a digital instrument for the online/offline evaluation of tests with short open answers and for the evaluation of tests applied on paper. None of the educational institutions use facial recognition technology as a way of securing in the assessment process.

Education-related software solutions are a significant business line of the private partner. In order to develop competitive products and to maintain and consolidate its position in the national and international market, the private partner must always know, in real time, the software requests of the educational institutions from various fields, in RO and abroad.

The methodology developed in the project aims to develop the capacity of defence, public order and national security educational institutions to implement online, blended and distance learning and teaching by digitising the assessment techniques and methods used in the training system. The assessment methods and tools that can be used in the educational process are the same, regardless of the domain and difficulty content of the subject being assessed. For this reason, a transnational and cross-sectoral approach to evaluation strategies in the educational process and the digitisation of the

tools used in this process is necessary.

Educational institutions will be able to share their experience, compare and highlight common and domain-specific features in order to identify and create the most appropriate results for institutional specificities in a common EU context.

The reliability of facial recognition technology will be increased if it is developed and tested heterogeneously and transnationally. The inclusion in the partnership of a private provider of digital technology, with relevant experience in creating software solutions for education and with multiple cooperation with defence and law enforcement institutions, brings added value to the partnership and guarantees the creation of qualitative digital tools, adapted to specific needs.

The national strategies of EU countries used in the field of education and training, but also in the field of defence and public order are based on EU strategies. Although the fields and levels of training of partner institutions are distinct, specific activities are interdependent and require appropriate cooperation to find common solutions to common challenges.

Defence educational institutions cooperate with police institutions, higher education institutions cooperate with secondary institutions, and private institutions cooperate with public institutions. „United in diversity”.

For educational institutions in the field of defence and public order, regardless of the level of training or the country of origin, the current COVID-19 context has posed a challenge in adapting the educational act to the new demands of professional training, while respecting the conditions of safety and social distance. The pressure is all the greater as vocational training in these fields has a strong practical-applicational character, which requires an innovative approach, in particular a digitised approach to the educational process and its online/distance delivery. If, as regards the teaching and learning components of the educational process, institutions use digital technologies at various levels, as regards the assessment component, the level of digitisation of the techniques and methods used is not similar, being much lower.

The „Methodology for creating and implementing assessment strategies in the educational process” will create the procedural and operational framework for the use of new methods and tools in the process of assessment of written tests, applied physically or digitally, online or offline, during schooling/training and in the framework of candidate admission or learner graduation examinations.

1. SPECIFIC LEGAL BASIS FOR THE DIGITAL EVALUATION OF EDUCATIONAL INSTITUTIONS IN THE FIELD OF PUBLIC ORDER AND DEFENCE

1.1. National strategies for the education digitization

ROMANIA

Romania's digital transformation, in line with the European one, is accelerated by the rapid progress of new technologies such as artificial intelligence, robotics, cloud computing and blockchain¹ technologies. That is why it is extremely important for everyone to invest in their digital skills throughout life².

In Romania, the digitisation of the education and training system has been a priority topic since 2016, with the launch by the Presidential Administration of the "Educated Romania" country project. In 2016-2018, the Presidential Administration conducted a broad public debate on Romanian education, starting from a projection of the future and imagining its challenges for today's society.

So far, a country vision has emerged, with related objectives for education and research in Romania until 2030, as well as a series of public policy proposals on the following topics, considered as priorities: teaching careers, equity of the education system, professionalisation of educational management, quality vocational and technical education, autonomy, internationalisation and quality in higher education, early education, assessment of pupils and students.

The 15 transformations envisaged for Romania by 2030, included in the public consultation, concerned: permanent connection to the internet; increased dynamics of professions; shrinking and ageing population; increasing urbanisation of the population, increasingly concentrated around dynamic cities; increasing family diversity; emergence of new approaches to participatory democracy (e.g. e-citizenship); increasing ethno-cultural diversity; advanced robotisation; increasing share of services in the economy;

1 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Action Plan for Digital Education, com/2018/022 final.

2 European Commission (2017): A reflection paper on digitisation, employability and inclusion. Europe's role, http://ec.europa.eu/newsroom/document.cfm?doc_id=44515.

deepening social inequality; increasing impact of climate change; the world repolarisation, becoming polycentric; development of virtual reality; increasing incidence of stress-related diseases; increasing global competition for talent (source: <http://www.romaniaeducata.eu/>).

On 26 October 2020, the Ministry of Education and Research launched the process of developing the Strategy for Digitisation of Education in Romania 2021 - 2027, called SMART.Edu - a concept centred on the following key concepts: Modern, Accessible School, Resource and Digital Technologies based.

As regards the proposed action lines in the SMART.Edu project, they cover the following areas of interest:

- Development of pupils' and students' digital competences;
- School curriculum for emerging professions;
- Digital lifelong learning;
- Initial and in-service teacher training for digital education;
- Digital technology infrastructure and resources;
- Connectivity;
- Creation of Open Educational Resources (OER);
- Cybersecurity, data protection, online safety and IT ethics

The SMART.Edu Strategy targets, derived from the priorities of the Romanian education and training system, are:

- Digital literacy of 90% of the Romanian population;
- Adapted technological infrastructure and resources for all educational institutions in Romania;
- Successful labour market insertion for 82% of the population aged 20-34 trained for emerging occupations.

The priority axes of the SMART.Edu Strategy are:

PRIORITY AXIS I - Digital skills relevant for digital transformation;

PRIORITY AXIS II - High performance digital education and training ecosystem.

Expected results of the implementation of the SMART.Edu:

A flexible, digitised, adaptable, quality education system, able to respond to challenges and generate the change:

- Active citizens, well integrated into the labour market in terms of the use of digital technologies;
- Sustainable economic growth based on the jobs of the future;
- Digital development opportunities in education and training for a digital society and green economy;
- Strengthening the resilience and functional predictability of the education system in the digital age.

The main current strategies and policies for higher education in Romania include:

Government Decision no. 1609/2008 on the establishment of the Agency for the Administration of

the National Informatics Network for Education and Research, through

the reorganisation of the Office for the Administration and Operation of the Data Communications Infrastructure RoEduNet;

Romania's Sustainable Development Strategy 2030 - the competences addressed in the strategy are

those related to the use of information and communication technology (ICT), lifelong learning (LLL) / learning how to learn, cultural awareness and expression, technical/vocational, entrepreneurial;

National Rural Development Programme 2014 - 2020;

Education and Employment Operational Programme 2021-2027;

Operational Programme Smart Growth, Digitalisation and Financial Instruments 2021-2027.

CZECH REPUBLIC

The Education Policy Strategy 2030+ and the Digital Education Action Plan (DEAP) are used to develop digital education in schools. Strategy 2030+ is a key document for the development of the Czech Republic's education system in the decade 2020-2030+. The aim is to modernise the Czech education system in the field of regional education, extracurricular and informal and lifelong education, to prepare it for new challenges and, at the same time, to address the problems that persist in the Czech education system.

The Digital Education Strategy, in line with the priorities of the Czech Education Policy Strategy, focuses on creating suitable conditions and establishing processes leading to goals, methods and educational forms that meet the current knowledge requirements of social life and the labour market, influenced by the development of digital technologies and the information society in general. The mission of the Digital Education Strategy is to initiate changes in the methods and forms of education as well as in the objectives of education.

The Digital Education Strategy defines three priority objectives towards which the first interventions will be directed:

- education open to new methods and ways of learning through digital

- technologies;
- improving pupils'/students' skills in working with information and digital technologies;
- developing pupils'/students' computational thinking.

BULGARIA

The main current strategies and policies for Bulgarian higher education include:

- National Roadmap for Research Infrastructure of the Republic of Bulgaria 2020-2027;
- Strategy for Development of Higher Education in the Republic of Bulgaria for the period 2021-2030;
- Action Plan for the measures of the Higher Education Development Strategy in the Republic of Bulgaria for the period 2014-2020;
- National Strategy for Lifelong Learning for the period 2014 - 2020 adopted with DCM No. 12 of 10 January 2014;
- Strategy for Effectiveness;
- Implementation of Information and Communication Technologies in Education and Science in the Republic of Bulgaria (SEIICT) (2014-2020) and the Plan for the Implementation of the Strategy for Effective Implementation of ICT in Education and Science (2014-2020);

Today, the higher education system in Bulgaria faces a double challenge: on the one hand - to accelerate and complete the ongoing process of structural reforms, catching up with the leading European countries; on the other hand - to implement a successful process of strategic transformation of higher education: from an additional service area into a factor that would prove an asset in the European and global race for knowledge, skills, economic and material prosperity and spiritual progress.

Thus, the chosen strategy outlines the path and priority areas for the development of higher education in Bulgaria in two dimensions:

(a) as a public and individual good that contributes to the overall development of the individual and society and prepares students both for their professional fulfilment and for their social and civic role;

b) as an engine for the dynamic development of the economy and the building of a society based on knowledge and technological progress (from the Strategy for Higher Education, www.mon.bg).

A draft Strategy for the Development of Higher Education in the Republic of Bulgaria for the period 2021-2030 has been prepared. The

draft presents the main principles and priorities in the development of the higher education system in the Republic of Bulgaria and defines specific objectives, activities and measures for their implementation. Their analysis and definition covers key processes in the functioning of the higher education system such as: higher education management, maintaining and improving the quality of education, development of research and innovation, improvement of funding and admission models, digitization of the learning process and administrative services in higher education, development of teachers' careers, internationalization, student career guidance, student entrepreneurship, etc. (https://eacea.ec.europa.eu/national-policies/eurydice/content/national-reforms-higher-education-9_en).

A National Higher Education Map is envisaged, defining the territorial and profile structure of the institutional network for higher education, in order to stimulate higher education institutions to focus their efforts on training staff with the quality required to meet the needs of the labour market.

In order to optimise the activities and terms of accreditation of higher schools and their professional fields in institutional accreditation, only the way in which higher schools fulfil their mission and objectives and apply the standards and guidelines for quality assurance in the European Higher Education Area will be assessed. Institutional accreditation is expected to be initial - for newly opened or transformed higher education schools and subsequent - when accreditation is already achieved.

1.2. Specific legislative framework for educational institutions in public order

ROMANIA

For the first time in its existence, as a result of the epidemiological context, the schools of the Ministry of Internal Affairs were put in the situation to look for solutions to conduct the educational process in a different way.

The adventure is not over yet. At any moment, things may get worse and then instructors, students, and parents will be waiting for solutions. It's been two years, we are learning to live in a pandemic, so we need to act accordingly. At the level of the Ministry of Internal Affairs, most students are recent high school graduates: some will have very good digital skills, and others will be deficient in this respect. A realistic and common sense measure would be to make the digital environment in education as accessible, relevant, interactive and user-friendly as possible.

Certainly, closely linked to the digitisation of education, there is the period before the crisis and the period after. The Covid-19 pandemic has revealed problems, namely gaps and shortcomings that need to be addressed. It will reset education, move strongly into a digital age and invest in ourselves.

Public order schools in Romania have the best conditions to cope with change: acquiring the necessary digital resources, attending all the existing courses in the field, learning and adapting. The schools of the Ministry of Internal Affairs will not accept that this crisis caused by the coronavirus will deeply affect their work, the educational approach, the training of students, or the professional career of instructors. New ways of using technology are being discovered, which, fortunately, can be directed towards the current major objective: the uninterrupted running of courses, the school year, with students present in class or with online teaching, with face-to-face students, or online admissions, etc.

The legislative framework specific to the institutions is represented by:

- Education Act No. 1/2011 as amended and supplemented, Section 9 Pre-university military
- education;
- OMAI No 140/2016 on the activity of human resources management in police units of the Ministry
- of Internal Affairs, as amended and supplemented;
- OMAI no. 199/2011 - Framework regulation on the organization and functioning of the post-secondary schools of the Ministry of Internal

Affairs;

- Law No 218/2002 on the organisation and functioning of the Romanian Police, republished;
- Law no. 360/2002 on the status of police officers, updated to 2021;
- Institutional Development Project of the Police School “Septimiu Mureşan” 2019-2022 No. 105121
- / 23.04.2019;
- Institutional Development Strategy 2019-2022 of the Police School “Septimiu Mureşan”.

CZECH REPUBLIC

The obligation to educate online is a big challenge for all schools. However, the experience gained in spring 2020, influenced by the epidemic, forms a solid foundation on which to build if the ban on pupils being present in person in schools is repeated.

Distance learning cannot totally replace regular teaching with all its aspects, including the socialisation element. Despite possible difficulties in its introduction and implementation, distance learning has the potential to develop key competences, digital literacy, develop innovative methods or strengthen the role of formative feedback in the learning process.

Schools in the Czech Republic are advised to try to use elements of distance learning supported by digital technologies and in standard educational environments within the limits of possibilities.

Schools can build on their positive experiences from the distance learning era, take advantage of the positive impact on student learning and support the increased digitisation of the Czech learning environment. A significant effect will also be that teachers and pupils will be better prepared for a possible forced transition to distance learning.

The legislative framework specific to public order educational institutions consists of the general education regulations, namely Law No. 561/2004 on pre-school, primary, secondary, higher vocational and other education (Education Act) and Decree No. 2/2006, which implements certain provisions of the Education Act for schools and educational institutions established by the Ministry of the Interior.

In addition, there are also regulations concerning a certain section of the state administration relating to the status of certain students and pupils, these regulations are contained in Act No. 273/2008 on the Police of the

Czech Republic, Act No. 361/ 2003 on the service relationship of members of the security forces, and several internal governing acts, in particular Instruction of the President of the Police No. 316/2017 on professional training and Decree of the Ministry of the Interior No. 32/2006 on training in police schools of the Ministry of the Interior and other educational establishments.

After completely new experiences from the situation in the second half of the school year 2019/2020, an amendment to the Education Act announced under No. 349/2020, in force since 25 August 2020, established rules for distance learning in certain emergency situations, closing schools, or banning students from schools. This law provides:

(a) requiring schools to provide distance education in specified emergencies for pupils and students and children for whom preschool education is compulsory.

(b) the obligation for pupils or students to be educated in this way (except primary art pupils and foreign language schools entitled to the state language examination).

1.3. Specific legislative framework for national defence educational institutions

ROMÂNIA

In the National Defence Strategy for 2020-2024, one of the objectives is to transform our country into a resilient state, able to adequately respond to the unpredictability and the extent of developments in the security environment. This requires a strong state, a state that is aware of the need to develop its own rapid and effective response mechanisms and, inherently, a solidly dimensioned security culture - including among its citizens. Flexibility, adaptability, and the ability to react quickly in times of crisis are principles of strategic leadership, allowing for anticipation and planning, and preparing for worst-case scenarios, to avoid strategic surprise and ensure resilience and good governance for the benefit of all Romanian citizens.

Developments in the technological field lead to diversification and increased complexity of security threats and risks, such as cyber-attacks, information domain specific activities (hostile/influential actions in the public space, disinformation, spread of fake news, etc.), and possible

harmful and destabilising effects of importing technologies for civilian use in asymmetric and hybrid actions, generating new security challenges.

The exponential growth trend of emerging technologies (5G, artificial intelligence, big data, Internet of Things, cloud and smart computing) is generating, on the one hand, needs for growth and improvement of communications that will support innovative digital services to support citizens and business, and, on the other hand, needs for collection and security of data and information carried in these systems.

Another objective mentioned in the Strategy is the development of effective tools to strengthen societal resilience, including the widespread introduction of education programmes in the area of digital skills and online security.

One of the approaches to ensure national security is to ensure the digitisation of institutions in the field of defence and national security.

The strategy also proposes the development of effective tools to strengthen societal resilience and critical infrastructures, including by launching extensive education programmes in the area of digital skills and online security.

Romania's military strategy stresses the need for innovation, adaptation and implementation of objectives along the lines of effort related to unit responsiveness, peace and war organisation, digitalisation, and the use of new technologies.

Digitisation is a line of action of the military strategy aimed at both modernising and strengthening military capabilities and will be generalised through the implementation of specific processes and by adapting those currently used for the development of capabilities, as well as in the processes of planning and conducting combat actions. Diversification, decentralisation, and adaptation of the command and control system, principles of the C4ISTAR concept, will be facilitated by the implementation of digitisation within the armed forces.

One of the areas that will be under focus in the immediate period ahead and which will undergo structural transformation and adaptation is the military education system for which development along three fundamental lines is proposed:

- Personalisation and provision of education for all military pupils and students;
- making the education system more flexible according to priorities and challenges;
- adaptability of the system to external changes and future trends.

Increasing the resilience of the military education system is based on the modernisation of the educational infrastructure and related equipment, in correlation with the present and future needs of the force structure and the challenges of the environments of action, in order to ensure participation in

a quality, modern and inclusive educational process. Adapting/updating/modernising existing education programmes for the development of transversal competences in line with the principles of the President's project, Educated Romania, including notions of innovative and creative education, as well as competences oriented towards structural and digital transition. The education system will aim to prepare future military leaders by promoting competence, competition and multidisciplinary in the training process.

According to the Defence White Paper - 2021, "Digitisation is one of the basic conditions for strengthening defence capabilities and making the functional model of the MAPN more efficient", in this sense projects and actions are being carried out that will contribute to increasing the resilience of digital infrastructures and services, thus ensuring the conditions for initiating a broad process of digital transformation, in which information and data are used as strategic resources of the organisation.

A specific requirement for the Romanian Army is a modern and efficient education system, which will be achieved, among other things, through the implementation of e-learning training programmes and the digitisation of education.

The Romanian Army Programme 2040 (Army 2040) details the force structure of the Romanian Army and, implicitly, the related capability package, which will satisfy the optimum in terms of personnel, manning, training and financial sustainability. In the field of human resources management, one of the directions is the modernisation of the military education system by changing the training paradigm, directing resources towards the training and professional development of leaders, fighters and specialists capable of achieving success in a constantly changing operational environment, with the professional skills needed to perform missions now and in the future. One direction of action in this regard is the adoption of digital technologies to facilitate learning by simulating conditions as close as possible to those in which future soldiers will operate.

Law No. 1/2011 on National Education, as amended and supplemented, regulates the structure, functions, organization and functioning of the state national education system, private and denominational. Military education is part of the Romanian education system and is subject to this law with specific regulations set out in Chapter VI Military higher education and education for intelligence, public order and national security.

In the pandemic context of the last 3 years, the Minister of Education issued Orders No. 405 and 406/2020 approving the Framework Methodologies for the organization and conduct of admission and completion processes with specific provisions on the possibility of using the online environment as an alternative to the traditional face-to-face.

BULGARIA

The main legislative acts that affected the educational process in the background of COVID-19 were related to ordinances of the Ministry of Health and, based on them, of the Ministry of Education. They do not specifically refer to the modalities or forms of distance education; they basically order the prohibition of physically attended meetings. The most important ones include:

- Excerpt from Ordinance No. RD-01-733/27.08.2021, Ministry of Health,
- RD-01-220 of 16 April 2021 for the following temporary anti-epidemic measures on the territory of the Republic of Bulgaria;
- Ordinance No. RD-01-220/08.04.2022 for the following temporary anti-epidemic measures on the territory of the Republic of Bulgaria, from 12.04.2021 to 30.04.2021;
- Ordinance No. RD-01-372/30.06.2020 for the temporary prohibition of entry into the territory of the Republic of Bulgaria, from 01.07.2020 to 15.07.2020;
- Ordinance No. RD-01-154/26.03.2020 for amending Ordinance No. RD-01-124 of 13.03.2020, amended and supplemented by Ordinance No. RD-01-131 of 17.03.2020, Ordinance No. RD-01-139 of 19.03.2020 and Ordinance No. RD-01-144 of 22.03.2020;
- Ordinance of the Minister of Health about the increasingly exacerbated epidemic situation with the spread of the COVID-19 virus.

With letter no. 9104-47/14.04.2020 to all universities, the Minister of Education and Science recommended that examinations and collective councils be conducted via BigBlueButtons and Microsoft Office 365 electronic platforms with the option of videoconferencing. In addition, many universities have introduced various online registration and examination application systems.

Based on these official documents, rectors have issued specific ordinances implementing all measures in their academic institutions, respecting the principle of academic freedom of Bulgarian universities.

However, the platforms can be divided into two types: distance learning and online learning. Distance learning usually works best with students who have constant access to technology at home, work on their own, and for whom educational materials are provided in advance. Therefore, online learning complements it perfectly and should be conducted together. Online learning has been constructed by educational management systems called Learning Management Systems as both synchronous (taking place at the same time for teacher and learner) and asynchronous (happening at any time and not necessarily in a group but with feedback from a teacher) types of online

learning that should complement each other.

Online and hybrid education is an opportunity for more independent work, creativity, and innovation.

In the current situation in Bulgaria, where there are ongoing changes in higher education and serious competition between universities, collecting information from learners about their attitudes, expectations, needs and factors influencing their choice of education mode has been an essential element of planning and delivering quality online education. The research provides us with some valuable information about students' readiness and principle preparation.

The questionnaire-based Peytcheva-Forsyth, Yovkova and Aleksieva research provides additional insights into respondents' attitudes towards the relevance of distance education to their needs - both in terms of its advantages and limitations. Among the advantages of distance learning, students mainly indicated those related to:

time and place: possibility to work and study simultaneously; no travel (especially if living in another

city/country); time saving; access to resources at any time, which makes students calmer;

learning process: more flexibility and opportunity to learn at one's own pace; possibility to combine

studies with social and personal commitments; improved quality of learning; possibility to use multiple learning styles; faster and easier learning of content through interactive multimedia resources, equal access for students with special needs;

financial aspects: reduction of textbook purchase and travel costs.

As limitations of distance learning students, they mainly highlighted the lack of direct communication with the teacher and other learners, the impossibility of introducing it in some specific fields of study and the technological problems that can arise in relation to access to the virtual learning environment.

The National Security Strategy states that the preservation and development of national identity are vital interests alongside the development of education in the spirit of national values. As early as 2014 there was talk about an "educational and scientific environment based on cloud technologies", and "wider dissemination of electronic forms of distance education". However, in practice, this phase has now developed, accelerated by the pandemic.

The goals of the next phase of the strategy are still far from being achieved. These include: a single educational environment for comprehensive training; the transition to electronic textbooks in all subjects; virtual classrooms and laboratories; the national system of online examinations and external testing; the automation of quality assessment in education and scientific work; open and universal access to educational and scientific resources; and last but not least the improvement of teachers' digital competence.

1.3.1. Institutional strategies (for digitisation of education) for defence and public order educational institutions

1.3.1.1. "Septimiu Mureşan" Police School Cluj-Napoca, Romania

Technological evolution proves to be a complex process that accompanies the act of modernization of any society. This development will increasingly affect the labour market, the demand and supply of jobs and will irrevocably transform the actions carried out by man, who has been a vital presence in the labour process.

Schools will move in the same direction, adapting to the modern and independent lifestyle of today's young generation. Digital transformation in education is another facet of digital transformation in the labour market. It is likely that in the not too distant future, all jobs, by their job requirements, will require different levels of digital skills.

A large number of high school graduates possess these skills, but everyone is hoping for a significant improvement on the current situation. Both high schools and colleges have young students who use the digital/online environment daily. The aim of digital transformation must be to achieve a flexible, quality education system, capable of adaptation and change.

As a protective measure, state institutions and others encourage all initiatives that protect the integrity of young people in the online environment, that protect them from the dangers and risks to which they are exposed when they are unsupervised.

The digital society requires a certain type of professional training: original and spontaneous teachers who are keen to improvise and pupils who are aware of the opportunities offered by information and communication technologies. All the while, schools in the Ministry of the Interior are preparing for a future of the technological revolution, which has most likely already begun. There is much talk about the quality of education, for which many actions are being taken, but there is also talk about an education crisis, which has many causes/sources. The importance of the pupil's role is strongly emphasised, and there is a demand for independence and the chance to assert oneself - which is difficult for some teachers to understand, at least for the time being.

According to the Institutional Development Project of the Police School "Septimiu Mureşan" 2019-2022, the strategic objectives of the school include:

- Improving the quality of professional training, having as strategic objectives: development of innovation and national and international cooperation in the field of vocational training; increasing the use of ICT tools in educational activity;
- Professional training, having as strategic objectives: increase the number of partnerships with national and international institutions; increase the number of students and school staff attending representation, training or other activities relevant to the field of activity in the country or abroad.
- Developing the administrative and operational capacity of the school, with strategic objectives: increasing the degree of equipment and use of tools and modern working methods (including ICT, information systems) for carrying out human resources management, logistical and financial activities, as well as institutional marketing.

1.3.1.2. Police College and Secondary Police School of the Ministry of Interior in Holešov, Czech Republic

The Ministry of Interior of the Czech Republic, as the founder of the Police College and the Secondary Police School of the Ministry of Interior in Holešov, does not have (according to publicly available sources) a comprehensive strategy for digitisation of education in its educational institutions. The Ministry of Interior of the Czech Republic connects the issue of digitisation almost exclusively with the issue of e-government and related short or long term projects.

Public administration digitisation projects are mainly gathered in the “Digital Czech Republic” programme. They cover areas from the interaction of the Czech Republic in the European Union in the digital agenda, through digital public administration, to the preparation and interaction of Czech society and economy.

The individual sub-strategies for education digitization of the Ministry of Interior of the Czech Republic can only be seen in sub-programmes. Probably the most important ongoing project for the training of MAI staff is the promotion of training civil servants in digital skills.

The second project is focused on the specific implementation education and training programmes supporting the development of specific, non-transferable digital competences, which include activities to identify gaps in transferable digital competences and motivate staff to develop them.

Another special project in public administration is the training of public administration employees in cyber security, which aims to:

- increase staff awareness of information security issues;
- increasing the cyber resilience of the organisation by reducing human

- factor risk;
- increasing the security of offices and agencies;
- increasing the level of protection of personal data in information systems;
- introducing the basic principles of incident reporting and management into common practice;
- increasing employee resistance to phishing attacks;
- establishing a common terminology for cyber security;
- training employees to distinguish between operational states and cyber incidents.

1.3.1.3. "Mircea cel Bătrân" Naval Academy (ANMB) Constanța, Romania

ANMB, as a military institution of higher education, follows a plan for the implementation of the new Concept of Modernization of Military Education, which, among its objectives, has some directions oriented towards digitalization, as follows:

- Implementation of digital technologies, to facilitate learning by simulating conditions as close as possible to those in which future military personnel will operate;
- Developing, at the undergraduate level, digital and communication skills in at least one international language;
- Implementation of selection criteria and evaluation standards for teaching staff, based on specific competences to facilitate learning in order to achieve the highest level of performance and which can integrate digital technologies into the learning process, in order to make the whole educational process more efficient;
- To train teaching staff in the use of new teaching methods appropriate to the current generation of students, with an emphasis on online learning;
- Developing the communication skills of teaching staff in an international language, especially English;
- Creating and developing virtual libraries and facilitating access to online resources for the whole university community;
- Equipping educational spaces with IT and audio-video means connected to the Internet;
- Development of the e-learning system infrastructure to ensure:
 - support educational activities,
 - access to educational content,
 - course and student management system,

- standards, tools and techniques that make this technically possible,
- Development of educational infrastructure and superstructure and their adaptation to current technological advances;
- Developing digital innovation capacity at academic level by modernising the regulatory framework and facilitating cooperation with the IT industry and the business environment;
- Developing and modernising the infrastructure needed for ‘simulation learning’ and digitisation of the education process, with continuous access to new concepts, technologies and breakthroughs that can be used in the military environment.

1.3.1.4. "Nikola Vaptsarov" Naval Academy (NVNA) Varna, Bulgaria

- NVNA follows a plan for the implementation of the new Concept of Modernization of Military Education, which, among its objectives, has some directions oriented towards digitalization, as follows:
- Implementation of digital technologies, to facilitate learning by simulating conditions as close as possible to those in which future military personnel will operate;
- Developing, at the undergraduate level, digital and communication skills in at least one international language;
- Implementation of selection criteria and evaluation standards for teaching staff, based on specific competences to facilitate learning in order to achieve the highest level of performance and which can integrate digital technologies into the learning process, in order to make the whole educational process more efficient;
- To train teaching staff in the use of new teaching methods appropriate to the current generation of students, with an emphasis on online learning;
- Developing the communication skills of teaching staff in an international language, especially English;
- Creating and developing virtual libraries and facilitating access to online resources for the whole university community;
- Equipping educational spaces with IT and audio-video means connected to the Internet;
- Development of the e-learning system infrastructure to ensure:
 - support educational activities,
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- Development of educational infrastructure and superstructure and their adaptation to current technological advances;
- Developing digital innovation capacity at academic level by modernising the regulatory framework and facilitating cooperation with the IT industry and the business environment;
- Developing and modernising the infrastructure needed for ‘simulation learning’ and digitisation of the education process, with continuous access to new concepts, technologies and breakthroughs that can be used in the military environment.

2. PROCEDURAL AND OPERATIONAL FRAMEWORK FOR ONLINE ASSESSMENT

2.1. Fundamental of Online Assessment

Assessments: An Overview

Assessment is a crucial element in improving the overall quality of teaching and learning in higher education. What and how students learn depends to a large extent on how they believe they will be assessed. All assessments lead to a certain amount of information being accumulated during students’ learning, but a fundamental challenge is to stimulate the right kind of learning.

Therefore, it is important that assessment practices are designed to send students the right signals to shape the effectiveness of student learning - about what they should learn and how they should learn. From a student’s perspective, the relationship between learning and assessment often boils down to one thing: a grade! This problem arises for the simple reason that an assessment is usually about more than one thing at the same time, which is a ‘double task’. It is about grading and learning; it is about assessing students’ achievements and teaching them better; it is about standards and comparisons between individuals, communicating explicit and hidden messages.

Assessment has multiple purposes which include providing feedback on learning, facilitating improvement in measuring achievement, motivating learning and maintaining standards. It is important to be always concerned with the quality of assessment rather than the quantity. Well-designed assessment tasks will influence how students approach problems and thus

improve the quality of their learning. Thus, the level of student engagement and the time students invest in any learning experience is directly related to how much the student believes they will benefit from the experience. When an assessment is constructed in such a way as to maximise opportunities for meaningful student learning, it becomes a learning-oriented assessment.

The frame work is summarised in Fig. 2.1.

