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Interdisciplinary Skills Development Through Final Qualification Assessment: Survey Study For European And Oriental Languages Programs

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ABSTRACT¹

The global pandemic and subsequent quarantine measures and restrictions have posed an array of challenges to the structure and procedure of university summative assessment process. Qualification assessment for Foreign Languages major programs in particular is a strict regimen process that involves different stages (oral and written exams, final project viva, internal and external review). Cross-sectorial factors of societal change, that provide the backdrop for an interdisciplinary skillset critical transformation, crucial for the COVID-19 emergency educational framework, are considered. The study premise is based on identification of various interdisciplinary competency principles, derivative of 21st century skills for university staff members and projected digital literacy requirements. It is determined how in the situation of the COVID-19 pandemic lockdown all elements of the Final Qualification Assessment at Borys Grinchenko Kyiv University for European and Oriental Languages programs have been relegated to the digital, remote or blended format with the use of ICT tools and skills that comprise an interdisciplinary realm of Foreign Languages acquisition and assessment. Every step of the procedure adaptation to digital format required accelerated development of interdisciplinary skills of all participants and officials and cross-sectorial activities, otherwise not carried out through assessment of Foreign Languages programs.

Keywords: Interdisciplinary skills; ICT Tools and Practices; Final Qualification Assessment; digital literacy; blended learning; European languages; Oriental languages

1. INTRODUCTION

Theoretical problems of holistic, multidimensional modeling of reality and its separate spheres (one of these on the transitory edge of the XX-XXI centuries is the sphere of development of digital smart technologies) are directed by the deterministic interaction of objects, signs of their reception and interpretation (in the field of individual and collective consciousness),

embodiment, consolidation and retransmission of the results of interaction of these systems of features.

The intellectualization of modern global culture determines a qualitatively new approach to understanding the processes of parallel development of human activities and cognitive (intellectual) experiences. That is the origin and methodological premise of the concept of "noosphere". The noosphere is defined as the current stage of development of the biosphere, associated with the emergence of humanity in it [5; 17], and is interpreted as part of the planet and planet ambient with traces of human activity.

The integral real component of the Noosphere is identified as the Technosphere - a set of artificial objects (technologies) created by the humankind, and natural objects changed as a result of technological activity of humankind [15; 19]. In turn, Computer Being (computer reality, cyberspace) is a complex, multidimensional, interdisciplinary sphere of synthesis of reality, human experience and activity mediated by the latest digital and information technologies; technogenic reality, a component of the technosphere of existence.

The global pandemic of COVID-19 emerged as a kind of **black swan scenario** for interdisciplinary domains of social and economic life, including education. The black swan theory is a concept that describes an event that comes as a surprise, has a major effect on society, and is often inappropriately rationalized after the fact with the benefit of hindsight [24].

In the educational domain, according to our estimations, the result of fundamental Technospheric shift, induced by the COVID-19 pandemic development and enhanced by subsequent digitalization measures, was the need to take quick comprehensive action [20] in order to achieve such desirable results:

- a) To adapt the existent educational scenarios to digital, remote and blended formats;
- b) To activate complex interdisciplinary skillsets, otherwise latent or underutilized in the educational process;
- c) To boost ICT competence and digital literacy of all participants of the educational process relocated to computer being.

The global pandemic and subsequent quarantine measures and restrictions have posed an array of challenges to the structure and procedure of higher education workflow, especially the routine of summative assessment process.

Qualification assessment for Foreign Languages major programs in particular is a rigorous process that involves different stages and a regimen of activities (oral and written exams, final project viva, internal and external review) across

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interconnected interdisciplinary domains. The issue of rigor in the interdisciplinary framework of intellectual activity could be addressed as “directly proportional to the effectiveness in 1) achieving a purpose, and objective, a goal while 2) being subject to restrictions” [6].

The study aims to critically review the applied case and best practices of Borys Grinchenko Kyiv University Digital Final Qualification Assessment for students of European (French, Italian, Spanish, English, German) and Oriental (Mandarin Chinese, Japanese) Languages major programs, employed in the year 2020 due to quarantine measures. The survey and analysis of different ICT tools is used to assess the parameters and efficiency of translation of the real life qualification assessment practices into online blended format, involving activation of interdisciplinary skills and cross-sectorial activities, assisted by ICT tools. The investigation seeks to identify various groups of applied digital skills [11; 13; 14; 26] and interdisciplinary soft skills [1; 16; 22], utilized through qualification assessment process by all parties (students, faculty and referees).

