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"Fostering Socially Distanced and Inclusive on Campus Education in Armenian HEIs"

ARMENIAN STATE PEDAGOGICAL UNIVERSITY (ASPU)

NEEDS ANALYSIS REPORT

Results of the Surveys on Teaching Staff Digital Competence Needs Assessment and Students Digital Learning Needs Assessment

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YEREVAN 2025

Contents

Introduction

The Teaching Staff Digital Competence Needs Assessment and Student Digital Learning Needs Assessment surveys aimed to comprehensively evaluate the current state of digital skills, technology access, and digital learning resources at the university. The main objectives were to identify the digital competencies that teaching staff need to develop, understand students' experiences and challenges with digital learning, and assess the adequacy of existing technological infrastructure and platforms. The surveys also sought to gather feedback on the effectiveness of digital training programs for faculty and the digital literacy levels among students. Additionally, they explored opportunities to integrate advanced technologies such as artificial intelligence, virtual and augmented reality, and multimedia content into the curriculum. The information collected was intended to guide strategic decisions focused on modernizing technical facilities, developing localized and discipline-specific digital materials, and enhancing institutional support to create a more inclusive, effective, and innovative digital learning environment at the university.

Section 1: General Information

In the framework of the conducted survey, detailed quantitative and qualitative characteristics of the participating teachers were collected and analyzed. The survey was distributed to a total of 500 teachers, of which 38 completed the questionnaire, resulting in a response rate of 7.6%. The gender distribution was predominantly female, with 84.21% of respondents identifying as women and 15.79% as men. The age composition of the participants showed that the majority (42.11%) fell within the 46 to 55 age range, with 5.26% aged 20–35, 28.95% aged 36–45, 18.42% aged 56–65, and 5.26% over the age of 65.

1.1. Teachers' characteristics

In terms of academic titles, 15.79% of respondents were Assistant Professors, 31.58% were Lecturers, 42.11% were Associate Professors, and 10.53% were Professors. This distribution reflects a highly qualified and experienced group of academic staff, with more than half holding senior academic positions. Overall, the data highlights a respondent profile characterized by professional maturity, academic seniority, and a strong representation of female educators.

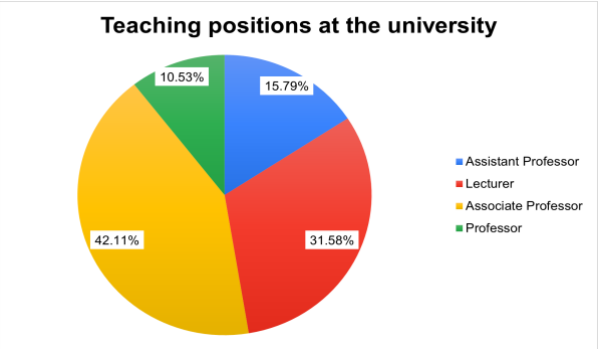

Image 1.1. Teaching positions at the university

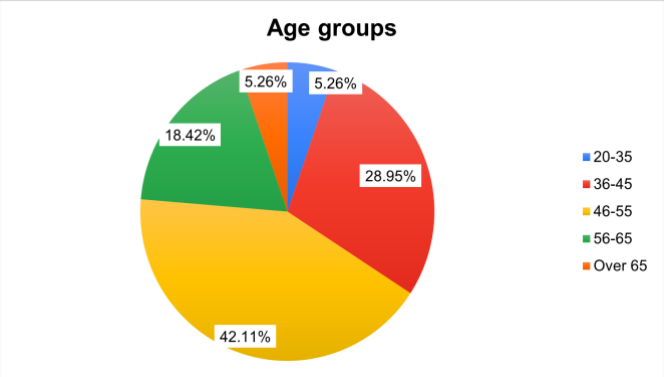

Image 1.2. Teachers age groups

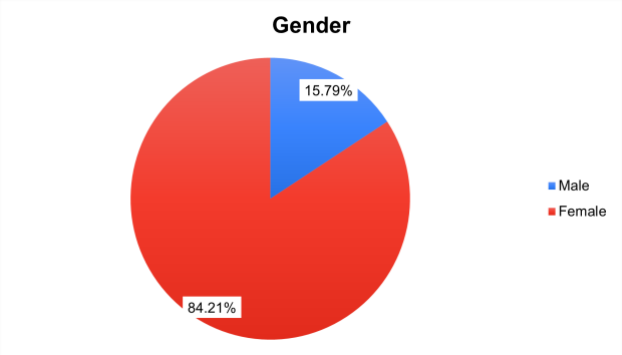

Image 1.3. Teaching staff gender

1.2. Students' characteristics

The survey was distributed to a total of 5,198 students, of whom 394 completed the questionnaire, resulting in a response rate of approximately **7.58%**. The gender distribution of the respondents was **92.11% female** and **7.89% male**, indicating a significant predominance of female participants in the survey.

In terms of academic level, the vast majority of respondents were bachelor's students. Specifically, **89.82%** were enrolled in **bachelor's programs**, **9.41%** in **master's programs**, and **0.76%** were pursuing **doctoral studies**.

This dataset reflects a predominantly female and undergraduate student population. The response rate, although modest, provides a useful snapshot of student perspectives, with the findings serving as a foundation for further analysis and decision-making in the context of digital teaching and learning development.

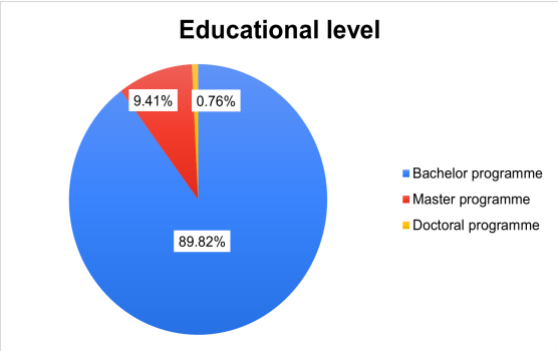

Image 1.4. Students educational level

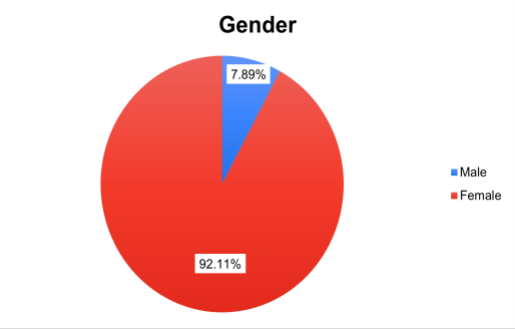

Image 1.5. Students gender

Section 2: Digital Competencies and Technologies in Teaching, Learning & Assessment (TLA)

Based on the feedback collected from 38 teachers and 394 students, a comparative analysis was conducted to evaluate the current use and perceived effectiveness of digital technologies in teaching, learning, and assessment (TLA) at the institution. The results, derived from Google Forms, reveal both overlapping trends and significant differences between teachers' and students' experiences and priorities regarding digital integration in education.

Digital **safety measures** were among the least reported: only 15.8% of teachers and 26.1% of students indicated awareness or implementation, pointing to a critical need for improving digital well-being and safety protocols.

Finally, **problem-solving with digital tools** was encouraged by 28.9% of teachers and experienced by 30.5% of students, showing a fairly balanced response, though not yet widely implemented.

2.1. Digital competencies and technologies currently applied

The most widely adopted use of digital technology by both groups is for organizational communication. A high percentage of teachers (89.5%) reported using digital tools to communicate with students about organizational matters, and this was similarly echoed by 67% of students. This indicates a strong alignment in recognizing the usefulness of digital platforms for administrative coordination and communication.
A notable contrast is observed in the use of digital resources tailored to teaching goals and methodologies. While 78.9% of teachers stated they select digital resources that align with their teaching aims, only 49.2% of students acknowledged the availability or relevance of such resources. This suggests a potential gap between what teachers consider pedagogically appropriate and what students find accessible or helpful.
Digital tools for effective teaching were reportedly used by 71.1% of teachers, compared to 58.4% of students who felt such technologies were used effectively. Similarly, individual and group consultations using digital technologies were reported by 71.1% of teachers, but only 37.3% of students felt they received such support. This indicates a significant perception gap and suggests that while teachers believe they are offering digital support, students may not be experiencing it consistently or clearly.
In the area of student collaboration, 52.6% of teachers reported encouraging peer collaboration through digital means, while only 33.5% of students recognized such practices. For self-directed learning, 71.1% of teachers said they promote it using digital tools, but only 38.1% of students agreed. These discrepancies highlight a possible need to enhance the visibility and impact of digital collaboration and self-learning strategies from the learner's perspective.
Blended and hybrid learning models show moderate to low usage. Blended learning is applied by 44.7% of teachers and recognized by 27.2% of students. Hybrid learning (where some students attend in person and others online) is used by 26.3% of teachers and experienced by only 14% of students, indicating that these models are either underutilized or not clearly perceived as structured approaches by students.
In terms of digital tools for assessment and feedback, 76.3% of teachers reported using digital platforms for formative and summative evaluation, while 42.6% of students acknowledged these tools. Similarly, while 47.4% of teachers reported using digital analytics for personalized feedback, only 26.6% of students felt they received such feedback. The collection and analysis of student performance data were acknowledged by 21.1% of teachers and 23.9% of students, showing consistency but at a relatively low level of implementation.
Accessibility and inclusivity through digital technologies were considered by 50% of teachers, but only 24.1% of students recognized such efforts. Supporting individual learning pace and personalized pathways was noted by 28.9% of teachers and only 21.3% of students, highlighting another area with room for development.
When it comes to active and creative engagement, 65.8% of teachers believed they promote it through digital tools, but only 29.2% of students felt actively and creatively engaged. Similarly, processes requiring students to evaluate the reliability of digital information were emphasized by 47.4% of teachers, whereas 29.2% of students confirmed

such expectations.
Regarding the use of digital tools for communication and collaboration, 44.7% of teachers expected such use from students, while only 31.7% of students reported it. The creation of digital content and respecting copyright was reported by 39.5% of teachers, compared to 33.8% of students—a closer alignment in this area.
Digital safety measures were among the least reported: only 15.8% of teachers and 26.1% of students indicated awareness or implementation, pointing to a critical need for improving digital well-being and safety protocols.
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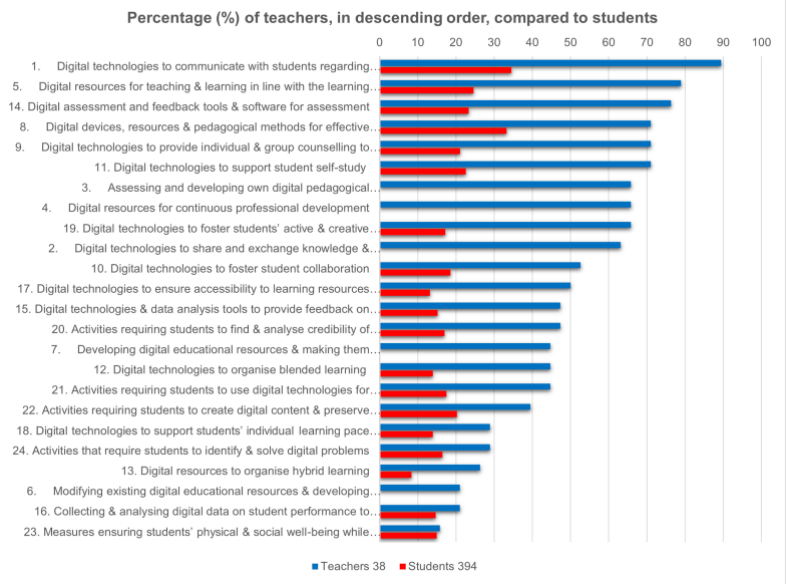