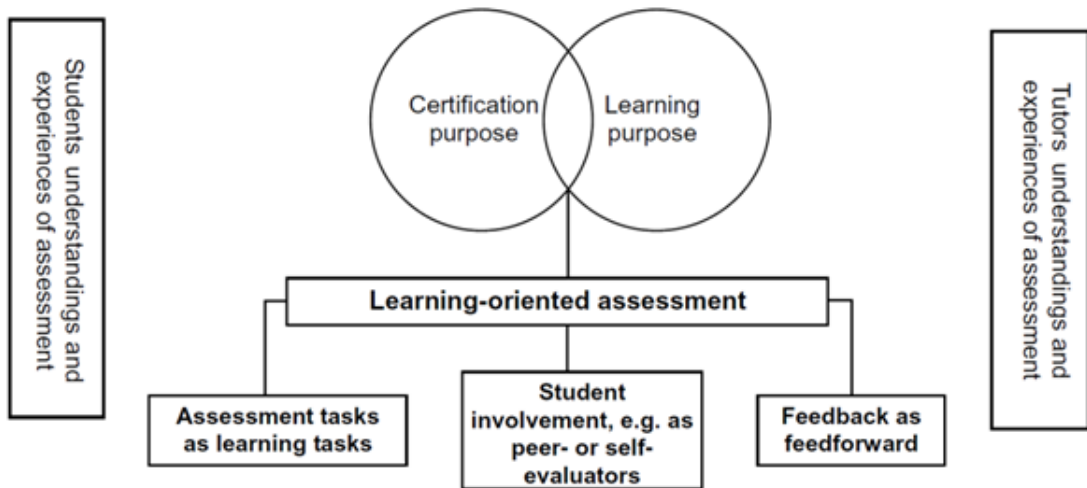


Fig. 2.1: Framework for learning-oriented assessment (Carless 2007)³

Designing Assessment Tasks

According to the constructive alignment theory by Biggs and Tang (2007)⁴, assessment tasks (AT) and teaching-learning activities (TLA) are designed to ensure that students achieve the intended learning outcomes (ILO) and develop cognitive skills at a range of levels. The learning outcomes for a topic/unit are the criteria against which instructors make judgments about student learning. The introduction of a series of in-class teaching-learning activities and online tests/assignments that allow students to practice applying information, and the repetitive use of these skills that are spaced in regular intervals makes a difference in students' learning.

Assessment tasks need to be aligned to the learning outcomes we intend to address for a particular topic, and an appropriate AT should indicate how well a student has achieved the ILO(s) it is meant to address and/or how well the task

3 Carless D. (2007) Learning-oriented assessment: conceptual bases and practical implications, *Innovations in Education and Teaching International*. 44:1, 57–66.

4 Biggs, J. & Tang, C. (2007). *Teaching for quality learning at university*. 3rd edn. Society for Research into Higher Education, Buckingham.

itself has been performed. A range of assessment types ensure that students develop all of the intended learning outcomes and also provides opportunities for students to demonstrate their learning. Well-designed assessments set clear expectations establishing a reasonable workload, and provide opportunities for students to self-learn, rehearse, practise and receive feedback. However, when designed poorly they can be a major hindrance to thinking and learning in our students.

Assessments should be able to provide students with feedback on their progress and be able to help them in identifying their readiness to proceed to the next level of the module.

Therefore, assessment tasks need to be aligned with intended learning outcomes (ILOs) and should be designed in such a way that they:

1. Stimulates higher-order cognitive skills
 2. Develop a consistent basis for interpreting and using test scores
 3. Are fair and unbiased
 4. Can be generalised and transferable, at least across subjects within a domain
 5. Ensures the quality of content is consistent with the best current understanding of the field
 6. Recognise the comprehensiveness, or scope, of content coverage
 7. Perform high fidelity assessment of critical skills
 8. Are contextualized and meaningful to students' educational experiences.
 9. Are practical, efficient and cost-effective
- The above set of criteria is not exhaustive, but provides a guideline that is consistent with both current theoretical understandings of validity and the nature and potential uses of new forms of assessment (Linn et al., 1991; Darling-Hammond et al., 2013)⁵.

Bloom's taxonomy of educational objectives (Table 2.1) can also serve as a useful reminder when designing assessment tasks. Holtzman (2008)⁶ provides a quick summary of the six levels in Bloom's taxonomy and how these six levels of competencies build on each other. At level one, students demonstrate knowledge of a topic by simple recall. At level two, they demonstrate understanding of a topic - they demonstrate understanding of information either by explaining it or summarising it for others. Level three involves application - students demonstrate they can use the information in a variety of contexts. In level four, students analyze information to uncover its relationship to other pieces of information. In level five, they synthesize various pieces of information into a new and coherent whole. Finally, in level six students evaluate the validity of the information before them.

5 Darling-Hammond, L., Herman, J., Pellegrino, J., et al. (2013). Criteria for high-quality assessment. Stanford, CA: Stanford Center for Opportunity Policy in Education.

6 Holtzman, M. (2008). Demystifying application-based multiple-choice questions. *College Teaching*, 56, 114-120.

Table 2.1: Bloom’s Taxonomy of educational objectives

Bloom’s Taxonomy of Educational Objectives	
1. Knowledge (recall)	1.1 Knowledge of specifics
	1.2 Knowledge of ways and means of dealing with specifics
	1.3 Knowledge of universals and abstractions in a field
Intellectual abilities and skills	
2. Comprehension (low level understanding; ability to grasp and make use of material/ideas without seeing further implications)	2.1 Translation
	2.2 Interpretation
	2.3 Extrapolation
3. Application (use of abstractions in specific situations)	3.1 Use of technical principles/theories
	3.2 General ideas, procedures or methods
4. Analysis (breaking down into constituent elements; perceiving relationship between—and hierarchy of—ideas)	4.1 Analysis of elements
	4.2 Analysis of relationships
	4.3 Analysis of organisational principles
5. Synthesis (structuring elements to form a pattern not previously apparent)	5.1 Production of a unique communication
	5.2 Production of a plan or proposed set of operations
	5.3 Derivation of a set of abstract relations
6. Evaluation (quantitative and qualitative judgement of idea/procedure; appraisal to satisfy criteria)	6.1 Judgements in terms of internal evidence
	6.2 Judgements in terms of external criteria

Extracted from Daphne Pan (2008) “Learning to Teach, Teaching to Learn: A Handbook for NUS Teachers”, National University of Singapore.

Definition of Online Assessment

For the purpose of this methodology, we consider online assessments to be any means of evaluating student achievement, providing feedback, or moving the students forward in their learning process in fully online credit courses. These assessments can be completely online (such as online exams) or just require online submission (such as essays). Assessments can be either formative, designed to monitor students' progress in a low or no stakes environment, or summative, designed to evaluate students against a standard or criteria (Dixon & Worrell, 2016)⁷.

Assessments play a major role in students' experiences within a course. The primary goal of assessments is for students to demonstrate their achievement of the course learning outcomes (Boud, 2010)⁸, for formative feedback, a grade, or for a pass. However, they are much more than that.

While certainly, some traditional assessment methods do not fit within an online environment, effective, rigorous assessments can be facilitated online. When designing a course online, particular care should be given to the assessments to ensure the activities that students do are effective at meeting their learning outcomes but fit within the online space (Gikandi, Morrow, & Davis, 2011)⁹.

Designing Online Assessments - The Role of Online Assessment

*Effective and rigorous
assessments can be
facilitated online*

7 Dixon, D.D., & Worrell, F.C. (2016). Formative and summative assessment in the classroom. *Theory Into Practice*, 55(2). doi-org.ezproxy.lib.ucalgary.ca/10.1080/00405841.2016.1148989

8 Boud, D. (2010). *Assessment 2020: Seven propositions for assessment reform in higher education*. Sydney: Australian Learning Council. Retrieved from https://www.uts.edu.au/sites/default/files/Assessment-2020_propositions_final.pdf

9 Gikandi, J.W., Morrow, D., & Davis, N.E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & Education*, 57(4), 2333-2351. doi.org/10.1016/j.compedu.2011.06.004

Often, assessments are the biggest source of motivation for students and drive their decisions of when and how to study (Boud, 2010). In online environments, students may incorrectly assume that they will not have to dedicate as much effort to learning course material or completing assessments, because they are no longer in a traditional course.

Using online assessments can provide you the flexibility to easily create assessments for each of the topics, while also allowing students to take the assessments at their own convenience.

Online assessments also gives the opportunity for learners to interact and collaborate with their peers during online discussions, reflection exercises, self and peer review, and group work. Such assessments provide students with a detailed record/portfolio of learning that they can use to showcase their achievements when they graduate from university.

The design and implementation of assessments have more impact on student performance than the method of assessment delivery (online vs face-to-face). Various studies have found no difference in student achievement and grades on well-designed online and face-to-face course assessments (Page & Cherry, 2018)¹⁰. Additionally, students' performance on online assessment is not affected by their preferences or how they rate their comfort with technology (Hewson 2012).

Some advantages of using online assessments include:

- Easily identifying areas of misunderstanding and students' misconceptions,
- Flexibility that allows students to take a test from anywhere and at any time,
- Providing new opportunities for interactivity,
- Providing detailed and immediate feedback,
- Facilitating enhanced social interactions,
- Facilitating the exposition of advanced skills and capabilities,
- Increasing grading accuracy,
- Providing repeated opportunities for learners to practice understanding when online quizzes or assignments can be repeated multiple times,
- Storing and reusing of assessments,
- Shuffling and randomizing assessment questions and options.

As a benefits of online assessment we can mentioned:

10 Page, L., & Cherry, M. (2018). Comparing trends in graduate assessment: face-to-face vs. online learning. *Assessment Update*, 30(5), 3-15. doi.org/10.1002/au.30144.

Top Benefits of Online Assessment

- Detailed feedback in a variety of formats
- Instant feedback
- Accessibility
- Flexibility

Validity and Rigour

Online assessment can and should have the same academic rigour as face-to-face assessment; it still needs to align with course and program learning outcomes, provide valuable learning opportunities for students, and have a level of excellence for students to work toward (Vlachopoulos, 2016)¹¹.

Transitioning to Online

Converting a course from a face-to-face format to an online format or creating a new online course can inspire instructors to reflect and improve their course design and teaching practices. Investigating how to develop online courses can expose instructors to teaching and assessment methods that are new and interesting to them (Bennett et al., 2017)¹². Certainly, there is a risk that instructors will use online assessment without adequate pedagogical justification for the sake of using technology and appearing innovative. However, when institutions provide resources and pedagogical development opportunities for instructors who want to teach online, instructors can avoid ineffective instructional choices and the use of technology just to appear modern (King & Boyatt, 2014)¹³.

Formative Feedback Opportunities

One of the most reported benefits of online assessment is the ease associated with providing detailed feedback to students (Daradoumis et al. 2019)¹⁴. Feedback can be provided in a variety of formats in an online

11 Vlachopoulos, D. (2016). Assuring quality in e-learning course design: The roadmap. *International Review of Research in Open and Distributed Learning*, 17(6). doi.org/10.19173/irrodl.v17i6.2784.

12 Bennett, S., Dawson, P., Bearman, M., Molloy, E., & Boud, D. (2017). How technology shapes assessment design: Findings from a study of university teachers. *British Journal of Educational Technology*, 48(2), 672-682. doi.org/10.1111/bjet.12439.

13 King, E., & Boyatt, R. (2014). Exploring factors that influence adoption of e-learning within higher education. *British Journal of Educational Technology*, 46(6), 1272-1280. doi.org/10.1111/bjet.12195.

14 Daradoumis, T., Puig, J.M.M., Arguedas, M., & Linan, L.C. (2019). Analyzing students' perceptions to improve the design of an automated assessment

environment, such as written, audio-recorded or video-recorded (Johnson & Cooke, 2016)¹⁵; this diversity may improve the accessibility of feedback for some students. Both instructors and students emphasize their appreciation for timely and frequent feedback (Khan & Khan, 2019)¹⁶.

In general, students are more motivated and tend to get higher grades when formative feedback is available (Redecker, Punie & Ferarri, 2012)¹⁷.

Instructors may use automated feedback for certain types of assessments, which reduces their workload, especially in large classes. For example, online assignments may have built-in hints or feedback that can become available when students submit a wrong answer.



Provide students with timely and clear feedback by using audio or video feedback.”

– Barbara Brown, Werklund School of Education

tool in online-distributed programming. *Computer & Education*, 128, 259-170. doi.org/10.1016/j.compedu.2018.09.021.

15 Johnson, G.M., & Cooke, A. (2016). Self-regulation of learning and preference for written versus audio recorded feedback by distance education students. *Distance Education*, 37(1), 107-120. doi.org/10.1080/01587919.2015.1081737.

16 Khan, S., & Khan, R.A. (2019). Online assessments: Exploring perspectives of university students. *Education and Information Technologies*, 24(1), 661-667. doi.org/10.1007/s10639-018-9797-0.

17 Redecker C., Punie Y., & Ferrari A. (2012) eAssessment for 21st Century Learning and Skills. In Ravenscroft A., Lindstaedt S., Kloos C.D., Hernández-Leo D. (Eds) 21st Century Learning for 21st Century Skills. EC-TEL 2012. Lecture Notes in Computer Science, vol 7563. Springer, Berlin, Heidelberg.

Accessibility & Flexibility

Students and instructors also appreciate the accessibility of online assessments (Rolim & Isaias, 2018)¹⁸. Students have more flexibility in how they can approach their coursework because they can choose when and where to do it, rather than having to fit within the constraints of a classroom (Lei & Gupta, 2010)¹⁹. For example, instead of having to be present in class for a group discussion or a test, students can add to an asynchronous discussion forum or complete an online test at times and places that are most convenient for them. This can take immense pressure off the shoulders of students who have jobs, family commitments, or other factors that may limit their ability to be present on campus (Lei & Gupta, 2010). Concerns about classroom distractions and interruptions during work hours are also alleviated when using online assessments (Lei & Gupta, 2010).

There are fewer concerns about distractions and interruptions during assessments. However, this flexibility requires students to be self-directed and self-motivated (Kebritchi et al., 2017)²⁰.

Some students thrive when given more control over their learning, but others, especially first-year students, are not ready for such responsibility (Hung et al., 2010)²¹.

Additional supports, such as time management plans or activities to familiarize students with online communication, may need to be put in place to ensure students are prepared to self-regulate and complete their assessments in time (Hung et al., 2010; Kebritchi et al., 2017). Hung et al. (2010) also notes the importance of a clear course outline that explains the expectations and role of students in the course, and encourages them to be self-regulated learners from the first day of class.

Academic Integrity

Despite the benefits of online learning, instructors often have concerns that have limited the widespread adoption of online assessment. Instructors are concerned about academic misconduct, students cheating, plagiarizing,

18 Rolim, C., & Isaias, P. (2018). Examining the use of e-assessment in higher education: teachers and students' viewpoints. *British Journal of Educational Technology*, 50(4), 1785-1800. doi.org/10.1111/bjet.12669.

19 Lei, S.A., & Gupta, R.K. (2010) College distance education courses: evaluating benefits and costs from institutional, faculty and students' perspectives. *Education*, 130(4), 616-631.

20 Kebritchi, M., Lipschuetz, A., & Santiago, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems*, 46(1). doi.org/10.1177%2F0047239516661713

21 Hung, M.L., Chou, C., Chen, C.H., & Own, Z.Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education*, 55(3), 1080-1090. doi.org/10.1016/j.compedu.2010.05.004.

or gaining unfair advantages over their peers (Abubakar & Adeshola, 2019)²². Without in-person supervision, instructors feel they do not have the same ability to monitor students to ensure academic integrity (Fask et al., 2014)²³. Research is beginning to emerge on effective ways to authenticate students and reduce cheating.

Simple measures to protect academic integrity in online assignments and tests, such as randomizing questions, varying numbers, or blocking access to other course content during the grading period, are built into the LMS and can be easily used (Boitshwarelo et al., 2017)²⁴. Anti-plagiarism software, used in conjunction with academic integrity education, has been shown to reduce instances of plagiarism (Levine & Pazdernik, 2018)²⁵.

Using a diverse set of assessment methods can also reduce academic misbehavior. Technologically advanced methods, such as biometric data verification or keystroke dynamics, are promising measures for student authentication “Support student engagement and learning by providing assessment options for students to select an assessment that is most relevant to their learning.” - on written assignments or exams (Okada et al., 2019)²⁶.

However, much research and technical improvements are still needed before they can be widely adopted. Most of these methods have not yet been shown to scale to large groups of students

Collaborative Learning

Another concern when using online assessment is that students will be

22 Abubakar, A.M., & Adeshola, I. (2019). Digital Exam and Assessments: A Riposte to Industry 4.0 In A. Elci, L.L. Beith, & A. Elci (Eds.). Handbook of Research on Faculty Development for Digital Teaching and Learning (pp. 245-263). Hershey PA: IGI Global. doi.org/10.4018/978-1-5225-8476-6.

23 Fask, A., Englander, F., & Wang, Z. (2014). Do Online tests Facilitate Cheating? An Experiment Designed to Separate Possible Cheating from the Effect of the Online Test Taking Environment. *Journal of Academic Ethics*, 12(2), 101-112. doi.org/10.1007/s10805-014-9207-1.

24 Boitshwarelo, B., Reedy, A.K., & Billany, T. (2017). Envisioning the use of online tests in assessing twentyfirst century learning: A literature review. *Research and Practice in Technology Enhanced Learning*, 12(16). doi.org/10.1186/s41039-017-0055-7.

25 Levine, J., & Pazdernik, V. (2018). Evaluation of a four-prong anti-plagiarism program and the incidence of plagiarism: a five-year retrospective study. *Assessment and Evaluation in Higher Education*, 43(7), 1094-1105. doi.org/10.1080/02602938.2018.1434127.

26 Okada, A., Noguera, I., Alexieva, L., Rozeva, A., Kocdar, S., Brouns, F., Ladonlahti, T. Whitelock, D., & Guerrero-Roldan, A. (2019). Pedagogical approaches for e-assessment with authentication and authorship verification in Higher Education. *British Journal of Educational Technology*, Advance online publication. doi.org/10.1111/bjet.12733.

isolated and less collaborative if they are not together in a physical classroom (Abubakar & Adeshola, 2019). Learning is inherently social, and building relationships helps to enhance it (Gikandi, Morrow & Davis, 2011).

There are opportunities to increase communication and connection among students in online courses through strategies such as peer feedback activities (Mostert & Snowball, 2013)²⁷, discussion forums (Champion & Gunnlaugson, 2017)²⁸, and implementation of the community of practice framework of study or work groups in discussions or assignments (Wang, 2010)²⁹. As such, connecting students must be an intentional part of assessment and course design to mitigate this concern.

“*Using ePortfolios helped students learn more about their peers, boosting morale when the class became challenging.*”
- Duy Dau, Haskayne School of Business

Instructor Workload

Online courses tend to be “front heavy”, meaning they require instructors to invest a lot of time and effort at the start of the course (Amelung, Krieger & Rosner, 2011)³⁰. All of the course materials need to be prepared ahead of time, the LMS needs to be well organized, and measures for communicating with students need to be in place before students have access.

This work is necessary, as it is crucial to make sure all information is easily accessible to students throughout the course (Beebe et al., 2010)³¹. This practice helps students stay on top of course material and feel prepared to complete assessments.

27 Mostert, M., & Snowball, J.D. (2013). Where angels fear to tread: online peer-assessment in a large firstyear class. *Assessment and Evaluation in Higher Education*, 38(6), 674-686.

28 Champion, K., & Gunnlaugson, O. (2017). Fostering generative conversation in higher education course discussion boards. *Innovations in Education and Teaching International*, 55(6), 704-712. doi.org/10.1080/14703297.2017.1279069.

29 Wang, L. (2010). Integrating communities of practice in e-portfolio assessments: Effects and experiences of mutual assessment in an online course. *The Internet and Higher Education*, 13(4), 267-271. doi.org/10.1016/j.iheduc.2010.07.002

30 Amelung, M., Krieger, K., & Rosner, D. (2011). E-Assessment as a service. *IEEE Transactions on Learning Technologies*, 4(2), 162-174. doi.org/10.1109/TLT.2010.24.

31 Beebe, R., Vonderwell, S., & Boboc, M. (2010). Emerging patterns in transferring assessment practices from f2f to online environments. *Electronic Journal of e-Learning*, 8(1), 1-12.

Instructor Concerns

- *Academic Integrity*
- *High Workload*
- *Student Isolation*
- *Technical Issues*

Student Concerns

- *Equity and fairness*
- *Technical issues*
- *Differing technical abilities*
- *Less opportunity to clarify assignment guidelines*

Students' Concerns

Students have reported several of their own concerns about online assessments as well. In one study, students' main concern was equality and fairness (Dermo, 2009)³². When they do not see other students, they question whether their peers are cheating and whether their instructors are detecting it.

Transparency in the reasoning behind online assessments, as well as the methods used to determine grades, provide students with more comfort and understanding (Khan & Khan, 2019)³³.

As well, students question their instructors' competency with technology (Khan & Khan, 2019). Because their grades are being determined online, they need to be confident that technical issues or an instructor's inabilities will not diminish their achievements (Bennett et al., 2016)³⁴. Instructors should familiarize themselves with the learning technologies they will be using, and should note how students' work is tracked. They can then explain to students the processes in place for if technical issues occur. Including a short, ungraded practice assessment can also help students become comfortable with the technologies and explore them without the high stakes of a graded assessment (Khan & Khan, 2019).

32 Dermo, J. (2009). e-Assessment and the student learning experience: A survey of student perceptions of e-assessments. *British Journal of Educational Technology*, 40(2), 203-214. doi.org/10.1111/j.1467-8535.2008.00915.x.

33 Khan, S., & Khan, R.A. (2019). Online assessments: Exploring perspectives of university students. *Education and Information Technologies*, 24(1), 661-667. doi.org/10.1007/s10639-018-9797-0.

34 Bennett, S., Dawson, P., Bearman, M., Molloy, E., & Boud, D. (2017). How technology shapes assessment design: Findings from a study of university teachers. *British Journal of Educational Technology*, 48(2), 672-682. doi.org/10.1111/bjet.12439.

2.2. Forms and Types of Assessment

Formative and Summative Assessment in Online Education

Assessment is an integral part of education. Education is traditionally involved the action of learning by those defined as students and the imparting of knowledge by those defined as teachers. Currently, this construction of knowledge could involve three types of models of education: (a) the traditional banking model (Freire, 1970/2000)³⁵ or teacher-led learning, (b) cognitive apprenticeship framework (Collins, Brown, & Newman, 1989)³⁶ or collaborative construction of knowledge between students and teacher, and/or (c) legitimate peripheral participation in a situated learning framework (Lave & Wenger, 1991)³⁷ or learning between or among students. The latter two types of education models are supported by knowledge that student learning improves through social interaction and collaboration (Lave & Wenger, 1991). Within each of these three education frameworks, assessment is viewed as an essential component for learning (Hanson & Mohn, 2011)³⁸ in terms of identifying and documenting increased knowledge, awareness, or skills. An expansion from this original purpose of assessment has occurred recently with the rise of the accountability paradigm, including heightened scrutiny onto all aspects of the educational process by various internal (e.g., budget needs) and/or external (e.g., accreditation boards, national organizations) entities (Hanson & Mohn, 2011). Stakeholders expect the assessment of learning outcomes to occur more frequently and more rigorously, and to simultaneously be more transparent and accessible to non-expert reviewers and consumers (Hanson & Mohn, 2011).

In this new era, also brought about by the pandemic context, the challenges facing education systems call for increased expectations of accountability in education and assessment. Education professions also face the challenge of adapting to the online learning environment.

35 Freire, P. (1970/2000). *Pedagogy of the oppressed*. (30th Anniversary). (Trans. M. B. Ramos). New York, NY: Continuum

36 Collins, A., Brown, J. S., & Newman, S. E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L. B. Resnick (Ed.), *Knowing, learning, and instruction: Essays in honor of Robert Glaser* (pp. 453–494). Hillsdale, NJ: Lawrence Erlbaum Associates.

37 Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge England, New York: Cambridge University Press.

38 Hanson, J. M., & Mohn, L. (2011). Assessment trends: A ten-year perspective on the uses of a general education assessment. *Assessment Update: Progress, Trends, and Practices in Higher Education*, 23(5), 1–15. DOI: 10.1002/au.235.

Learners prefer both the flexibility and convenience of online education (Hewson, 2012)³⁹, while indicating expectations of personal achievement comparable to face-to-face learning environments (Stewart, Waight, Norwood, & Ezell, 2004)⁴⁰. Despite the flexibility offered by the online environment to students, instructors are expected to be more available, to provide more and faster feedback, and to be otherwise competent in establishing the basis of a relationship with all students. As societal expectations for education and learning in all modalities are increasing, it is important for educators to revisit the basic concepts of assessment, both to deepen and broaden their skills and thus facilitate student learning. Reconceptualising two important assessment themes, namely formative and summative assessment, in light of the capabilities and limitations of learning in online learning is discussed in this chapter of the methodology.

Formative and Summative Assessment

Assessment may occur in two forms (i.e., formative and summative) in the learning environment.

Formative assessments occur within an online course or lesson and are used to determine how well a student is learning the material. They're best when they are ongoing, consistent, and provide critical feedback to learners.

- 1. Summative assessments** are sometimes referred to as a final exam and measure what the student has learned after completing a course. They can validate how well your content supports the course's overall learning goals.
- 2. Formative assessment** provides an ongoing evaluation (Perera-Diltz, 2009)⁴¹ of a student's learning. This type of assessment requires evaluation of student learning outcomes several times during a semester and facilitates assessment of different content areas, skills and learning progress within specific knowledge domains. Formative assessment could take place through the repeated use of the same form of assessment (e.g. a test four times during a semester) or through the use of multiple forms of assessment (e.g. a test, an essay and an experiential activity).

39 Hewson, C. (2012). Can online course-based assessment methods be fair and equitable? Relationships between students' preferences and performance within online and offline assessments. *Journal of Computer Assisted Learning*, 28(5), 488–498. DOI: 10.1111/j.1365-2729.2011.00473.x.

40 Stewart, B. L., Waight, C. L., Norwood, M. M., & Ezell, S. D. (2004). Formative and summative evaluation of online courses. *The Quarterly Review of Distance Education*, 5(2), 101-109.

41 Perera-Diltz, D. M., & Moe, J. (2012). Online instruction of counselor education coursework: Maximizing strengths and minimizing limitations. In G. R. Walz, J. C. Bleuer, & R. K. Yep (Eds.), *Ideas and research you can use: VISTAS 2012* (Article 41). Retrieved from <http://www.counseling.org/Resources/>.

Summative assessment is a measure of an end product (Perera-Diltz, 2009) and at best represents a holistic and qualitative assessment of whether specific learning outcomes have been achieved. Methods such as a final project or a comprehensive final exam are examples of common summative assessment tools. However, there are times when formative assessment could serve summative purposes (Gikandi, Morrow, & Davis, 2011)⁴² when it informs stakeholders about a student's progress (Smith, 2007)⁴³. Similarly, summative assessment can serve in a formative role when the results are used for learning in subsequent units (Gikandi et al., 2011). There are benefits and limitations to both types of assessment, which sometimes rely on factors beyond the assessment itself, such as the sense of virtual community created (Glassmeyer, Dibbs, & Jensen, 2011)⁴⁴ by the assessment task.

Formative assessment has been articulated as the preferred mode of assessment in online education, but full implementation of formative assessments requires careful design, monitoring, and communication of feedback to learners in a clear and meaningful timeframe to enhance their overall educational experience (Glassmeyer et al., 2011). Formative assessment offers the advantage of allowing learners to demonstrate their acquired knowledge in small sections that can be more easily mastered and expressed. Formative assessment also allows students to fail an assignment (e.g., 1 in 5 test scores), learn from their mistakes, and subsequently not be penalized in the form of a poor final grade (Oosterhof, Conrad, & Ely, 2008)⁴⁵.

However, formative assessment requires students to continually demonstrate learning and engagement in the ongoing assessment process. Continuous improvement assessment can be stressful for both students and instructors. In contrast, summative assessment has the advantage of being a potentially unique, holistic and integrated assessment. If a student is not able to perform at his or her best in the chosen summative assessment format (e.g., final test or final project), then student learning is not accurately assessed, and the student's sense of engagement and ownership of the learning process may be diminished

42 Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers and Education*, 57(4), 2333-2351.

43 Smith, G. (2007). How does student performance on formative assessments relate to learning assessed by exams? *Journal of College Science Teaching*, 36(7), 28-34.

44 Glassmeyer, D. M., Dibbs, R. A., & Jensen, R. T. (2011). Determining utility of formative assessment through virtual community: Perspectives of online graduate students. *Review of Distance Education*, 12(1), 23-35.

45 Oosterhof, A., Conrad, R., & Ely, D. (2008). *Assessing learners online*. Upper Saddle River, NJ: Prentice Hall.

The New Era of Learning: Online/Blended Learning

In addition to the increased use of technology to enhance or provide more effective educational experiences, advances in the theoretical and philosophical underpinnings of teaching and learning coincide with public expectations for increased access, flexibility, and participation in the construction of learning and assessment, including assessment methods and protocols (Leppisaari, Vainio, Herrington, & Im, 2011)⁴⁶. Proponents of constructivist education echo proponents of online learning (Williams, 2006)⁴⁷, who call for dynamic, authentic, hands-on instruction that engages the skills and lived experiences of a community of technologically savvy learners (Herrington & Standen, 2000)⁴⁸. While online and blended learning requires reliable access to appropriate communication technologies, a condition that makes this practice more adaptable to developed societies, the potential to reach an increasingly globalised and diverse student population is another motivating factor in the widespread adoption of online learning as a standard offering for higher education and continuing education providers worldwide (Leppisaari et al., 2011).

In this context, fully web-based learning and blended learning will be referred to as online education, which involves education facilitated either fully or partially by a web-based learning management system (e.g., Blackboard) through access via both desktop and laptop computers as well as smart phones, tablet computers, or other internet-capable devices (Perera-Diltz & Moe, 2012)⁴⁹. The desire, as well as the need, to use a potentially dynamic new mode of teaching and learning, along with valid concerns about ensuring quality and equity of access to technology, has remained at the heart of professional dialogue about best practice in online education since its emergence as a widespread phenomenon in the mid- to late 1990s (Bonk & Cummings, 1998), becoming a major challenge in contexts generated by pandemic situations.

46 Leppisaari, I., Vainio, L., Herrington, J., & Im, Y. (2011). International e-benchmarking: Flexible peer development of authentic learning principles in higher education. *Educational Media International*, 48(3), 179–191. DOI:10.1080/09523987.2011.607321.

47 Williams, J. (2006). The place of the closed book, invigilated final examination in a knowledge economy. *Educational Media International*, 43(2), 107-119.

48 Herrington, J., & Standen, P. (2000). Moving from an instructivist to a constructivist multimedia learning environment. *Journal of Educational Multimedia and Hypermedia*, 9(3), 195-205.