The study premise is based on identification of various competency principles, derivative of 21st century skills [9; 23] for university staff members and projected digital literacy requirements.

A complex skill is generally understood as a skill requiring to process lots of information and make lots of decisions simultaneously [22]. That way, a comprehensive correspondence between 21st century skills framework, Competences 2020 framework [20] and the newly introduced Global Skills 2025 framework [27] has been devised and upgraded (Figure 1):

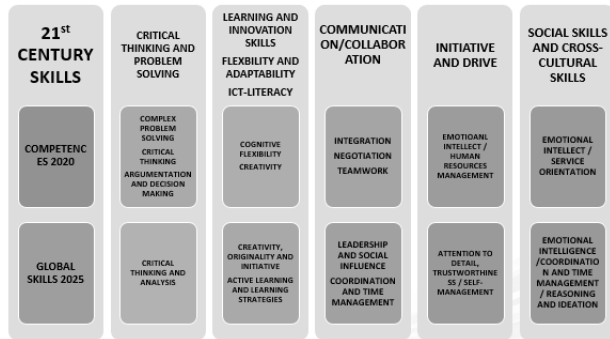


Figure 1: Complex Skills Framework Correspondence

The cross-sectorial integration between the corresponding skillsets across various frameworks could be referred to the following key interdisciplinary domains of human activity (Figure 2):

- COMMUNICATION;
- COGNITIVE ACTIVITY;
- PERSONAL INTERACTION;
- SOCIAL ACTIVITY;
- HEURISTICS.

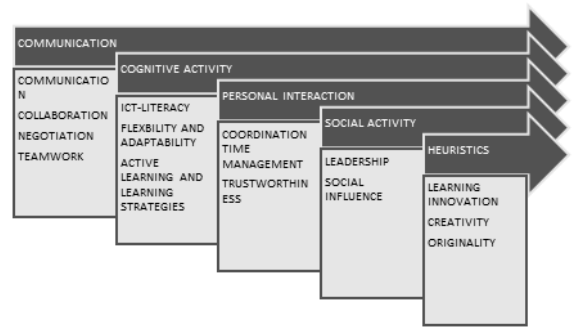


Figure 2: Cross-sectorial integration across complex skillsets

In the educational process management, the most commonly applied framework of educational goals structure and subsequent skills acquisition is the Bloom’s taxonomy [2;4] – Remembering, Understanding, Application, Analysis, Evaluation, Creation. The taxonomy elements can be distributed on a scale of Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills [13] in the following way (Figure 3):

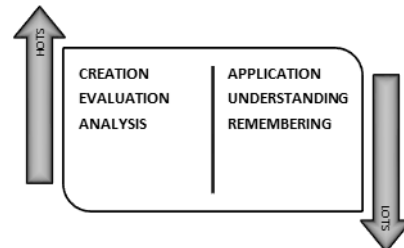


Figure 3: Bloom’s Taxonomy Order of Thinking Skills Structure

Subsequently, in order to discover a comprehensive way of assorted 21st century skills allocation within the complex educational process and separate educational procedures, according to this study estimations, it is possible to refer the critical interdisciplinary skills to various tiers of the educational goals taxonomy (Figure 4):

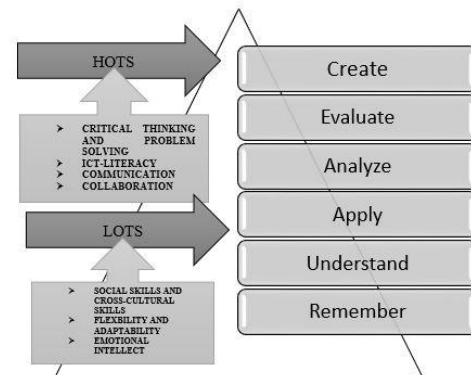


Figure 4: Bloom’s taxonomy and 21st century complex skills correlation scheme

As evident from the scheme above, the core cross-sectorial domain that is referential for primary skills (social skills, emotional intellect, collaboration, communication, ICT-literacy), necessary for educational goals achievement, is COMMUNICATION.

