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

ARMENIAN STATE UNIVERSITY OF ECONOMICS (ASUE)

NEEDS ANALYSIS REPORT

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

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Content

Introduction

The Teaching Staff Digital Competence Needs Assessment and Student Digital Learning Needs Assessment surveys aimed at evaluating the current state of digital competencies among faculty and identifying the digital learning needs of students at the Armenian State University of Economics (ASUE).

The primary objectives of these surveys were:

1. To assess ASUE teaching staff digital competence needs; and
2. To assess ASUE students digital learning needs.

The surveys will eventually contribute to enhanced overall quality of education at ASUE, producing baseline data for designing programs aimed at equipping both faculty and students with the necessary skills and resources to thrive in a digitally-driven academic landscape.

Section 1: General Information

1.1. Teachers' Characteristics

Overall, as the below Image1.1. illustrates, most survey participants (nearly 88%) were either lecturers or associate professors, with lecturers constituting nearly half (49.59%) of survey participants and associate professors constituting around 38%.

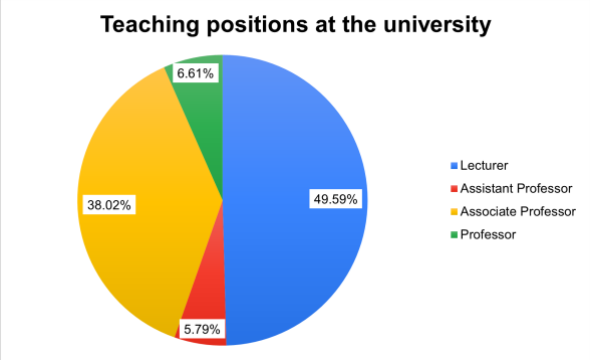

Image 1.1. Teaching positions at the university

The below Images 1.2 and 1.3 illustrate the age and gender distribution of the surveyed teachers. In terms of gender, the majority of survey participants were women (around 63%). At the same time, age groups were well represented, with a noticeable concentration (70%) in 36-55 range. Interestingly, neraly16% of participating teachers were younger, i.e. 36-45 years of age.

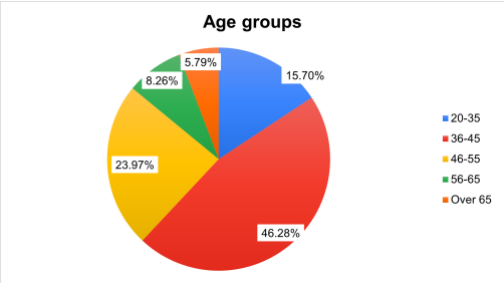

Image 1.2. Teachers age groups

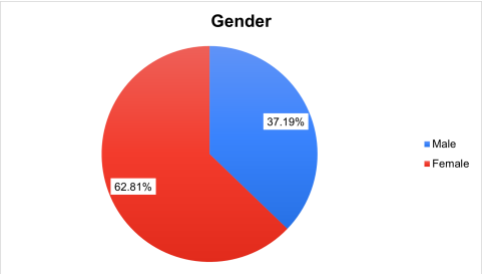

Image 1.3. Teaching staff gender

1.2. Students' Characteristics

As with teachers, most students covered by the survey were women (around 66%). At the same time, the overwhelming majority of participating students (97%) were studying at Bachelor level.

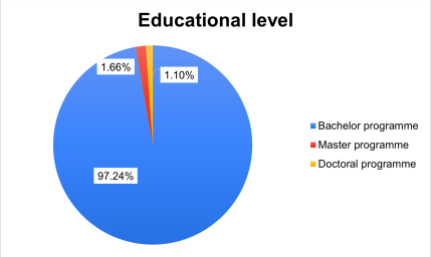

Image 1.4. Students educational level

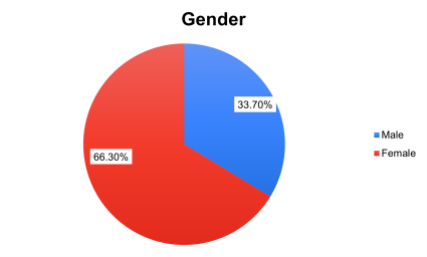

Image 1.5. Students gender

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

The survey results reveal that both teachers and students at ASUE actively use a variety of digital tools to support teaching, learning, and assessment (TLA). According to Image 2.1.1 and 2.1.2, the most frequently used technologies by both groups include:

- digital communication tools for organizational matters, such as email, messaging apps, and LMS announcements;
- provision of digital educational resources aligned with learning objectives and course content;
- digital devices and methods that support effective teaching practices.

These technologies are used by a significant majority of both teachers and students, indicating a foundational level of digital integration at ASUE.

However, lower levels of usage were reported for more complex practices, such as:

- organizing hybrid or blended learning environments;
- using digital tools for student self-paced learning and personalized learning trajectories;
- applying technologies for student well-being monitoring in digital settings;
- data-driven analysis of student performance to enhance teaching strategies.

When comparing responses, it is obvious that teachers reported higher use of digital tools for individual and group counseling and for supporting students' self-study. In contrast, students indicated greater use and awareness of digital assessment and feedback tools, suggesting a demand for more structured and transparent evaluation mechanisms.