Image 2.1.1. Percentage (%) of teachers, in descending order, compared to students

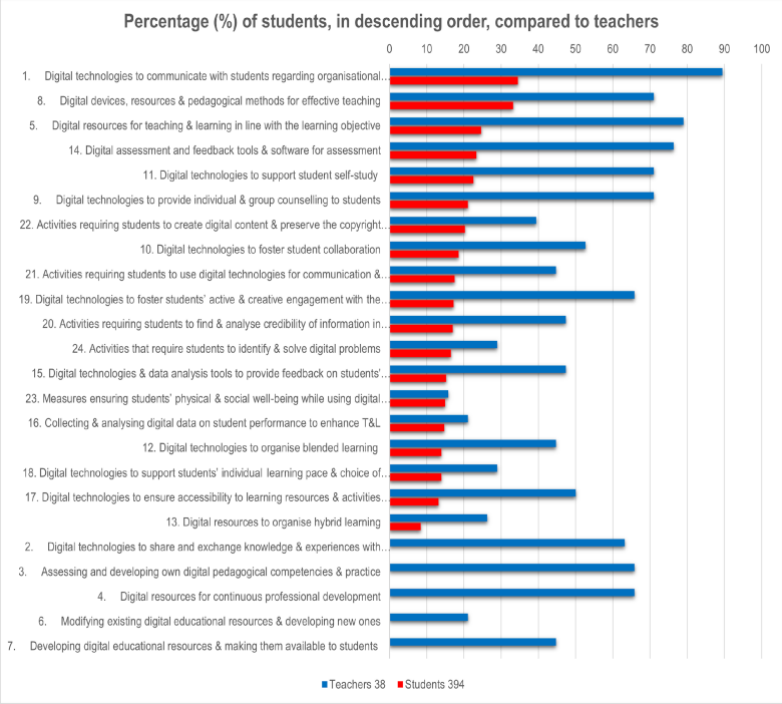

Image 2.1.2. Percentage (%) of students, in descending order, compared to teachers

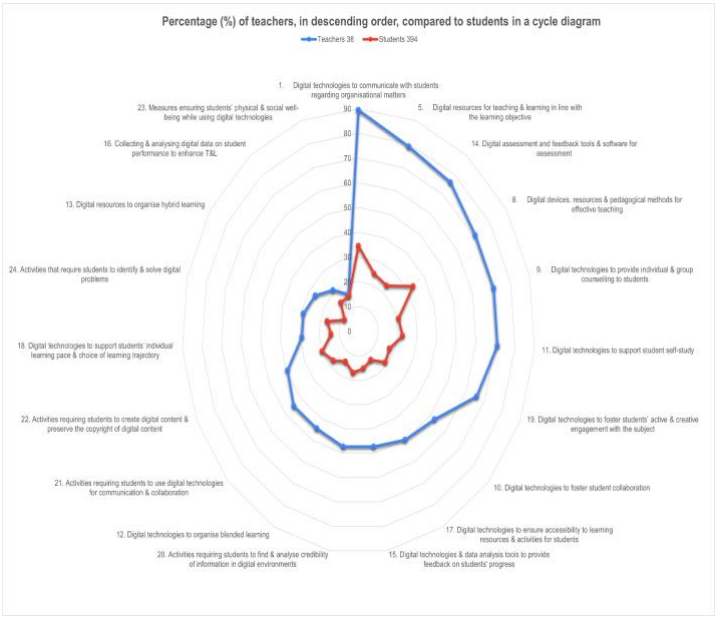

Image 2.1.3. Percentage (%) of teachers, in descending order, compared to students in a cycle diagram

2.2. Level of need for developing the digital competencies and technologies[1]

Digital safety measures were among the least reported: only 15.8% of teachers and 26.1% of students indicated awareness or implementation, pointing to a critical need for

[1] This indicator (weighted average rating) is calculated by multiplying the number of people who gave ratings of 0, 1, 2, and 3 by the corresponding rating, summing these products, and dividing by the total

improving digital well-being and safety protocols.
A notable contrast is observed in the use of digital resources tailored to teaching goals and methodologies. While 78.9% of teachers stated they select digital resources that align with their teaching aims, only 49.2% of students acknowledged the availability or relevance of such resources.
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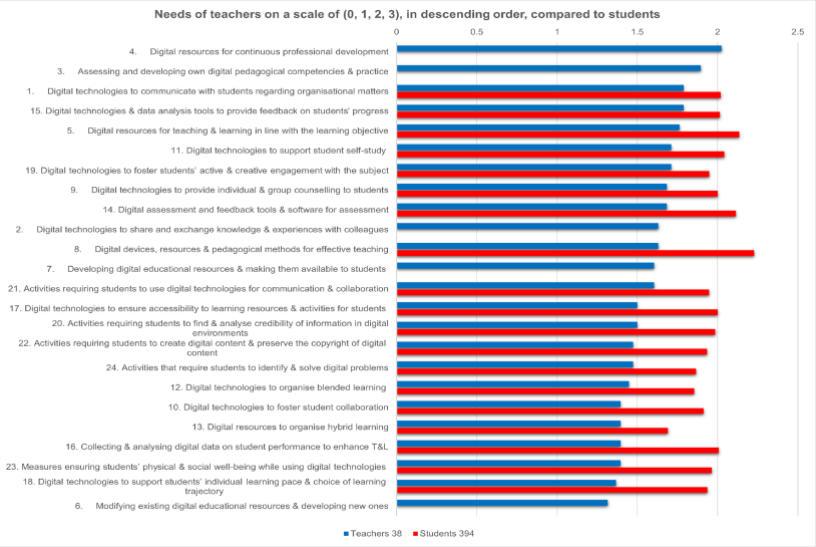
Processes requiring students to evaluate the reliability of digital information were emphasized by 47.4% of teachers, whereas 29.2% of students confirmed such expectations.
The creation of digital content and respecting copyright was reported by 39.5% of teachers, compared to 33.8% of students.
Finally, while problem-solving with digital tools was encouraged by 28.9% of teachers and experienced by 30.5% of students, the figures still suggest limited integration across the board.



number of respondents. For example: (0 x 10 people + 1 x 20 people + 2 x 30 people + 3 x 20 people) / (10+20+30+20) people = 140 / 80 people = 1.75 (out of a maximum of 3).

Image 2.2.1. Needs of teachers on a scale of (0, 1, 2, 3), in descending order, compared to students

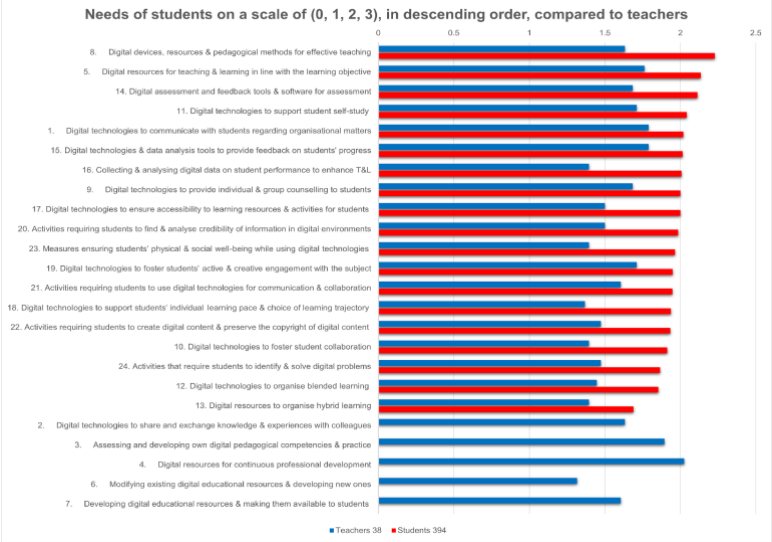


Image 2.2.2. Needs of students on a scale of (0, 1, 2, 3), in descending order, compared to teachers

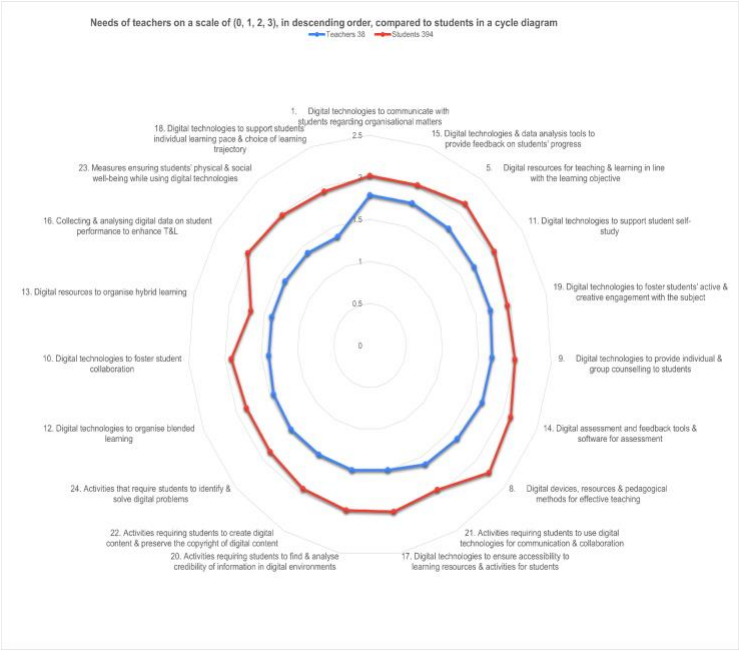


Image 2.2.3. Needs of teachers on a scale of (0, 1, 2, 3), in descending order, compared to students in a cycle diagram

Conclusion

Overall, teachers report a significantly higher usage and integration of digital technologies across various dimensions of TLA than what students perceive or experience. The largest perception gaps exist in areas of individualized support, active engagement, and feedback. While organizational communication through digital tools is clearly effective and aligned, other areas reveal inconsistencies that warrant targeted

strategies to bridge understanding and ensure the equitable and impactful use of digital technologies in both teaching and learning processes.

Section 3: Technologies and Facilities Supporting Digital TLA

To evaluate the current use of digital technologies and facilities in support of teaching, learning, and assessment (TLA) at the institution, a survey was conducted among both teachers and students. The questionnaire was distributed to 500 teachers and 5,198 students, of whom 38 teachers and 394 students responded. Their feedback offers a comparative perspective on digital tool adoption, preferences, and effectiveness, as reported by the two respondent groups.

3.1. Technologies and facilities currently applied to support digital TLA

The findings indicate widespread use of Learning Management Systems (LMS), with 76.3% of teachers and 70.6% of students reporting regular engagement with platforms such as Google for Education, Microsoft Office 365, Moodle, and Blackboard. These systems are perceived as essential for managing educational content, assignments, and communications.

Virtual Classrooms (VCR) like Zoom, Microsoft Teams, Google Meet, ClassIn, and Webex are used by 71.1% of teachers and 49.2% of students, reflecting higher reliance among instructors for synchronous online delivery.

Chat Sessions through Google Chat, Moodle Chat, Telegram, WhatsApp, and Canvas Discussions are favored by 65.8% of teachers and 43.1% of students, suggesting teachers are more engaged in maintaining communication outside formal sessions.

When it comes to Classroom Response Systems (e.g., Kahoot!, Mentimeter, Poll Everywhere), usage is relatively balanced: 44.7% of teachers and 46.7% of students, indicating mutual interest in interactive and formative assessments.

Multimedia Content Creation Tools, including Canva, Adobe Spark, and Powtoon, are employed by 34.2% of teachers and 32.2% of students, showing a shared commitment to creating visually enriched materials.