The fundamental interdisciplinarity, that COVID-19 digital procedural transformations imposed on the educational process

in the area of Foreign languages acquisition, is verified by a unified framework of correspondence between the components of a crucial communicative competence [16], comprising of a diverse skillset, and various aspects of ICT competence in Liberal Arts [14; 26], utilized in the educational process, elaborated for the purposes of this study (Figure 5):

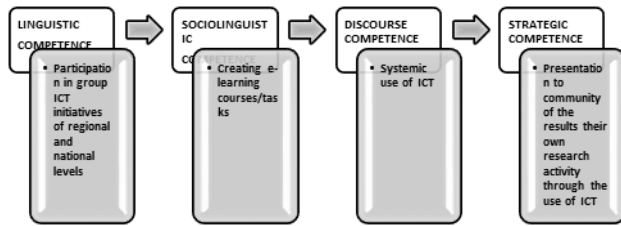


Figure 5: Interdisciplinary Correspondence Between Communicative Competence and ICT Competence in Liberal Arts

The following study aims to identify, among other parameters, challenges for actual and underdeveloped cross-sectorial and interdisciplinary skills (hard, technical and soft), that participants of the educational process encountered through Final Qualification Assessment procedure in programs of European and Oriental Languages.

2. FINDINGS

Profile of Final Qualification Assessment for Foreign Languages Programs as Rigorous Interdisciplinary Procedure

Qualification assessment for Foreign Languages major programs in particular is a strict regimen process that involves different stages (oral and written exams, final project viva, internal and external review) and is carried out as a complex uniform framework of cross-sectorial activities.

According to the Law of Ukraine "On Higher Education" [18], qualification assessment is the establishment in compliance of learning outcomes (scientific or creative work) of higher education students with the requirements of the educational (scientific, educational and creative) program and / or the single state qualifying exam.

The form of state certification of students is defined by the state standards of education and is reflected in the curricula of the Free Economic Zone. Usually state certification has two forms:

- 1) State exam;
- 2) Defence (viva) of qualification (bachelor's) paper.

State standards of education provide for the existence and observance of rules and requirements for the procedure of state certification. In addition, the defence of the qualification work contains propaedeutic procedures designed to obtain the basis for admission of students to the defence.

Passing of state examinations and defence of qualifying works is carried out at an open meeting of the SEC with the participation of members of the commission and the obligatory presence of the chairman of the commission. The work of SEC is carried out in the terms provided by the schedule of educational process. The state exam takes place at the approved time and in the audience specified in the documentation of preparation for the SEC.

The last link in the learning process is the defence of the thesis (project). This type of activity is characterized by the completion of the entire educational process and the assignment of appropriate qualifications to the student.

The supervisor should provide feedback on the work of his / her graduate, assessing all theoretical and practical aspects of the work with a probable grade, subject to successful defence. In addition to the response of the head, the work is accompanied by an external review by a scientist from the teaching staff, who works in the institutions of the Free Economic Zone of Ukraine and is a specialist in the subject of the diploma. In addition to assessing all aspects of the work, the external reviewer has the right to ask (record in the review form) his question to the student. The chairman or members of the committee must read the student's questions from the reviewer.

The student is given 5-8 minutes to defend his thesis. After defending his work, accompanied by a presentation on a multimedia projector, the chairman of the commission and members of the commission ask students questions related to the theoretical and practical aspects of the diploma work. After receiving the answers read (if any) questions from an external reviewer. After the student answers all the questions, the chairman of the commission reads the response of the supervisor and the external review.

After the thesis has been defended by the last student on the list, the results of the defence should be discussed. The commission discusses the results in the same auditorium where the defence took place, with the participation of only the chairman of the commission, its members and the secretary of the SEC.

In the situation of the COVID-19 pandemic lockdown *all elements of the Final Qualification Assessment at Borys Grinchenko Kyiv University for European and Oriental Languages programs have been relegated to the digital, remote or blended format with the use of ICT tools.*

According to the law mandate, the following Qualification Assessment educational activities for European and Oriental languages programs at Borys Grinchenko Kyiv university have been transferred to digital remote mode:

- State exam conduct (introduction, oral answers, grading, discussion, results)
- State Exam card selection
- State Exam assessment
- State Exam results declaration and appeal
- Bachelor's project submission
- Bachelor's project review
- Bachelor's project assessment
- Bachelor's project results declaration and appeal.