49 Perera-Diltz, D. M., & Moe, J. (2012). Online instruction of counselor education coursework: Maximizing strengths and minimizing limitations. In G. R. Walz, J. C. Bleuer, & R. K. Yep (Eds.), *Ideas and research you can use: VISTAS 2012* (Article 41). Retrieved from <http://www.counseling.org/Resources/>.

A key tenet of the constructivist learning framework is that human beings learn best in collaboration and interaction with others (Herrington & Standen, 2000)⁵⁰ or through what is sometimes called legitimate peripheral participation (Lave & Wenger, 2001)⁵¹. By comparison, behaviorist or instructivist education relies on rote memorization and individual, on-demand articulation of expert-imposed knowledge content (Herrington & Standen, 2000). Such teacher-led instruction, also referred to as the banking model (Freire, 1979/2000)⁵², is inappropriate in the online environment because the learner becomes disengaged and disengaged in learning.

In contrast, constructivist education, which is learning-centered, builds on the inherent self-teaching capacity of all people and seeks to engage individuals in the active construction of their own learning experience (Eyal, 2012)⁵³. In this way, knowledge becomes emergent as individual learners interact and synthesize prior learning with both new experiences and ways of knowing valued by local learning and practice communities (Lepisaari et al., 2011)⁵⁴. Online education therefore involves more than placing all or part of the material of a traditional face-to-face course on the web.

Assessment of student learning in online education, similarly, cannot simply be transferred from a traditional face-to-face classroom, but must be reconceptualized to account for the benefits and drawbacks of the given communication medium (Perera-Diltz & Moe, 2012)⁵⁵, especially

50 Herrington, J., & Standen, P. (2000). Moving from an instructivist to a constructivist multimedia learning environment. *Journal of Educational Multimedia and Hypermedia*, 9(3), 195-205.

51 Lave, J., & Wenger, E. (2001). *Situated learning: Legitimate peripheral participation*. Cambridge England, New York: Cambridge University Press.

52 Freire, P. (1970/2000). *Pedagogy of the oppressed*. (30th Anniversary). (Trans. M. B. Ramos). New York, NY: Continuum

53 Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37–49. Retrieved from <https://csuglobal.blackboard.com/bbcswebdav/library/Article%20Reserve/OTL532K/Digital%20assessment%20literacy%20—The%20core%20role%20of%20the%20teacher%20in%20a%20digital%20environment.pdf>.

54 Leppisaari, I., Vainio, L., Herrington, J., & Im, Y. (2011). International e-benchmarking: Flexible peer development of authentic learning principles in higher education. *Educational Media International*, 48(3), 179–191. DOI:10.1080/09523987.2011.607321.

55 Perera-Diltz, D. M., & Moe, J. (2012). Online instruction of counselor education coursework: Maximizing strengths and minimizing limitations. In G. R. Walz, J. C. Bleuer, & R. K. Yep (Eds.), *Ideas and research you can use: VISTAS 2012*

given the asynchronous nature of interactivity between participants. Issues of validity, reliability and unfairness related to evaluation need to be carefully considered in the design and management phases of online education (Gikandi et al., 2011)⁵⁶.

Online communication technology enables a range of assessment tools, such as discussion forums, model responses, electronic feedback systems, reflections, and online small group discussions (Thelwall, 2000)⁵⁷, all of which can be modified into formative or summative assessments to document student learning according to the purpose and needs of a course. Creating meaningful and effective assessment, both formative and summative, can be accomplished through in-depth knowledge and use of appropriate online education tools. In what follows, we take a closer look at the available literature on the validity of formative and summative assessments in online education. We also provide an overview of common assessment tools for online learning, including adapted tools such as exams, as well as tools unique to online education such as discussion forums or wikis. Table 2.2.1 shows a graph demonstrating the type of assessment involved in the different assessment tools.

(Article 41). Retrieved from <http://www.counseling.org/Resources/>.

56 Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers and Education*, 57(4), 2333–2351.

57 Thelwall, M. (2000). Computer-based assessment: A versatile educational tool. *Computers & Education*, 34(1), 37- 49.

Table 2.2.1: Type of assessment involved with the various assessment tools

Assessment	Type	Peer Assessment	Co-Assessment (Instructor-Student)	Self-Assessment	Instructor Assessment
Rubrics	F or S	Yes	Yes	Yes	Yes
Netfolio	F or S	Yes	–	Yes	Yes
Student generated MCQ and concept maps	F or S	Yes	–	–	Yes
Reflection Journals and Papers	F or S	–	Yes	Yes	Yes
Comprehensive final exams	S	–	–	–	Yes
Assessment	Type	Peer Assessment	Co-Assessment (Instructor-Student)	Self- Assessment	Instructor Assessment
Comprehensive final exams	S	–	–	–	Yes
Research Projects and Reports	F or S	–	–	–	Yes
Case Study Analysis and Report	F or S	Yes	–	Yes	Yes
Wikis or blogs	F or S	Yes	Yes	Yes	Yes

Note: F = Formative; S = Summative

Formative Assessment Tools

The intention of formative assessment is to promote learner development throughout a learning process by actively involving the learner in various means of assessment. Formative assessment feedback, when used appropriately in online environments, has been found to promote learning (Pachler, Daly, Mor, & Mellar, 2010)⁵⁸ not only by monitoring progress towards learning outcomes, but also by crystallizing learning strategies in students (Gikandi et al., 2011)⁵⁹.

As noted elsewhere, issues of validity, reliability, and unreliability need to be addressed in 134 formative assessment (Gikandi et al., 2011), and this requires prior analysis of both processes and products of learning (Vonderwell et al., 2007)⁶⁰. According to Gikandi et al. (2011), characteristics of validity in formative assessment include (a) authenticity of the assessment activity (e.g., student involvement in making decisions and solving problems relevant

58 Pachler, N., Daly, C., Mor, Y., & Mellar, H. (2010). Formative e-assessment: Practitioner cases. *Computers & Education*, 54(3), 715-721.

59 Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers and Education*, 57(4), 2333-2351.

60 Vonderwell, S., Liang, X., & Alderman, K. (2007). Asynchronous discussions and assessment in online learning. *Journal of Research on Technology in Education*, 39(3), 309-328.

to real-world situations), (b) effective formative feedback (e.g., feedback that is useful, timely, ongoing, and understandable to the student), (c) multidimensional perspectives (e.g., diverse opportunities for the student), and (d) support for the student (e.g., mentoring role of the teacher).

Reliability features of formative assessment (Gikandi et al., 2011) include (a) opportunities for teacher and student documentation and monitoring of evidence of learning, (b) multiple evidence of learning while guiding students to manage tasks without frustration (Smith, 2007)⁶¹, and (c) explicit clarity of learning objectives and shared meaning of rubrics (Gikandi et al., 2011). Finally, dishonesty refers to the ability to verify the belongingness of work to a particular student (Gikandi et al., 2011), which Oosterhof et al. (2008)⁶² noted may not become an issue in formative assessment if students are provided with scoring rubrics and model products with assessments.

Formative assessments are multi-faceted and could be in the form of peer assessment, co-assessment, self-assessment and/or instructor feedback. Such formative assessment is said to achieve autonomous and independent learning (Nicol, 2007)⁶³.

Rubrics: Discussion Boards

Rubrics can be used to grade any paper by the instructor, peers, or a combination of the two. Brookes and Lin (2010)⁶⁴ discussed a formative assessment rubric created for an online course to guide student learning and provide formative assessment on concept learning and feedback on how to improve. The rubric was created with four general concept points horizontally, which are then broken down into several sub-chapters needed for assessment. Brookes and Lin used “the ability to evaluate models, equations, solutions, and statements” (p. 6) as broader concepts.

Vertically, Brookes and Lin used columns labeled “missing, inadequate, requires improvement, and adequate” (p. 6). This rubric concept can be applied to the evaluation of discussion forum posts. Typically, an online asynchronous discussion forum has discussion questions posted by the instructor.

61 Smith, G. (2007). How does student performance on formative assessments relate to learning assessed by exams? *Journal of College Science Teaching*, 36(7), 28–34.

62 Oosterhof, A., Conrad, R., & Ely, D. (2008). *Assessing learners online*. Upper Saddle River, NJ: Prentice Hall.

63 Nicol, D. (2007). Laying foundation for lifelong learning: Case study of e-assessment in large first-year classes. *British Journal of Education Technology*, 38(4), 668–678.

64 Brookes, D. T., & Lin, Y. (2010). Structuring classroom discourse using formative assessment rubrics. Paper presented at the Physics Education Research Conference. Retrieved from <http://www.compadre.org/per/items>.

Considering and reflecting on these questions facilitates engagement with a larger concept or concepts, which in turn are important learning outcomes. For example, the broader concepts for school counseling service delivery are counseling, guidance curriculum, responsive services, and support systems (ASCA, 2005). Within these four broader concepts, subcategories that can be assessed are “student is able to identify individual counseling needs” or “student is able to identify appropriate topics for guidance.” Instructors can adapt the four rating scales suggested by Brookes and Lin (2010) to their own task assessment rubrics. Indicating in the form of formative assessment rubrics whether or not the student has completed the concepts and subchapters as learning occurs provides the student with an opportunity to understand any gaps in knowledge related to a particular content area. Such an assessment using a rubric can be done only by the instructor or by the instructor and/or peers.

The awareness gained from such ongoing feedback can lead to additional learning in those areas and possible future proficiency in those areas. Without such formative assessment, students would move on until a summative assessment is conducted. It may be too late at that point to acquire the missing knowledge and provide evidence of that knowledge to an instructor for grading purposes.

Journals

Reflective journaling, in which learners articulate knowledge gained from readings, collaborative discussions and personal experiences, is a formative assessment method (Naughton et al., 2011)⁶⁵. The content of this reflection may be required to include not only text, but also exploration of websites and blogging of information with peers, inclusion of interactive video materials and other media sources. Concerns for learner privacy are naturally heightened when communicating online, and the scope and depth of journal entries should be carefully delineated by instructors to facilitate learner disclosure and to ensure that the online classroom is a supportive environment. Electronic journal entries shared directly and only with instructors may be more unlimited, and the principles of etiquette should be explained regardless in syllabi and other venues to promote collegiality whenever peer review and collaboration are linked to reflective journal assessment.

65 Naughton, C., Smeed, J., & Roder, J. (2011). Delimiting the prospect of openness: An examination of the initial student approaches to e-learning. *International Review of Research in Open and Distance Learning*, 12(2), 103-120.

Netfolio (e-portfolio)

The use of an e-portfolio, which addresses metacognition, authentic tasks, contextual feedback and learner accountability (Black & Williams, 2008)⁶⁶, aims to describe the skills students develop during a learning process and is a summative assessment. Netfolio derives from this e-portfolio concept in that it is a “set of e-portfolios produced by different students” (Barbera, 2009, p. 344)⁶⁷ that gives students the opportunity to better understand learning objectives as well as to revise their self-portfolios by participating in assessment and feedback on other students’ portfolios (Barbera, 2009). At set intervals, peers provide new content and different perspectives through online communication. The e-portfolio is assessed with attention given to the presentation of ideas, the competence evidenced in communication, and the learner’s ability to engage in self-reflection and reflection of others.

The advantages of using a netfolio assessment are that it (a) promotes collaboration between instructor and learner as well as among learners (Barbera, 2009); (b) provides rapid and explicit feedback (Barbera, 2009); (c) alleviates feelings of isolation by creating a sense of virtual community (Glassmeyer et al., 2011)⁶⁸; and (d) allows learners to view samples of exemplary work by other learners (Barbera, 2009), enhancing their own work through self-reflection (Wang, 2010)⁶⁹. Therefore, netfolio provides the learner with the opportunity for continuous improvement through reflection on the work of others and feedback on their own work (Barbera, 2009).

Multiple-Choice Examinations: Student-Generated Questions and Concept Maps

Multiple-choice questionnaires (MCQs) are a more traditional form of assessment that has been criticized for not facilitating active learning due to the lack of justification of the response (Arthur, 2006)⁷⁰. Despite these concerns, the main advantages of online MCQs include time efficiency,

66 Black, P., & Williams, D. (1998). Inside the white box: Raising standards through classroom assessment, *Phi Delta Kappan*, 80(2), 139-148.

67 Barbera, E. (2009). Mutual feedback in e-portfolio assessment: An approach to the netfolio system. *British Journal of Educational Technology*, 40(2), 342–357. DOI:10.1111/j.1467-8535.2007.00803.x.

68 Glassmeyer, D. M., Dibbs, R. A., & Jensen, R. T. (2011). Determining utility of formative assessment through virtual community: Perspectives of online graduate students. *The Quarterly Review of Distance Education*, 12(1), 23-35.

69 Wang, L. (2010). Integrating communities of practice in e-portfolio assessment: Effects and experiences of mutual assessment in an online course. *Internet and Higher Education*, 13(4), 267-271.

70 Arthur, N. (2006) Using student-generated assessment items to enhance teamwork, feedback and the learning process, *Synergy: Supporting the Scholarship of Teaching and Learning at the University of Sydney*, 24, 21–23.

accuracy, and quality assurance. Online MCQs offer reduced correction time, elimination of the need to check for personal error, rapid data analysis and item analysis, reliability checking, inter-year validity, elimination of teacher bias, and portability (Escudier et al., 2011)⁷¹. Some learning management systems allow MCQs to be designed to provide feedback to the student while in the process of completing the test, while others may provide options for branching and extended multiple choice questions (Escudier, 2011).

Pittenger (2011)⁷² recommended student-generated MCQs as an effective form of assessment, mitigating the lack of engaged learning, as they encourage student engagement with course content, metacognitive skills and ownership of the learning experience. Berry (2008)⁷³ reported “improved exam performance and possibly learning” (p. 310) when students generated their own questions, with a positive correlation with the number of questions a student generated. Concept maps (Berry & Chew, 2008) were another recommended method that improved student performance on MCQs. Another option is to provide quizzes or exams with long and short answers. However, this eliminates some of the advantages mentioned above. Finally, equivalence between online and paper-based MCQs may be another consideration for online quizzes and exams. Researchers Escudier et al. (2011) found that student performance in the online MCQ format versus traditional forms was similar.

Wikis

A unique evaluation tool for the online environment is the wiki. This is a space where a group of students can be assigned to create a case study, an action plan/experimental protocol/treatment or a lesson plan. Each student can be directed to use a different font colour, with their name in brackets, for easy identification of their contribution by peers and instructor. This assessment can be designed to be graded by a combination of peers and/or instructor and can be repeated over the course of a semester or quarter, allowing the student to improve their performance through participation, peer feedback, and self-reflection. Grading of this assignment can be

71 Escudier, M. P., Newton, T. J., Cox, M. J., Reynolds, P. A., & Odell, E. W. (2011). University students’ attainment and perceptions of computer delivered assessment; a comparison between computer-based and traditional tests in a “high-stakes” examination. *Journal of Computer Assisted Learning*, 27(5), 440–447. DOI: 10.1111/j.1365-2729.2011.00409.x.

72 Pittenger, A. L., & Lounsbery, J. L. (2011). Student-generated questions to assess learning in an online orientation to pharmacy course. *American Journal of Pharmaceutical Education* 75(5), Article 94.

73 Berry, J. W., & Chew, S. L. (2008). Improving learning through interventions of student-generated questions and concept maps. *Teaching of Psychology*, 35(4), 305–312. DOI: 10.1080/00986280802373841.

designed as a one-time at the end of the semester, as a more summative assessment, or as a fraction (e.g., 3 times out of 5).

Summative Assessment Tools

Summative assessment in education is both more familiar to those involved in the instructional process (e.g., students, teachers, administrators) and a potentially under-theorized practice in online learning. Readers may be familiar with the use of so-called high-stakes tests, in which a summative assessment is used as the primary or even sole indicator of whether students have achieved educational goals (Escudier et al., 2011)⁷⁴. This use of summative assessment, only in the form of a midterm and final exam, although common in higher education, is discouraged when planning and implementing assessment of a learner's experience and achievement in online educational environments (Stewart et al., 2004)⁷⁵. Just as formative assessment provides an ongoing comparative assessment of learner achievement, summative assessment seeks, at best, to comprehensively document and richly describe the emergent learning process that has taken place during a particular time-bounded learning experience, for example, over the course of a semester or term (Naughton et al., 2011).

At first glance, the principles of constructivist, learner-centred and authentic education may seem difficult to introduce into the design of meaningful summative assessments. Recalling that the principles of authentic education include an emphasis on problem-solving, learner decision-making, and applicability to situations outside the educational context, it becomes reasonable to question whether instructors can engage students in sufficient time and at a valid level of participation to co-create summative assessment protocols in an online education environment. Lesnick et al. (2004) suggested that reappropriation of task objectives in online education should serve as a basis for design, instruction, and assessment. Proponents of online education (Eyal, 2012; Russell et al., 2006)⁷⁶ have argued

74 Escudier, M. P., Newton, T. J., Cox, M. J., Reynolds, P. A., & Odell, E. W. (2011). University students' attainment and perceptions of computer delivered assessment; a comparison between computer-based and traditional tests in a "high-stakes" examination. *Journal of Computer Assisted Learning*, 27(5), 440-447. DOI: 10.1111/j.1365-2729.2011.00409.x.

75 Stewart, B. L., Waight, C. L., Norwood, M. M., & Ezell, S. D. (2004). Formative and summative evaluation of online courses. *The Quarterly Review of Distance Education*, 5(2), 101-109.

76 Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37-49; Russell, J., Elton, L., Swinglehurst, D., & Greenhalgh, T. (2006). Using the online environment in assessment for learning: A case-study of a web-based course in primary care. *Assessment & Evaluation in Higher Education*, 31(4), 465-478. DOI:10.1080/02602930600679209.

that due to the interactive and instantaneous archiving of text and the communication affordances of standard learning management systems, the separation between activities designed to promote learning and assessment of those activities is diffuse. A commitment to the goals of constructivist and authentic education, coupled with a deep familiarity with the tools available in learning management systems supports a reconceptualization of how summative assessments are created and why a particular set of assessment practices is valid in terms of supporting overall learning themes or goals.

Summative assessment in online learning should be based on facilitating and documenting the learner's ability to synthesise their own perspective and personal experiences with new texts, media content and other knowledge artefacts. Representing achievement, rather than assessing learners' ability to memorize and recite by rote, involves optimizing the use of assessment tools that focus on problem solving, critical analysis of media sources, and articulating the learner's voice as an engaged co-creator of the educational experience. A core design for summative assessment in online learning would be the instructor's ability to competently use learning management systems to approximate face-to-face assessment strategies such as a final exam or final paper. An advanced design for summative assessment would maximize the potential of learning management systems to engage learners and facilitate the design of projects and top assignments based on learner input (Levia & Quiring, 2008)⁷⁷.

Because collaboration is commonly identified as an ideal to incorporate throughout the online learning process (Eyal, 2012)⁷⁸, incorporating an interactive peer-based feedback and review process is considered a best practice in the design and implementation of formative or summative assessments.

Rubrics: Case Studies

The use of case studies to assess and describe real learning embodies the principles of authentic, learner-centered education by focusing on problem-solving and decision-making skills, the textual construction of the learner's perspective and engagement with the course material, and the opportunity to blend students' lived experiences with concepts valued by professional/academic communities (Williams, 2006).

77 Levia Jr., D. F. & Quiring, S. M. (2008). Assessment of student learning in a hybrid PBL capstone seminar. *Journal of Geography in Higher Education*, 32(2), 217–231. DOI:10.1080/03098260701514041.

78 Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37–49. Retrieved from <https://csuglobal.blackboard.com/bbcswebdav/library/Article%20Reserve/OTL532K/Digital%20assessment%20literacy%20—The%20core%20role%20of%20the%20teacher%20in%20a%20digital%20environment.pdf>.

Instructors are encouraged to incorporate the advantages and potential power of the online environment when using case study analysis as a comprehensive or summative assessment tool (Bonk & Cummings, 1998), including the expectation that learners can examine a wider range of resources and media to inform their ability to critically analyze case material. Case material may be presented by the instructor with web links to studies, press releases, and other news sources; video documentation of events related to the case; and fictional or nonfictional media (e.g., books, interviews, films). In turn, learners may be encouraged to provide a similar range of texts and media materials to support their analysis, including videos and learner-generated images. In the spirit of limiting the use of summative assessment as a high-stakes assessment tool (Stewart et al., 2004), evaluation rubrics for learner generated content should also be based on valuing the learner's perspective and voice (Lesnick et al., 2004)⁷⁹, rather than solely on assessing learner performance (Williams, 2009)⁸⁰.

This encourages instructors to design assessment protocols with attention to learners' learning process, including collaboration with others and the adoption of positions of authority within a given learning discourse ((Lesnick et al. 2004) and Eyal (2012))⁸¹ recommends that summative assessments be broken down into smaller constituent elements that can either be used as formative assessments or presented to learners for consideration and comment. Breaking down a larger project, such as a case study analysis, can lead to the identification of related learning components and form the basis of assessment rubrics.

A grading or evaluation rubric incorporates two key dimensions, one being identification of discrete learning components or themes related to overall learning objectives, and the other being a point-system hierarchy to represent degree of learner achievement (Swan et al., 2006)⁸². Elements in an authentic evaluation rubric for case study analysis could include (a)

79 Lesnick, A., Cesaitis, A., Jagtiani, U., & Miller, R. (2004). Curriculum design as re-writing: Online "chat" as a resource for radicalizing the teaching of a canonical text. *Curriculum & Teaching Dialogue*, 6(1), 35-47.

80 Williams, J., & Wong, A. (2009). The efficacy of final examinations: A comparative study of closed-book, invigilated exams and open-book, open-web exams. *British Journal of Educational Technology*, 40(2), 227- 236.

81 Lesnick, A., Cesaitis, A., Jagtiani, U., & Miller, R. (2004). Curriculum design as re-writing: Online "chat" as a resource for radicalizing the teaching of a canonical text. *Curriculum & Teaching Dialogue*, 6(1), 35-47; Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37-49.

82 Swan, K., Shen, J., & Hiltz, S. R. (2006). Assessment and collaboration in online learning. *Journal of Asynchronous Learning Networks*, 10(1), 45-62. Retrieved January 30, <http://www.new.kent.edu/ehhs/dl/upload/assessment-and-collaboration.pdf>.

the richness (in both breadth and depth) of resources upon which analysis is based; (b) the ability to identify salient and divergent perspectives in best practices relative to presented case material; (c) articulation of a clear process of analysis that appears to incorporate consideration of alternative perspectives; and (d) authoritative and or innovative synthesis of all elements of the learning process into a coherent viewpoint.

Case study reports can be designed as interactive and collaborative assessments, with time periods for peer and instructor commentary (and subsequent revision of submitted work) incorporated into the design and implementation of this form of assignment. Degree and quality of collaboration and the ability to integrate critical feedback then can become another component in the evaluation rubric.

Tests and Examinations

Tests or exams are commonly used to measure academic performance (Eyal, 2012)⁸³, and issues of accuracy, validity, authentic description of learning and optimal use of resources are important for both face-to-face and online learning (Williams, 2009)⁸⁴. In general, the literature base supports the use of exams to document learner performance in online environments (Hewson, 2012)⁸⁵. In a comparative study, Escudier et al. (2011) found, for example, that dental school students performed equally well on face-to-face and web-based versions of an important high-stakes test. The authors concluded that the use of web-based assessment does not disadvantage learners, although it should be noted that this study focused on learning outcomes and not on describing the learners' experience of the educational process.

On the topic of student expectations, Stewart et al. (2004)⁸⁶ found that positive expectations for learning were high in a sample of students participating in online courses during an academic semester. Students identified positive expectations in terms of achieving educational goals, meaningful experience, and support from instructors and staff throughout the course (Stewart et al., 2004).

83 Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37-49.

84 Williams, J. (2006). The place of the closed book, invigilated final examination in a knowledge economy. *Educational Media International*, 43(2), 107-119.

85 Hewson, C. (2012). Can online course-based assessment methods be fair and equitable? Relationships between students' preferences and performance within online and offline assessments. *Journal of Computer Assisted Learning*, 28(5), 488-498. DOI: 10.1111/j.1365-2729.2011.00473.x.

86 Stewart, B. L., Waight, C. L., Norwood, M. M., & Ezell, S. D. (2004). Formative and summative evaluation of online courses. *The Quarterly Review of Distance Education*, 5(2), 101-109.

Students rated the actual learning experience less favourably, although the majority of participants still rated the overall experience as positive (Stewart et al., 2004). Williams (2006) suggested that an open-book, open-media examination format for exam administration in online learning is preferred to the common, close-book, proctored examination typical of learning that is facilitated primarily in face-to-face learning. Where security of examination procedures is the main concern, software such as a web browser with blocking or a text comparison tool (which allows assessment of submitted material for plagiarism) can be used. Williams and Wong (2009)⁸⁷ identified that a sample of students, when comparing online and face-to-face examinations, found both formats to be equally conducive (or restrictive, depending on the situation) to academic dishonesty or cheating.

Students in the same study significantly preferred online, open-resource, asynchronous exams to time-limited, face-to-face exams with closed resources (e.g., books), primarily because of the convenience of the former (Williams & Wong, 2009). Most learning management systems allow for the use of time-limited, synchronous, single-attempt exams, although this format may reduce the potential of exams as authentic summative assessment tools (Eyal, 2012)⁸⁸.

Journals, Blogs, and WIKIS

Applying the principles of authentic and constructivist education to online education encourages instructors to place learners' voices and experiences at the center of the assessment process (Herrington & Standen, 2000; Russell et al., 2006)⁸⁹. Reflective journals, in which learners are encouraged to articulate their own perspectives on key educational themes, are a way to enrich the assessment process in both a formative and summative sense (Naughton et al., 2011)⁹⁰. Adapting the concept of the reflective journal to the online and collaborative learning environment, students can be asked

87 Williams, J., & Wong, A. (2009). The efficacy of final examinations: A comparative study of closed-book, invigilated exams and open-book, open-web exams. *British Journal of Educational Technology*, 40(2), 227-236.

88 Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37-49.

89 Herrington, J., & Standen, P. (2000). Moving from an instructivist to a constructivist multimedia learning environment. *Journal of Educational Multimedia and Hypermedia*, 9(3), 195-205; Russell, J., Elton, L., Swinglehurst, D., & Greenhalgh, T. (2006). Using the online environment in assessment for learning: A case-study of a web-based course in primary care. *Assessment & Evaluation in Higher Education*, 31(4), 465-478. DOI:10.1080/02602930600679209.

90 Naughton, C., Smeed, J., & Roder, J. (2011). Delimiting the prospect of openness: An examination of the initial student approaches to e-learning. *International Review of Research in Open and Distance Learning*, 12(2), 103-120.

to create in-text web links to relevant resources, images, streaming videos or other media that help to highlight and contextualise students' awareness and reflection on their own learning process. Another adaptation would be to frame the journal, which involves either student-instructor communication or exclusive student-self communication, as a web journal (i.e., a blog) designed to be commented on and reviewed by other students (Eyal, 2012)⁹¹.

A blog evaluation rubric could be shared with all students, so that peer evaluations can then be incorporated into the overall/summative evaluation of student and whole-class learning. If students are expected to enhance their academic and critical writing skills, instructors can assign students the task of creating collaborative web pages or wikis (Eyal, 2012). Wikis, as web-based knowledge resources, typically require detailed references and a comprehensive presentation of the topics covered. Many of the elements used to evaluate final papers can be adapted to evaluate wikis, with the addition of evaluation elements such as other web-based multimedia elements, timeliness of revisions, and professionalism of contributors and reviewers. More empirically-based literature on counselor digital literacy, including consideration of the constructive nature of the education process and best methods of formative and summative assessment, can contribute to accurate, effective, and productive assessment of learners' knowledge, awareness, and/or skills in online counselor education.

2.3. Common Online Assessment Methods

Strategies and Recommendation

All assessments, whether they are online, blended, or exclusively face-to-face, can be guided by the same principles of effectiveness (Earl, 2013)⁹². Evidence-informed assessments are key to improving the overall quality of students' learning experiences (Heinrichs et al., 2015)⁹³. There are many different ways to effectively assess students' online learning. The methods

91 Eyal, L. (2012). Digital assessment literacy: The core role of the teacher in a digital environment. *Educational Technology and Society*, 15(2), 37–49. Retrieved from <https://csuglobal.blackboard.com/bbcswebdav/library/Article%20Reserve/OTL532K/Digital%20assessment%20literacy%20—The%20core%20role%20of%20the%20teacher%20in%20a%20digital%20environment.pdf>.

92 Earl, K. (2013). Student views on short-text assignment formats in fully online courses. *Distance Education*, 34(2), 161-174. doi.org/10.1080/01587919.2013.793639.

93 Hewson, C. (2012). Can online course-based assessment methods be fair and equitable? Relationships between students' preferences and performance within online and offline assessments. *Journal of Computer Assisted Learning*, 28(5), 488-498. doi.org/10.1111/j.1365-2729.2011.00473.x.

listed below are some of the most commonly used and researched and apply to many subjects, levels and grades. There is also growing research on strategies to mitigate the difficulties associated with student assessment. Other recommendations have been gathered from experienced instructors and instructional designers. As with any set of recommendations, not all will be useful in a given situation, so institutions and instructors or teachers will need to decide which ones are most applicable to their course. When designing assessments, consider course context, student workload, availability of teaching assistants (TAs) and instructors, technology requirements, and alignment with learning outcomes.

General recommendations for online assessments:

- Start planning and designing assessments early. Make sure all materials are available by the first day
- of class and that important resources are easy to find in the LMS (Beebe et al., 2010; Page & Cherry, 2018)⁹⁴.
- Instructions, rubrics, and expectations should be clear and complete (Ardid et al. 2015)⁹⁵. Provide a
- space for students to ask questions, such as a discussion forum, so that all students have equal access to information.
- Use a variety of assessment types to give students the opportunity to demonstrate their understanding
- in different ways (Sato & Haegele, 2018)⁹⁶.
- Interactive and higher-order learning opportunities can increase engagement with assessments.
- Provide videos, simulations, case studies, or other resources to gain deeper student engagement (Van de Heyde & Siebrits, 2019)⁹⁷
- When providing formative feedback, use action-focused statements that give students suggestions
- for future work (Drury & Mort, 2015)⁹⁸. Non-specific feedback is less

94 Beebe, R., Vonderwell, S., & Boboc, M. (2010). Emerging patterns in transferring assessment practices from f2f to online environments. *Electronic Journal of e-Learning*, 8(1), 1-12.