Use of Multimedia Content Viewing/Interaction Tools such as YouTube and Ted-Ed is reported by 57.9% of teachers and 42.1% of students, highlighting teachers' broader engagement with educational video content.

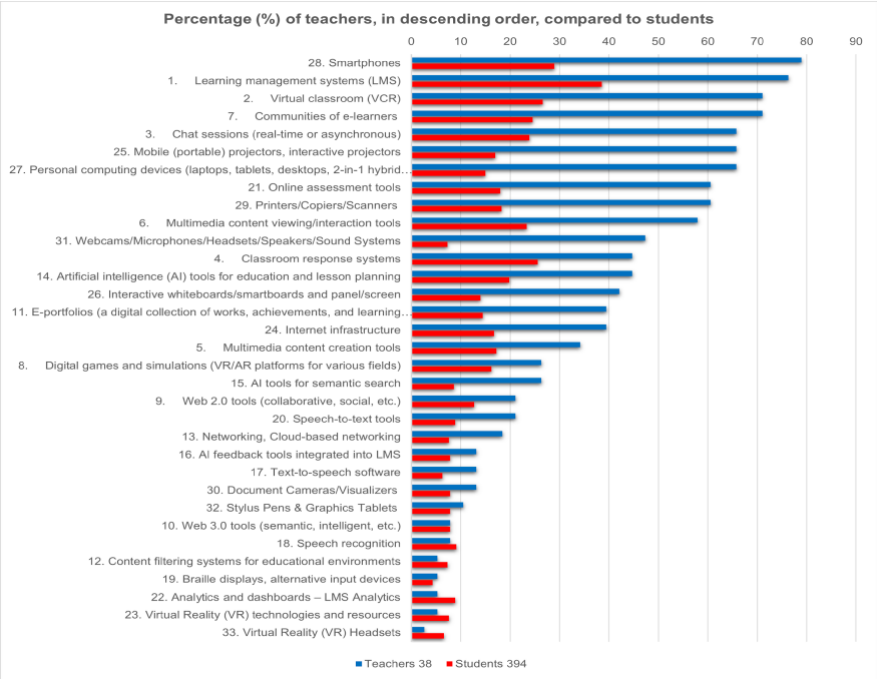
Participation in Communities of E-Learners, like Moodle Forums or Google Classroom Groups, is much higher among teachers (71.1%) than students (43.7%), illustrating a stronger emphasis among educators on collaborative and peer-supported learning environments.

In the realm of Digital Games and Simulations, tools like Kahoot!, CoSpaces Edu, and Minecraft Education Edition are used by 26.3% of teachers and 29.9% of students, suggesting growing enthusiasm for gamified learning, particularly among students.

Web 2.0 Tools (wikis, blogs, social media) see moderate use (21.1% teachers, 20.6% students), while Web 3.0 Tools (Khanmigo, OpenCerts, Mozilla Hubs) are emerging, with 7.9% of teachers and 13.5% of students reporting usage.

Adoption of E-Portfolios (e.g., Mahara, Seesaw) is more common among teachers (39.5%) than students (24.1%), indicating a stronger teacher-led push for reflective and

continuous learning documentation.
Content Filtering Systems like GoGuardian are used more by students (12.4%) than teachers (5.3%), possibly reflecting their role in ensuring secure access on personal devices.
Networking and Cloud-Based Networking Tools show modest use (18.4% teachers, 14% students), while AI Tools for Education and Lesson Planning (ChatGPT, Grammarly, etc.) show notable integration, used by 44.7% of teachers and 34% of students. AI Tools for Semantic Search (Mendeley, Litmaps, etc.) are utilized by 26.3% of teachers and 34% of students, while AI Feedback Tools Integrated into LMS, such as Copilot, are used by 13.2% of teachers and 14% of students.
Tools enhancing accessibility, such as Text-to-Speech Software (Read&Write, Kurzweil), are employed by 10.5% of teachers and 13.5% of students. Similarly, Speech Recognition Tools (e.g., Dragon NaturallySpeaking) are used by 7.9% of teachers and 15.7% of students.
Braille Displays and Alternative Input Devices register low but notable usage (5.3% teachers, 10.7% students), reflecting commitment to inclusive education. Meanwhile, Speech-to-Text Tools are used by 21.1% of teachers and 14.7% of students. Adoption of Online Assessment Tools (Google Forms, Exam.net) is high among teachers (60.5%) but significantly lower among students (32.7%), likely reflecting the teacher-driven nature of assessment practices.
Usage of Analytics and Dashboards (e.g., LMS Analytics, Tableau) is more common among students (15%) than teachers (5.3%), suggesting greater student curiosity or exposure to data interpretation tools.
Immersive Virtual Reality (VR) Resources are used by 5.3% of teachers and 13.2% of students, while Internet Infrastructure (LAN, Wi-Fi) is accessible to 39.5% of teachers and 29.2% of students, revealing infrastructure gaps, especially on the student side. Mobile and Interactive Projectors are used by (42.1%) of teachers and 22.3% of students, reflecting classroom-centric implementation.
Personal Computing Devices (laptops, desktops) are far more commonly used by teachers (65.8%) than students (27.4%), underscoring potential access issues for learners. Similarly, Smartphone usage is reported by 78.9% of teachers and 48.7% of students. Printers, Copiers, and Scanners are used by 60.5% of teachers and 33.2% of students, supporting blended documentation needs. Document Cameras see modest uptake (13.2% teachers, 16.8% students).
Audio-visual communication tools like Webcams, Microphones, Headsets are more frequently used by teachers (47.4%) than students (15%). Stylus Pens and Graphics Tablets are used by 10.5% of teachers and 13.5% of students. Emerging technologies such as Virtual Reality (VR) Headsets (Oculus Quest, HTC Vive) are used by 2.6% of teachers and 12.7% of students, showing stronger experimental interest from learners.
Finally, Advanced Analytical Tools report very limited use (0.3% of students), indicating an area for future growth and skill development.



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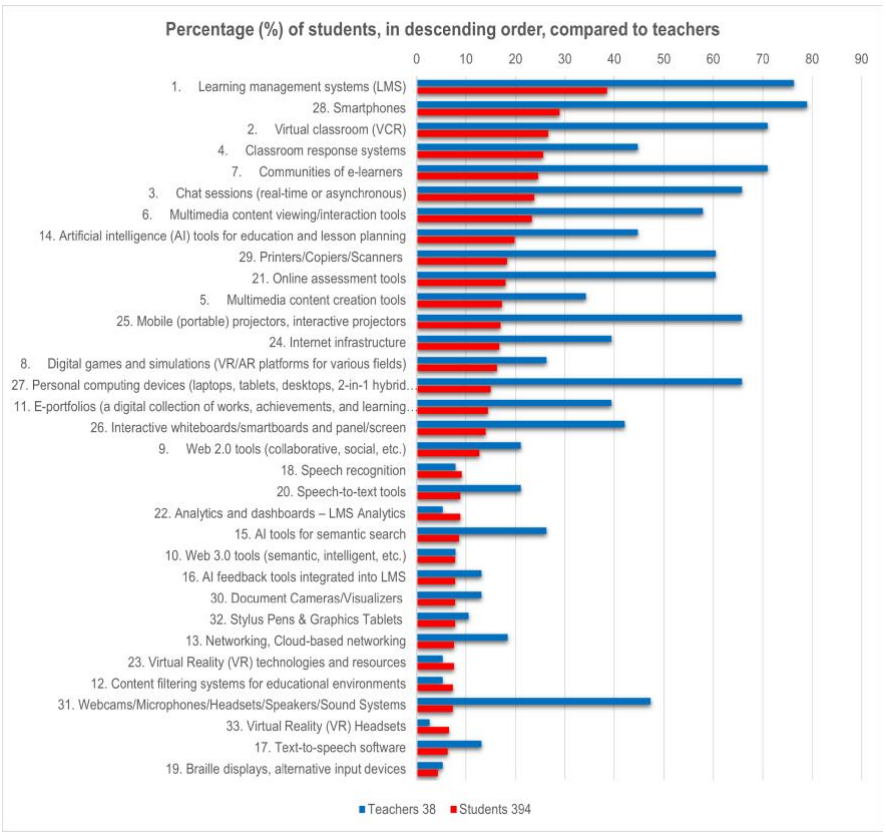

Image 3.1.2. Percentage (%) of students, in descending order, compared to teachers

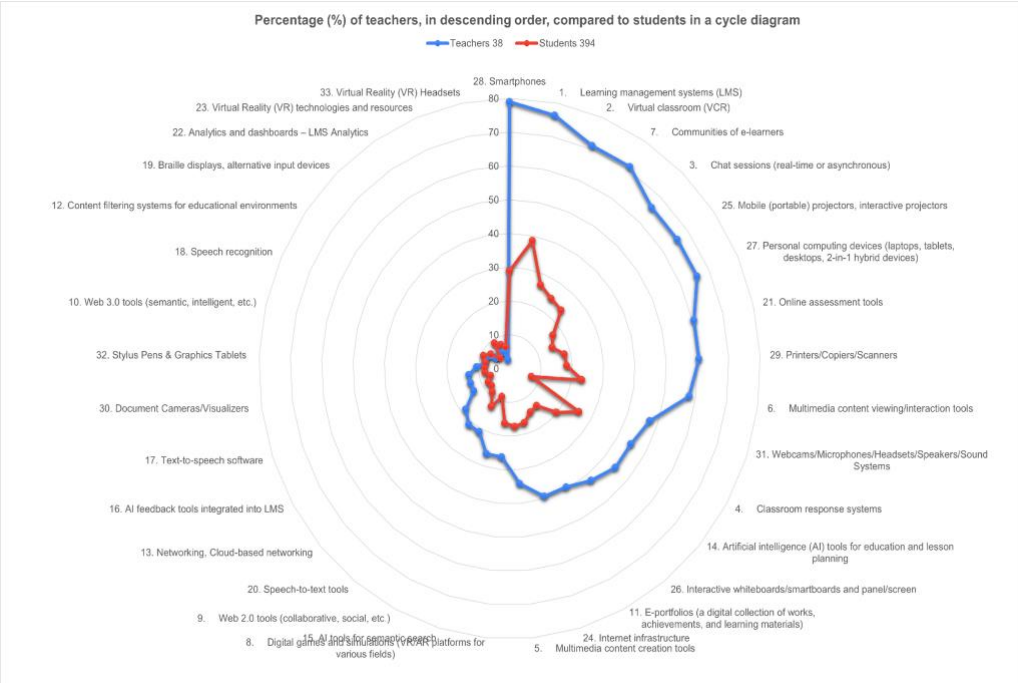

Image 3.1.3. Percentage (%) of teachers, in descending order, compared to students in a cycle diagram