The qualification assessment regimen was adapted to digital format as a framework (a rigorous legal procedure that results in the degree confirmation of a student), the string of consecutive cross-sectorial activities according to the legal procedure described in the profile above, the "ritual" scenario (and experience for the student that is emotionally uplifting and somber in nature, connects with the traditions of the university culture of Europe).

As such, the framework transformation of Final Qualification Assessment enticed the elaboration of adequate and equivalent digital formats and digital communicative settings, substituting each type of activity in the procedure regimen on each level of the Final Qualification Assessment framework (Figure 6):

- 1) Pre-assessment regimen;
- 2) Assessment proper regimen;

3) Post-assessment regimen.



Figure 6: Frame of Final Qualification assessment comprehensive transformation into digital communicative format

According to our observations, based on the case study of Borys Grinchenko Kyiv University, the conversion of Final Qualification Assessment for Foreign Languages programs as a complex framework educational scenario into the digital format is too, subject to the educational goals taxonomy 2.0 [7] structuring in terms of activities, employed on each stage of the procedure and ICT tool utilized (Figure 7):

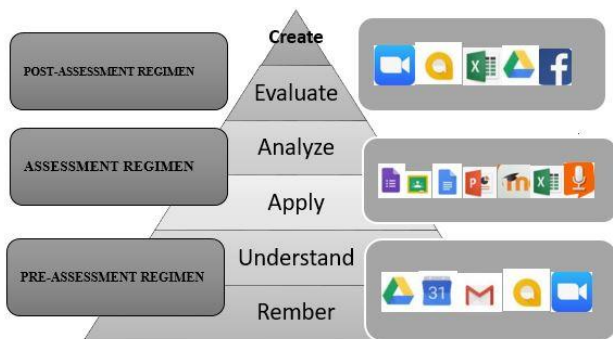


Figure 7: Final Qualification Assessment Complex Framework, educational goals taxonomy and sample ICT tools correlation

Interdisciplinary Skills for Digital Final Qualification Assessment in the Framework of COVID-19: survey overview

Based on the Final Qualification Assessment regimen profile a survey was conducted among the participants of the Final Qualification Assessment at Borys Grinchenko Kyiv University foreign language programmes (Spanish, French, Italian, English, Mandarin Chinese, Japanese major) in order to assess the efficiency of qualification assessment transfer into digital format via various ICT tools employed and assorted complex soft and hard skills activation.

The following participants of the digital Final Qualification Assessment were included into the survey as respondents: Students of senior year of bachelor's programme (53,4%);

Assessment board members (15,5%); Faculty members (who took part in digital qualification assessment preparation and conduct) (20,7%); Bachelor project referees and supervisors (8,6%).

59 respondents total of all groups took part in the survey. The choice of respondent groups corresponded to the variation or similarity of tasks, performed through Final Qualification Assessment and, subsequently, the variation and similarity of ICT tools used.

The respondents in all groups spanned the European and Oriental foreign language Bachelor's programmes in proportional distribution measures: Spanish major programme - 32,8%, Japanese major programme - 19%, Mandarin Chinese major programme - 22,4%, French major programme - 15,5%, Italian major programme - 15,5%, English major programme - 8,6%.

Interdisciplinary Activities and Interdisciplinary Skills in Digital Final Qualification Assessment for European and Oriental Languages Programs

The respondents across the board identified the following most prominent activities, derivative of the Final Qualification Assessment regimen profile as related to the key interdisciplinary domains of human activity (*Communication, Cognitive Activity, Personal Interaction, Social Activity, Heuristics*). The activities identified required the activation of complex cross-sectorial skills across all ICT tools used throughout the digital qualification assessment process:

- Communication (synchronous)
- Communication (asynchronous)
- Collaboration
- Information/file sharing
- Summative assessment
- Formative assessment
- Peer review
- Presentation
- Speech quality assessment
- Brainstorming

Respondents from European languages programs identify Information sharing as and overwhelmingly prominent activity (59,1%) across all ICT tools employed for Final Qualification Assessment (Figure 8).