95 Ardid, M., Gómez-Tejedor, J. A., Meseguer-Dueñas, J. M., Riera, J., & Vidaurre, A. (2015). Online exams for blended assessment. Study of different application methodologies. *Computers & Education* 81, 296-303. doi.org/10.1016/j.compedu.2014.10.010.

96 Sato, T. & Haegele, J.A. (2018). Undergraduate kinesiology students' experiences in online motor development courses. *Online Learning*, 22(2), 271-288. <http://dx.doi.org/10.24059/olj.v22i2.1361>.

97 Van de Heyde, V., & Siebrits, A. (2019). Higher-Order e-Assessment for Physics in the Digital Age Using Sakai. *The Physics Teacher*, 57(1), 32-34. doi.org/10.1119/1.5084925.

98 Drury, H., & Mort, P. (2015). Engaging students in online learning

helpful to students than specific, detailed comments.

- Develop a strategy and plan for promoting academic integrity online. Discuss this plan and its
- importance with students (Levine & Pazdernik, 2018)⁹⁹.
- Develop a contingency plan for submitting or completing assignments if technical problems arise.

Take note of how student work is recorded and documented in the LMS so that you and students have confidence in the technology (Bennett et al., 2016)¹⁰⁰.

We can use nine of the most common assessment methods to support student learning. Check out this infographic for an overview¹⁰¹.

environments for success in academic writing in the disciplines. In M. Deane, & T. Guasch (Eds), *Learning and Teaching Writing Online: Strategies for Success* (pp.151-175). Brill. doi.org/10.1163/9789004290846.

99 Levine, J., & Pazdernik, V. (2018). Evaluation of a four-prong anti-plagiarism program and the incidence of plagiarism: a five-year retrospective study. *Assessment and Evaluation in Higher Education*, 43(7), 1094-1105. doi.org/10.1080/02602938.2018.1434127.

100 Bennett, S., Dawson, P., Bearman, M., Molloy, E., & Boud, D. (2017). How technology shapes assessment design: Findings from a study of university teachers. *British Journal of Educational Technology*, 48(2), 672-682. doi.org/10.1111/bjet.12439.

101 Helen Colman. 9 ways To Assess Student Learning Online; <https://www.ispringsolutions.com/blog/8-ways-to-assess-online-student-learning>.

9 Ways to Assess Student Learning Online

Assessment is the process of gathering information on what students know based on their learning experience.

These are the nine most common assessment methods:



1. Online Quizzes

These are ideal for measuring learning results across a wide audience.



4. Online Interviews

During brief online interviews, students can demonstrate their proficiency in various areas.



7. Game-Type Activities

These are considered fun, and not "tests," so they are a good general indicator of skills and knowledge.



2. Open-Ended/ Essay Questions

They encourage critical thinking and are best suited for evaluating higher-level learning.



5. Dialogue Simulations

Help train learners for real-life conversations with customers, colleagues, and others.



8. Peer Evaluation and Review

Give each participant a chance to reflect on their knowledge and then communicate their feedback in a consistent and structured way.



3. Drag-And-Drop Activities

Use them when you want learners to be able to apply the knowledge in real-life situations.



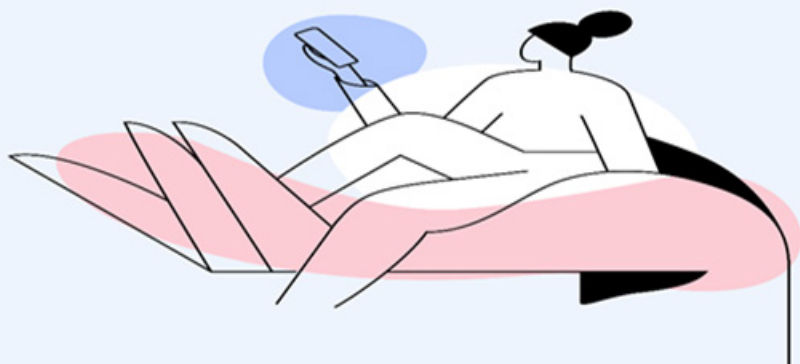
6. Online Polls/ Surveys

They allow you to capture feedback directly from your audience on their learning experience.



9. Forum Posts

Use them when you want learners to interact as part of the learning process, while checking their comprehension of a topic.



Online Quizzes

Quizzes are a traditional assessment tool. Plus, when paired with technology, they are an excellent way to engage student learning. Quiz questions can take a number of forms, such as multiple-choice, fill-in-the-blanks, and hotspots. One benefit of quizzes is that they are short and easy to assess. Another is that question order and options can be randomized, so each student's quiz is unique.

Online quizzes are ideal for measuring learning results across a wide audience. Since each student takes the same test, you can compare and contrast results across different classes, schools, or communities.

A non-graded online quiz can be given prior to the start of a lesson to gain a baseline measurement of a student's existing knowledge. You can also embed a knowledge check test into a module to reinforce concepts taught in the lesson, or make a final graded test at the end of the course to evaluate students' overall performance.

How can I create an online quiz?

Online questionnaires can easily be created using a set of eLearning authoring tools such as iSpring Suite. iSpring Suite includes a questionnaire authoring tool that offers 14 question types. Simply choose the appropriate templates to quickly and easily create a quiz for your students. You can enhance your quiz by providing detailed feedback on answers, adding informational slides, and creating individual learning paths based on each employee's performance on the quiz.

Question List Question 1 of 13 | Your Score: 0 of 130

Doctor's Order:
Streptomycin 1.75 mg/lb IM q 12 hr;

Available:
Streptomycin 0.35 g / 2.3 ml.

How many ml will you administer per day to a 59 kg patient?

1.5 ml

2.5 ml

3 ml

Incorrect

Check out below how to determine the dosage:

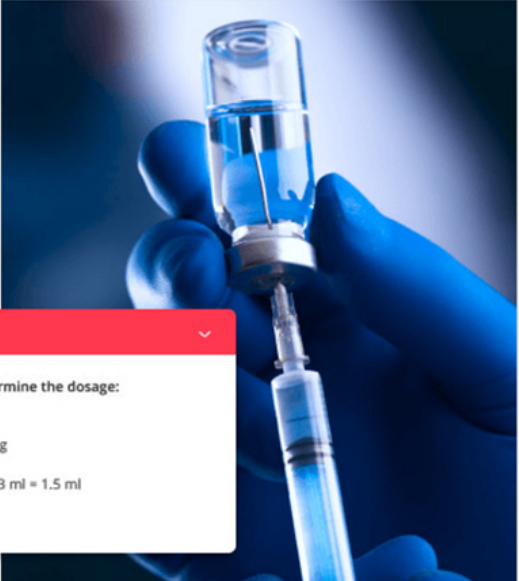
59 kg = 130 lbs

1.75 mg/lb x 130 lbs = 227.5 mg

$$\frac{227.5 \text{ mg}}{0.35 \text{ g}} \times \frac{1 \text{ g}}{1,000 \text{ mg}} \times 2.3 \text{ ml} = 1.5 \text{ ml}$$

1.5 ml x 2 = 3 ml

[CONTINUE](#)

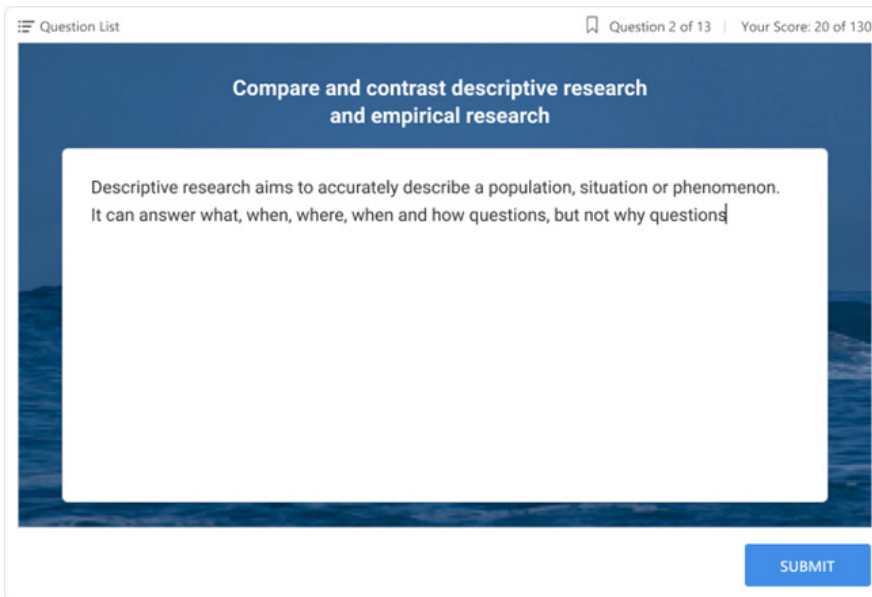


Open-Ended/Essay Questions

Open-ended or essay-type questions are one of the most popular qualitative assessment methods. They prompt learners to explore their thoughts, feelings, and opinions, while testing their overall comprehension of a topic. This type of question encourages critical thinking and is best suited for evaluating higher-level learning. Essay questions require a longer time for students to think, organize, and compose their answers.

How can I create an open-ended assessment?

Open-ended assessments are one of the question types available in iSpring Suite. Unlike many other questions types, they cannot be auto-scored in online courses, so instructors will have to take the time to review them one by one.



Question List Question 2 of 13 | Your Score: 20 of 130

Compare and contrast descriptive research and empirical research

Descriptive research aims to accurately describe a population, situation or phenomenon. It can answer what, when, where, when and how questions, but not why questions

SUBMIT

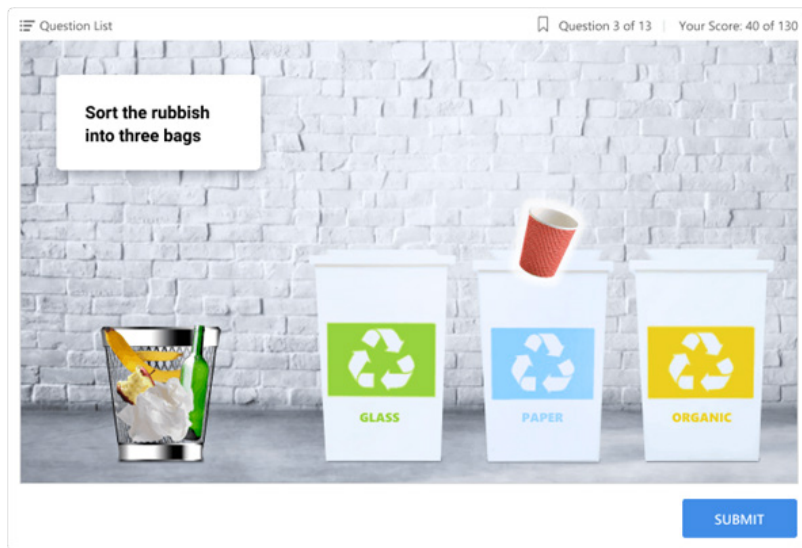
Drag-And-Drop Activities

Drag-and-drops are a type of assessment that show a learner's ability to link information and apply knowledge to solve a practical problem. You can incorporate both images and text in a drag-and-drop activity, giving it a real-world feel that is both challenging and engaging.

It's essential to use this assessment type when you want learners to be able to apply knowledge in a real-life situation.

How can I create a drag-and-drop activity?

iSpring Suite provides a drag-and-drop template that allows you to move text boxes, images, and shapes to a specific place on the page. To create an assessment, you need to upload the images into a question template and then simply identify the drop target.



Online Interviews

You can incorporate a video conference within your online teaching to give learning a more personal touch. During brief online interviews, students can demonstrate their proficiency in language, music, nursing, and other courses, for example, where mastery of specific skills is an important requirement. Sometimes it may be beneficial to conduct group interviews - for team project reports, for example.

Interviews can also include a mentoring component enabling students to get immediate feedback from instructors and help them feel more responsible about their studies.

How can I create an online interview?

You can share online interviews with the help of web conferencing tools like Zoom. For best results, take the time to plan out your interview before it begins. Prepare your questions in advance and schedule a time for the meeting to occur. Allow your online learners a way to provide feedback or interact with the interviews.

Dialogue Simulations

A dialogue simulation is a way to prepare learners for real-life conversations with clients, colleagues and others. When creating a conversation activity based on a situation a learner may face in the workplace, let them know what to expect and provide them with a safe place to practice their reactions and responses.

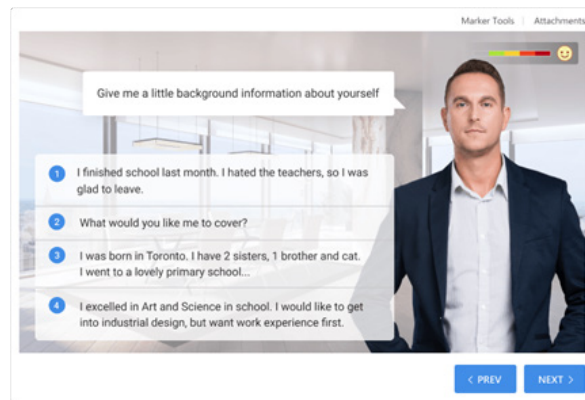
For example, with dialogue simulations, you can help your learners master skills in sales, service, defence and public order work, customer service or test how well they are prepared for a job interview. These activities can also

be a good learning support tool for experienced workers who want to refresh skills they haven't used in a while.

How can I create a dialogue simulation?

You can create activities similar to dialogue simulations manually, using simple slides, but it will take you a lot of time and effort to create this kind of branching scenario in PowerPoint. There are some specific tools like iSpring TalkMaster (a part of the iSpring Suite eLearning toolkit) that allow you to design a conversation sim quickly and easily.

Start by mapping out the scenario you want to create. Think over the scenario, choose a suitable character and location from the built-in library or upload your own, and create a dialogue with iSpring by offering learners a choice of responses and giving feedback. As with a typical quiz, learners will get points for correct answers and lose points for inaccurate ones.



Online Polls

Polls allow you to capture feedback directly from your audience about their learning experience. They can be used to measure anything from learning satisfaction (Kirkpatrick Level One feedback) to why a student made a particular choice during a lesson. Online surveys are highly engaging for learners because they allow them to share their opinions, make themselves heard, and are quick to complete.

You can also use poll questions when you want to quickly grab and focus your learners' attention on something important or break the ice during an online group interview session. For the latter, you can simply carry out a mood survey.

How can I create an online poll question?

If you host webinars via web conferencing solutions, you can use built-in tools for conducting polls. There are also some specialized

online platforms like Survey Monkey that allow you to create, send, and analyze surveys.

You can also build a survey with eLearning authoring tools like iSpring Suite. All you have to do is to choose a ready-made question template supported by the iSpring QuizMaker tool, write the question and answer choices, or a text field for open-ended responses.

The screenshot shows a survey question interface. At the top, it says "Question List" on the left and "Question 13 of 13 | Your Score: 110 of 130" on the right. The main heading is "Please agree or disagree with the following". Below this is a table with five columns: "Strongly Disagree", "Disagree", "Uncertain", "Agree", and "Strongly Agree". There are three rows of questions, each with a radio button under each column. The first row is "This course helped me understand the maths topic." with the "Strongly Agree" button selected. The second row is "This course helped me identify which parts of the topic I still need to work on." with the "Agree" button selected. The third row is "This course made maths more interesting for me." with the "Uncertain" button selected. A blue "SUBMIT" button is at the bottom right.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
This course helped me understand the maths topic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
This course helped me identify which parts of the topic I still need to work on.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
This course made maths more interesting for me.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

DGame-Type Activities

Game activities turn a series of test questions into a game. For example, learners might be asked to answer a certain number of questions within a certain time period and awarded points based on the number of correct answers.

Game-based assessments are considered fun and not “tests”, so they are generally a good indicator of actual skills and knowledge. In addition, they have been shown to enhance learning by promoting the development of non-cognitive skills such as discipline, risk-taking, collaboration and problem-solving. We recommend such formative assessments in defence and public order domain!

Add game-like activities when you want to engage and challenge your students or learners in a non-traditional way. Organisations have found that game-like activities work well in training employees, while schools have found that high-performing students enjoy competing with their peers in learning games.

How can I create game-type activities?

Quizlet and Kahoot are two popular apps that teachers can use to create quick and interactive learning games. Quizlet allows you to create a set of online study sheets for learning terms and definitions, while with Kahoot you can create engaging quizzes and allow your students to earn

points for answering quickly and correctly. We recommend such formative assessments in the field of defence and public order!

There are also many other apps such as GimKit, Formative and Plickers that can add a game-like experience to the classroom.

Peer Evaluation and Review

Peer evaluation turns the tables to put learners into the instructor's seat and allow students to review and edit each other's work. Such activities give each participant a chance to reflect on their knowledge and then communicate their feedback in a consistent and structured way.

How can I create a peer evaluation assessment?

Third-party platforms, such as Turn It In's Feedback Studio, enable students to read, review, and evaluate one or more papers submitted by their classmates using rubrics or prescribed assessment questions. Teachers are able to log in and track individual participation in the activity and monitor comments or peer evaluation feedback.

As a best practice, the instructor should map out and clearly explain the steps of a peer review and evaluation process prior to launch. Be sure to provide a rubric or set of guidelines for each participant to follow to ensure that evaluations are conducted in a consistent manner.

Forum Posts

A forum is an online discussion board organized around a topic. Asking students to contribute to a forum post is an excellent way to gauge their understanding, pique their interest, and support their learning. In this activity, students are given a critical thinking question based on a lesson or a reading, and are asked to reflect on both. Their answers are posted to a forum and their peers are given the chance to respond.

Use this method when you want learners to interact, communicate, and collaborate as part of the learning process, while checking their comprehension of the topic.

How can I create a forum post assessment activity?

Start by creating an online message board exclusively for your class in your LMS or some external platform like Active Board. Identify common topics or themes that you can align messages to. Set participation goals and guidelines that explain acceptable standards for posting (be respectful of others, avoid foul language or personal criticism, etc.).

The facilitator should review postings on a regular basis and provide constructive feedback or guidance to participants.

Other Online Assessment Strategies¹⁰²

- Concept Mapping/Mind Mapping: Creation of digital maps that connect various course concepts to one another and to further knowledge.
- Digital Media Projects: Students present course work in digital media form rather than submitting written work.
- Digital Posters: Academic poster created and presented on a computer. They may include interactive elements or links to online sources.
- Reflective Writing/Journaling/ Blogging: Short written assignments reflecting on experiences and learning, often guided by a central question or topic.
- Research Projects: Large assignments in which students aim to answer a research question by disproving or failing to disprove a hypothesis.
- Simulation Activities/Virtual Laboratories: Online activities that model real-world scenarios, where students must complete tasks or solve problems related to course content. Recommended for the field of defense and public order!

2.4 Online Assessment - Tools and Techniques

Online Assessment-Tools

Different assessment tools used by the teacher can be formative or summative in nature, either for shaping ongoing lessons or for grading once the instruction is complete.

Formative assessment tools are the quizzes, assignments, and in-class questions and discussions teachers use to gauge and guide (or form) their students' learning process. That goes both ways, as teachers often use the answers in their students' formative assessment tools to guide their lesson plans and lectures.

Summative assessment tools are the final essays and tests given at the end of a project, course, semester, unit, program, or school year. Teachers use these to evaluate student learning by comparing performance to a benchmark. These are high-stakes exams with a high point value that figure heavily into a student's grades. Some examples are midterm exams, term papers, and AP tests.

See the top five list of assessment tools in education below for tracking student progress, with tips for how to use them.

Let's sum up what software you might need for which purposes, and consider some other tools.

102 Watson, G. & Sottile, J. (2010). Cheating in the Digital Age: Do Students Cheat More in Online Courses? *Online Journal of Distance Learning Administration*, Volume XIII, Number 1. Retrieved online October 1, 2013 from <http://www.westga.edu/~distance/ojdl/spring131/watson131.html>.

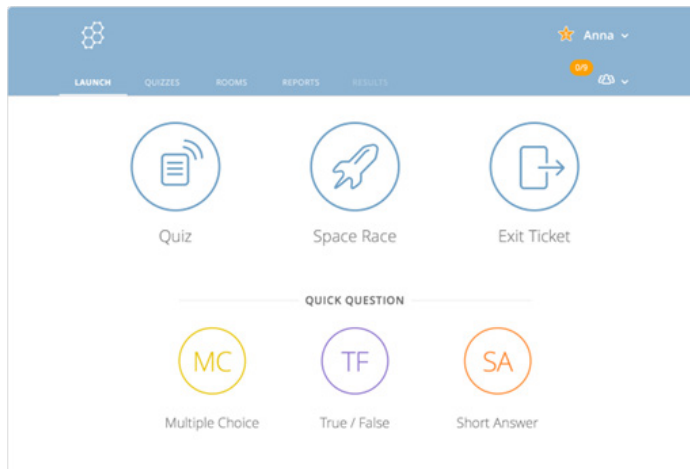


iSpring Suite

It is a comprehensive eLearning authoring toolkit. It allows you to create interactive quizzes, surveys, and dialogue simulations for student assessment, as well as PowerPoint-based courses, video tutorials, interactions, and flipbooks. Despite having so many options, the toolkit is extremely easy to use and is perfectly suited for those who have no experience in eLearning content development.

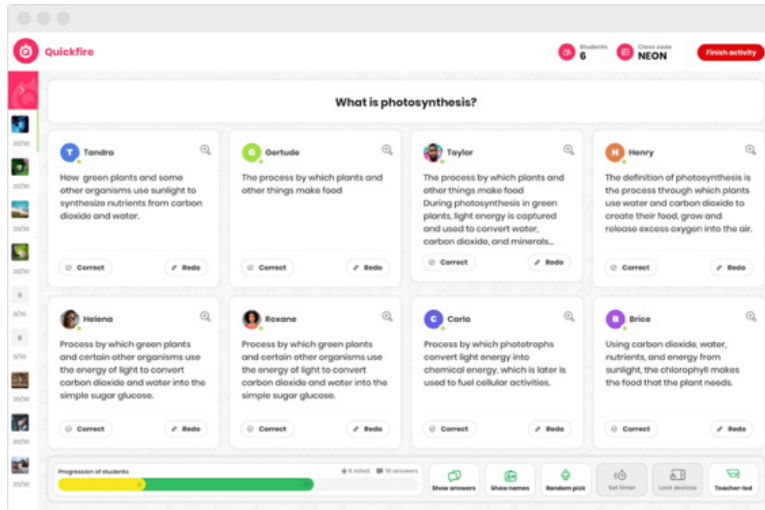
Socrative

It is a quiz making tool that enables you to create tests with multiple-choice, true/false, and short answer questions. It also has some interesting features like exit tickets for the students to gather feedback on the lesson and a fun Space Race game where students “race” to the finish line.



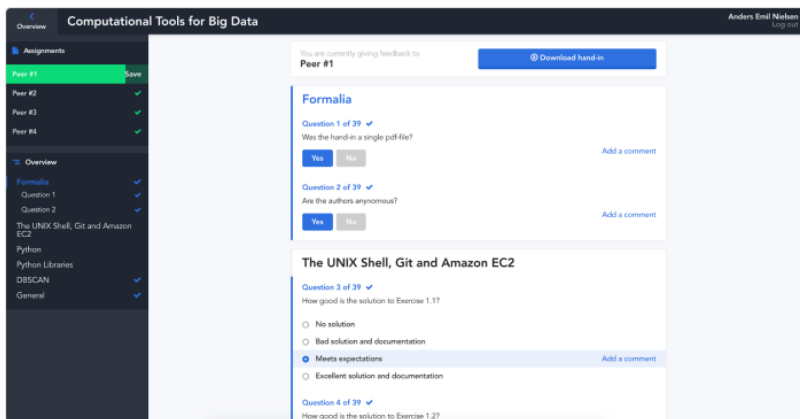
Spiral

Spiral is a set of 5 apps for formative assessment. You can provide assessment in real time and hear from all of your students, turn slides into a discussion thread, let students create and share collaborative presentations, and turn videos into a live chat with questions and quizzes.



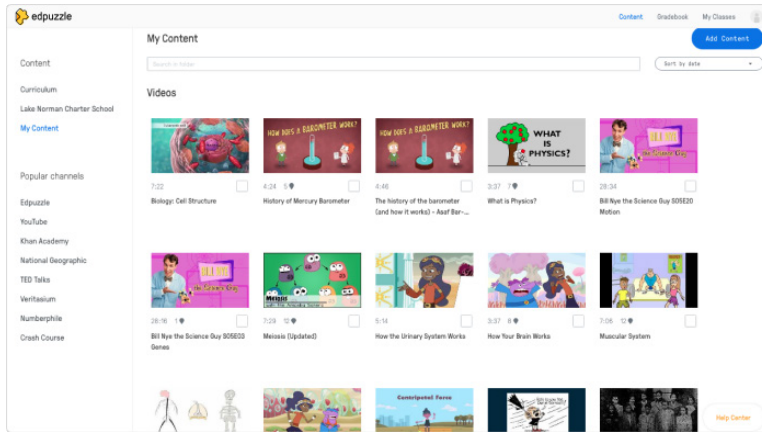
Peergrade

It is an online platform for hosting peer feedback sessions with students. Once you set up your assignment, learners start working on and then submit their work – text, files, videos, links, and even Google docs. Students can review each other's works and act on the feedback. There's also a teacher overview where they can see everything that is happening.



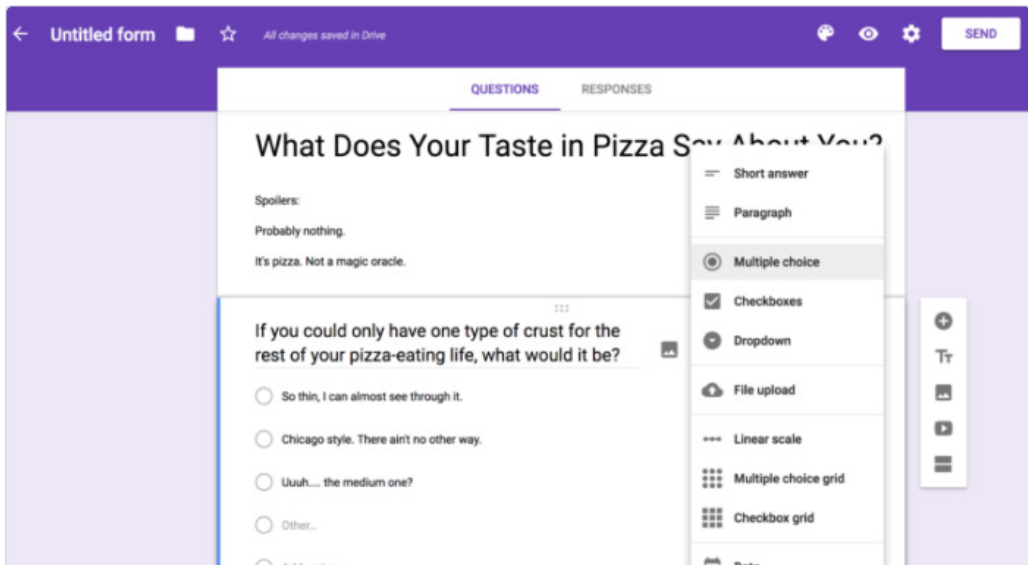
EdPuzzle

EdPuzzle is a tool designed specifically for working with videos. It allows both teachers and students to add voice-overs, resources, comments, and quizzes to videos. Instructors can also check if learners are watching videos, how many times they're watching each section, and if they comprehend the content.



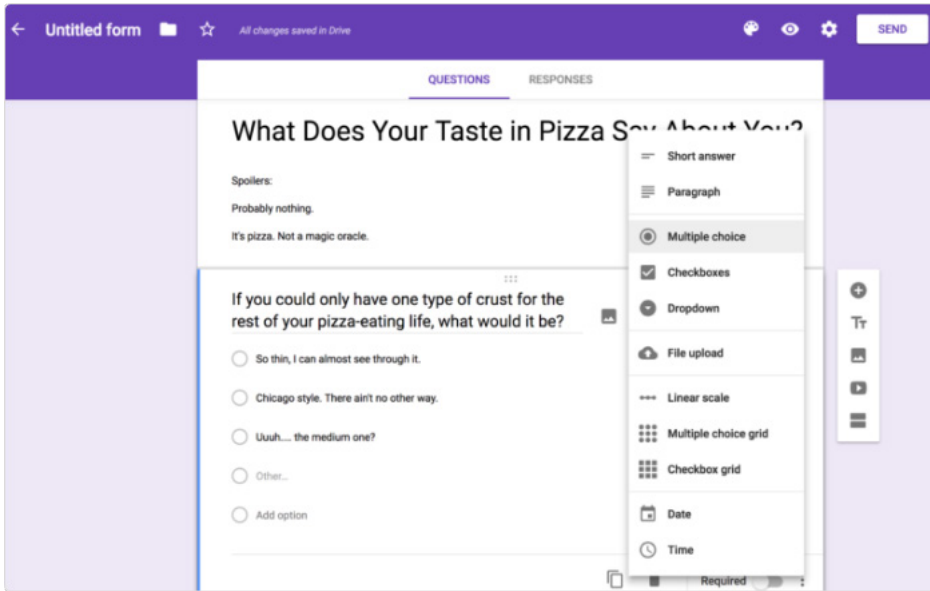
Mentimeter

This tool lets you build interactive presentations with 13 interactive question types, including word clouds and quiz, and see how the students vote on/respond to questions and engage with the presentation in real time. With this tool, you can export results in a PDF or Excel file, and analyze learners' results.



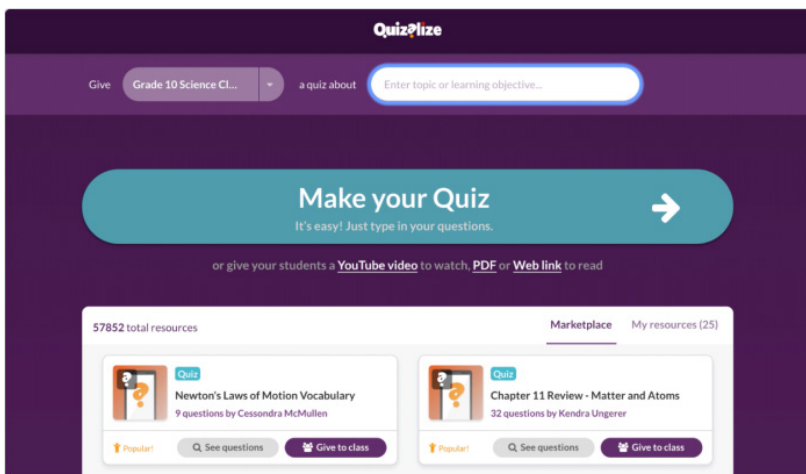
Google Forms

It is a simple widely used tool for building surveys and graded quizzes. You can create multiple-choice or short answer questions for students to complete, specify correct answers and points, and provide feedback for correct and incorrect responses.