3.2. Usefulness of the technologies and facilities supporting digital TLA

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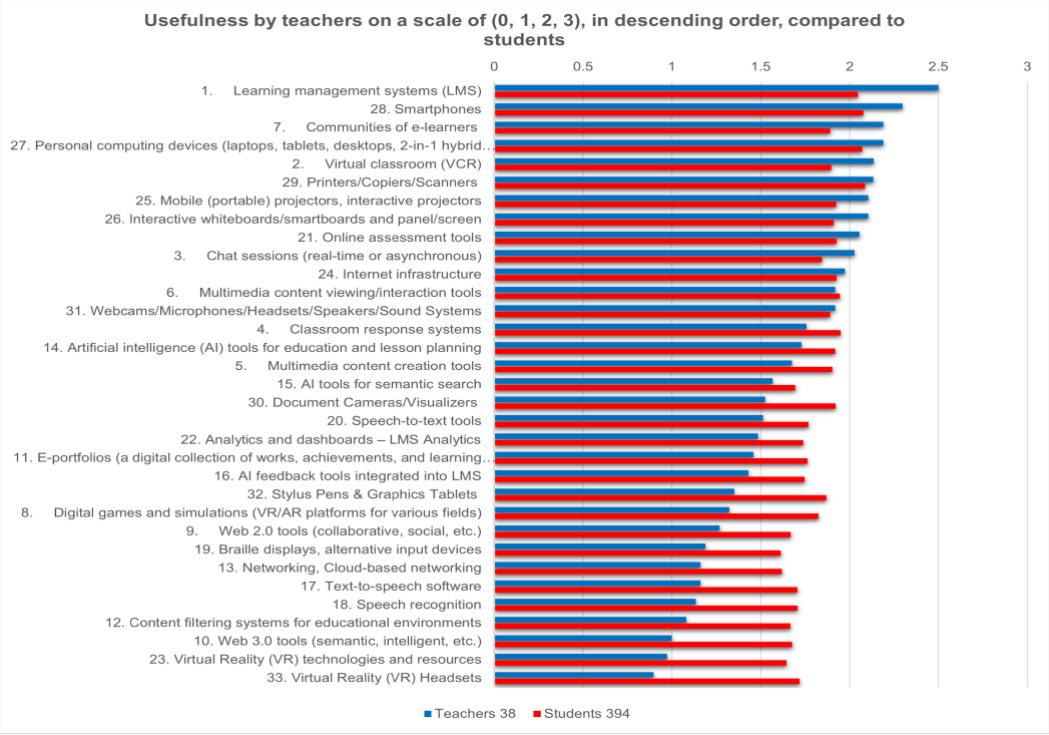


Image 3.2.1. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students

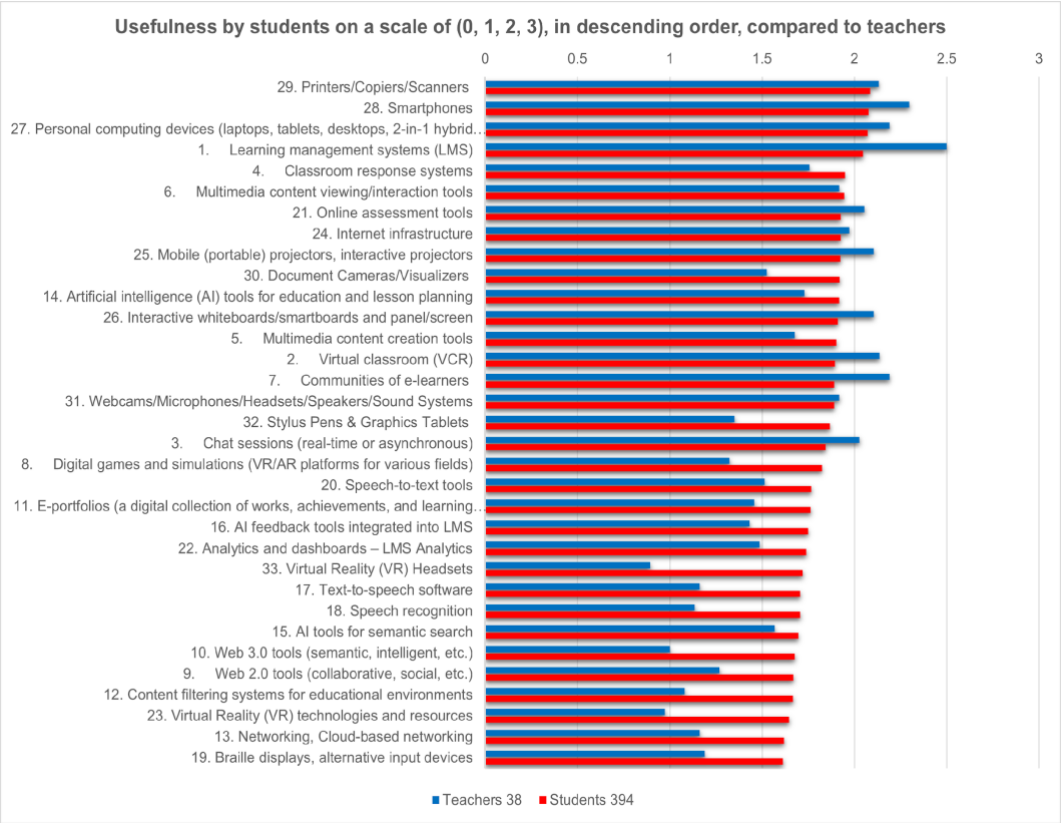
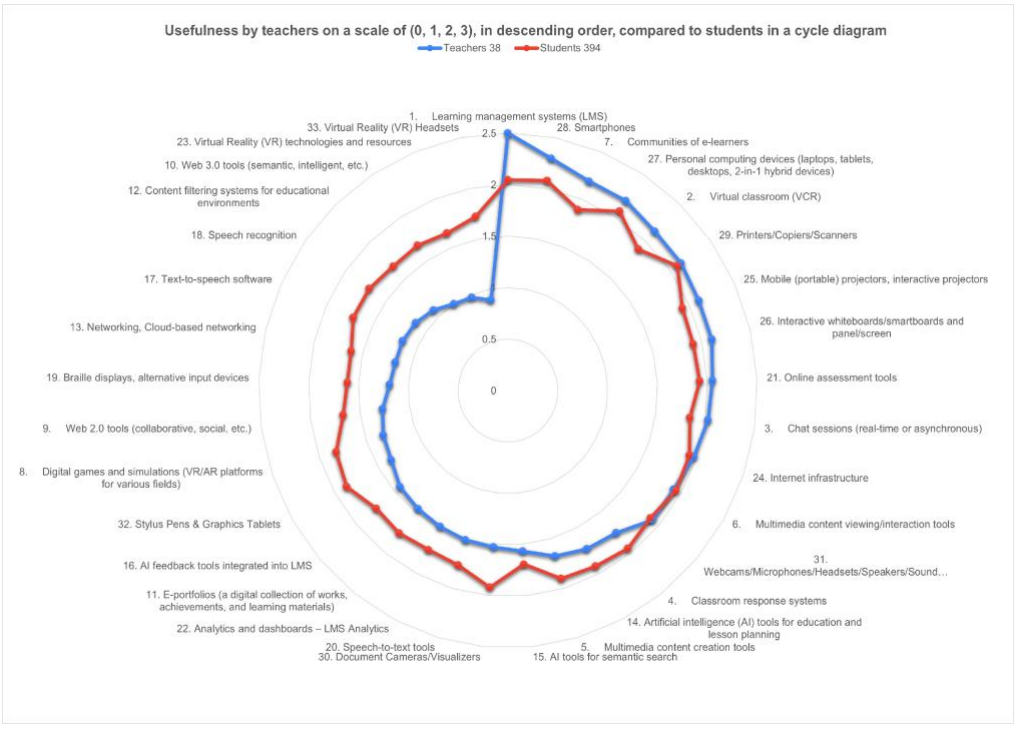


Image 3.2.2. Usefulness by students on a scale of (0, 1, 2, 3), in descending order, compared to teachers



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Section 4: Teaching and Learning (Study) Materials

A comprehensive analysis was conducted to evaluate the effectiveness and demand for teaching and learning materials currently in use at the institution. The feedback was collected from 38 teachers and 394 students, with the aim of identifying the most valued and frequently used study resources, and to draw comparisons between the perceptions of both groups.

4.1. Study materials currently in use

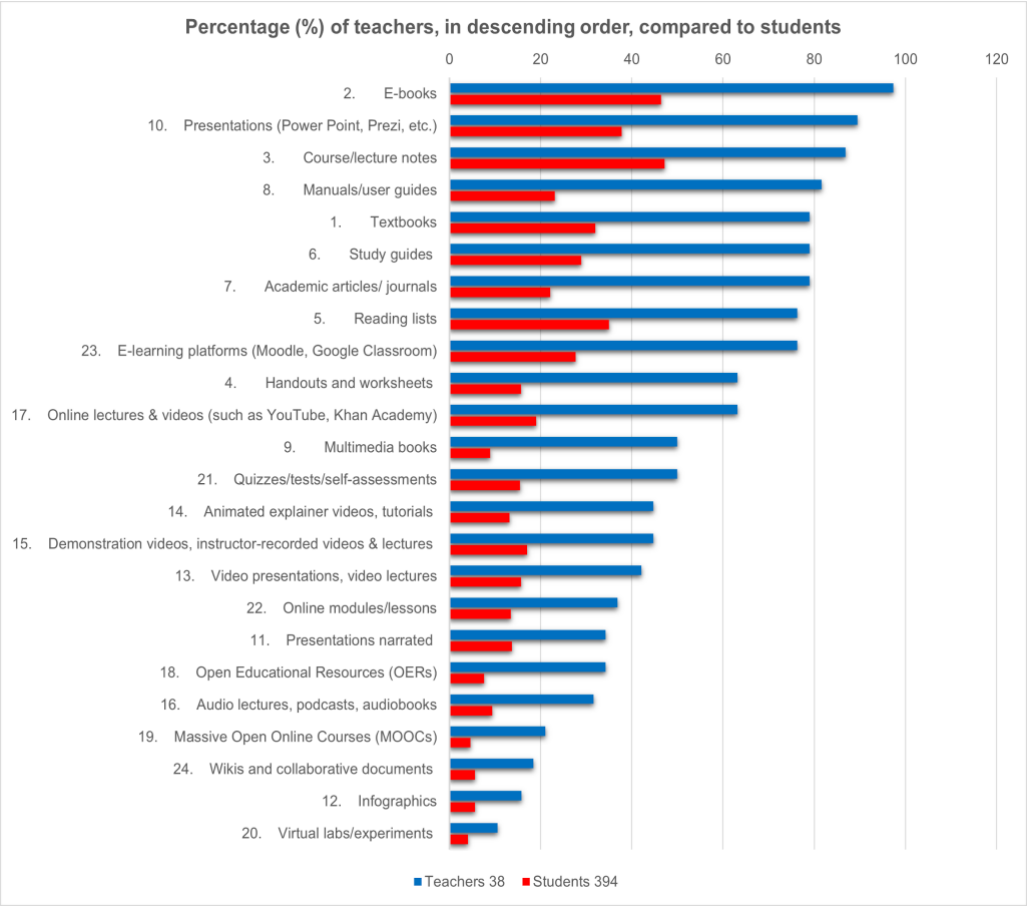
Overall Usage and Perception

The data reveals a strong reliance on traditional materials such as course/lecture notes, textbooks, and e-books, which are consistently rated among the most effective by both teachers and students. Notably, course/lecture notes were identified as highly useful by 86.8% of teachers and 88.6% of students, making them the most widely endorsed resource across both groups. Similarly, e-books were preferred by 97.4% of teachers and 85.8% of students, while textbooks received positive feedback from 78.9% of teachers and 62.9% of students.

Presentations (e.g., PowerPoint, Prezi) were also among the top-rated materials, with 89.5% of teachers and 69% of students acknowledging their value. These findings indicate a shared appreciation for structured, content-rich, and accessible study materials.

Underutilized Digital and Multimedia Resources

The feedback suggests relatively low engagement with modern and interactive materials, particularly among students. Resources such as infographics (teachers: 15.8%, students: 10.7%), audio lectures/podcasts (31.6% vs. 17.5%), and virtual labs (10.5% vs. 8.9%) are underutilized, despite their potential to support diverse learning styles. Similarly, Massive Open Online Courses (MOOCs) and Open Educational Resources (OERs) received limited attention from both groups, indicating a missed opportunity to expand access to free, high-quality educational content.