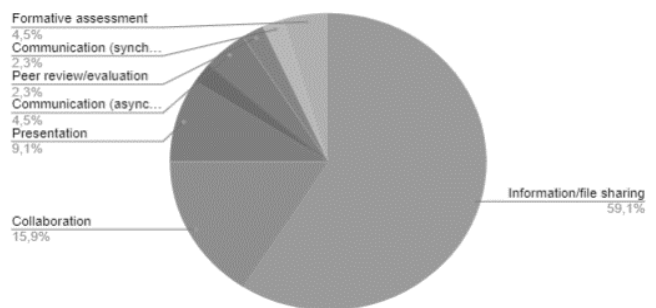


Figure 8: Activities prominent for ICT tools in Final Qualification Assessment. European languages program

For respondents of Oriental languages programs Speech quality assessment features as prominent as Information sharing across identified ICT tools (Figure 9). The following is inferred as being due to the phonetical and tonal features of Mandarin Chinese and Japanese languages being essential to meaning

comprehension and decoding, which is hard to recreate and evaluate in a digital communicative environment.

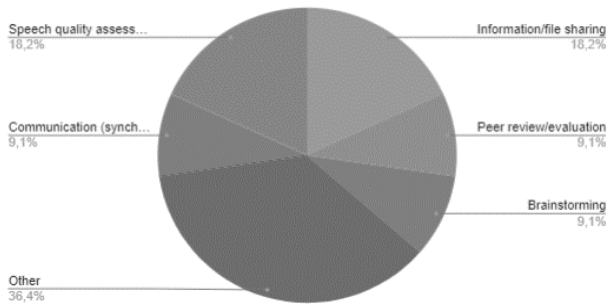


Figure 9: Activities prominent for ICT tools in Finale Qualification Assessment. Oriental languages program

Information sharing and presentation are considered prominent activities for such types of tools as email, Google services, Microsoft Office Toolkit.

Both synchronous and asynchronous communication and collaboration is distributed proportionally among email services, learning management systems and various video conference services usage.

The tools that feature summative assessment as a prominent activity are Google forms and LMS Moodle.

Formative assessment as a type of activity features but does not dominate evaluation of ICT tools used qualification assessment process.

As a comprehensive core of the interdisciplinary quality of Final Qualification Assessment regimen for Foreign languages programs, as informed by the COVID-19 transformations, various levels of digital literacy have been identified in the survey. *Digital literacy is understood primarily as the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills* [11; 25].

Advanced digital literacy as the requirement for qualification assessment ICT tools efficiency is attributed to such instruments as learning management systems, Microsoft Office toolkit and social media platforms.

Intermediate digital literacy is required predominantly for such instruments as Microsoft Office Toolkit, screen sharing interface, online randomizer, automated testing system, learning management system.

Elementary digital literacy level is assessed as dominant for such tools as email, google disc, video conferencing, speech to text interfaces and social media platforms.

Across various ICT tools for the digital qualification assessment process the following interdisciplinary and cross-domain skills and competences most widely implemented and practiced, drawn from various relevant 21st century skills frameworks have been identified:

- Communication;
- Collaboration
- Team work
- Digital literacy
- Emotional intellect
- Interdisciplinary skills
- Critical thinking
- Leadership
- Flexibility and Adaptability

- Decision making
- Learning and Innovation skills

Different priorities in interdisciplinary skills are identified for participants of digital Qualification assessment of the European languages program (Figure 10) and Oriental languages program (Figure 11):

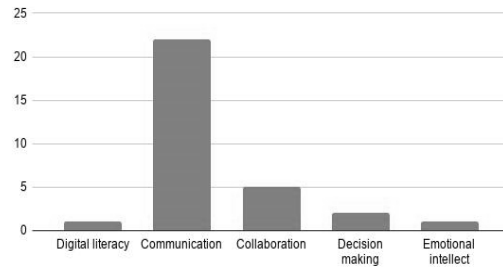


Figure 8: Interdisciplinary skills for ICT/digital tools in digital qualification assessment process for European languages program. Sample evaluation card.

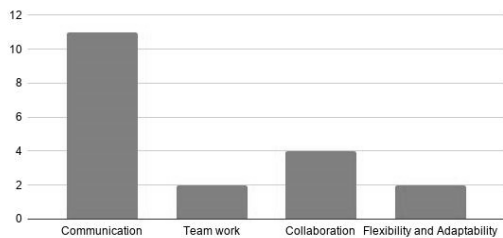


Figure 9 Interdisciplinary skills for ICT/digital tools in digital qualification assessment process for Oriental languages program. Sample evaluation card.

Communication is identified as an overwhelmingly important soft skill for fulfilling Final Qualification Assessment via digital format (71% of respondents of European languages programs and 57,9% of respondents of Oriental languages programs). Collaboration as a skill ranks proportionally second across the board (16,1% of respondents of European languages programs and 21,1% of respondents of Oriental languages programs).