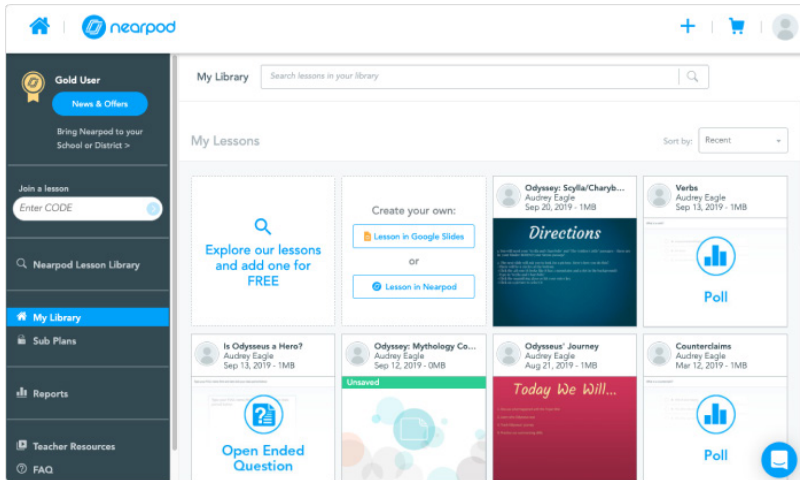
Quizalize

It is very similar to Kahoot. It lets you choose from over 12,000 official released tests to teacher-created resources or allows you to build your own. You can get instant data on each student's progress and automatically assign various resources to students depending on their quiz score.



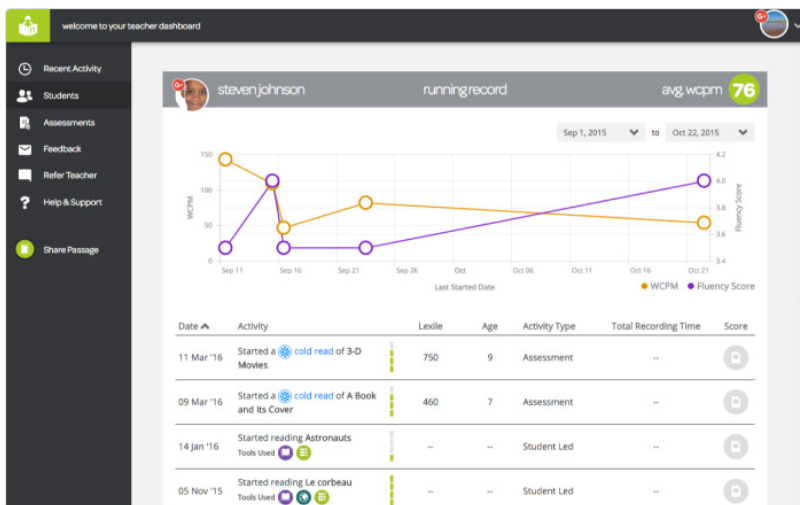
Nearpod

Nearpod is a web-based tool for making interactive classes with engaging activities like virtual reality, simulations, and gamified quizzes. It allows you to remain abreast of how far along your students are with formative assessments, including polls, open-ended questions, draw its, and more. You can get student insights in real time and in post-session reports.



Fluency Tutor

It is designed to track and assess students' oral reading progress. You can share reading passages with your class and receive recordings of the assigned passages. The tool comes with a library of over 500 ready-made reading fluency passages.



Online Assessment Techniques

Moving courses from the traditional classroom to an online setting fundamentally changes human interaction, communication, learning paradigms and assessment techniques. The instructor needs to be academically proficient in course content before developing an effective assessment tool. As the method of teaching has changed, teachers must also change the ways in which they demonstrate effective teaching and learning.

Pedagogical considerations

Online learning puts the onus on students to initiate the learning process. Students need to be responsible for reading the material, exploring links, participating in discussions, asking questions, choosing to learn objectives and setting aside time to learn. In an online environment, the focus shifts away from the teacher and allows for more sharing among students in the classroom. The interaction that takes place online mimics that of a small group discussion. The educational experience can be more stimulating and encourage more critical thinking than a traditional classroom.

Online instructors need to be proficient in engaging students in communication through synchronous (simultaneous, real-time presence, e.g. chat rooms) or asynchronous (sequential, anytime, anywhere, e.g. email, discussion boards) communication. Online instructors also need to be able to engage students who are wary of this technology.

Many instructor-led web-based courses rely heavily on email and chat systems. Without a classroom to serve as a meeting place, many students fear getting lost in cyberspace without human guidance. To foster a sense of connection, chat rooms are used to encourage social interaction between participants, while email enhances the learning experience by strengthening the learner-instructor relationship (Perrin & Mayhew, 2000)¹⁰³.

The University of Illinois (1999) examined six pedagogical aspects of online courses, one approached quantitatively and the other five approached qualitatively through the use of student surveys or student lectures:

- Is the teaching style innovative?
- Is the learning proficiency equal or superior to that in a traditional classroom?
- Are students engaged in the subject matter? Does each student participate in communication? Is there real depth of student responses?
- Is there interaction between teachers and their students and among the students themselves?
- Has a 'community of learners' been created from which students draw their motivation or do they feel isolated?

103 Perrin, K. M., & Mayhew, D. (2000, Winter). The reality of designing and implementing an internet-based course. *Online Journal of Distance Learning Administration*. September 15, 2001. [On-line], 3(4).

- Is access to technical assistance available in a timely manner?
- For online programmes that are more extensive, such as whole degree programmes, are there signs of academic maturity?
- Do students think critically and has a desire for lifelong learning been fostered?

Interaction assessment

When discussing the evaluation of the quality of online courses, a recurring theme is the loss of the face-to-face relationship between a teacher and a student. Many believe that the lack of face-to-face contact will have a major impact on student learning and student perceptions of learning (O'Malley & McCraw, 1999; Roblyer & Ekhaml, 2000; University of Illinois, 1999). If face-to-face contact is missing, instructors must find a way to provide interaction, especially for students who need motivation from the instructor.

Teacher/student interaction is a crucial component of assessment. The traditional classroom portrays the teacher at the front of the room, transferring information to students in the form of lectures or notes. Online teaching also uses instructional notes, audio recordings, videos and discussions. In fact, Draves (2000)¹⁰⁴ states that in online learning there is more interaction between students and teacher and between students and teacher and teacher than in traditional instruction. Students are more likely to ask questions and participate in an online discussion group than in a public forum. Asynchronous online discussion allows full participation of class members at their own convenience.

The instructor can browse the discussion notes and collect the results of the students' understanding, leading to the assessment of learning outcomes. An assessment device designed specifically for distance learning is the "Rubric for assessing the interactive qualities of distance learning courses", developed by Roblyer and Ekhaml (2000)¹⁰⁵. This rubric helps assess the level of interactivity of a course by examining four distinct elements of interaction: social goals, instructional goals, types and uses of technology, and the impact of interactivity - changes in learner behaviour.

Draves (2000) continues to state that students will learn more, better, and faster than what they do in today's traditional classroom because of having the foremost authorities at their fingertips and having more personal attention, interaction, and individual feedback from the teacher. Online

104 Draves, W. A. (2000). *Scathing Online*. River Falls, Wisconsin: LERN Books.

105 Roblyer, M. D., & Ekhaml, L. (2000, Spring). How interactive are YOUR distance courses? A rubric for assessing interaction in distance learning. *Onfitt Journal of Distance Learning Administration*. September 15, 2001. [On-line], 3(2). Available: <http://www.westga.edu/-dis-tance/roblyer32.html>.

assessment is not just tracking the number of views or “hits” on a site or by each individual student. In other words, just showing up” does not constitute learning. What the student is doing online is what should be measured. Participation is easy to measure online because online course software can tally the number of times that students view a particular page, how many minutes the student is on the site, etc. Learning outcomes, however, are more difficult to measure.

Self-assessment

Self-assessment should be a major component of online courses. While we as teachers want to assess student learning, it is essential that students also participate in assessing their own learning. Students will then be able to determine whether they are meeting the required learning objectives, and if not, they can repeat the course for their own benefit. Therefore, by participating in the online self-test, students measure their own learning and achievement. Online tests are an asset to student self-assessment because students can receive immediate feedback. Students can take a pre-test at the beginning of the lesson to determine their current knowledge, then study the material and take the test again to assess their achievement. A pre-test allows students to determine the content of the course they will be learning. It tells them where they are in their learning/knowledge of the material. They may already feel comfortable with much of the material or the set of learning objectives for that particular section of the course. Most importantly, a pre-test allows the instructor to have a form of measurement on which to base learning outcomes after the student has taken the post-test or final exam.

Advantages of Online Assessment

Questions posed in an online course allow for the instructor to have a better opportunity to evaluate overall student understanding than would be available in a traditional classroom. In a traditional classroom, when the teacher asks a question, only one student is able to answer. The teacher does not know if each of the other students in the class understands the concept unless he or she actively interacts with each of those students as well. When a question is posed online, each student will respond before he/she moves forward through the course. In some ways, the very nature of the online course will help provide the means to address assessment issues.

The written communication required by many online courses can be used as an indicator of student growth and learning. Instructors can look at the student’s progress in grammar, organization, and development of ideas. Threaded discussions provide an opportunity for faculty to analyze the types of questions posed by the students, the types of responses given by the students, and the depth of the observations between teacher and student

and student and student (Wade, 1999)¹⁰⁶.

Analysis of student contributions to a discussion topic

The discussion will allow the depth of the student's understanding and conceptualisation of ideas to be assessed. Table 2.4.1 can be used as an evaluation guide for measuring the quality of instruction as well as student comfort in the online learning environment. The information provided in Table 2.4.1 illustrates how the nature of the online course lends itself well to the assessment of instructional quality.

Finally, the nature of an online course allows the instructor to create online portfolios of student work. The instructor can create an electronic portfolio of each student's progress in the course, accumulating online assignments, comments, instructor notes, and projects to assess student learning. Assessment will consist of monitoring these portfolios and measuring student learning through a set of predetermined objectives.

The OnLine Training Institute (Redding & Rotzien, 2000)¹⁰⁷ uses the interactive nature of the online course to learn more about students' choices and cognitive thought processes by measuring the time a student spends online to complete specific activities. Instructors can know how long a student spends on a question and what choices students make when navigating a course. Instructors can review this information regularly to improve instructional design.

106 Wade, W. (1999) . What do students know and how do we know that they know it? *THE journal*, 27(3), 94-101.

107 Redding, T. R., & Rotzien, J. (2000, March). A comparative analysis ofSDL online learning with traditional classroom learning. *OLS Nettr*, 1-4.

Table 2.4.1: An evaluation guide for measuring the quality of instruction as well as student comfort in the online learning environment

Criterion/Question	Assessment Techniques
<i>Do students understand the assignments?</i>	<i>Evaluate content of email, threaded discussions, and chat room communications. Evaluate completeness of student work.</i>
<i>Do student understand the content material?</i>	<i>Review self tests. Evaluate questions asked and depth of discussion in email, threaded discussions, and chat room conversations. Evaluate correctness of student work.</i>
<i>Are different learning styles being addressed?</i>	<i>Compare instructional strategies utilized, such as written, audio, and visual. Evaluate content of email, threaded discussions, and chat room communications.</i>
<i>Is the rigor of the online course comparable to the rigor in the traditional classroom?</i>	<i>Analyze difficulties expressed by students. deadlines being met. Evaluate depth of email, threaded discussions, and chat room communications. Compare student achievement levels between groups.</i>
<i>What are student opinions about the course</i>	<i>Allow continuous feedback. Analyze postings to the message center. Allow anonymous student feedback. Analyze email, threaded discussions, and chat room communications.</i>
<i>How can instructors be sure to have students participate?</i>	<i>Require group discussions. Make assignments out of discussion components. Require mandatory drop box. Require ample number of assignments/activities.</i>
<i>Is there a group cohesiveness that has developed through the virtual community?</i>	<i>Observe interaction in the chat room. Analyze results of group project. Evaluate conversational quality of postings (Do students seem to be getting to know each other? Are they posting regularly? Evaluate depth of email, threaded discussions, and chat room communications.</i>
<i>Are the learning outcomes being met?</i>	<i>Evaluate student work. quizzes, or self tests. Evaluate student questions or other feedback from student. Compare grades on student work. Use a rubric of learning outcomes. Provide opportunity to chat about objectives. Use self-assessments.</i>

Conclusions

As Walvoord and Anderson (1998)¹⁰⁸ noted, “assessment is most effective when it reflects an understanding of learning as multidimensional, integrated and revealed in performance over time” (p. 189). As described in the table on online assessment techniques (Table 2.4.2), many different online components, as well as assessment criteria and tools, are needed to accurately and comprehensively assess student learning. A variety of assessment tools can be used to determine whether, on completion of the student’s task within the online learning component, the student has met the predetermined learning outcome criteria. Finally, assessment should be continuous and take place during each chapter throughout the semester to allow students to determine their own learning outcomes through self-testing.

An effective online educator must find ways to demonstrate that students have learned. One type of assessment will not be enough to measure all of the desired goals and outcomes. For online assessment to be effective, instructors must extend the assessment measures used throughout the online course. If education is moving towards outcomes-based assessment, online learning is an excellent vehicle for measuring student learning outcomes and application of knowledge. Assessment techniques used in traditional courses can usually be modified to reflect the nature and pedagogy of online courses. Online assessment has expanded the menu of assessment techniques, many of which are more modern in nature.

108 Walvoord, B.E., & Anderson, V. J. (1998). *Effective Grading: A Tool for Learning and Assessment*. San Francisco: Jossey-Bass, Inc.

Table 2.4.2: Online Assessment Techniques

Online Component	Student Tasks	Assessment Criteria	Assessment Tools
Instructional Notes	Print notes Study material	Knowledge of the material	Self-test Assignments (Traditional)
Supplemental Readings	Read and study material	Knowledge of the material	Self-test Assignments (Traditional)
Drop Box	Send completed assignments	Knowledge of the material	Assignments Electronic portfolio (Traditional) (Alternative) (Performance)
External Links	Explore outside websites	Discovery learning	Writing Assignment Online Discussion (Alternative) (Performance)
Asynchronous Threaded Discussion Group	Participate in discussion	Knowledge of subject matter Depth of understanding	Evaluate quality and quantity of discussion threads One-minute paper (Alternative)
Synchronous Chat Room	Participate in live discussion pertaining to the material	Knowledge of subject Matter Depth understanding	Evaluate quality and quantity of opinions, comments One-minute paper (Alternative)
Email	Ask questions of instructor or others in class	Degree of understanding/lack of understanding	Content of questions (Alternative)
Self-test*	Take the self-test to measure own learning	Knowledge of subject matter Depth of understanding	Answer key to test provided for immediate feedback (Traditional) (Alternative) (Performance)

*Self-tests are for student use or assessment use only, not for evaluation or grading

Online assessments are a critical part of eLearning and should be undertaken with the same level of care and rigor that you put into creating your learning content. The good news is that you don't have to be a programming genius to build them. There are many online assessment tools that allow you to generate engaging tasks for online evaluation. Choose your way to assess student learning and related software to align your needs and the results you want to achieve.

2.5 Performance criteria and descriptors, scales and grading systems

Grading is a powerful tool that faculty use to communicate with students, colleagues and institutions, as well as external entities. The literature highlights, through the presentation of personal experiences in the classroom and the evocations of professors from countless institutions, that professors “spent almost every day of their lives teaching struggling with the problems, power, and paradoxes of the grading system.”

In this chapter we present suggestions for making classroom grading fairer, more time-efficient and more conducive to learning. In addition, we provide a number of means and examples for using grading as a way for colleges, departments, and institutions to assess learning outcomes - a process required by regional accrediting agencies and many state legislatures. Walwood and Anderson¹⁰⁹ acknowledge that their assessment model or system has tradeoffs. Essentially, the system “requires broad faculty participation and takes time for faculty to reassess their classroom practices, improve them as needed, and make them visible in new ways.” The resulting benefit will be greater faculty control over the assessment of outcomes in their own classrooms through the use of the grading process, and the assessment done through grading can be easily integrated into assessment plans that already exist in departments and institutions.

In this way, faculty will be able to maintain maximum control over curriculum content; “over the teaching, learning and grading process in classrooms; and over the tests, assignments, criteria and standards by which faculty assess student learning.” Through the use of case studies and examples, new ways of thinking and grading can be developed and the many ways this information can be used to assess learning outcomes.

In the paper “Effective Grading: A Tool for Learning and Assessment”, Walwood and Anderson acknowledge that many accrediting agencies warn that “you can't use grades for evaluation” and that there are many problems with the grading system. “But the grading process, when used well

109 Walvoord, Barbara E. and Virginia Johnson Anderson. *Effective Grading: A Tool for Learning and Assessment*. San Francisco: Jossey-Bass, 1998.

by skilled teachers, can produce rich information about student learning,” so that grading is useful for departmental assessment: Grading should be understood as a process that identifies the most valuable learning in a course, constructs exams and assignments that will test that learning, sets standards and criteria, guides student learning, and implements changes in teaching that are based on information from the grading process. Grading is “the process by which a teacher assesses student learning through classroom tests and assignments, the context in which good teachers set this process, and the dialogue that surrounds grades and defines their meaning for diverse audiences”. Grading serves four roles: 1) assesses the quality of a student’s work; 2) communicates with the student as well as employers, graduate schools, and others; 3) motivates how students study, what they focus on, and their engagement in the course; and 4) organizes to mark transitions, bring closure, and focus effort for both students and teachers.

This is why grading is so important to the assessment process - mainly in the minds of teachers. However, many institutions and accrediting agencies believe that grades themselves, especially final course grades, can be “isolated artifacts” that are neither useful nor appropriate for institutional assessment needs. Therefore, it is not the grade itself that is useful for assessment, but the processes of grading. Arguably, “there are ‘bridges that can help faculty and administrators link classroom grading processes to departmental and general education assessment”.

The classroom assessment model-proposed by K. P. Cross et al.¹¹⁰ is “any systematic inquiry designed and conducted for the purpose of increasing understanding and insight into the relationships between teaching and learning”. This model can help the teacher use the grading process as a systematic collection, analysis, and use of data about student learning to evaluate and improve the course.

The challenge for effective assessment is to manage the grading process. To do this “faculty must abandon three common false hopes that belie the context and the complexity of the grading process:

- 1) The false hope of total objectivity in grading;
- 2) The false hope of total agreement about grading; and
- 3) The false hope of a one-dimensional student motivation for learning”.

To do this, we can use twelve principles for managing the grading process.

A. Appreciate the Complexity of Grading; Use It as a Tool for Learning

Grading is a socially constructed and context-dependent process, and “no grade or grading system is immutably right by some eternal standard”

110 Cross, KP Teaching for learning AAHE Bulletin 198739837 Google Scholar; <https://journals.sagepub.com/doi/abs/10.3102/00346543058004438>.

- The role of grades can change over time and they have different meaning for different
- groups of people.
- There are four major roles of the grading process – evaluation, communication, motivation and organization.

B. Substitute Judgment for Objectivity

There is no absolutely objective evaluation.

- The teacher must develop and render an informed and professional judgment within the
- context of the institution, students, and their future employees.

C. Distribute Time Effectively

• “Spend enough time to make a thoughtful, professional judgment, with reasonable consistency, then move on”

- Repeatedly reviewing work does not lead to perfect objectivity.

D. Be Open to Change

“Your grades and grading system will be interpreted and used within the system that is—

not the one you wish for or the one you experienced as a student”.

- The social meaning of grading changes over time.
- Be open to change but careful of grade inflation.

E. Listen and Observe

- Students attach a meaning to grades that will most affect learning.
- Be clear with the students about these meanings.
- “In establishing grades . . . you are invoking a set of cultural beliefs and values that will
- shape the learning potential of your grading process. The better you understand the culture, the better you can manage the grading process”.

F. Communicate and Collaborate with Students

- “Explain the criteria and standards you hold for their work and seek their active
- engagement in the learning process” .
- Collaborate with the students to work toward common goals.

G. Integrate Grading with Other Key Processes

- Make grading integral to everything else you do.

H. Seize the Teachable Moment

Informal feedback and discussion about grades is good for students.

- Emotional moments can be valuable teaching moments in which lessons and values can
- be imparted to your student.

I. Make Student Learning the Primary Goal

Values can clash between internal and external forces. When they do teachers need to

- remember “to hold learning, rather than reporting to outsiders, as the most important goal of grading”.
- More student involvement leads to more learning and personal development.
- “Their involvement in learning is in part determined by their perception of faculty
- members’ interest and friendliness toward them, including the fairness and helpfulness of the testing and grading system and the teacher’s communication about their work and their grades”.
- Good Practice in Undergraduate Education¹¹¹
 - 1) Encourages student-faculty contact
 - 2) Encourages cooperation among students
 - 3) Encourages active learning
 - 4) Gives prompt feedback
 - 5) Emphasizes the time the student devotes to the task
 - 6) Communicates high expectations
 - 7) Respects diverse talents and ways of learning

J. Be a Teacher First, a Gatekeeper Last

- Understand the student, believe in them, figure out what they need, and help them learn no matter their background.
- Provide all students and equal chance to learn.

K. Encourage Learning-Centered Motivation

- Motivation is a key to learning and grades have the ability to provide this motivation to an extent.
- Attitudes towards grades, more than the grades themselves, negatively affect student’s
- motivation to learn.

L. Emphasize Student Involvement

This is the bottom line for learning.

All of these suggestions provide a focus for faculty attention and energy; they do not, however, eliminate the problems with the grading system. If faculty construct grading systems that are conducive to learning they can create and generate information that can be useful for assessment of learning outcomes. The challenge then is to create and select “assignments and exams that will both teach and test the learning you most care about”. This then will motivate students to learn what they need to know to do well. Once the teacher establishes the learning outcomes about which she most

111 Chickering, A. W. and Z. F. Gamson. “Seven Principles for Good Practice in Undergraduate Education.” AAHE Bulletin, 1987, 39(7), 3-7.

cares, then the challenge is to establish criteria and standards for grading, calculate course grades, communicate with students about their grades and the grading process, make grading time-efficient, use the grading process to improve teaching, and ultimately provide a means for valuable assessment of student learning outcomes for the class, department, institution, and external audiences.

Assignments need to be made worth grading. Grading should not be an afterthought; it should shape the entire process from the first moment a course is planned. “The first step in course planning is to make sure that the assignments and tests assess the learning you and your students most want to achieve”. We make six suggestions to ensure that your time is well spent and that your grading leads to learning:

A. Consider What You Want Your Students to Learn

• “Effective grading practices begin when the teacher says to herself, By the end of the

course, I want my students to be able to. . . . Concrete verbs such as define, argue, solve, and create are more helpful for course planning than vague verbs such as know or understand or passive verbs such as be exposed to”.

B. Select Assignments and Tests That Measure What Your Value Most

• Choose assignments that are likely to elicit from your students the kind of learning you want to measure.

• Choose assignments that are interesting and challenging to your students.

• Use peer group collaboration.

C. Construct a Course Outline

• Start with what you want your students to learn, not what you want to cover in the class. Then list the major assignments and tests that will both teach and test that learning.

• Combine tests and assignments in a bare-bones course outline to “see whether your assignments fit your course goals and whether they are manageable in terms of work load” .

• The bare-bones outline should describe student learning goals and where in the course these goals will be assessed by major assignments or exams, then fill in where the material will be taught.

• There will be other smaller assignments, quizzes, and activities along the way, but concentrate on the bare essentials to see exactly where you can assess the student learning you value most.

D. Check Tests and Assignments for Fit and Feasibility

• Make sure assignments fit with learning goals and ensure the workload is feasible for yourself and your students. Ensure they are reasonable, strategically placed, and sustainable.

E. Collaborate with Your Students to Set and Achieve Goals

- “Through discussion, try to reach agreement and clear understanding about the goals of the course and the reasons for your major assignments and tests”.

- Get students to develop their own personal and learning goals for the course and strategies by which they can accomplish those goals.

F. **Make Assignment and Test Instructions Clear to Students**

- Develop a careful and thoughtful assignment sheet for students for each major assignment or test.

Once these suggestions are adopted and you begin to develop the marking process, the next thing to consider is how to encourage motivation and learning. This is where you decide how to shape your topic-focused course - where you complete the rest of the ‘deciding how to run your daily course’ course outline. As you do this, consider how students can be most actively involved in learning through the course. “Motivation is an important key to active learning and student engagement”.

There are several different motivation techniques found in the literature and it suggests that “you may be able to influence students’ experiences of learned helplessness, self-efficacy and attribution”. Reinforce in your classroom the kind of thinking that says, “I want to learn, I can learn, I can control the outcomes, my efforts can be rewarded, and if I don’t do well, I can do better”. Once you have established the foundations of learning and motivation, here are two suggestions to consider when planning classroom activities and involving students in the process: 1) teach what you assess and 2) rethink the use of class time.

There is often a reluctance to teach to the test, but if the test truly tests the central learning objectives of the course, then faculty should by all means teach to it. Walvoord’s acquaintances put it this way: “Don’t teach to the test, teach to the criteria by which you will evaluate the test.” The key is to remember that you are testing learning objectives and not regurgitating facts and figures. Each individual instructor must determine the ways in which these learning objectives will be tested, so find creative ways to teach to the central learning objectives and test your students against those objectives. The challenge then becomes figuring out how to prepare students for the course so we can teach effectively. To do this, we suggest rethinking the use of classroom time.

The goal is to develop a method whereby students’ first exposure to the material occurs before lecture or classroom instruction - to get them to read the material before the class in which it is discussed. After the first part of exposure is established, class time can be used to actively analyze and argue concepts based on the assigned reading. This is broadly the processing part of learning, where students synthesize, analyze, compare, define, argue or problem-solve based on the material they have been exposed to.”. There are

several ways to get students to read material before class, such as having students write a short summary of the reading before class. These may or may not be part of the class participation note, but the instructor does not have to write down the summary extensively with comments - if they wish to provide comments. These preparatory writings can be effectively graded in class by observing the level of student participation in discussion or lab. "The student's first exposure preparatory paper becomes the basis of the class.

The result is a built-in assessment - the teacher becomes familiar, minute by minute, with what students are thinking and learning, where they need more help, whether concepts are being conveyed" . The interactive, task-based model encourages students to be responsible for their first exposure learning outside the classroom. Woolvard and Anderson provide several examples of classrooms where discussion is highly structured; students are given roles to play, and "the teacher guides the class through carefully planned activities with specific goals related to learning and assessment."

We recommend the method for the field of defence and public order.

Once courses are outlined and planned, the next step is to establish clear grading criteria and standards. "Checklists, key questions, worksheets, peer answer sheets, student-teacher writing conferences, and whole-class instruction on criteria are all ways to make the grading criteria more explicit."

It's time to introduce a method called **Primary Trait Analysis (PTA)**, which "will bring rigor to the classroom and allow grading to be used ... as the basis for departmental, programmatic, or institutional assessment." The PTA uses a scoring rubric to assess any student performance or portfolio of student performance - written, oral, clinical, artistic, and so on. The PTA is specific to each paper, i.e. the criteria are different for each paper or test. The PTA could be used to set the criteria for an external exam as well as for class work. But as applied here, the PTA is a way to explicitly state the teacher's criteria and is used in the classroom to make the scoring criteria very clear and specific .

Primary trait analysis works well for programmatic, departmental, and institutional assessment because the rubric provides a common format for enunciating different teachers' criteria and standards. Its explicit nature allows these criteria to be easily understood by external audiences, such as regional accrediting agencies. The PTA is valuable for classroom use; it clearly presents the criteria and standards to students and helps guide classroom teaching and learning. PTA can be placed along two continuums:

1. The continuum from unexpressed criteria ("Feels like a B") to very explicit criteria (PTA) and
2. The continuum from norm scoring (scoring on a curve) to criteria scoring (PTA).

Therefore, "PTA is both highly explicit and criterion-referenced". When

developing a PTA scale, it is helpful to “work from examples of past student performance, grade checklists, descriptions of criteria, comments on papers or tests - anything that has helped you in the past to articulate criteria for student performance.” The PTA measures specific traits, usually nouns or noun phrases, such as “thesis,” “use of color,” “experimental design,” “title,” by developing a two- to five-point scale for each trait that describes each level of performance. Each level of the scale has a corresponding mark.

A two-point scale would describe each trait as either passing or failing, and similarly a five-point scale would correspond to letter grades, with the fifth level representing the highest grade. It is certainly possible to use a three or four level scale as well - it just depends on your aims and the aims of the material you are assessing. The key is to measure each trait with a PTA scale and use the aggregate score to grade the assignment, performance, test, and so on.

There are four steps that will help the teacher develop a PTA scale. “If possible, work from examples from past student performance, grade checklists, criteria descriptions, homework or test comments - anything that has helped you in the past to articulate criteria for student performance”.

A. Choose a test or a theme that tests what you want to assess. Clearly state your objectives

for the assignment.

B. Identify the criteria or ‘traits’ that will count in the assessment. These are nouns or noun

phrases such as ‘thesis’, ‘methods and materials’ or ‘control of variables’.

C. For each trait, construct a scale of two to five points. These are descriptive statements. For

example, “A “level 5” thesis is limited enough to be covered in the essay and is clear to the reader; enters into the dialogue of the discipline as reflected in the student’s sources, and does so at a level that shows synthesis and original thought; does not repeat any of the student’s sources exactly, nor does it state the obvious.”

D. Try the scale with a sample of student work or review it with peers and revise it.

To develop traits and scales, it can be helpful to talk with peers - either in your discipline or in another discipline - so that you can accurately describe what you want to measure. It may be useful for you and a colleague to assess a sample of your students’ work separately. Any resulting discrepancies between you and your colleague may lead to a later revision of the PTA scale. “Such a cycle can be repeated as many times as necessary until the scale and the agreement between assessors meet your specific needs.” This can be particularly useful to help TAs mark work consistently, to reach agreement with peers on criteria for joint exams, multiple sections or sequential courses,

and to generate data for departmental assessment. Primary trait analysis is not necessarily the same as scoring, although scores can be derived from it. Some scoring scales may be less complex than the primary trait scale, but are based on it, while others may be based entirely on a weighted PTA scale. PTAs can be used for almost any type of theme or test.