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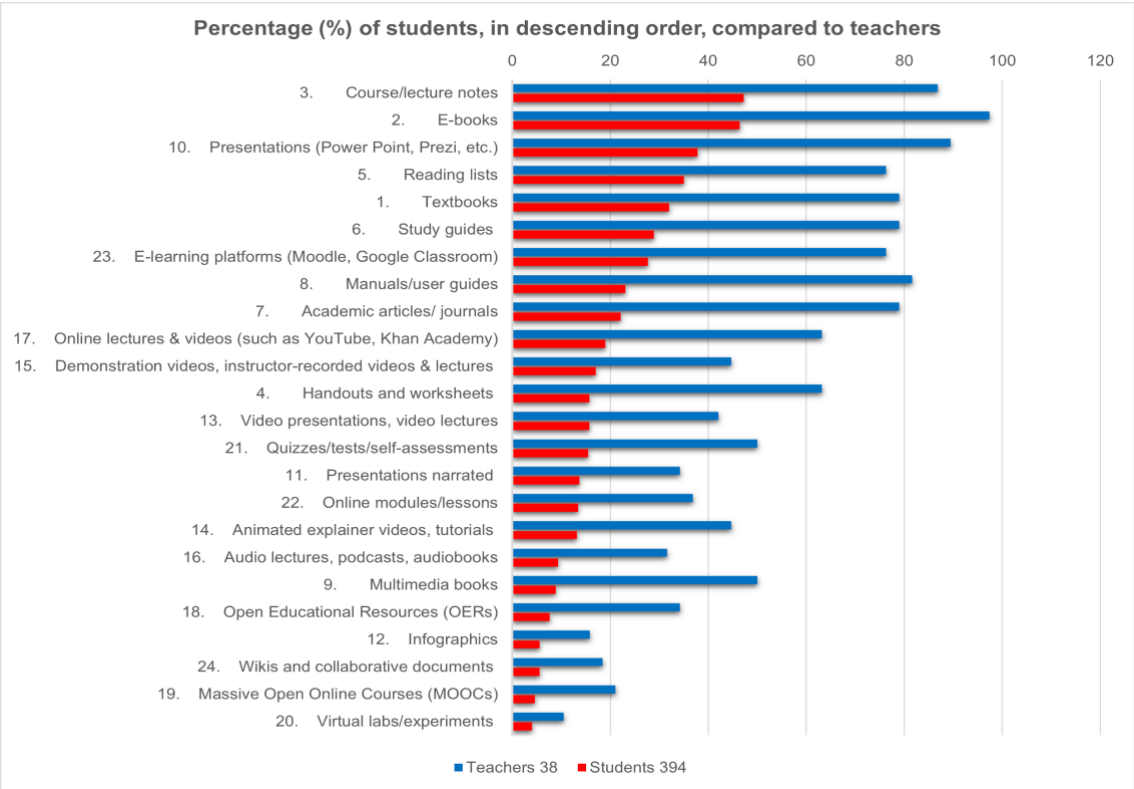

Image 4.1.2. Percentage (%) of students, in descending order, compared to teachers

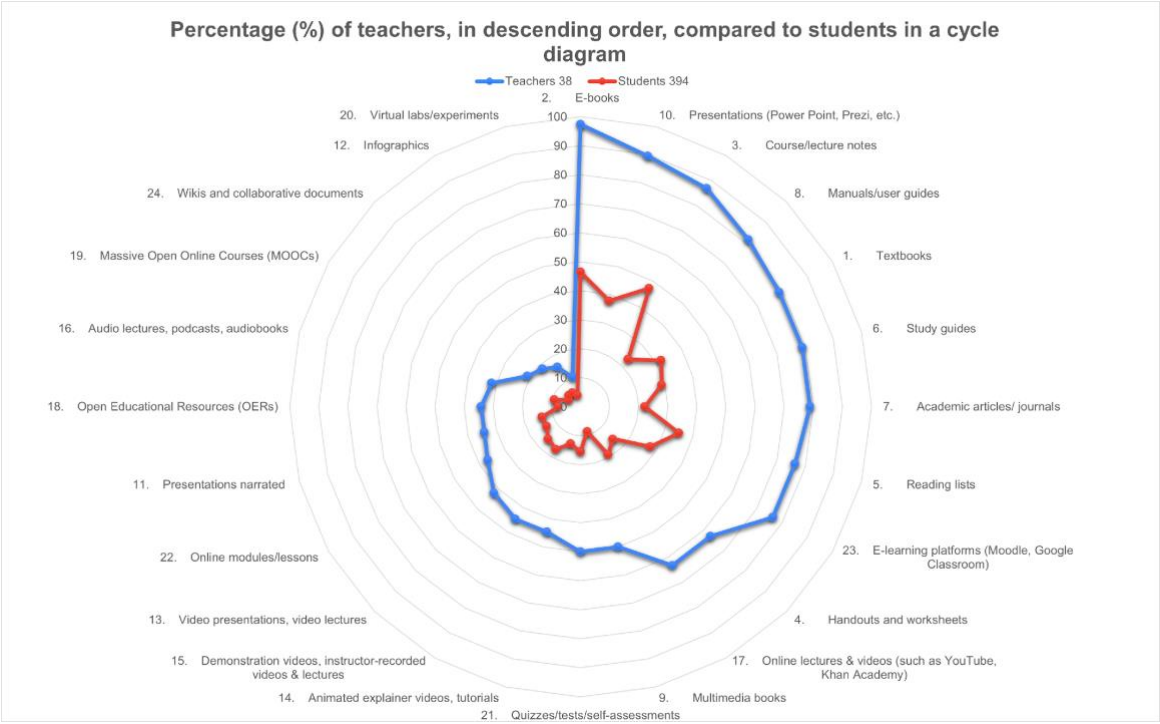

Image 4.1.3. Percentage (%) of teachers, in descending order, compared to students in a cycle diagram

4.2. Usefulness of the study materials for TLA

Differences in Perception

Despite several areas of agreement, key differences were observed:

● Handouts and worksheets were significantly more favored by teachers (63.2%) compared to students (32.2%), suggesting that while teachers view them as valuable supplements, students may not perceive the same level of benefit.

● Academic articles and journals were rated highly by teachers (78.9%) but less so by students (40.4%), indicating a potential gap in academic readiness or resource accessibility among learners.

● Similarly, manuals/user guides were valued by 81.6% of teachers, compared to only 42.6% of students. This could imply that students require more guidance to effectively utilize technical or instructional documents.

● E-learning platforms (such as Moodle and Google Classroom) were considered effective by 76.3% of teachers, while only 50.8% of students shared this view. This may point to the need for better platform orientation or integration with course activities.

Key Insights and Implications

● Strong Alignment: High alignment in the use of foundational materials (lecture notes, e-books, textbooks) reflects a shared educational framework and suggests that these should remain central in curriculum planning.

● Engagement Gap: The lower student appreciation for more complex or research-oriented materials (e.g., academic articles, manuals) suggests a need to build students' academic literacy and resource navigation skills.

● Digital Expansion Needed: While teachers are increasingly adopting multimedia and digital platforms, student engagement remains modest. Targeted interventions—such as training sessions, platform walkthroughs, or incorporating multimedia into assessments—

could enhance digital learning uptake.

● Innovation Potential: There is substantial room to promote interactive and student-centered resources like virtual labs, OERs, and MOOCs, which remain largely untapped.

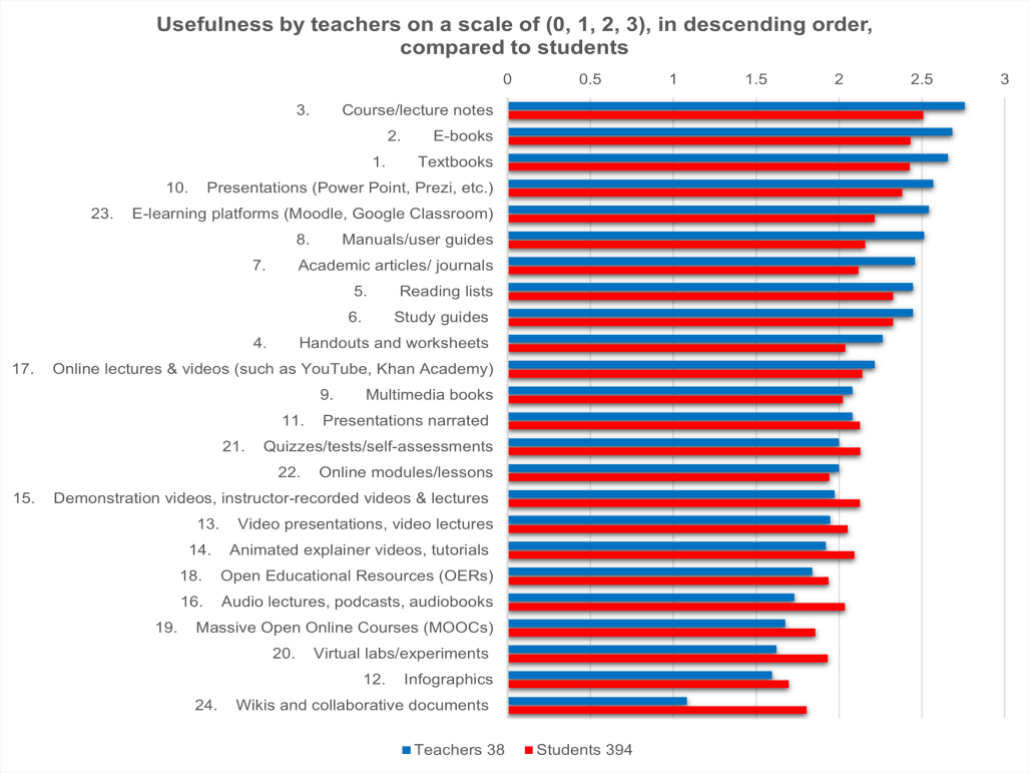

Image 4.2.1. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students

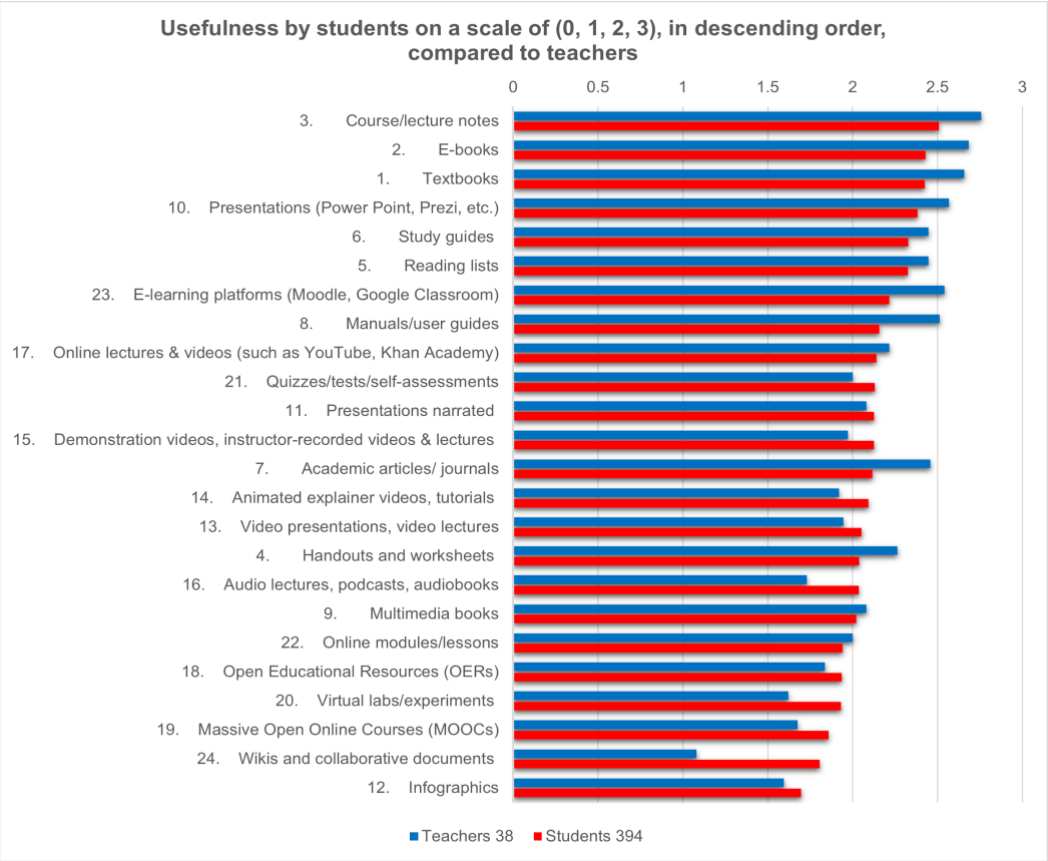

Image 4.2.2. Usefulness by students on a scale of (0, 1, 2, 3), in descending order, compared to teachers