Yet respondents of Oriental languages distribute such soft skills as Team Work (10,5%) and Flexibility/Adaptability (10,5%) as proportionately activated in digital Final Qualification Assessment. Respondents of European languages programs distribute such soft skills as Decision making (6,5%), Digital literacy (3,2%) and Emotional Intellect (3,2%) as proportionately activated in digital Final Qualification Assessment.

Communication and *collaboration* rank as a type of skills most widely applied for the use of such instruments as email, Google services, video conferencing services and social Media platforms. Communication as a skill is ranked highest among respondents of the European languages program.

Team work ranks second most prominent skill employed via the use of Google disk, learning management systems and video conferencing services. Team work and flexibility feature as top 5 priority skills among respondents of the Oriental languages program.

Relevance is attributed to *learning and Innovation skills* in the use of such ICT tools as a learning management system (ranking second after interdisciplinary skills), automated Testing System (offline, online and cloud based), Android apps and Microsoft Office tools.

Creativity as a skill ranks 3rd in the use of Google services and ranks 1st in the use of Microsoft Office tools.

Efficiency ranking of Digital Tools for Interdisciplinary Activities of Final Qualification Assessment

The identified Final Qualification Assessment ICT tools have been subsequently subjected to Customer Satisfaction Evaluation Ranking [9; 22], featuring the efficiency of ICT tools per each cross-sectorial education activity as the main criterion.

For the purpose of the ranking the Final Qualification Assessment ICT tools have been divided into 4 groups according to types: 1) Google cloud services (Google Disc, Google Forms, G-mail); 2) Video conferencing services (Google Meet, Zoom, Webex) 3) Learning management systems (LMS Moodle, Automated testing systems); 4) Microsoft Office tools (Word, PPoint, Excel)

All respondents had to rank the activity importance 1-5 (1 = least prominent for the use of a tool type, 5 = most prominent for the use of a tool type) for the selected ICT tools type used. The activities, carried out by activation of assorted interdisciplinary skills, scored for each type of ICT tool for Final Qualification Assessment were presented in the following order:

- Communication (synchronous)
- Communication (asynchronous)
- Collaboration
- Information/file sharing
- Summative assessment
- Formative assessment
- Peer review
- Presentation
- Speech quality assessment
- Brainstorming

The efficiency rating (ER) for each type of ICT tools assessed in the paper has been calculated via a 3 step algorithm [21]:

1. Rating coefficient calculation: \sum of points per activity divided by $x = (N(r) \times 5) \Rightarrow y$ experts, 5 points maximum per each activity rating.

$$RC = \frac{\sum(p)}{N(r) \times 5}$$

Where:

RC - is Rating Coefficient of an ICT tools type
 $\sum(p)$ - is the sum of points per each activity, carried out via an ICT tool type
 N(r) - is the number of respondents, that have assessed the ICT tool type efficiency

2. Summative rating (SR) of each activity per ICT tool calculation: \sum of points per activity multiplied by RC (rating coefficient)

$$SR = \sum(p) \times RC$$

Where:

SR - is the Summative Rating of each activity per ICT tool
 $\sum(p)$ - is the sum of points per activity, carried out via an ICT tool type
 RC - is the Rating Coefficient of an ICT tools type

3. Total Efficiency Rating (ER) of a type of ICT tools assessed calculation: \sum of summative ratings (SR) per each activity divided by N of activities evaluated for the ICT tool type

$$ER = \frac{\sum(SR)}{N(a)}$$

Where:

ER - is the Total Efficiency Rating of a type of ICT tools assessed

$\sum(SR)$ - is the sum total of summative ratings per each activity, carried out via an ICT tool type

N(a) - is the number of activities evaluated for the ICT tool type.

Interdisciplinary activities scoring the highest summative rating (SR), realized effectively per each type of ICT tools assessed, are as follows: Tool Type 1 (Google Disc, Google Forms, G-mail) - Communication (synchronous) (SR=9,72), Information/file sharing (SR=9,72), Summative assessment (SR= 9,54), Presentation (SR= 9,54); Tool Type 2 (Google Meet, Zoom, Webex) - Communication (synchronous) (SR=9,54), Collaboration (SR=8,67), Speech quality assessment (SR= 9,54); Tool Type 3 (LMS Moodle, Automated testing systems) - Communication (synchronous) / Communication (asynchronous) (SR=8,84), Brainstorming / Formative assessment (SR=8,67); Tool Type 4 (Microsoft Office tools: Word, PPoint, Excel etc.) - Communication (synchronous)/ Collaboration (SR= 72). The Summative ranking score of 9,54 for every other activity realized by the ICT tool type.