The authors provide several examples of how PTAs can be useful for multiple-choice tests, portfolios, lab reports, essays, presentations, and so on. “Almost any type of student performance that involves higher-order thinking, creativity, or integration of skills can be effectively examined using PTAs.” The most important point the authors make about PTA is that it can be used to calculate course grades, can effectively communicate those grades with students, can make grading more efficient, can be used to improve classroom instruction, and can be used for the purpose of assessing achievement.

When choosing a grading model, decide what best fits your style, values, and goals, then adapt it as you see fit. We can discuss and provide features for three basic grading models: weighted letter grades, cumulative points, and a definition system. Each of these has its own specific features, benefits and drawbacks. Calculating course grades is an “expression of your values and goals, because different models will express different relationships between types of student performance and will have different effects on how your students perceive the reward system in your course.” The model you choose reflects what you think is most important and is a communication to your students about where their effort should be focused. Communicating with students about their grades is important and is “embedded in other verbal and nonverbal communications: the syllabus, the explanation of the grading system, the explanation of the criteria and standards for grades, and the conversation throughout the semester between you and the students”.

We offer several suggestions for effective communication:

A. Start from the premise that students want to learn

- “Listen carefully, appeal to their highest motivations, and respect them as people who want to learn - perhaps in confused and limited ways, perhaps with mixed motivations...”

- This underpins all the other suggestions

B. Incorporate grading into a course that sets high expectations and helps students meet them

- “Grading should occur as part of the learning process in a well-designed, topic-centered course in which objectives are clear, tests and assignments help students meet those objectives, student work is assessed against clear, pre-known criteria, teaching is interactive, and students receive ongoing feedback on their work”

C. Use the programme to show students how tests and homework serve the objectives of the course

D. Ask, reinforce and remind students about course objectives

E. Discuss the role of grades:

Identify four roles:

- 1) Assessment,
- 2) Communication,
- 3) Motivation,
- 4) Organization.

Students also have their own roles that they assign to grades. It is helpful to understand these when communicating your goals, even if you don't totally agree.

F. Talk about fairness:

- Discuss with students how to achieve fairness for everyone (including yourself) in the classroom

G. Explain what each grade represents:

- 1) This helps solve the fairness problem, too.
- 2) Students should have a clear understanding before starting homework or tests.
- 3) Grades should be linked to demonstrated learning.
- 4) Grading should be done using consistent criteria that are known in advance and are the same for everyone.

H. Talk to the learner, not the error :

- Grading should help the learner to progress.
- Grading should reflect where the learner has done well and where they need to improve.

I. Save your comments for the learning moment:

- Use a one-to-one conference with students each semester to discuss progress in the course or reviewing an assignment.
- Many suggestions are offered on how best to take advantage of this teaching moment

J. Communicate priorities

- Don't confuse the student with superficial issues when revising or grading a paper. Instead, clearly communicate the overall issues.

K. Avoid surprises

- Have clear criteria and standards.
- Guide the process.

All of the above suggestions can lead to better communication with your students and also save you time. There are also have to discuss how to make grading more time-efficient, which will keep your grading time to a minimum and make sure "that every minute you spend marking counts a lot towards student learning and useful assessment".

To achieve this, **nine strategies** are offered:

A. Separate Commenting from Grading

- “Grades need not be given to every piece of student work – only if your students need that type of assessment. Comments need not necessarily accompany grades – only if learning results”.

B. Do Not Give to All Students What Only Some Need

- Some students may need an unofficial grade or a comment to understand the quality of their work, while others may not.

C. Use Only As Many Grade Levels As You Need

- The fewer the levels the faster the work.

D. Frame Comments to Your Students’ Use

- “Only put your time into comments that reach students in a teachable moment.”

Usually occurs “when there is still something the student can do to improve the grade on a live assignment” unless they can use the comment on a final product to enhance learning and quality of subsequent assignments .

- Global-level comments are much more conducive to student learning than local-level corrections.

- Face-to-face comments can be useful and accomplish more effective communication in the same amount of time it would take to write comments.

- Adjust the extent of comments to enhance learning for both well-edited assignments and other work that need not be well-edited or proofed.

E. Don’t waste time with sloppy student work

- Find the best way to keep this type of work away from your desk and teach the student what they need to learn.

F. Use what the student knows

- Ask what the student knows about their own work. Can this information be valuable in assessment?

G. Ask students to organise their work for your efficiency

- Ask for a table of contents, etc.

- Provide a checklist for students to put the different parts of the paper in order.

H. Delegate work

- Give students a checklist for peer responses so they can check each other’s work after the instructor comments on the initial draft, report, thesis, etc.

I. Use computer technology to save time and improve results
Use available resources to increase efficiency.

We suggest that if you have adopted these recommendations and strategies, then you have learned a lot about your students’ strengths and weaknesses. All this information can be used to improve your teaching.

Two case studies¹¹² are given as examples of “teachers who have used the information that comes from the marking process to analyse student learning and improve their teaching”.

In the first case study, the teacher was able to analyse what students were failing to achieve by using the PTA scale. Using the evidence provided, she was able to diagnose what was going wrong and then figured out how to remedy the situation by using class time in a different way. It finds that “between analysing student problems on the one hand and implementing appropriate pedagogical strategies on the other is a philosophy or model of how learning takes place and a prediction of what kinds of pedagogical strategies will successfully solve the problems”.

Similarly, the second case study reflects a pedagogical strategy that also identifies strengths and weaknesses. In this case, each learning objective is assessed in several tests, homework problems and exams. A graph of student scores on each of these can identify how and where specific objectives are achieved over time. A similar graph can show the weaknesses and strengths of the whole class. These and similar measures can be used to serve broader assessment purposes.

The use of the scoring process as a basis for departmental evaluation is based on a theoretical approach under two assumptions. “The first argues that critical thinking, problem solving or any other type of learning you are trying to measure is context specific.” These various things can be taught and assessed in “the context of the mission of a particular institution or department and the semester work of a particular professor with a particular body of knowledge and a particular group of students over time.” This position is in line with accreditation agency guidelines.

The second part of the theoretical position argues that these various things that are trying to be assessed are not new to faculty. “When an evaluation system recognizes what faculty are already doing, it can more easily capture faculty commitment and engagement, which are valuable to institutions and required by regional accrediting agencies”. This approach is more likely to gain faculty participation and commitment because it relies on their wisdom, practice, skills and knowledge of their discipline to assess student learning.

Within this two-part theoretical approach, the nature of the evaluation task changes in an important way. Instead of having to find from the outside a definition of the desired learning and a way to assess it, without the grading process having any relevance, the task is to make systematic, explicit and public the learning goals and assessment of learning that already occur on campus, often in connection with the grading process. Then, as needed, the

112 Walvoord, Barbara E. and Virginia Johnson Anderson. *Effective Grading: A Tool for Learning and Assessment*. San Francisco: Jossey-Bass, 1998, pp.156.

task is to improve campus teaching, student learning and assessment. . . . In-class grading produces or could produce statements of teacher goals for student learning, course outlines, tests and assignments, PTA scales or other statements of standards and criteria for student work, student work with teacher grades and comments, and evidence of teacher change based on this information, such as an assignment sheet or revised syllabus.

All of these materials can be used as data to answer assessment questions. Other measures are certainly useful for evaluation, such as external measures like standardized tests or local measures like focus groups, with an emphasis on how classroom grading practices can produce good results for answering important evaluation questions. The challenge is to protect those who make grading visible to external audiences. This must be managed in ways that protect and benefit students, faculty, and institutions. This approach encourages faculty autonomy, academic freedom, and faculty control over curriculum and assessment. Thus, “criteria and standards, tests and exams remain under faculty control, but are made public in new ways.” There is already, in pedagogical practice, a sharing of grades, assignments, learning objectives and tests - either for faculty advancement or for student advancement in the workplace or in higher education. This sharing and visibility is an extension of what colleges already do, but now for new audiences with new purposes.

“The alternative - less convenient - is to allow external authorities to impose external tests evaluated by external evaluators and thus force faculty to teach to those tests”. This already happens, for example, in the case of undergraduate examinations, but most faculties and institutions want to keep “course content, tests, assignments, criteria and standards largely under the control of their own faculty”. The figure below illustrates an assessment plan¹¹³ in this approach.

Three questions can be asked for each example¹¹⁴:

- 1) Who needs to know and why?
- 2) What data is collected from the chosen classrooms?
- 3) How does the evaluation committee (or other body) analyse the data and report their findings?

The examples are not mutually exclusive, and institutions, departments, and evaluation committees may wish to combine them, or start with the simple suggestions and move toward the more complex ones. We present only a limited detailed example. The other examples are listed with a short summary for a better understanding of all the examples.

113 Walvoord, Barbara E. and Virginia Johnson Anderson. *Effective Grading: A Tool for Learning and Assessment*. San Francisco: Jossey-Bass, 1998, p.152.

114 Walvoord, Barbara E. and Virginia Johnson Anderson. *Effective Grading: A Tool for Learning and Assessment*. San Francisco: Jossey-Bass, 1998.

Basic Assessment Plan: Collect and Analyze the Data Generated by Faculty's Classroom Grading Processes.		
Classroom Data	Can answer these questions	Departmental or General Education Assessment
<ol style="list-style-type: none"> 1. Teacher's learning goals (individual or collective among group or department) 2. Tests, assignments ("assessment instruments") 3. Teacher criteria and standards (in form of PTA?) 4. Student scores over time ("outcomes") 5. Evidence of feedback into learning and teaching 		<ul style="list-style-type: none"> • Is assessment taking place in the classrooms? • What kinds of learning are we teaching and assessing? • What are common criteria and standards? • How do assignments, criteria, and standards for sequenced courses relate? • What are trends in student scores over time? • What are areas of weakness and strength in student scores? • How do our assignments, criteria, and standards compare to national tests or to best practices elsewhere?

Example 1: Assuring That Effective Classroom Assessment is Taking Place

- Who needs to know, and why?
 - The assessment committee, the institution, and the accrediting agency need this information
 - To ensure learning is being assessed, assessment is connected to learning goals, instruments are valid and reliable, criteria and standards are stated in writing, and that student work is assessed against those criteria and standards so that the results are fed back into student learning and into teacher planning.
- Which Data are Collected and Why?
 - Statements of course goals and objectives, major tests and assignments that assess those goals, a PTA scale showing criteria and standards on the major tests and assignments, and evidence of how the teacher feeds this information back into teaching and learning.
- How Does the Assessment Committee (or Other Body) Analyze Data and Present Findings?
 - To determine if classroom assessment is being conducted according

to established criteria, the committee asks for a random sample of 20 percent of the courses being taught in a given semester.

- For each class the following were submitted:
 1. A teacher's written statement of learning objectives for the course
 2. Copies of what the teacher judged to be the two or three most central texts, exams, and assignments that assessed student achievement of those goals
 3. Written statements of the criteria being used to assess students' performances on the tests, exams, and assignments
 4. Evidence (such as teacher comments on student tests and assignments, revised syllabus or holdouts) that assessment results were being fed back into student learning and into the teacher's own practice
- "The committee offered a workshop (before the semester began) for faculty in the sample to explain the criteria and the data needed, to help faculty prepare the data, and to help faculty implement classroom changes spurred by their own examination of their data against the criteria".
- We suggest that faculty are likely to change their practices just by asking them for certain data as the hypothetical committee did in the example.
- If you tell faculty what criteria you are going to use to evaluate their classroom data, as this committee did, then faculty may change their practices to bring them closer to the criteria. If you offer faculty some guidance in preparing their course objectives, tests, exams, assignments, and standards, and if you teach them PTA scoring, if you do so in a workshop setting where interaction is rich and stimulating, faculty are likely to change their practices".

Example 2: Finding Common Expectations

- The goal is to aggregate the findings of classroom assessment to answer questions about courses as a group.

Example 3: Checking the Sequence of Skills Taught in a Department

- The goal is to identify problems with course sequence by using tests, exams, and assignments and the PTA scales used to score them.

Example 4: What is Required of Graduates?

- This builds on the PTA scale by identifying the level of performance that students must reach if they are to receive a certain grade.

Example 5: Strengths and Weaknesses in Student Performance at a Single Point in Time

- This example measures specific traits identified in the PTA scores in an attempt to track student performance of those traits.

Example 6: Tracking Student Performance Over Time

- This uses PTA scores to track education goals, such as critical thinking, in students over time.

All these examples highlight that widespread faculty participation is “both a strength and a limitation” of their evaluation model. Not all institutions are the same and not all use assessment for the same purposes.

Each education system offers institutions the opportunity to integrate grading assessment with other existing assessment plans, which can increase institutional/faculty participation and acceptance of assessment requirements while positively affecting classroom teaching and learning.

3. CHALLENGES AND NEW REQUIREMENTS FOR DIGITAL ASSESSMENT IN DISTANCE LEARNING CONTEXTS

3.1. Assessment of applicants for admission

3.1.1. Case study 1 - ”Septimiu Mureşan” Police School Cluj-Napoca, Romania

The evaluation of the candidates to the admission exams is carried out according to a Methodology of admission to the post-secondary schools of the MAI according to the provisions of the I.G.P.R. and involves 4 stages of selection:

Stage I of selection, comprises two eliminatory tests: a psychological assessment and an initial assessment of the medical standards met by the candidates, based on the medical fitness certificate in force;

The second selection stage comprises an eliminatory test to assess physical performance;

The third selection stage comprises the knowledge test (theoretical test);

The fourth selection stage comprises the eliminatory medical examination test in accordance with the standards.

Theoretical test and physical performance test are graded on a scale of 1 to 10 in the case of the former, and on a scale of 5 to 10, or UNPREPARED, in the case of the latter. The pass mark for each test is at least 5.

The knowledge assessment test, for 90% of the maximum mark, includes:

Items in the areas of: Romanian language - 40% and foreign language - 15%;

Items from the specific legislation of the Ministry of Internal Affairs and political institutions of the State - 20%;

Items of civic and citizenship education, exercises to assess the capacity of analysis and synthesis, as well as logical reasoning exercises - 15%.

1 point, representing 10% of the maximum mark, will be awarded automatically for the knowledge test. The final mark is calculated as the arithmetical average of the marks obtained in the Theory Test and the Physical Performance Test.

The evaluation of physical performance is carried out in accordance with the provisions of the Order of the Ministry of Internal Affairs No. 140/2016 on the activity of human resources management in police units, as amended.

Grading of the physical performance test is carried out by noting the correspondence between the final times achieved and the mark (provided in the official documents).

Conditions relating to the theoretical test:

The written test is drawn up in two variants;

The accompanying marking grid are drawn up at the same time as the written tests;

The following requirements are taken into account when drawing up the written test and the marking grid:

a) The questions must be clearly formulated, precise and in strict accordance with the subject matter and bibliography of the examination;

b) The complexity of the questions must be such as to allow answers to be given within the time allotted for the examination;

c) Each question must have four possible answers, only one of which is correct;

d) The written test must consist of a certain number of questions, proportionate to the topics in the bibliography;

e) The written test will show how the marks are calculated;

f) In terms of format and content, the marking grid must be similar to the correct answer sheet;

g) To pass the knowledge test, candidates must answer at least 40% of the questions correctly, equivalent to 5 mark, the level at which the competition hierarchy is established, depending on the number of places and taking into account the regulations in force.

3.1.2. Case Study 2 - Police College and Secondary Police School of the Ministry of Interior in Holešov, Czech Republic

Secondary Police School

The entrance examination consists of two parts:

Unified entrance examination - the unified entrance examination consists of a written test from Czech Language and Literature and a written test from Mathematics and its applications.

School entrance examination - the school entrance examination comprises of a physical fitness test, which consists of two events: a 4 x 10 m shuttle run and a 1000 m run. The 4 x 10 m shuttle run is a test of the candidate's strength and speed abilities with a focus on movement coordination. The 1000 m run is a test measuring an individual's level of functional potential with a focus on medium-term endurance and moral-volitional qualities.

Police College

Police College admissions procedure is conducted in the form of a guided interview with regard to the student's field of work and study and their individual requirements.

3.1.3. Case study 3 - "Nikola Vaptsarov" Naval Academy Varna, Bulgaria

In the case of the Naval Academy "Nikola Vaptsarov" candidates submit documents in the standard way, on paper, for which they receive a candidate number. The HR department organises the selection and performs general checks on compliance with the requirements.

A separate technical committee, appointed by order of the rector, generates anonymous random electronic profiles (candidate 1, 2, 3 ...).

There are several admission tests: a general knowledge test, an English language test, a physical potential test and a psychological test in the form of an interview. After the admission process, the results are processed and evaluated on a scale from zero to six points. The results are then compiled into a ranking according to a proprietary methodology, on the basis of which admission to the academy is made.

3.1.4. Case study 4 - "Mircea cel Bătrân" Naval Academy (MBNA) Constanța, Romania

The admission process in the MBNA is carried out according to its regulations drawn up annually on the basis of a framework methodology developed by the Ministry of Education and periodic provisions of the Directorate General for Human Resources Management. Admission is organised and carried out strictly within the enrolment figures approved by the Government Decision, at the proposal of the Ministry of National Defence (MApN).

Only candidates who have graduated from high school with a baccalaureate or equivalent diploma/certificate may take part in the MBNA entrance examination for undergraduate studies.

Considering the fact that MBNA trains, through undergraduate studies,

military and civilian specialists in the fields of competence with the aim of personal development, focusing on the professional insertion of the individual to meet the specific needs of the Romanian Naval Forces or other beneficiaries of the national defence, public order and national security system, but also of the socio-economic environment, the admission process is organized and conducted in two directions: the military section and the civilian section.

A. Military Section

Applicants to undergraduate degree programmes with a military focus must complete the following steps:

1. Recruitment

- this involves registering candidates for admission to the military system through the Recruitment Information Offices of the Zonal, County and Sector Military Centres;

- during this stage, files are drawn up to register candidates for a military career.

2. Selection I, stage in which candidates will be scheduled by the BIR to take the selection tests at the Zonal Selection and Orientation Centres.

3. Registration at the MBNA of the candidates recruited and who have been declared admitted after the first selection stage, according to the specific conditions mentioned on the admissions page;

4. The ranking of the candidates recruited, selected at the CZSO and enrolled will be done after taking a grid test to check their knowledge in Mathematics, Computer Science and English, according to the specific conditions mentioned on the admission page;

5. Selection II, the second selection stage in which candidates will be scheduled by MBNA to take the selection tests at the Military Hospitals and the Naval Medical Centre.

6. Admission ends when the places are filled by the candidates ranked in descending order of averages who have been declared FIT after all selection tests.

The selection tests held at the Zonal Selection and Orientation Centres, Military Hospitals and the Naval Medicine Centre are eliminatory, FIT/UNFIT type tests, and obtaining a FIT rating in all selection tests is a prerequisite for admission to the MBNA, Military Section.

The admission examination for the military section for admission to undergraduate degree programmes, on places financed from the budget, consists of candidates taking a competitive examination, represented by a test of knowledge in Mathematics, Computer Science and English.

- The knowledge test is prepared in a single version on the morning of the test in form of a grid test.

- The knowledge test consists of 36 items, of which 9 items in Mathematics, 9 items in Computer Science and 18 items in English. One third of the items to be developed for each subject will be of maximum difficulty.

- The items are based on the syllabus for the national baccalaureate examination

in Mathematics and Computer Science for Mathematics and Computer Science and on the syllabus for Modern Language 1 for English, taking into account the following requirements:

- The total duration of the test is 180 minutes;
- Each item has a minimum of four possible answers, only one of which is the correct answer. For each correctly answered item, one point is awarded for Mathematics and Computer Science and 0.5 points for English;
- The mark for each subject is made up of accumulated points for the correct answers to the items corresponding to that subject, plus one point by default.
- The average for the knowledge test is calculated according to the following formula:

$$M_{TVC} = 0,5 \times N_{Math} + 0,3 \times N_{Info} + 0,2 \times N_{Engl}, \text{ unde:}$$

N_{Math} = Mathematics subject grad;

N_{Info} = Computer Science subject grade;

N_{Engl} = English Language subject grade.

- The average of the knowledge test is calculated to 2 decimal places.

Applicants to military section study programmes are declared “Admitted” in strictly descending order of the average obtained in the knowledge test, after options, within the limit of the approved enrolment figures only if they have been declared Admitted/Fit following the selection process.

The minimum overall admission average to undergraduate studies in MBNA cannot be less than 5.00 (five).

In the case of equal averages, the ranked candidates will be separated according to the following successive criteria:

- 1 - the mark obtained in the Mathematics subjects;
- 2 - the mark obtained in the Computer Science subjects;
- 3 - the mark obtained in the English Language subjects;
- 4 - average obtained in the national baccalaureate examination;
- 5 - mark obtained in the Mathematics examination of the national baccalaureate examination.

The following criteria will be taken into account when drawing up the questions in the competition questionnaire:

- to be in strict accordance with the content of the subject matter and the textbooks valid for the admission examination;
- they must be clearly formulated;
- they must ensure a balanced coverage of the subject matter;
- they must have a degree of complexity in terms of the content of the syllabus, the subject matter and the textbooks, in order to be solved in the allowed time (180 minutes), of which one third of the total number of subjects for each subject will be of the maximum degree of difficulty according to the syllabuses used.

Four variants of the competition question papers are drawn up, marked A, B, C and D. The order of the questions within each variant of the competition question paper is determined randomly for each subject.

Verification is done by superimposing the evaluation grids over each competition form in the presence of the candidates.

B. Civil Section

For paying places, the admission competition consists of a competitive examination, the average admission score being the mark obtained in the Bacalaureate examination.

In case of equal average, the candidates ranked last will be separated according to the following criteria:

- 1- the type of Mathematics module followed in high school, with priority given to M_Mathematics-Computer Science, M_Natural Science, M_technology,
- 2 - the Mathematics mark obtained in the Bacalaureate examination.

For obtaining a university scholarship, the admission competition consists of a file competition, the admission average is calculated as follows:

$$MA = 0,75 \times N\text{Math} + 0,25 \times N\text{Bac},$$

where: NMath - the Mathematics mark obtained in the Bacalaureate examination, NBac - the mark obtained in the Bacalaureate exam.

In the case of equal averages, the candidates ranked last will be separated according to the following successive criteria:

- 1 - the Mathematics mark obtained in the Bacalaureate examination;
- 2 - the average obtained in the Bacalaureate examination;
- 3 - the Romanian Language mark obtained in the Bacalaureate examination.

3.2 . Continuous assessment of pupils and students

3.2.1 Case study 1 - "Septimiu Mureșan" Police School Cluj-Napoca, Romania

Continuous assessment of students has a formative character and involves a continuous activity during which we can observe learning difficulties and follow progress. Both teacher and students are involved in this process, with both playing an active role. A balance is needed between continuous assessment and other forms of assessment. In the Romanian public order schools, teachers have a sufficient package of professional competences that allow them to reorient themselves towards new teaching-learning-assessment practices and to cope together with any kind of impediments, taking into account especially the specificities of the schools and the particularities of the competences to be acquired by the pupils.

The schools of the Ministry of Internal Affairs are equipped with a decent technological infrastructure, although we have just discovered that we are never one hundred percent prepared for rapid major changes in the professional environment. The role of continuous assessment is to check that learning has taken place and to support teachers in the approach they have set out for themselves

and the classroom. Teachers do not use a single method in online continuous assessment of pupils because they have already seen the extremely negative effect of this in terms of depriving assessment of pupils' authenticity, seriousness and creativity. In the online assessment used our instructors' assessment tools are objective, easy to apply and validated.

Continuous assessment can take place at the end of a series of courses; it can be in the form of an essay, a grid test, a project or an oral assessment. The latter has the advantage of providing instant feedback to the teacher's questions, which can be questions of synthesis, understanding, knowledge, analysis. The project, on the other hand, encourages teamwork, a form of activity that students will encounter every day in police stations.

One thing is certain: instructors in our ministry's schools need to demonstrate serious digital literacy skills, aware that online platforms and these kinds of tools have certain limitations that they have not encountered in class with the students they work with. We need to master the technical component as well as possible in order to be able to carry out the teaching activity and the assessment of pupils in the best conditions, and to consider the experiences - whatever they are - as an important source of information for future activities.

3.2.2. Case Study 2 - Police College and Secondary Police School of the Ministry of Interior in Holešov, Czech Republic

Continuous assessment provides students useful information about their knowledge, what they understand or what they can do continuously in the learning process and aims to achieve the designated objectives. It enables them to monitor their own progress, prompts them to manage their learning and helps them to develop their personality comprehensively. Due to the nature and type of the school, pupils should acquire not only "general" skills appropriate to secondary school or higher vocational schools, but also skills necessary for later employment in the Czech Republic Police or other law enforcement agencies, as well as skills necessary for admission to higher vocational schools or universities, especially the Police Academy and universities teaching security law and legal disciplines.

Continuous assessment is carried out through: oral examinations, written tests and practical tests.

3.2.3. Case study 3 - "Nikola Vaptsarov" Naval Academy Varna, Bulgaria

There is a wide variety of forms of evaluation. They are directly related to evaluation approaches and methods. The forms most often used in assessing students are: tests, written assignments, practical tasks and portfolio creation.

At least one day before the assessment date the teacher holds a consultation with the students, during which he/she gives preliminary instructions on how the examination will be conducted. For the purpose of training in working with the test system, all students can solve a short sample test in a secure browser environment. The teacher is obliged to provide the students with the assessment criteria in advance.

3.2.4. Case study 4 - "Mircea cel Bătrân" Naval Academy (MBNA) Constanța, Romania

Continuous assessment of students in MBNA is carried out based on the provisions of a procedure PO 02-10 *Assessment and grading of students*, part of the Quality Code.

In the university system, assessment means any process that measures and evaluates the knowledge, skills and attitudes of each student in the field of study. Assessment is an important part of the learning process that interacts with the objectives, content and teaching method. Assessment should reflect learning.

The different forms of assessment cover:

- a) assessment of knowledge, level of understanding and processing, skills, abilities, competences of the student as well as attitudinal qualities specific to the field;
- b) motivating learning by providing feedback to help the student to know and improve his/her performance;
- c) to provide a general framework which allows the objective determination of the student's performance.

The following general principles are followed in the assessment of students:

- a. student assessment is fair, accurate and reliable;
- b. the assessment of students shall be based on criteria that describe specific performance for the promotion of each subject of study;
- c. the assessment system is monitored in order to reduce curricular overload and encourage integrated learning;
- d. clear provisions are established regarding course attendance and other activities that may influence student assessment;
- e. students have responsibilities as active participants in the assessment process; these responsibilities relate in particular to adopting appropriate conduct during assessment, reflecting the level of preparation during the examination, providing objective feedback;
- f. the objective of the assessment is to encourage and recognise the student's own achievements in the psycho-pedagogical and methodical field.

The methods of assessment of students used in the programmes offered by MBNA are:

- a) traditional methods: oral tests, written tests, practical tests;
- b) alternative methods: systematic observation, investigation, project, self-assessment.

The main forms of evaluation (assessment) are examinations, colloquia, course projects, grades.

Irrespective of the form of assessment (examination or colloquium) and the assessment algorithm (written, oral, practical tests or a combination of these), the student's knowledge acquired in a given subject is assessed with a full mark between 10 and 1, which is entered in the subject catalogue and in the student's record book. The minimum pass mark for a subject is 5.

The online assessment of MBNA students is carried out in accordance with a methodology approved by the University Senate.

For the online assessment of students, regardless of the form (oral/written/grid-test/combined), the ADL learning platform is used, available to teachers and students enrolled in MBNA. It allows assessment in individual or group video sessions, which the subject teacher will conduct and record in full or in part. The recordings made on this occasion are evidence of the assessment activity and will be archived and kept by the platform administrator throughout the academic year.

If the oral assessment of the students is based on individual compulsory exam subjects (two subjects), the examiner will prepare the examination papers (in electronic format), which must cover all the material covered.

- The list of examination subjects will be made known to the students at least 3 days before the scheduled date of the online examination.

- Before the examination, the teacher will have a random order of subjects (not the one that has been made known to the students), which will be sent by e-mail to the head of department, which will be the official examination document.

- The examined student will choose two figures which are in fact two exam topics, from those left free, at the time of the student's examination, which will be read aloud by the student to ensure their understanding, after which they will proceed to solve them within the time limit set by the examiner.

- Students will have different examination topics, so the number of topics must be at least twice the number of examination participants.

- The online oral assessments will be conducted in groups of students.

- The list of the required subjects, i.e. the recordings made during the video examination session, is the proof of the assessment activity and will be archived and kept by the platform administrator throughout the academic year.

For the written assessment of students the individual and unlocked exam topics on the date and time set for the exam will be uploaded to the ADL platform.

- Students will have a time interval set by the examiner to solve and

upload their answers to the platform.

- Computer-typed answers by students will be submitted within a timeframe set by the examiner depending on the difficulty of the subject(s).

- The individual answers containing the students' answers uploaded to the platform, together with the recordings made during the video examination sessions, are evidence of the assessment activity and will be archived and kept by the platform administrator throughout the academic year.

- In the written assessment, students may request the subject examiner to re-evaluate their work within one working day of the results being communicated. The student's answers to the examination papers will be reviewed and the subject teacher will be required to provide the student with an explanation of the marking procedures and criteria using the communication facilities of the ADL platform.

For the assessment of the students' grid test, the "Assessment" section of the ADL platform can be used, in which case access to the grid tests set up using the application will be unlocked for the students on the date and time communicated for the examination, and the students will solve them within the time limit set, with communication of the score obtained when the time allotted for solving it expires.

- The reports generated by the platform used and containing the centralization of the scores obtained by the assessed students, represent the proof of the assessment activity and will be archived and kept by the platform administrator throughout the academic year.

3.3. Assessment of graduates for certification of studies

3.3.1. Case study 1 - "Septimiu Mureșan" Police School Cluj-Napoca, Romania

The evaluation of candidates for the graduation exams is organized and carried out based on the methodology approved by the Ministry of Internal Affairs. Graduates will prove, under the examination conditions, the appropriate preparation to be commissioned and to occupy the first post of army non-commissioned officers/police officers.

The graduation examination consists of practical, written and oral tests. *The practical test* consists of:

- a firing session with the weapons provided - execution of a firing session according to the orders/provisions in force;

- physical training - according to the tests and scales laid down by the coordinating committee for the graduation examination and which are

among those for the first place of employment.

The written test consists of a test of knowledge from the units of learning outcomes, according to the themes and bibliography approved for the examination.

The oral test is aimed at solving problem situations from the bibliography approved for the examination.

Conditions:

- The practical test verifies the practical skills required to perform the specific tasks of the qualification and is carried out in the shooting range and sports facilities.