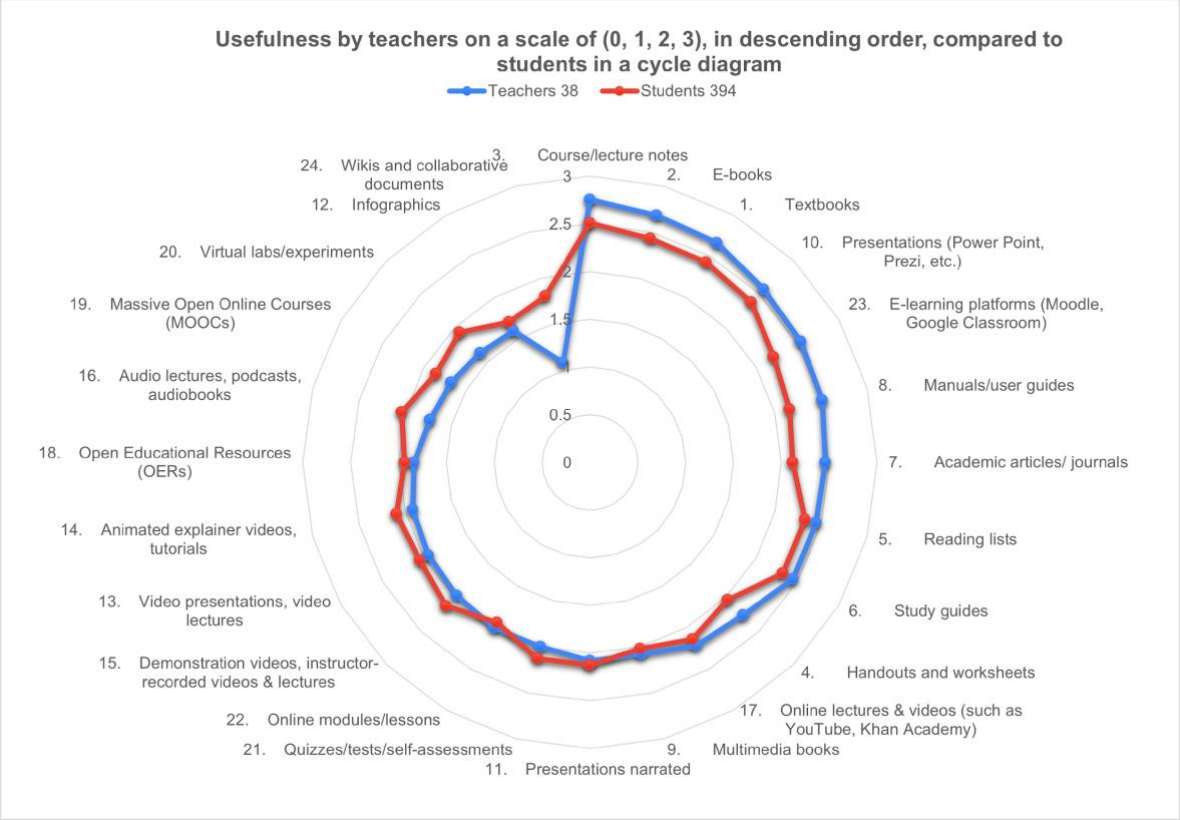

Image 4.2.3. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students in a cycle diagram

Conclusion

In summary, the study materials most valued by both teachers and students are lecture notes, e-books, textbooks, and presentations. While alignment exists in the use of traditional resources, notable gaps remain in the perception and usage of academic, technical, and digital materials. Bridging these gaps through student support initiatives, strategic integration of modern resources, and ongoing evaluation will help optimize the effectiveness of teaching and learning at the institution

Section 5. Main Obstacles to Digital TLA

Section 5 included 3 questions:

5.1. Main obstacles to digital TLA in HEIs

5.2. Teachers' previous participation in the training on digital TLA; and

5.3. Main topics of the Teachers' previous training

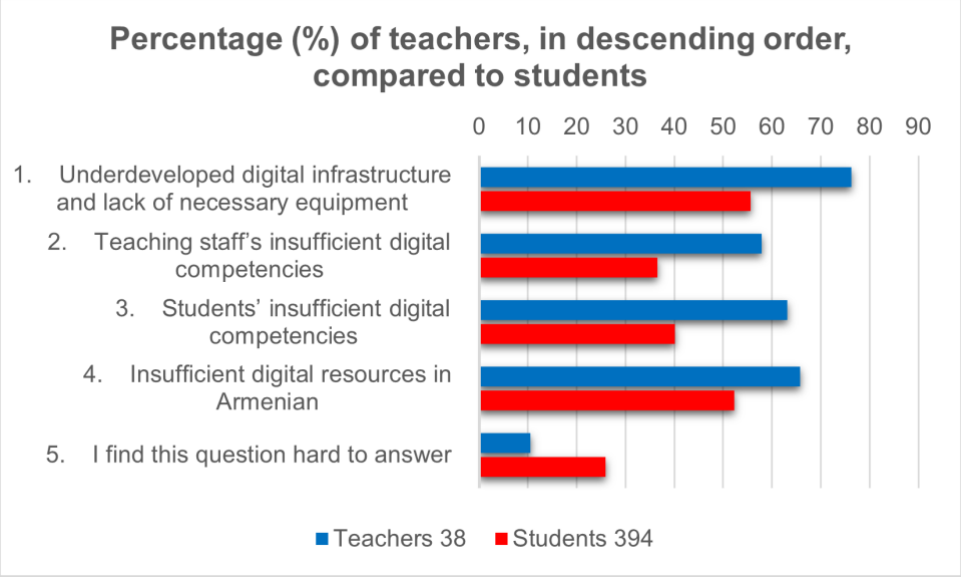

Image 5.1. Percentage (%) of teachers, in descending order, compared to students

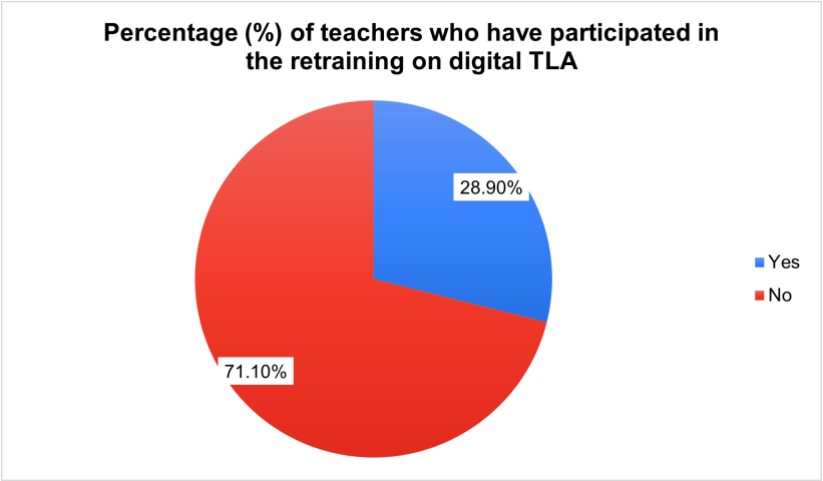

Image 5.2. Percentage (%) of teachers who have participated in the retraining on digital TLA

Based on the feedback collected from **38 teachers** and **394 students**, the analysis reveals several key obstacles currently hindering the effective use of digital Teaching, Learning, and Assessment (TLA) tools and technologies at the institution. While some challenges are shared across both groups, others reflect differing perceptions and priorities, underscoring the importance of a nuanced institutional approach.

The most frequently cited challenge by both groups is the **underdeveloped digital infrastructure and lack of necessary equipment**, identified by **76.3% of teachers (29 out of 38)** and **55.6% of students (219 out of 394)**. This indicates that both educators and learners are facing limitations in accessing adequate digital tools and stable technological environments, with teachers being even more affected—likely due to their central role in content delivery and digital resource preparation.

Another common barrier is the **insufficiency of digital resources in the Armenian language**. This issue was raised by **65.8% of teachers (25 respondents)** and **52.3% of students (206 respondents)**. The significant concern over language-specific digital content highlights the pressing need for developing localized educational resources to ensure inclusivity and better comprehension across the academic community.

Differences emerge more clearly when examining perceptions of **digital competencies**. **57.9% of teachers (22 respondents)** acknowledged their own lack of sufficient digital skills as a barrier, whereas **only 36.5% of students (144 respondents)** identified this as an issue. This suggests that teachers are more self-critical and aware of their professional development needs in digital pedagogy. In contrast, **40.1% of students (158 respondents)** reported a lack of their own digital competencies. This discrepancy indicates that teachers may overestimate students' digital fluency, whereas many students actually face challenges in navigating and utilizing digital tools for academic purposes.

Additionally, **25.9% of students (102 respondents)** reported difficulty in answering the question regarding obstacles, compared to **10.5% of teachers (4 respondents)**. This could reflect a gap in students' awareness or understanding of the structural and pedagogical aspects of digital education. It may also point to the need for better communication

between institutional stakeholders and students regarding ongoing digital initiatives and challenges.

In conclusion, the findings suggest that while both teachers and students are impacted by infrastructural and language-resource limitations, there are perceptual gaps regarding digital skill levels. Teachers are highly conscious of their own training needs, whereas students struggle more than expected with digital literacy. Addressing these challenges requires a multi-dimensional approach, including infrastructure upgrades, expanded Armenian-language digital content, targeted digital competency programs for both groups, and increased transparency and dialogue with students about institutional digital strategies.

Section 6: Additional Information Provided by Teachers and Students

6.1. Teachers' responses

Analysis of the Survey on Digital Learning

According to the results of a survey conducted regarding participation in digital learning training over the past four years, **71.1% of respondents reported having participated** in such training, while **28.9% had not**.

Teachers who had undergone training identified the following main topics:

- Digital education: educational digital tools and online platforms, e-portfolio, podcasts, digital quizzes and surveys, feedback mechanisms
- Tools for creating multimedia content, interactive/smart boards and panels/screens
- 1, 6, 24
- Learning Management Systems (LMS) - Moodle
- Application of digital tools and software in the learning process
- T4GREEN

Teachers were also invited to share their ideas and suggestions regarding instructors' digital skills, assistive technologies, and teaching materials. The responses were as follows:

- "Organize courses and trainings related to digital education"
- "Not appropriate"
- "The continuous education of the lecturer is a guarantee of the quality of education"
- "I would like trainings to be organized frequently, as this field develops very rapidly and there is a constant need to learn"
- "I would like to use artificial intelligence and neural networks in the learning process"
- "It would be desirable for the teaching staff to undergo training"

- "Modernize classrooms"

These responses from teachers demonstrate both the existing positive experience with digital training in the educational institution and a clear need for ongoing improvement. In particular, emphasis is placed on the continuous professional development of teaching staff, the integration of modern technologies into the educational process (including the use of AI tools), and the modernization of the technical and material infrastructure.