Communication as a type of rated activity scores highest across all ICT tools evaluated by Final Qualification Assessment stakeholders. The discrepancy in ranking score for this activity type - Communication (synchronous) – across all types of ICT tools for Final Qualification Assessment is notable. Video conferencing services (**Google Meet, Zoom, Webex**) score the highest efficiency ranking for synchronous communication (62.5% for top score 5), but get a surprising ratio of lowest score as well (18,9% for lowest score 1) (Figure 10):

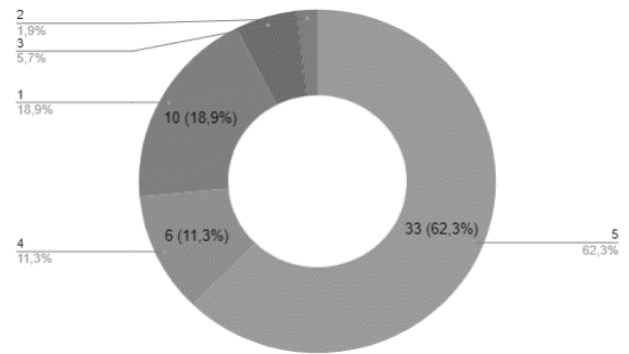


Figure 10 Evaluation of Tool Type 2 (Google Meet, Zoom, Webex). Sample ranking score card for Communication (synchronous)

Learning management systems (29,8% for top score 1) and Google services (25%) get a proportional highest score 5 for efficiency in Synchronous communication in the framework of Final Qualification assessment across European and Oriental languages programs.

This sample ranking testifies to the following suppositions:

- 1) the specificity of ICT use for complex transference of Final Qualification assessment into digital mode for foreign languages programs that may not be encountered outside of this educational framework and ;

2) the specificity of digital literacy as an interdisciplinary skillset, featured by participants of Final Qualification assessment for foreign languages programs.

3. CONCLUSIONS

Interdisciplinary procedures and scenarios of the Final Qualification Assessment for foreign languages at Borys Grinchenko Kyiv university, as a complex comprehensive framework, have been successfully transferred to digital remote format with the use of various sets of ICT tools through the COVID-19 pandemic adjustments.

The survey results conducted among all groups of participants of Final Qualification Assessment for European and Oriental foreign languages have yielded representative data as to the efficiency of various ICT tools implementation for rigorous assessment procedure scenario, requiring the activation of interdisciplinary skillsets, derivative of the 21st century skills frameworks and informed by the digital competence elaboration across the board for all participants of the educational process.

Digital (ICT) literacy is an interdisciplinary interface of cross-sectorial activities implementation in the framework of a rigorous scenario of Final Qualification Assessment for Foreign Languages programs. Across the board, implementation of digital Final Qualification Assessment for Foreign Languages programs requires of participants of educational process elementary to intermediate digital literacy. There's no significant discrepancy in digital literacy and complex ICT competence requirements between Final Qualification Assessment participants of European and Oriental languages program.

Communication, collaboration and team work are evaluated as crucial interdisciplinary skills in various combinations within the scenario of digital Final Qualification Assessment. This results corroborate the cross-domain correspondence between communicative competence and ICT competence components, adapted for Liberal Arts. Namely. The following digital communicative components prove indispensable for all participants of Final Qualification Assessment in digital format: participation in group ICT initiatives, creating e-learning tasks, system using of ICT, presentation to the community the results of one's own research activities through the use of ICT.

The survey results will be furthered and elaborated in assessment of interdisciplinary digital skills adaptability for separate groups of Final Qualification Assessment participants (students of foreign languages programs, Assessment board members, staff members, reviewers) according to roles and tasks performed in the complex framework, as well as according to age and entry digital literacy level (the distinction in efficiency assessment among digital natives and digital immigrants). The perspective of the study is in corresponding survey of digital qualification assessment complex experiences of students and faculty members of Asian (Oriental) countries and countries of Europe.

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