- The practical test is assessed with a mark from 10 to 1.00 which is calculated as the arithmetic average of the marks obtained for each component/sequence of the test, to two decimal places, without rounding off.

- For each component/sequence of the practical test, you must obtain a pass mark of at least 5,00 and a pass mark/average of 6,00 for the practical test, calculated to two decimal places without rounding off.

- Failure to follow the procedures or to pass the practical test will result in the candidate being eliminated from the graduation examination.

The written test is designed to check candidates' specialist knowledge and their ability to synthesise and systematise and consists of a knowledge test with items from specialist competence units, which may be a grid test with objective items, with several items to choose from, or a knowledge test with semi-objective and subjective items, with open answers.

The subjects and the evaluation, marking and scoring scales for the written test are drawn up by the examination sub-committee in accordance with the following requirements:

- to be consistent with the content of the approved bibliography;
- to ensure a balanced coverage of the competences obtained;
- must have a degree of relevance to the vocational training standard, curriculum and curricular materials;

- the resolution of the instructions must be possible within the time set, without the need for ancillary curricular materials;

- the subjects and scales of assessment and marking should be designed to ensure uniform assessment and marking of work.

In the case of the open-ended test, marking will be by subject, with marks on a scale of 10 to 1.00, based on an assessment and marking scale.

The minimum pass mark for the written test is 5.00 (five).

The oral test is of an applied nature and consists of solving problems from all three categories of competence units, i.e. key, general and specialist units, according to the bibliography approved for the examination.

- Each paper has the same number of questions, one of which will be a situation/case study.

- The number of examination tickets is 20% more than the number of

candidates in a series taking the examination at the same time and on the same sub-committee/examination team.

The average of the final examination is calculated as the average of the marks (averages) obtained in the examinations to two decimal places, without rounding.

3.3.2. Case Study 2 - Police College and Secondary Police School of the Ministry of Interior in Holešov, Czech Republic

Secondary Police School

Maturita - school leaving / graduation examination

Maturita examination consists of a common and a profile part:

The common part of Maturita Examination

The test subjects of the common part of Maturita Examination are:

- a) Czech Language and Literature,
- b) a foreign language – each student selects from the offer in accordance with legislation; the offer comprises of only the foreign languages taught at the school the student attends
- c) Mathematics.

The examinations of the common part of Maturita Examination are in the form of a didactic test, which is unified and centrally evaluated in the manner and according to the criteria laid down by legal regulations.

The profile part of the Maturita Examination

The test subjects of the profile part of Maturita Examination are:

- a) Czech Language and Literature - a written essay and an oral examination assessed by an examination board,
- b) foreign language – a written essay and an oral examination assessed by an examination board, if the student has chosen a foreign language from the compulsory examinations of the common part of the graduation examination,
- c) Law - oral examination assessed by an examination board,
- d) Security and Crime Control – oral examination assessed by an examination board,
- e) practical examination in police specialised police subjects aimed at solving model situations in the field of security, traffic police service, physical training, shooting training and crime control.

Police College

Graduation Examination

The educational program corresponds to the specialisation of the educational program: for the Riot / Public Order Police Service, for the

Immigration and Foreign Police Service, for the Criminal Police and Investigation Service, for the employees of the Ministry of the Interior and the Police of the Czech Republic.

Police university education is completed by graduation, which consists of three specialised vocational subjects, a foreign language and the graduation thesis. The graduation comprises of: Specialised vocational subjects exam (Management, Administrative Law, Criminal Law), Foreign Language Examination, and the Graduation Thesis.

3.3.3. Case study 3 - "Nikola Vaptsarov" Naval Academy Varna, Bulgaria

Graduates from the NVNA that are provided for service in the Navy are assessed according to the Methodology for conducting State Exams for the naval cadets in the specialty of Organization and Command of Military Units in Tactical Level. The methodology is unified for all military specialties in Bulgarian Military Higher Schools.

The state exam is scheduled in two sessions: one regular and one – corrective, conducted once in a year.

Admitted to state exams are all cadets completed all classes and practice in the curriculum and passed all the semester exams.

At least three months before the date of state exam cadets shall be informed of the methodology of assessment and the questionnaire of the exam.

Cadets may sit at one regular and one corrective exam. In case of failing one more regular and corrective exam can be done for the next three years.

For the exam session following documents are needed:

- Superintendent's ordinance for the state exam commission;
- Superintendent's ordinance containing the list of the cadets,

admitted to state exam;

- State Exam protocol;
- Presented cadet's book;
- Working materials for the exam.

Every state exam consists of two parts: theoretical and practical

Theoretical part consists of three questions:

- 1st question is from Tactics of the Navy
- 2nd question is from: using weapons in combat, organization of ship service, methodology of the combat training ets.
- 3rd question is from Naval weapons

The exam protocol contains: rank and three names, theoretical part grade, practical part grade, final grade. The final grade is formed as a weighed sum: $FG = 0.8TG + 0.2PG$.

The exam is oral unless otherwise is decided by the Head of the commission.

3.3.4. Case study 4 - "Mircea cel Bătrân" Naval Academy (MBNA) Constanța, Romania

As far as the assessment of MBNA students in the final examinations is concerned, this process is carried out according to its own regulations based on a framework methodology issued periodically by the Ministry of Education.

Graduates of undergraduate studies complete their university training by taking a diploma examination, which consists of two assessments:

Assessment 1: Assessment of fundamental and specialist knowledge - computer-based grid test.

Assessment 2: Presentation and defence of the diploma project - oral test.

The diploma exam is given in physical format, in groups of 10-15 students for each test.

For Assessment 1, the number of items is set by the Diploma Examination Committee of the corresponding study programme and is between 20 and 30 items from a database specific to each study programme, which is continuously improved and adapted. This test is conducted on computer, against the clock, in the MBNA, under the supervision of the diploma examination committee. The mark for assessment 1 is strictly objective and is given by the computer at the end of the grid test, to two decimal places, without rounding.

Assessment 2 average of the diploma examination is calculated as the arithmetic average of the marks of the examination committee members, with two decimal places, without rounding. The marks awarded by the members of the committee for assessment 2 are whole numbers from 1 to 10.

The diploma examination average is the arithmetic mean of assessment 1 and 2 averages.

The minimum pass mark for the diploma examination is at least 6.00, with a minimum mark of 5.00 for each test.

Graduates of the Master's programme complete their university training by taking a dissertation examination, which consists of a single test: presentation and defence of the dissertation - oral test.

The dissertation examination can be taken physically or online using the platforms available at the time of the dissertation examination. The mode of taking the dissertation examination (physical or online) is communicated at least 2 weeks before the beginning of the period by the decision of the MBNA Senate.

In the case of the online examination for Master's graduates, the ADL virtual platform is used in principle, which allows assessment in individual or group video sessions.

- The online version of the examination must be fully recorded for each graduate and archived at the faculty level.

- The recordings made on this occasion are evidence of the examination activity and will be archived at the level of the organising faculty.
 - At the scheduled date and time, the examination board starts the video examination session and performs the online attendance of the graduates, based on the catalogues containing the first and last names of all registered graduates. They identify themselves by their identity card, which is presented to the examination board.
 - The resulting mark is the arithmetical average (to two decimal places, without rounding) of the marks awarded by the chairman and members of the committee, which are whole numbers from 1 to 10.
- The minimum pass mark for the dissertation examination is at least 6.00.

4. METHODOLOGICAL REQUIREMENTS FOR THE DEVELOPMENT OF SECURED SOFTWARE PLATFORM FOR ONLINE AND OFFLINE EXAMINATIONS

4.1. System requirements. Definition of target groups

The target group is composed of the candidates to the entrance exam and, subsequently, of the students of the partner institutions in the project, during the partial and final evaluations, as well as of the students of other institutions in the field of defence and public order, from Romania and from the partner countries.

At the level of the Romanian Police, the software will also be used in the tests applied to police officers during their periodic professional evaluations or for the various career courses they attend.

In higher education institutions in the field of defence in Romania and Bulgaria, the software will be used both for the main processes (admission, evaluation during the course, graduation) and for specific evaluations in postgraduate courses or continuous training courses.

At national level, the results of the project will be transferable as best practice to other institutions in the field of defence, public order and security, in the selection and training process, as well as in educational institutions in the civilian sector.

4.2. General methodological requirements for online and offline evaluation software tools

- The software will be usable in both intranet and internet environments.
- The software will have 3 sections, for each type of evaluation of the main educational processes: admission, assessment during the course, graduation.
- the software will allow synchronous connection (the teacher is connected with the students via one of the communication platforms. This educational process will take place at the same time and in the same virtual place.
- The software will give the possibility to use the online version to a large number of people,
- the software will allow feedback - students respond without interrupting the course (online chat simultaneously with questions to the teacher).
- The software will allow continuous checking of a larger number of students (the whole class) in the form of questionnaires with a larger number of options (true/false statements, multiple choice questions, etc.).
- The software will allow more data to be shared (presentations, short instructional videos, audio files, etc).
- The software will allow the possibility to assign tasks and subject information to students.
- the software will allow the possibility for students to present assigned tasks.
- The software will provide the possibility of testing by selecting open and closed questions, with subsequent assessment according to specified parameters.
- The software will allow comparative assessment between parallel classes (classes within a year).
- The software will give the possibility of comparative assessment of students on a given item.
- The software will give the possibility of comparative assessment of test questions within different subjects.
- The software will allow identity verification by facial recognition.
- The software will give the possibility to detect plagiarism or to determine the percentage of similarity between other students' work,
- The software will give the possibility to notify the teacher about students with special educational needs who have benefited from adapted learning conditions in education.

4.3. General methodological requirements for test development

- Display the test environment on different platforms - PC, tablet, mobile phone.
- Setting test difficulty and rating scale.
- Setting the number of test attempts.
- Setting time limits for tests.
- Possibility to set time limits on individual questions.
- Possibility to work with all test questions during the test (opening any test question during the test).
- Login to a test using a user account, QR code, generated link, fingerprint.
- Possibility to use open questions with short answers or drawing options.
- Possibility to use closed-ended (true/false) dichotomous questions.
- Possibility to use closed questions with closed answer with selection of one correct answer.
- The possibility to use closed questions with multiple correct answers.
- Possibility to use closed matching questions (with option to move/pull).
- Possibility to use closed-ended sorting tasks (ascending and descending sorting) by text, numbers, dates, etc.
- Possibility to randomly select and shuffle questions according to topics.
- Possibility of random selection of questions from the task bank.
- Selection of mandatory questions.
- Random selection of questions and answers when generating tests.
- Possibility to insert images and videos.
- Tool to support insertion of mathematical expressions and equations, mathematical symbols.
- Possibility of automatic generation of correct and incorrect results.
- Relative and absolute performance tests.
- Import/export of test questions from/to spreadsheet documents,
- Possibility to use a test repeatedly.

4.4. General methodological requirements for the assessment of online or offline test results

- Allow import and export of assessments to spreadsheet files.
- Allow the possibility to create different grading scales (numerical, verbal, percentage).
- Allow the possibility to visualise the individual results of each pupil/student.
- Allow the possibility to view the results of the whole group by selecting individual questions or as an overview.
- Allow automatic assessment of closed questions.
- Allow percentage assessment using graphs and conversion to a rating scale (grades).
- Allow comparison of the same test for several groups (classes/groups)
 - Allow continuous recording of processed tests of individual students and individual groups (classes) in the overall assessment of a subject or module.

4.5. Specific methodological requirements for online and offline evaluation of admission, mid-term evaluation and graduation processes in the partner defence and public order institutions of the project

4.5.1. Admission to institutions in the field of defence and public order

a) Elimination test

- The database (or designed on the basis of applicants' applications) can be imported from the national e_Resources application.
- Using this database, it should be possible to generate different statistical situations (candidates/ counties/ gender/ ethnicity etc.).
- It will be possible to distribute candidates by institution of origin and by area centre.
- To be able to distribute candidates by groups/teams for the sports test.
- Allow the conversion of the sports test assessments into marks, in accordance with national legislation.

b) Written test

- The software application should facilitate the work of marking the grid-type examination papers, it should help in automatic recognition and interpretation of the answer sheets. Scanning of answer sheets should be done separately from the application, the scanner type is not mandatory for interpretation and correction. The application should facilitate the automatic correction of gridded exam sheets from image files (BPM, TIFF, JPEG) or PDF.

- It should be possible to define your own grids by setting the number of questions, variants, sets or sessions, and this from all 3 item categories.

- Be able to develop different types of items and generate test variants for administration.

- To be able to define the score for each question.

- It should be possible to automatically calculate the score and distribute it to the candidates.

- It is possible to intervene to correct any errors.

- Display and print corrected tests on demand, according to the candidates.

- It should be possible to choose how to set up the tests, when necessary and appropriate, by formulating the questions (items) at the time of test creation or by automatically extracting items from a previously formed database at random and/or by removing those items that have been extracted in a previous examination session.

- Answers will be presented to candidates in a modified form for the same question in each examination.

- Use menus for generating examination papers and answer grids.

- To be able to edit some statistics about the questions in the test, e.g. extracting a question that nobody answered correctly - a possible wrong question;

- To be able to automatically enter, when calculating the final result, additional points for participation, awarded according to the examination methodology.

4.5.2. Ongoing assessment

The most common way to take an online exam is through quizzes. These may involve 'yes'/'no' ('true'/'false') answers or selecting one or more correct answer options from several possible choices (single choice or multiple choice tests). Questionnaire-type tests allow a high level of objectivity in the assessment and are applicable to any subject.

Tests should be pre-loaded into a digital assessment system or embedded in software.

“Remote/remote assessment involves users accessing an assessment platform, such as e.g. LMS (Learning Management System) via the internet or intranet”, which is capable of the following actions and features:

1. Centralize and automate test administration;
2. To assemble and deliver learning content very quickly;
3. To consolidate training initiatives on a scalable web platform;
4. To enable content customisation and knowledge re-use.

Specific methodological requirements for online/offline assessment

The software must allow:

- The compliance with the security requirements imposed by the system (protections and restrictions)
- Uploading materials, course materials so that students can access them at any time, such as presentations, videos with real situations from police work, audio files, worksheets that can be solved by students;
- Online hours attended by as many users as possible;
- To record the conduct of the class with the possibility of the subsequent replay by the students;
- A friendly and easy to use interface;
- A forum section (discussions, messages between students and teachers);
- Synchronous online communication method (individual and group chat, video calls)
- The possibility for the students to be able to present the solving of the received tasks;
- The easy access to the verification tests;
- To obtain some feedback following the verification tests;
- To obtain lists, rankings, comparative evaluation between classes of students, etc.

4.5.3. Graduation

The practical test:

- For the component of the physical performance test - identical to the one from the admission section, the students' personal data being stored in the databases of the students' classes;

- For the shooting session component with the armament provided (where is available) - the points from the target must be converted into notes, according to the legislation.

The written test:

- elaboration and grading of knowledge verification tests, the same principle as upon admission and generating answer sheets with a CRC code, with the help of which they can be recognized for each person tested.

The oral test:

- elaboration of exam tickets, with the same number of items, one of which consists in solving a case study, according to the approved bibliography and the correction scales.

From the works of teachers and students there can be created virtual libraries, which can be accessed by all who are users of the platform.

4.6. Advantages of using a secure software platform for online and offline assessment

Archiving and retrieval of information.

Authorised access for teachers and students

Authorised access for teachers and students from anywhere with internet access,

access to videoconferencing applications.

Easy way to enter documents and access them from anywhere.

Reduced risk of contamination and transmission of infectious diseases (e.g. Covid-19) by limiting the interaction time between examiner and learner (reduced teaching time and avoidance of errors by automatic subsequent correction of answer grids);

Increase the efficiency of the assessment activity by establishing a reliable, audited and traceable system for correcting answer grids.

Reduce the number of confirmed appeals due to human errors that may occur when correcting answer keys.

Increasing the quality of teaching by making learners responsible for the correct and timely completion of answer sheets.

Increasing the credibility of institutions organising competitions/exams using grid tests by eliminating suspicions of subjectivity and obtaining results quickly, regardless of the number of people examined.

Creating a mechanism to guide the training decision while taking into account the speed of assessments.

5. GUIDE TO ETHICAL RULES AND STRATEGIES IN ONLINE ASSESSMENT

This chapter addresses issues of ethical principles in online assessment and distance education in general. Some strategies for reducing academic malpractice in online assessment of students are also highlighted. Strategies discussed include recognising the disadvantages of online assessment and overcoming them, designing effective online assessment that does not allow for fraud, keeping online courses up to date and providing students with a policy on academic dishonesty.

Overview of Ethics and Assessment

One of the most prevalent issues facing an educator is “the age-old concern about ethical practices in assessment (e.g., examination fraud)” (Abbott, Siskovic, Nogues, and Williams 2000)¹¹⁵. Recent pedagogical studies indicate that academic dishonesty is on the rise... For example, McMurtry (2001)¹¹⁶ cites a survey of Who’s Who Among American High School Students, which reported that of 3,123 students, 80% “admitted to cheating on an exam, an increase of 10 percentage points since the question was first asked 15 years ago”. Moreover, 50% “did not think that cheating was necessarily wrong”, and 95% of those who cheated “said they had never been caught” (Kleiner and Lord 1999)¹¹⁷. Such statistics clearly indicate the pervasiveness of cheating in educational institutions.

In “Classroom Assessment: Concepts and Application”, Airasian presents a partial list (adapted from Cizek 1999)¹¹⁸ of the ways in which students cheat. Below is **Airasian’s list**:

- A. Looking at another pupil’s test paper during a test.
- B. Dropping ones paper so that other pupils can cheat off it.

115 Abbott, L., Siskovic, H., Nogues, V., and Williams, J. G.. (2000). Student assessment in multimedia instruction: Considerations for the instructional designer. Retrieved June 11, 2002 from Eric on-line database (ED 444 516) on the World Wide Web: <http://newfirstsearch.oclc.org>.

116 McMurtry, K. (2001). E-cheating: Combating a 21st century challenge. THE Journal Online: Technological Horizons in Education. Retrieved June 11, 2002, from <http://thejournal.com/magazine/vault/A3724.cfm>.

117 Kleiner, C. and Lord, M. (1999). The cheating game: Cross-national exploration of business students’ attitudes, perceptions, and tendencies toward academic dishonesty. *Journal of Education for Business*. 74(4), 38-42.

118 Cizek, G. (1999). Cheating on tests: how to do it, detect it, and prevent it. Mahwah, NJ: Lawrence Erlbaum Associates.

C. Dropping one's paper and having another pupil pick it up, cheat from it, and re-drop the paper so the original dropper can reclaim his or her paper.

D. Passing an eraser between two pupils who write test information on the eraser.

E. Developing codes such as tapping the floor three times to indicate that a multiple-choice item should be answered "C."

F. Looking at pupils' papers while walking up to the teacher to ask a question about the test.

G. Using crib notes or small pieces of paper to cheat. Crib notes can be hidden in many ingenious places.

H. Switching scratch paper-often allowed by teachers during tests with one's own scratch paper that contains test answers.

I. Writing test information on the desktop and erasing it after the test; a variation is to write information in allowed reference or textbook pages prior to the test and use the information during the exam.

J. Wearing a tee-shirt with useful test information written on it.

K. Changing answers when teachers allow pupils to grade each other's papers.

L. Using resources forbidden by the teacher in take-home tests or work.

Looking more closely at the above list, it becomes clear that the methods of academic fraud outlined above can be divided into two basic categories: those that require an accomplice and those that do not. Specifically, points 1 - 6 and 11 require an accomplice in close proximity, while points 7 - 10 and 12 can be done independently.

However, when considering the issue of ethics and distance education, "old concerns about ethical evaluation practices ... are taking on new meaning in the distance learning environment" (Abbott, Siskivic, Nogues and Williams 2000)¹¹⁹. Students are no longer in close proximity. In fact, they may be thousands of miles apart. Distance does not, however, diminish the possibility that students may cheat, with or without an accomplice, on online assessments; instead of crafting codes or passing erasers, students send private e-mails that instructors have no way of intercepting. In some cases, students can also download an assessment, look up answers before actually taking it, and share those answers with classmates. Instead of using notes or writing answers in the margins of the textbook or on the desktop, students simply use "verboten" sources during the assessment. Instructors can no longer depend on different handwriting, a change in ink color, or the detection of erasure marks on an assessment as evidence that a student has changed answers after taking the assessment. In such circumstances,

119 Abbott, L., Siskovic, H., Nogues, V., and Williams, J. G.. (2000). Student assessment in multimedia instruction: Considerations for the instructional designer. Retrieved June 11, 2002 from Eric on-line database (ED 444 516) on the World Wide Web: <http://newfirstsearch.oclc.org>.

it would seem that ensuring the integrity of online assessment is almost impossible....or is it? Heberling (2002)¹²⁰, points out that, “ironically, it can be strongly argued that it is in fact hard to cheat online and that it is also easier to detect”.

According to Hinman (2000)¹²¹, there are three possible approaches to minimizing (online) cheating and plagiarism: first, there is the virtues approach. The virtues approach seeks to develop students who do not want to cheat. Second is the prevention approach, which seeks to eliminate or reduce opportunities for students to cheat and to reduce the pressure to cheat. Finally, there is the police approach, which seeks to catch and punish those who do cheat. According to Hinman (2000), policing, when employed consistently, can also serve as a preventative measure. Although each approach is essential in order to curtail academic dishonesty in online assessment, the scope of this paper focuses on prevention by discussing four key strategies for minimizing academic dishonesty in online student assessment.

Strategy #1 - The first strategy for minimizing academic dishonesty in online student assessments is to acknowledge the disadvantages, and find ways to overcome them.

The first and most serious disadvantage is the instructor’s inability to ascertain who is actually taking an online assessment. Combating this problem will require a multi-faceted approach.

The first line of defense is to utilize a log-in system. As an extra precaution, it is advisable to also have a log-in system for online assessments. The user name and password for the assessment should only be disseminated just prior to the assessment being made available, and change for each online assessment. Many of the packaged courseware products, such as Blackboard, have this capability. Of course, it is possible for the student to give out the user name and password, but changing them frequently will certainly make matters more difficult.

A second method is to utilize several, short assessments throughout the course. Abbott, Siskovic, Nogues, and Williams (2000 p. 5)¹²² concisely

120 Heberling, M. (2002). Maintaining academic integrity in on-line education. *Online Journal of Distance Learning Administration*, 5(2). Retrieved June 17, 2002, from <http://www.westga.edu/%7Edistance/ojdl/spring51/spring51.html>.

121 Hinman, L. M. (2000, November 2). Academic integrity and the World Wide Web. Retrieved June 16, 2002, from http://ethics.acusd.edu/presentations/cai2000/index_files/frame.htm.

122 Abbott, L., Siskovic, H., Nogues, V., and Williams, J. G.. (2000). Student assessment in multimedia instruction: Considerations for the instructional designer. Retrieved June 11, 2002 from Eric on-line database (ED 444 516) on the World Wide Web: <http://newfirstsearch.oclc.org>.

summarize, as follows, an approach to online assessment taken by Cox, author of the award winning, *Taming the Electric Frontier*: Cox's approach recommends using a series of small, sequential, individualized tasks and student-centered personal responses to provide multiple checkpoints during the online course and ensure that students, in order to complete the assignments, have to keep up with the class readings and respond to class assignments themselves. Multiple, individualized tasks are harder to counterfeit because of the necessary coordination and planning involved for the student to arrange for someone else to do the work in a timely and appropriately specific manner. It is assumed that, while a student may be able to ask help for a particular assessment, it will be very difficult for him/her to ask help throughout an entire course.

A third method is to include assignments that require some degree of cooperation and coordination among students. According to Graham, Cagiltay, Lim, Craner, and Duffy (2001)¹²³, small group discussions should be required, focus on a task, and the task should always result in a product. Again, it will be very difficult for a student to find consistent help throughout a cooperative project of some duration and complexity.

A final approach is to build into the course a high level of instructor/student interaction. According to Graham, Cagiltay, Lim, Craner, and Duffy 2001, one principle of effective online teaching is to encourage student-faculty contact. Two possible ways to achieve this are frequent email contact and occasional synchronous chats that are substantive in nature. Frequent student-instructor contact will have two advantages: first, a student will, again, have difficulty finding consistent help in responding to instructor emails. Second, through ongoing dialogue, the instructor will get a better "feel" for a student's ability.

A second disadvantage to online assessment is an instructor's inability to control a student's unauthorized use of resources in completing an assessment. The simplest way to combat this difficulty is to make all assessments open-book. Of course, assessments should, therefore, be of a more substantive nature. The development of assessments suitable for online will be discussed later. For assignments in which plagiarism is a concern, McMurtry (2001)¹²⁴ recommends a proactive approach. Among her most salient points, McMurtry recommends designing writing assignments with specific goals and instructions, knowing what is available online before

123 Graham, C., Cagiltay, K., Lim, B., Craner, J., and Duffy, T. M.. (2001). Seven principles of effective teaching: a practical lens for evaluation online courses. Assessment. Retrieved June 11, 2002, from <http://ts.mivu.org/default.asp?show=article&id=839>.

124 McMurtry, K. (2001). E-cheating: Combating a 21st century challenge. THE Journal Online: Technological Horizons in Education. Retrieved June 11, 2002, from <http://thejournal.com/magazine/vault/A3724.cfm>.

assigning a paper, having students submit assignments electronically so that the instructor can archive them for future reference, and subscribing to a plagiarism search service.

A third disadvantage is the possibility of students collaborating with each other in taking an assessment. Fortunately, there are several ways to combat this problem. First, many of the packaged courseware products, such as Blackboard and WebCT, have the ability to set availability dates and times for all assessments. Time limits and the number of permissible accesses can also be set by the instructor. Many packaged courseware products have the capability of creating large questions pools for randomized assessments (Distance Education and Instructional Technology). Randomized questions pools are an excellent tool since they ensure that no two students will take exactly the same assessment. A final disadvantage to online assessment is the technological difficulties that instructors and students will undoubtedly face. Sometimes a student may try to use such difficulties to his/her advantage, complaining that the computer “crashed” while taking an assessment.

One possible remedy to this problem is to use courseware, such as WebCT, that tracks the time, duration, and number of attempts that a student accesses an assessment. Multiple accesses for short durations are definitely suspect. If students are made aware that such data is available to the instructor, then they may be less likely to exploit the situation.

Strategy #2 - A second strategy to minimize academic dishonesty in online student assessment is to take the time to design effective online assessments. Some good tips for designing effective assessments would be: asking fundamental questions that require students to know the material, asking students to relate the material to their own personal/professional/life experiences, and focusing on the process rather than an end product. An example of a process-oriented assessment would be to ask students to submit thesis statements, outlines and rough drafts so that they can see how the project is developing. Assessments should also be geared towards higher-order thinking skills, requiring application, evaluation and synthesis rather than simple recall of facts.

In “Writing Multiple Choice Items which Require Comprehension” (2000)¹²⁵, Dewey argues that “it is possible to construct multiple-choice questions that are not easy to guess and therefore require the student to understand the underlying factual material”. However, the key is for the instructor to understand the “rules of thumb” that students use to answer a multiple-choice test, such as choosing the longest answer, never selecting an answer that contains the word “always” or “never,” or selecting an answer that includes a related word. In his paper, Dewey outlines a procedure for

125 Dewey, R. A., (2000, December 12). Writing multiple choice items which require comprehension. Retrieved June 11, 2002, from <http://www.psywww.com/selfquiz/aboutq.htm>.

constructing an effective multiple-choice test that will “overcome” such cunning strategies, given that there seems to be a trend toward objective tests in an online environment because they are automatically graded and provide immediate feedback to students (Cooper 2000)¹²⁶.

Strategy #3 - According to Van Belle¹²⁷, a third strategy to reduce academic dishonesty is to modify the curriculum by assigning original assignments and readings or even by considering alternative, project-based assessments that require creativity. Obviously, the less frequently instructors change assignments and assessments, the easier it becomes for students to share graded work from previous semesters.

Strategy #4 - A final strategy to minimize academic dishonesty is to provide students with an academic integrity/dishonesty policy. According to McMurtry (2001)¹²⁸, instructors should take the necessary time to discuss their academic policy with their students. Unfortunately, a recent study reveals that few instructors take up the topic of academic integrity/dishonesty with their students.

In Dirks (1998, p. 18)¹²⁹, only “15 percent of the syllabi collected had academic policies in them.

In “*Developing an academic integrity/dishonesty policy*”, McCabe and Pavela (1997)¹³⁰, identified 10 principles of academic integrity, some of which have been addressed to some extent in this paper:

- A. Affirm the importance of academic integrity.
- B. Foster love of learning.
- C. Treat students as ends in themselves.
- D. Promote an environment of trust in the classroom.
- E. Encourage student responsibility for academic integrity.
- F. Clarify expectations for students.
- G. Develop fair and relevant forms of assessment.
- H. Reduce opportunities to engage in academic dishonesty.
- I. Challenge academic dishonesty when it occurs.
- J. Help define and support campus-wide academic integrity standards.

126 Cooper, L. (2000). Online courses: tips for making them work. [Electronic version]. THE Journal, 27(8), 86-92.

127 Van Belle, G. (n.d.). How cheating helps drive better instruction. Retrieved June 17, 2001, from <http://www.plagiarized.com/vanb.shtml>.

128 McMurtry, K. (2001). E-cheating: Combating a 21st century challenge. THE Journal Online: Technological Horizons in Education. Retrieved June 11, 2002, from <http://thejournal.com/magazine/vault/A3724.cfm>.

129 Dirks, M. (1998). How is assessment being done in distance learning? Retrieved June 11, 2002, from Eric on-line database <http://newfirstsearch.oclc.org> (ED 423 273).

130 McCabe, D. L. and Pavela, G. (n.d.). Retrieved on June 17, 2002, from http://www.inform.umd.edu/CampusInfo/Departments/JPO/ethics/tp_ai.htm.

Taylor¹³¹, in his paper entitled “Academic Integrity: A Letter to My Students,” addresses many of the above principles. Taylor concisely explains the mutual responsibilities of students and instructors regarding academic integrity. What is so attractive about Taylor’s paper is that he defines integrity in lieu of defining what constitutes cheating, focusing on positives rather than negatives.

Conclusion

The “age-old” concern of academic dishonesty is a pervasive issue that all instructors must face (Abbott, Siskovic, Nogues, and Williams, 2000)¹³². However, the incidences of academic dishonesty can be significantly reduced if instructors are proactive, vigilant, and are willing to “welcome the challenge of creating”.

131 Taylor, B. (n.d.). Academic integrity; A letter to my students. Retrieved on June 16, 2002, from http://www.academicintegrity.org/pdf/Letter_To_My_Students.pdf.