6.2. Students' responses

Additional Information Provided by Students (Relevant to the Survey Questions)

The feedback collected from students provides a comprehensive picture of the current challenges and opportunities related to the use of digital technologies, assistive tools, and learning materials in higher education institutions.

Several students highlighted the **importance of improving technical infrastructure**. While platforms like *Google Classroom* are already in use and have facilitated communication between students and lecturers, the lack of modern and functioning equipment – such as up-to-date computers, projectors, interactive whiteboards, and reliable internet access – continues to hinder effective digital learning. Students emphasized the need to **upgrade outdated devices**, ensure **routine maintenance**, and **increase the number of available digital tools** (especially in dean's offices and shared classrooms) to avoid schedule conflicts or missed learning opportunities.

Many responses also addressed the **need for further digitization and localization of educational materials**. Students expressed a desire for more **Armenian-language digital content**, including **video lectures** and **thematic packages**, as well as greater access to digital lecture notes and resources. In particular, design students mentioned the relevance of **professional software and prototyping tools** like *Adobe Illustrator*, *CLO 3D*, which can enhance both visual and practical learning outcomes.

Some students pointed out the **potential of emerging technologies** such as **Virtual Reality (VR)** and **Augmented Reality (AR)**, especially for disciplines like anatomy, architecture, and astronomy. Tools like *Google Expeditions* and *ClassVR* were suggested as innovative ways to improve visualization and engagement.

At the same time, a few students expressed **concerns about the overuse or misapplication of digital tools**, suggesting that technology should support – not replace – effective teaching practices. This points to the need for **balanced integration** of digital methods into traditional pedagogies.

Regarding the **digital competence of faculty**, many students felt that **regular training is crucial**, especially given the generational gap among teaching staff. They proposed **frequent professional development workshops** focused on using digital tools, creating online assessments, and developing hybrid and interactive teaching strategies.

Furthermore, students recommended that universities should **seek funding or partnerships** to acquire modern technologies and support collaborative digital learning environments. The idea of incorporating **open-source platforms** like *GNS3* and *MySQL* for practical training was also mentioned.

Overall, students underscored the importance of creating a **digitally enriched learning environment** that includes:

- Equal access to digital tools for all students.
- Institutional investment in digital infrastructure.
- Tailored training for both students and faculty.
- Content development in the local language.
- Thoughtful integration of hybrid and digital teaching methods.

Despite some students feeling satisfied with the current state of digital learning, the majority believe that strategic improvements in infrastructure, resources, and capacity-building will lead to a more effective and inclusive educational experience.

Conclusions and Recommendations

1. ***Identify specific digital competences in teaching, learning, and assessment that need to be developed within your university.***

In today's rapidly evolving digital landscape, it is essential for our university to integrate advanced digital competences into teaching, learning, and assessment processes to ensure effectiveness and relevance. An internal assessment revealed several gaps in digital skills that need urgent development.

Firstly, there is significant variation in lecturers' digital literacy levels. While some educators confidently use digital tools, the majority lack comprehensive knowledge and skills to fully utilize electronic platforms and technologies.

Secondly, the use of digital pedagogical methods remains limited. Traditional teaching approaches still dominate, and there is insufficient application of diverse digital tools and environments that actively engage students.

Thirdly, the use of digital tools in assessment processes is underdeveloped. Lecturers often face difficulties organizing electronic testing, providing meaningful digital feedback, and employing tools for plagiarism detection and progress analysis effectively.

Fourthly, there is minimal use of learning analytics to monitor student performance and optimize teaching processes based on data-driven insights.

Fifthly, accessibility and inclusiveness of digital learning materials require improvement to ensure that students with special needs can fully participate in educational activities.

Based on these findings, it is clear that developing digital competences is an urgent and indispensable process for creating an innovative, modern, and efficient educational environment.

2. ***Outline the technologies and facilities that require enhancement to better support teaching and learning.***

Based on the comprehensive analysis of feedback from both teachers and students

across multiple sections, several key technologies and facilities require enhancement to better support teaching and learning at the university.

First and foremost, the existing technical infrastructure needs significant modernization. Many classrooms and shared learning spaces are equipped with outdated computers, projectors, interactive whiteboards, and insufficient network capabilities. This often results in disruptions and limited access to digital resources, which negatively impacts the learning process. Upgrading these devices and ensuring their regular maintenance is essential to provide a reliable and effective digital learning environment.

In addition to hardware improvements, the digital learning platforms currently in use, such as Moodle and Google Classroom, require further development. Enhancing these platforms to include more user-friendly features, better integration of new digital tools, and support for hybrid and online assessment methods will increase engagement and flexibility for both students and faculty members.

Discipline-specific software also needs to be more widely accessible, particularly for students in design and technology-related fields. Access to professional programs like Adobe Illustrator, CLO 3D, and Browzwear is crucial for practical and visual learning outcomes. Moreover, emerging technologies such as Virtual Reality (VR) and Augmented Reality (AR) have great potential to enrich learning in subjects like anatomy, architecture, and astronomy by providing immersive and interactive experiences.

Classroom modernization is another priority identified by educators, who emphasize the need for smart boards, interactive panels, and enhanced audiovisual equipment to create more dynamic and engaging teaching settings. Alongside this, ensuring stable and high-speed internet connectivity throughout the campus is vital to support seamless communication and access to digital resources.

Students also highlighted the importance of increasing the digitization and localization of educational content, particularly by producing more learning materials in the Armenian language. This includes video lectures, digital lecture notes, and thematic packages tailored to the curriculum.

Finally, the enhancement of assistive technologies is necessary to support inclusive education and ensure that students with special needs can fully participate in digital learning activities.

In summary, addressing these areas by investing in modern hardware, improving digital platforms, expanding access to specialized software, upgrading classroom technology, ensuring reliable internet access, developing localized content, and supporting assistive technologies will create a more effective, inclusive, and future-ready learning environment at the university.

3. ***Specify the types of digital teaching and learning materials that should be developed to improve educational delivery.***

To improve educational delivery, the development of diverse and high-quality digital teaching and learning materials is essential, as indicated by the feedback from both teachers and students across all surveyed sections. First, there is a clear demand for interactive and multimedia content, including video lectures, podcasts, digital quizzes, and simulations, which can make learning more engaging and effective. Such materials

should be designed to support various subjects, particularly those requiring visual and practical understanding, like anatomy, architecture, and design.

Second, localization of content in Armenian is a priority to ensure accessibility and cultural relevance. Students have emphasized the need for more Armenian-language digital resources, such as lecture notes, thematic packages, and learning modules, to facilitate comprehension and deeper learning.

Third, discipline-specific resources are crucial, especially software tutorials and practical exercises in fields like graphic design (e.g., Adobe Illustrator, CLO 3D, Browzwear), IT (e.g., GNS3, MySQL), and other technical areas. These materials will equip students with relevant skills for their future careers.

Fourth, the integration of digital assessment tools—such as e-portfolios, online quizzes, and feedback mechanisms—should be expanded to enable continuous and formative evaluation, supporting both hybrid and fully online learning environments.

Additionally, assistive technologies and accessible materials are necessary to accommodate all learners, including those with disabilities, ensuring inclusivity and equal opportunity in digital education.

Finally, emerging technologies like Virtual Reality (VR) and Augmented Reality (AR) should be explored and integrated into learning materials to provide immersive experiences that enhance visualization and student engagement.

Overall, the university should prioritize the creation of interactive multimedia content, localized Armenian-language resources, discipline-specific software tutorials, comprehensive digital assessment tools, accessible materials, and innovative VR/AR applications to strengthen the quality and inclusiveness of its educational delivery.

4. Propose strategies for addressing the barriers and obstacles that hinder the advancement of digital teaching, learning, and assessment in your university. Based on the comprehensive analysis of the data collected from all six sections, several key strategies can be proposed to overcome the barriers hindering the advancement of digital teaching, learning, and assessment at the university.

Firstly, strengthening continuous professional development for faculty is essential. Many teachers and students highlighted the need for regular, up-to-date training programs focused on digital tools, online platforms, and innovative technologies such as AI, VR, and AR. Establishing a structured schedule of workshops and courses will help bridge the generational digital skills gap and ensure that teaching staff remain competent in evolving digital pedagogies.

Secondly, modernizing and expanding technical infrastructure is critical. The current limitations in hardware, such as outdated computers, insufficient interactive boards, and unreliable internet connectivity, significantly impede effective digital learning. Investment in upgrading equipment, ensuring routine maintenance, and expanding access to digital tools across classrooms and administrative offices will create a more supportive environment for both students and educators.

Thirdly, the university should enhance access to localized and discipline-specific digital content by developing Armenian-language materials and subject-tailored resources, including multimedia lectures, interactive modules, and professional software tutorials.

This would address the current shortage of relevant and accessible educational materials.

Fourthly, the university must emphasize balanced and thoughtful integration of technology into teaching. Technology should complement rather than replace effective pedagogical practices. Clear guidelines and support systems for hybrid and blended learning approaches will help avoid the pitfalls of over-reliance on digital tools.

Finally, improving institutional support and policy frameworks to ensure equitable access to digital resources for all students—including those with disabilities—will promote inclusivity. The provision of assistive technologies and accessible materials should be prioritized.

In summary, addressing the barriers to digital advancement requires a multi-faceted approach focused on faculty training, infrastructure modernization, content development, pedagogical balance, and inclusive policies to create a sustainable and effective digital learning ecosystem at the university.

Appendix: Temperature Map Analysis of Response Patterns

Analysis of Teacher and Student Responses

For questions 2.2, 3.2, and 4.2, temperature maps have been generated and analyzed to reveal deeper insights into the response patterns of both teaching staff and students. This visualization approach reveals nuanced patterns that might otherwise remain hidden in conventional data analysis.

Response Reliability Assessment

The analytical methodology includes calculation of relative response reliability for each participant group. This metric accounts for response bias by adjusting for instances where respondents selected identical options across multiple items - a pattern that may indicate disengagement rather than authentic responses.

Comparative Results

The reliability findings for both respondent groups appear in Figures 2.2, 3.2, and 4.2. The table below summarizes these results, presenting the percentage of responses deemed reliable after applying the uniform-response adjustment algorithm.

These percentages reflect the proportion of responses that demonstrate meaningful engagement with the questions, after filtering out potentially automated or disengaged response patterns.

Question ID	Teaching Staff	Students
2.2	86.8 %	79.9 %

3.2	81.6 %	79.8 %
4.2	86.8 %	77.9 %

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2.2. Level of need for developing the digital competencies and technologies

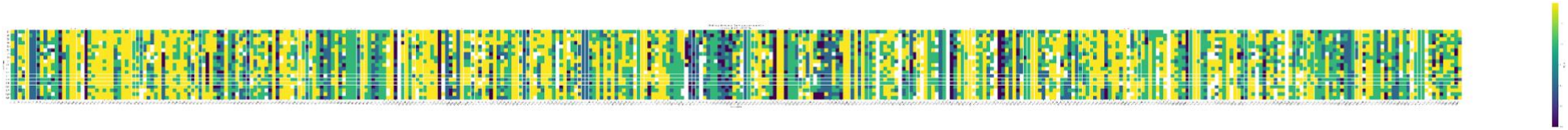

Fig. 2.2.1: Students responses

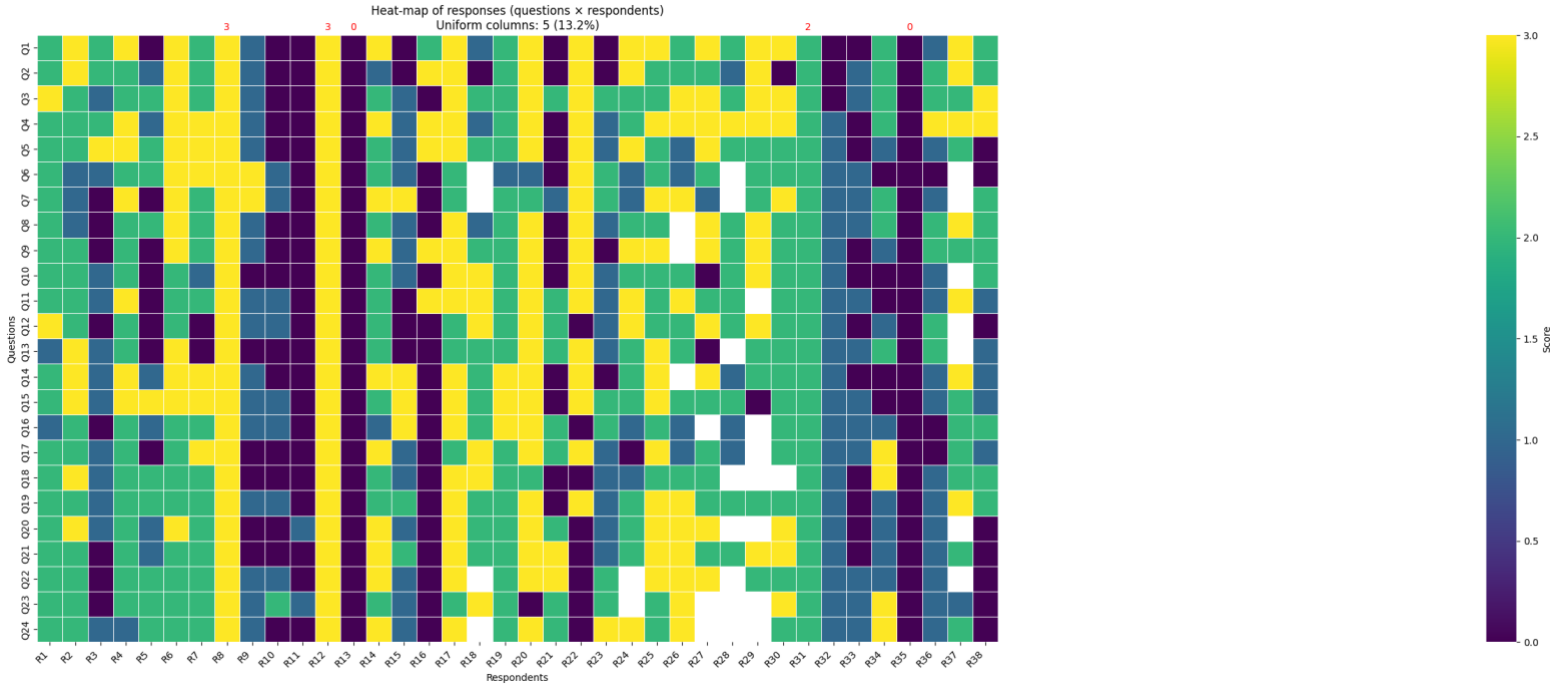

Fig. 2.2.2: Teachers responses

3.2. Usefulness of the technologies & facilities supporting digital TLA

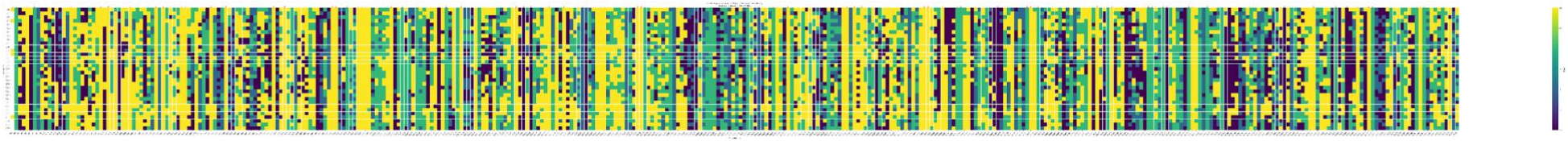

Fig. 3.2.1: Students responses

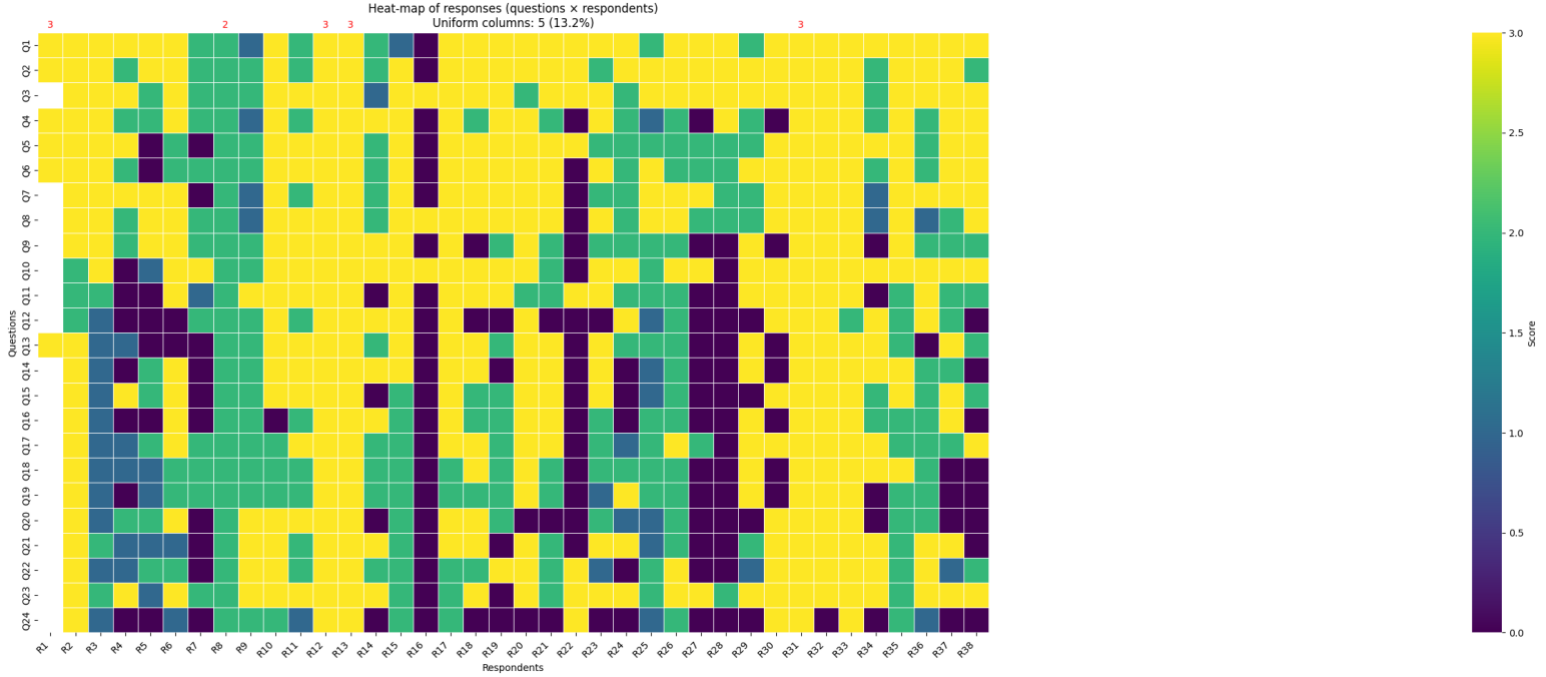

Fig. 3.2.2: Teachers responses

4.2. Usefulness of the study materials for TLA

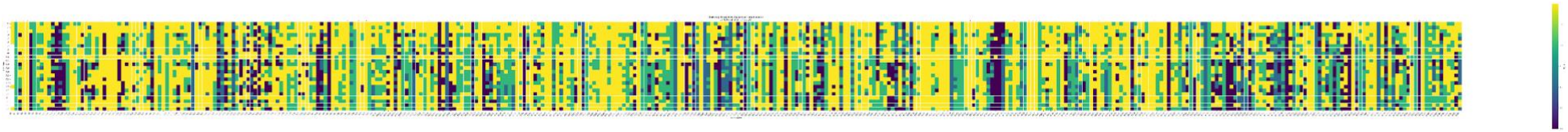

Fig 4.2.1: Students responses

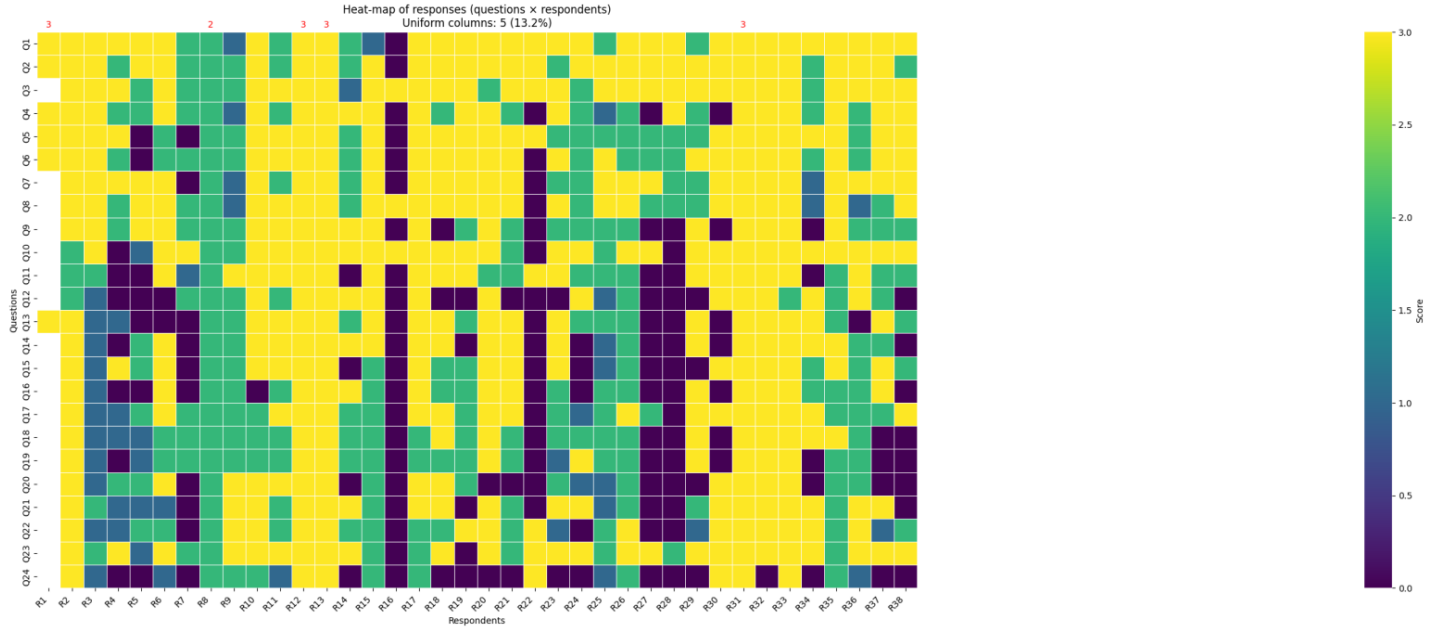

Fig 4.2.2: Teachers responses

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