132 Abbott, L., Siskovic, H., Nogues, V., and Williams, J. G.. (2000). Student assessment in multimedia instruction: Considerations for the instructional designer. Retrieved June 11, 2002 from Eric on-line database (ED 444 516) on the World Wide Web: <http://newfirstsearch.oclc.org>.

6. GLOSSARY OF ASSESSMENT RELATED TERMS

Annotated Bibliography

This is a reference list where the student has added extra information on each reference given. Usually, this extra information will summarise and critically explore the reference it concerns. Though the norm is for the extra information to take the form of a short paragraph, it may take many different forms depending on the specific requirements laid out in the assessment criteria. For example, the assessment criteria may state that the information should be presented in bullet points, as audio files, etc.

Assessment brief

This should detail exactly what students are required to do and must align with the data stored in Portico and published on the Module Catalogue. Moodle should be used to amplify and support that information, perhaps to include sources of advice, etc.

Assessment criteria

These are the details that explains what evidence the candidate needs to demonstrate (e.g. knowledge, or a skill, etc.) in order to attain a particular grade or level. They are detailed enough to be able to demonstrate how an assessment will be marked. If you are using rubrics or grading forms, make these available as a part of the criteria.

Asynchronous/synchronous activities.

For assessment purposes, you should focus on assessments that are asynchronous but need to be completed by a particular deadline. Synchronous assessments are risky in that they rely on specific access and they should only be attempted with significant support/advice from the ISD.

Blog

A blog is a website or webpage that is updated by the student throughout a course or assessment period; it details, for example, a learning journey. You can use these as part of an on-going assessment as a type of journal – they can be formative and summative - it depends on how you want students to use them to evidence their learning.

Competency-based assessment.

These are assessments which mean students will be evaluated against some specific learning, behaviour, or performance objective. This objective, and/or the level of performance that represents “competency” is clearly established in the curriculum and represents an expected level of expertise or mastery of skills or knowledge.

Constructive Alignment

‘Constructive alignment’ starts with the notion that the learner constructs his or her own learning through relevant learning activities. We therefore need to create a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes of the module and programme. All components (the curriculum and its intended outcomes, the teaching methods used, the learning activities designed and the assessment tasks) - are aligned to each other. The learner finds it difficult to escape without learning appropriately

Course Report

A course report is a selection of notes an academic will make during a student’s study, usually over the course of the module. Usually, this report will consider the student’s input in the lectures and/or seminars. It may take several forms, from short written notes to a tick box sheet.

Dissertation

A dissertation is a large body of work which provides students the opportunity to engage in independent research study. A dissertation is not a long essay, but rather a review of different points of view about the subject. It should also include original research, which may be designed to test hypotheses and to further understanding of the topic.

Essay

An essay is a written text exploring a particular subject. They are useful in online learning settings as students can upload drafts, build work using patchwork assessments and then submit a final assignment via a VLE or similar.

Exams: it should be noted that managing the access to online examination settings, providing remote invigilation and ensuring that students abide by criteria for resources, e.g. open book. are all validated and agreed. These situations need careful handling, explanation and might need additional IT security.

‘In-tray’ exams can take the form of exams where candidates are already provided with factual detail about a scenario (for example, the staffing and facilities of a hospital ward, or a business portfolio) and are given time to familiarise themselves with the information provided. *Managing the use of materials for online testing situations is complex and would need professional support.*

Open-book exams where candidates are provided with texts or journal articles and sometimes, reference materials of their own choice, to be used in an examination setting. The advantages include reducing the emphasis on memory recall. A disadvantage can occur if different candidates have different resources to use. *Managing the use of materials for online testing situations is complex and would need professional support.*

Open-notes exams where candidates are allowed to bring in with them a limited quantity of prepared material - handwritten or word-processed - to assist them in answering the exam questions. *Managing the use of materials for online testing situations is complex and would need professional support.*

Oral exams

An oral examination is an assessment conducted through speech. The candidate may propose an argument and then provide evidence to prove or disprove it, while the examiner is allowed to discuss, debate and ask further questions.

Takeaway exams can be where candidates are given a question paper or task to take out of the exam room and asked to submit their answers at a later time in the same day (or beyond). Such exams can have the advantage of simulating real-world situations, where people are allowed to use resource materials and talk to other people when solving problems. *Managing the use of materials for online testing situations is complex and would need professional support.*

Timed online exams

Quiz tools in Moodle can be used to schedule online, timed tests or exams. Quizzes and tests can be set up to:

- be taken during a specific time period (e.g. on a specific day or at any time during a specific week);
- have a time limit, requiring the student to complete the quiz or test within a specified timeframe (e.g. 60 minutes from the time they begin).

Exercise/task (structured)

An exercise or task set by the examiner will help determine the student's aptitude. Exercises and tasks vary from subject to subject and from examiner to examiner. For example, field work provides an opportunity for assessed on-site work on a project in a context relating to the subject.

Feedback

Feedback is information given to the learner about the learner's performance relative to learning goals or outcomes. It should aim to (and be capable of) producing improvement in students' learning. Feedback redirects or refocuses either the teacher's or the learner's actions to achieve a goal, by aligning effort and activity with an outcome. It can be about the output of the activity, the process of the activity, the student's management of their learning or self-regulation, or them as individuals. This feedback can be verbal or written, or can be given through tests or via digital technology. It can come from a teacher or someone taking a teaching role, or from peers. **Actionable feedback** (also known as 'feed-forward') specifically identifies what needs improvement and offers a plan of action to make the necessary improvement possible.

Formative assessment refers to any form of assessment, such as quizzes, tests, essays, projects, interviews, or presentations, in which the goal is to give students feedback about their work while it is in progress, to help students correct errors or missteps, or to improve the work along the way to the final product. In contrast, *summative evaluation* is to make a judgment about a final product or about the quality of performance at the end of an instructional unit or course.

Group work - Group presentation

A group presentation where two or more students work collaboratively to present a piece of work. It may be an oral, visual, poster or written presentation.

Group project report

A group project report is a log of the entire process of creating a group project. Usually, it is written in conjunction with a group project or presentation.

Peer review exercises

A peer review exercise is one in which students review each other's work and have a critical dialogue concerning it.

Wiki

A wiki is a website or database developed collaboratively by a community of users, in this case students, allowing any user to add and edit content.

Lab notebook

A lab notebook is a primary method of research - for example, the physical paper that chemists use to write down their results in the lab. It is used by researchers as a memory aid, an organizational tool and to document their experiments, hypotheses and initial analysis.

Learning objective

A learning objective is a specific statement that describes what the student is to learn, understand, or to be able to do as a result of a lesson or a series of lessons.

Learning outcome

A learning outcome represents what the student actually achieved as a result of a lesson or a series of lessons. The success of lessons may be influenced by the students' prior knowledge, their effort and attention, teaching methods, resources, and time. Learning outcomes refer to the *results* of instruction, while learning objectives refer to the intended *goals and purposes* of lessons.

Literature review

A literature review is a secondary source, as it does not propose any new or original experimental work. It includes findings relevant to a particular topic, as well as pre-existing theoretical and methodical ideas.

Multiple choice questions

Multiple-choice questions are a method of assessment where a candidate is tasked with selecting the right answer (or answers) from a list of incorrect answers. It may be taken in timed conditions, as part of a formal examination, or in an informal setting; it is possible to use these effectively in online settings and they can both computer and human marked.

Podcasts

A podcast is a recorded speech, similar to an essay but spoken aloud. The candidate will gather information on a subject and present it in audio form, usually within a given duration.

Portfolio

A portfolio is a collection of relevant work on a subject. It allows the candidate to represent their own learning in the way that they choose. It is a demonstration of how the student connects the items they compile with the given subject.

Practical examination

A practical examination is an examination of a candidate's practical skills. For example, a chemistry practical examination may involve a supervised experiment, where the candidate's method and practises are assessed.

Reflective writing involves producing an analytical written piece in which the candidate describes an event or idea, thinking in depth and from differing perspectives, and trying to analyse the item, often referencing a previous model or theory on the subject.

Reliability refers to the extent to which an assessment method or instrument consistently measures a student's performance. Assessments should produce comparable outcomes, with consistent standards over time and between different learners and assessors.

Research plan/proposal

A research plan is a proposed idea for a study (or gathering of research) on a particular subject. The proposal should cover what questions will be asked and how, any prior research that has taken place on the subject, how the results will be evaluated and how much time the process will take.

Rubric

A rubric is a chart or plan that identifies criteria for evaluating a piece of a student's work, be it an essay test, a paper, or some other student production. The best rubrics offer the clearest details for each category of evaluation so that a student's products can be evaluated consistently.

Summative assessment

The goal of summative assessment is to evaluate student learning at the end of a module by comparing it against some standard or benchmark. Summative assessments are often high stakes as they credit and/or professional recognition is awarded on successful completion.

Validity is a term that describes how well a test, or a test item, measures what it claims to measure, accurately predicts a behaviour, or

accurately contributes to decision making about the presence or absence of a characteristic. *It is vital that all assessments have strong validity so that they meet the required standards within the university for all phases of learning.*

Video report

A video report is a presentation via video (and often audio) on a particular subject. The report will take on a structured narrative similar to that of an essay, but with the evidence, analysis and conclusions all taking place in video format.

Naval Academy "Mircea cel Bătrân" (ANMB)

**METHODOLOGY FOR EXAMINING KNOWLEDGE
THROUGH A GRID TEST USING THE BBS PLATFORM**

Art. 1. In order to evaluate candidates for admission to ANMB and students, both during the course of the teaching process and at the end of their studies, the BBS platform built for the assessment of the grid test with one possible correct answer may be used.

Art. 2. Three categories of users are involved in the assessment process (admission, mid-term assessment, final assessment) when using the BBS platform: Administrator, Assessor and Candidate.

Art. 3. The Administrator is the designated person from ANMB, IT specialist, who is responsible for the proper installation, verification of functionalities and definition of users within the platform (other administrators and evaluators).

Art. 4. The evaluator is the designated person from ANMB with the necessary skills to define questions and the right to give marks to the candidates. Assessors have access to the administration interface of the application with the following rights:

- a) Define and modify the categories of questions to be used to generate assessments;
- b) Define and modify the questions to be used for generating assessments;
- c) Uploading, adding, modifying and deleting candidates in the platform database;
- d) Creating, modifying, administering assessments;
- e) Marking, removing wrong questions in an assessment;
- f) Entering candidates into the platform and grouping them.

Art. 5. (1) The candidate is the user who wishes to benefit or benefits from the educational process and who is obliged to take the assessments requested by the assessor;

(2) Candidates can view their assessment results and assessment history;

(3) Candidates are not able to enter/modify any information within the platform;

(4) Candidates can login to the platform as indicated in the user manual / tutorial describing the use of the platform.

Art. 6. The evaluation process involves the chronological progression of three sub-processes:

a) Definition and introduction of question categories and questions, as indicated in the user manual / tutorial describing the use of the platform:

- The evaluator defines the categories of questions, defines the questions, defines the answers, validates the questions and answers;

b) Introduction of candidates, grouped according to certain criteria by the evaluator. If they exist they can be retrieved from the database, as indicated in the user manual / tutorial describing the use of the platform;

c) Defining and supporting the assessment, as indicated in the user manual / tutorial describing the use of the platform:

- The assessor defines the assessment (variant and answer form), selects the categories used, selects the questions used, generates the variants, signs the assessment variants and answer grids in letter format;

- The candidate authenticates and takes the assessment;

- Scans the answer forms, if applicable, under the conditions of the user manual / tutorial describing the use of the platform;

- Upload scanned files to the assessment platform, if applicable;

- Download the evaluation results.

Art. 7. The definition of the assessment is carried out by specific methodologies for each type of assessment (admission, mid-term, graduation) developed at ANMB level, approved by the University Senate.

Police College and Secondary Police School of MI Holešov

METHODOLOGY FOR DIGITAL ASSESSMENT

Based on effective legal legislation, the Secondary Police School and Police College of the Ministry of the Interior in Holešov will not use the FAST project software for the security forces admission process.

The software will be used in both offline and online versions to evaluate tests used in teaching and thus contribute to increasing the quality of the educational process. The testing methodology is demanding in terms of objectivity, speed, accuracy and also places high demands on transparency, and that is where we see the greatest benefit of the developed software.

FAST software will be used across all the school subjects, both specialized and general. Furthermore, it will be used in all educational programs currently run in our school, i.e. secondary school, higher education and special professional courses.

The software will be used for entrance and final tests, final evaluation and for benchmark tests as well as interim evaluation tests and possibly also as an evaluation tool for evaluating educational programs. Both close-ended questions with a range of answers and open-ended questions will be used (in the online version). Questions will be created according to the categories of individual educational areas.

We are planning to use the facial recognition identification tool especially when testing police college students and professional courses students.

”Nikola Vaptsarov” Naval Academy (NVNA)

METHODOLOGY FOR CONDUCTING WRITTEN ADMISSION EXAMS WITH CANDIDATE CADETS USING A SINGLE-CHOICE GRID TEST

1. The cadets’ admission campaign has the following stages:
 - 1.1. The candidates apply for admission:
 - The candidates provide the required admission documents in place at Nikola Vaptsarov Naval Academy (NVNA) or Military districts by permanent residence.
 - 1.2. Registration of the candidates into the database of the used electronic platform:
 - That is performed at NVNA by an authorized user.
 - 1.3. Conducting a scheduled medical examination, psycho-physiological examination, physical performance evaluation test, written English language exam, and written general education exam.
 - 1.4. Public announcement of the results from the written general education exam.
 - 1.5. Ranking of the candidate cadets following the procedure which is approved by the Bulgarian Minister of Defense.

Notice: *The electronic platform could be used to generate assessment forms with single-choice questions to conduct the written English language exam and the written general education exam.*
2. The candidates can participate in more than one admission campaign per academic year with the same registration number which has been assigned to them on the electronic platform.
 - 2.1. Exceptions in this rule are the cases when the candidate is evaluated as an “unfit for service” during the medical examination or psycho-physiological examination. In these cases, the candidate may apply at least in the next academic year.
3. The users’ categories of the electronic admission platform are as follows:
 - 3.1. Administrator:
 - A user with responsibilities for proper installation and operation of the platform and the proper assigning of the user roles inside the platform.
 - 3.2. Evaluator/member of the exam committee:
 - Can define and edit questions’ categories used to generate assessment form for each supported exam;
 - Can create and edit questions used to generate assessment forms;
 - Can add, modify and remove candidate-cadet user accounts to the

platform;

- Can create, modify and manage exam versions;
- Can upload scanned assessment forms with candidate's answers for each supported exam;
- Can check and download exam results.

3.3. Candidate-cadet:

- A user who wants to participate in the admission campaign and must take exams;

- Has the right to view her/his assessment result;
- Has no rights to add or modify any data into the platform.

4. The evaluation process using the electronic platform is conducted in the following order:

4.1. Evaluation Preparation stage:

4.1.1. Creating question banks and categories.

4.1.2. Creating candidate-cadet groups representing the written exams that must be taken by the candidates.

4.2. Candidates' documents acceptance stage:

4.2.1. Creating a candidate-cadet user account for each candidate and assigning a unique registration number to each of them.

4.2.2. Adding each candidate-cadet user account to the correct group.

4.3. Written exams stage:

4.3.1. Preparing a schedule for the written exams.

4.3.2. Generating the required exam versions for each written exam.

4.3.3. Printing the exam versions and answer forms to distribute them to the candidates.

4.3.4. Distributing a printed exam version and answer form to each candidate.

4.3.5. Conducting an instruction to the candidates on how to fill the answer form.

4.3.6. After filling out the answer form, the candidate returns the answer form to a member of the exam committee.

4.3.7. Candidates' answer forms are scanned and uploaded to the platform for evaluation and grading.

4.3.8. Generating and printing an exam results protocol for the written exam.

5. The structure and the content of the assessment forms and questions are defined according to the specific methodologies for each exam under the procedures which are approved by the Bulgarian Minister of Defense.

The exams during the education process at NVNA and the graduation exams are conducted following different methodologies developed in the departments and approved by NVNA Academic Board.

”Septimiu Mureșan” Police School Cluj-Napoca

DIGITAL EVALUATION METHODOLOGY

At the school level, the software platform for the online and offline evaluation, created within the FAST Project, will be available for use as a digital tool for online or offline evaluation with the occasion of the admission tests, graduation exams, but also for the continuous evaluation of students/learners at the written examinations.

The access to the Platform will be given by its administrator, at the request of the entitled persons (*organizers* and/or *examiners*).

CHAPTER I - ADMISSION

Introductory information

The recruitment of the candidates for the admission in the police schools is performed by the territorial police units through the human resources department, at the level of each County Police Inspectorate. The databases containing the data of the recruited candidates (taken from the Registration Form and from the other documents mentioned and requested by the normative act organizing the admission) are sent to the educational units where the admission contest takes place (in our case, the Police School ”Septimiu Mureșan” from Cluj-Napoca). These data can be totally or partially imported to the Fast Platform and based on them, a unique Code ”Quick Response (QR Code)” is generated by the software, that will be used for identifying the person, managing their presence and recording the results obtained by each candidate. In order to be able to use the FAST Platform, each registered candidate will get a *Contest Card* where at least the name, the first name and the QR contest code will be recorded (a document which, next to their valid identity card issued by the entitled authorities, will be used in establishing their identity when present at the examinations).

For the written examination/ the knowledge assessment test, from the admission contest, we can use the soft both *offline* and *online*, when the candidates take a grid-type test.

Elaboration of the written test/knowledge assessment test and of the correction grid

Knowledge assessment test consists in applying a multiple-choice grid, corresponding to 90% of the maximum grade and comprising items taken from:

- the subjects: Romanian language 40% and foreign language - 15%;
- the specific legislation of the Ministry of Internal Affairs, and of the

political institutions of the state - 20%;

□ civic education and public-spiritedness, exercises for assessing the ability to analyze and synthesize, exercises for learning the logical reasoning - 15%.

One point is awarded ex officio to the score from the knowledge assessment test and it represents 10% of the maximum grade.

For the purpose of elaborating the items for the written test/ the knowledge assessment test and also the correction grid, the *Commission for the elaboration of the subjects* is established, according to the regulations earlier approved for the organization and conduct of the admission contest.

The members of the Commission will have access to the Fast platform as Examiner type users, provided with well-defined roles, their access being given by the administrator. The examiners will possess the skills needed when creating the questions. They have access to the administration application interface, being able to execute the following operations:

- a) Defining and modifying the categories of questions that will be used to generate verification tests/ knowledge assessment test;
- b) Defining and modifying the questions that will be used to generate verification tests/ knowledge assessment tests;
- c) Creating, modifying, administering the verification tests/ knowledge assessment tests;
- d) Marking, eliminating the wrong questions from any verification test/ knowledge assessment test.

When elaborating the written test/ knowledge assessment test and the correction grid, the following requirements are taken into account:

- a) The questions comprising the examination should be very clearly formulated, precisely and in strict accordance with the subjects and bibliography of the contest;
- b) The allocated time should be sufficient for solving the test in its entirety;
- c) Each question from the test should comprise four options of possible answers, only one of which being correct;
- d) The way of calculating the score should be recorded on the written test paper;
- e) With regard to the format and content, the witness correction grid should be identical with the answer sheet.

The members of the *Commission for the elaboration* check and correct the possible errors from the content of the examination, without printing any intermediary forms of the written test or of the correction grid.

The written test is presented in two variants with different questions (a condition established by the contest organizational documents), a multiple-

choice grid, with 4 answer options for each question (of which options, only one is correct), then, we establish, through a random drawing, one of the test variants to be distributed.

The steps to follow in order to create a test:

□ Step no. 1: **Logging in the platform**, with the user and password received from the administrator;

□ Step no. 2: **Defining the categories of questions (subject/module)**, with the possibility of adding or eliminating some categories; currently, the entrance exams to the Police School "Septimiu Mureșan" from Cluj-Napoca consist in evaluating knowledge in 4 areas: I. Romanian language (40% of the total number of items), II. Foreign language (15% of the total number of items), III. Legislation specific to the Ministry of Internal Affairs, legislation specific to the political institutions of the state (20% of the total number of items), IV. Civic education and public-spiritedness, exercises for assessing the ability to analyze and synthesize, exercises for learning the logical reasoning (15% of the total number of items); each category may include more questions, however, a question can only represent one category (*1 - N relation*);

□ Step no. 3: **Defining the actual questions/the set of items (questions)**, elaborated by the examiners that are skilled in the fields to be evaluated and nominated by the legal organizational documents, the questions being grouped by category (for example, a subject can be a category);

□ Step no. 4: **Defining the answers for a question**. After establishing the question, the examiners who create the questions will also create a group of four answers for that question, taking into account that each question can have only one correct answer;

□ Step no. 5: **Creating the examination**. Examination data are inserted according to the model in the platform, while adding the categories of questions and the questions that must be included in the examination. The order of categories for an examination can be established by introducing the categories in the correct order. If the examiner opts for creating more variants of the same test, on each variant generated by the Fast Platform, the categories (the subjects) will appear in the same order, but within a category the questions (identical in all the test variants) will be mixed. Questions can be added on the examination in two ways: automatically and manually. In the first one, a set number of questions in a category will be chosen randomly, through the software, (this option is also used if one wants only to complete the questions, from those already chosen till getting to the set number). For the manual variant, the examiner chooses one by one the questions that he wants in the examination/ assessment test. Ticking a question when proceeding to create the assessment using the Fast Platform, will simply

add it to the list of selected questions to be included in the examination;

- Step no. 6: **Generating the examination variants (knowledge assessment tests and the answer sheets)**. The resulting documents, with the custom header and footer, are in PDF format and can be printed. Under current regulations, each generated test variant contains 40 items from field I, 15 items from field II, 20 items from field III and 15 items from field IV), each item presents four answers, of which only one is correct; from the two test variants, one will be drawn by lot and then distributed to the candidates to take the written test;

- Step no. 7: **The random drawing** of the test variant that will be shared to the candidates. This random drawing will take place in presence of the members of the *Commission for the elaboration of the subjects* and will be performed by a delegate nominated by the organizer through the legal document elaborated for this purpose;

- Step no. 8: **Printing the test variant**, drawn by lot, and multiplying it in a number equal to the number of the candidates; the sheets will be distributed to the candidates at the time, place and under the conditions established through the organizational documents;

- Step no. 9: **Printing the answer sheets**; the answer sheets are automatically generated by the Fast Platform, while taking into account the number of questions from the examination paper and present the following characteristics (areas):

- Area allocated to the identification of the candidate, composed of columns where they record the essential data for the identification (name and first name, the contest code, the unique series and the QR Code of the series); from this area, with a view to implementing in the Platform, in an automatic way (through the QR Code), the examiner will take the data regarding the series of the answer sheet and will allocate them to the existent data about the candidate (taken automatically from the code from the candidate's contest card);

- Area allocated to the completion of the answers, where the candidate chooses, by marking with an appropriate writing tool, the answer they consider being correct at the question from the examination (one of the four answer options); this area will be subject to the automatic processing performed by the Fast Platform;

- Area allocated to the identification of the examiners and validation of the answer sheet, where the examiners, the candidate and the witness (witnesses) sign to certify the lodging of the answer sheet in the form that will be evaluated.

The answer sheets are provided with a QR code generated based on the unique series and will be printed in a number equal to the number of the candidates, plus a supply established through regulations. They represent

the document to be filled out by the candidate during the contest. The candidate will mark their answer by filling in the corresponding circular form on the answer sheet. The answer sheets once filled will be scanned, and the resulting files will be subject to the automatic evaluation with the help of the Fast program. It is important that the answer sheets be printed on A4 paper, 100% its size (without scaling, as it changes the dimensions of the detection area and can lead to problems in recognizing and validating the results); also, it is very important to correctly introduce the sheet of paper in the printer, and to perfectly center the sheet for printing, so that the text be rightly framed (not to have an inclination on the page).

Administering the written test/knowledge assessment test

- Step no. 1: **Distributing the tests and the answer sheets**, in a number equal to the number of the candidates attending in the assigned competition rooms;
- Step no. 2: **Instructing the candidates** about the way of filling out the answer sheets, filling out, as appropriate, with the identification data, explaining the way of marking the correct answer (the correct completion of the answers, by filling out as close to 100% as possible the area of the circles corresponding to the answers that the candidate wants to be taken into account in the automatic correction, without going outside the limits of the circle and without leaving empty spaces). The ink/ marker used must be of dark colour (black, blue) and the use of pencils is not accepted, because the contrast offered by the pencil lead is not sufficient;
- Step no. 3: **Filling out the answer sheet** by the candidates in the allocated time and under the supervision procedure established by the norms in force;
- Step no. 4: **Handing in the written tests**. At this moment, the supervisor in the competition room, with the help of a QR code reader, will collect, by scanning, the following data: the answer sheet series (the QR code from the candidate's Answer sheet), the candidate's data (the QR code from the contest card), the witness' data (the QR code from their contest card), registers, etc.

Correcting the knowledge assessment test

After handing in all the answer sheets, these will be centralized, scanned and uploaded to the platform by the secretariat of the Contest Commission.

- Step no. 1: **Centralizing the answer sheets**;
- Step no. 2: **Scanning the answer sheets**.

The scanner used must be a top-quality one, without defects on the optical line, as they could lead to false lines on the scan, zones lacking contrast, or other problems interfering with the detection process. Scanning can be

made either in color, or in black and white. *The scan resolution* must range between **200 and 300 dpi**. Resolutions lower than 200 dpi will make impossible the detection of the marked answer, and resolutions higher than 300 dpi will slow down the process, generating too large files. The scanning format must be PDF. Scanning can also be made on sets of sheets (it's not compulsory that all of them be in the same scanned file). The resulting files are uploaded to the platform. The answer sheets must be positioned correctly in the scanner, to ensure a straight and edged scanning (not distorted);

- Step no. 3: **The automatic correction of the Answer sheets.**

The PDF files obtained after scanning will be uploaded to the platform and the detection process will start. Depending on the number of verification papers and their complexity, it may last some tens of seconds;

- Step no. 4: **Information on the scores/the grades at the written examination.**

The platform offers a window where one can see the score each candidate got and also the grades calculated for the scores (with or without the ex-officio point). If the examination paper encounters an error, its text will be displayed in the error field. The list with the score/grades obtained, which is automatically generated, can be downloaded in Excel or CSV format.

The correction algorithm can be tracked by comparing images of the candidate's work, which is presented in the following three poses:

1. the form **submitted** and automatically scanned of the *Candidate Answer Sheet*;
2. **corrected** form of the *Candidate's Answer Sheet* by applying the *Correction Grid* (correct answers are marked in green, wrong ones in red and reading errors - if they are - in yellow¹³³);
3. the form of the *Correction Grid* of the test variant administered to the candidate.

CHAPTER II - EVALUATION WITHIN THE EDUCATIONAL PROCESS

The evaluation during the educational process presents a formative character and involves an ongoing activity within which learning difficulties/deficiencies can be identified and also progress can be monitored: the teacher and the students have an active role.

From the database created for the entrance examination, the candidates that were admitted find themselves in the database next to the identification QR code.

133 The questionable answers with a high rank of credibility, if they are right according to the *Correction Grid*, are marked in yellow, are taken into account at the total number of points, but the necessity for additional cheking by the examiner is signaled.

For the *evaluation within the educational process*, in the form of grid-type test, the Fast platform - EVALUATION module can be used.

For the *elaboration of the items* making up the written/knowledge test, the teacher will have access to Fast Platform, given by the administrator, as Examiner user, with clear specified role, and will follow the steps described in *Chapter 1 - Elaboration of the written test/knowledge assessment test*, adapted to the content of the curriculum taught.

The correction procedure of the tests is the one described in *Chapter I - Correcting the knowledge assessment test*.

CHAPTER III - GRADUATION

The FAST Platform can be used for the automatic correction of the multiple-choice tests in the written examination, at the graduation exam.

The evaluation of the candidates at the graduation exams is organized and carried out based on the methodology approved by the Ministry of the Internal Affairs. The students demonstrate, under exam conditions, having an adequate training in view of their employment and of them occupying their first non-commissioned officer's title/ sergeant/ military warrant officer.

The written examination aims at verifying the specialized knowledge and their ability of synthesizing and systematizing and consists in applying a knowledge assessment test with items from the specialized competence units, that can be grid-type, with objective items, or multiple-choice test or a knowledge test with semi-objective and subjective items, with open answers.

The items and the scales for assessing, correcting and grading the written examination are elaborated by the examination commission, while observing the following requirements:

- to be consistent with the content of the approved subjects;
- to ensure a balanced coverage of the trained skills;
- to be relevant with regard to the professional training standard, the curriculum and other curricular materials;
- solving the items should be possible in the set time, without requiring the use of any auxiliary curricular materials;
- the items and the scale for assessing, correcting and scoring are created as to ensure the unitary evaluation and scoring of the papers.

The minimum pass mark for the written examination is 5,00 (five).

For the elaboration of the items of the written test/ the knowledge assessment test and the elaboration of the correction grid, the *Examination Subcommission for the written test- the team creating the items* is established, according to the regulations approved for organizing and conducting the graduation exam.

The subcommission members will gain access to the Fast platform as *Examiner- type user*, with well-defined roles. The examiner is the person who possesses the skills that are necessary for creating the questions. Examiners have access to the administration interface of the application, being able to execute the following operations:

- a) Defining and modifying the categories of questions that will be used to generate verification tests/ examinations;
- b) Defining and modifying the questions that will be used to generate verification tests/ examinations;
- c) Creating, modifying, administering the verification tests/ examinations;
- d) Marking, eliminating the wrong questions from any verification test/ examination.

When elaborating the written test/ knowledge assessment test and the correction grid, the following requirements are taken into account:

- a) The questions comprising the examination should be very clearly formulated, precisely and in strict accordance with the subjects and bibliography of the contest;
- b) The allocated time should be sufficient for solving the test in its entirety;
- c) Each question from the examination should comprise three options of possible answers, one of which is correct;
- d) The way of calculating the score should be recorded on the written test paper;

The written test/ knowledge assessment test is presented in two variants (a condition established by the contest organizational documents), a multiple-choice test, with 3 answer options for each question (of which options, only one is correct), then, we establish, through a random drawing, one of the variant of exam items to be distributed.

For the elaboration of the items of the written test and the elaboration of the correction grid, the Examination Subcommission members for the written test-the team for the elaboration of the items will follow the steps described in *Chapter I* and adapted to the approved subjects.

The *correction procedure of the tests* is the one describer in *Chapter I - Correcting the written/knowledge test*.