Furthermore, teachers were asked about their use of digital resources for professional development. A large portion reported using:

- digital platforms to share knowledge with colleagues;
- self-assessment tools to evaluate their pedagogical digital skills;
- tools to modify or create new digital resources—although this last competency was less common.

2.1. Digital Competencies and Technologies Currently Applied

As the below Image 2.1.2. illustrates, the **most widely used** digital technologies indicated by both teachers and students (over 90 and 65 percent respectively) are those used "to communicate with students regarding organizational matters." This is followed by "providing digital educational resources in line with the teaching objective and methodology," with around 89% of teachers and 66% of students indicating their usage, and "using digital devices, resources and pedagogical methods for effective teaching," with around 88% of teachers and 65% of students indicating their usage.

At the **lower end** (less than 30% of both teachers and students indicating using those), are the following competences and technologies:

- using digital technologies to support students' individual learning pace and choice of learning trajectory;
- taking measures to ensure students' physical and social well-being while using digital technologies.

The **least used** are digital resources to organise hybrid learning (where some students participate in person and others attend online), less than 20% of both teachers and students indicating applying those.

While the answers of both teachers and students to the above-mentioned questions are relatively similar, there are noticeable differences in teachers' and students' answers to some of the questions, visually well illustrated in the Image 2.1.3. below. Thus, while more than half of the teaching staff (over 80%) has indicated "using digital technologies to provide individual and group counselling to students," only around 40% of students has indicated that those have been used. Also, around 68% of teachers have indicated "using digital technologies to foster students active and creative engagement with the subject," while only around 42% of students has indicated their usage.

Finally, as mentioned, some questions in the survey questionnaire were only for the teaching staff. The answers to these questions indicate that most teachers use digital resources for continuous professional development (more than 90% of teachers), digital technologies to share and exchange knowledge and experiences with colleagues (around 82% of teachers), and assess and develop their own digital pedagogical competencies and practice (around 80% of teachers). At the lower end is "modifying existing digital educational resources and developing new ones," with only 48% of teachers indicating to do so.

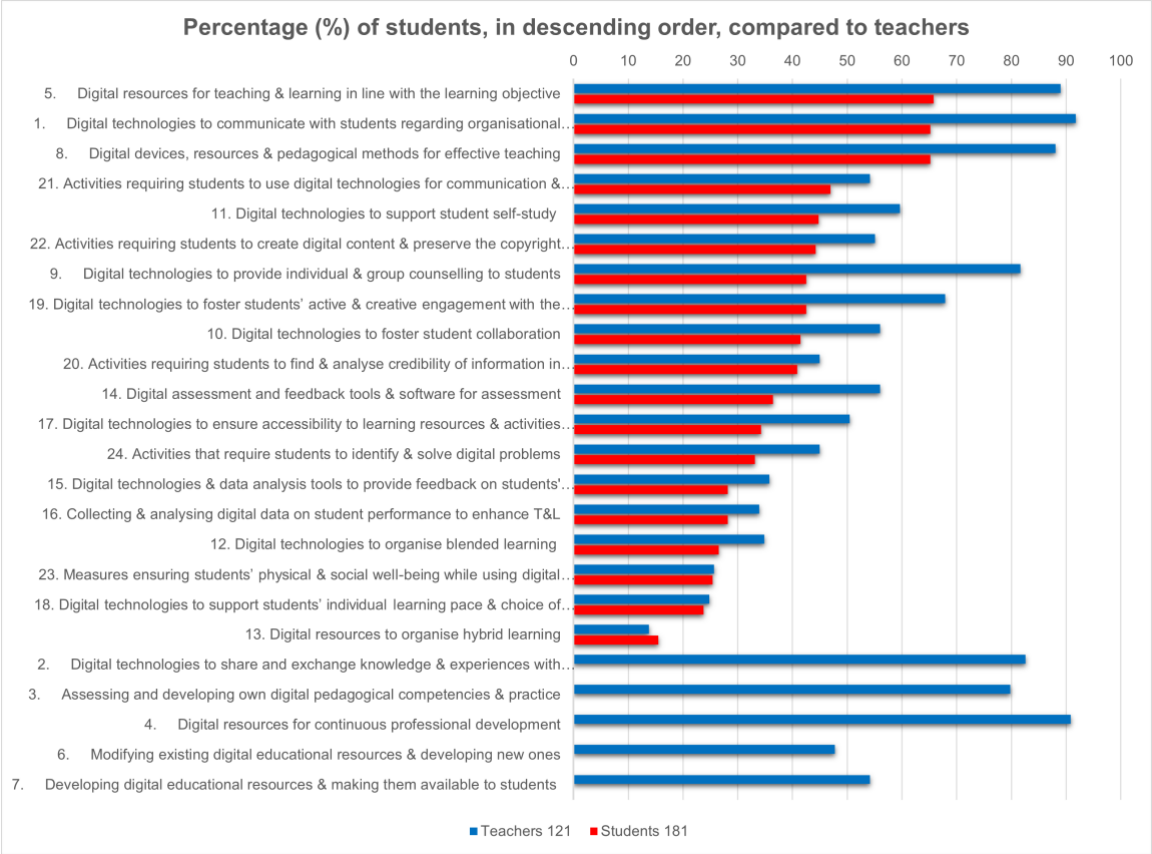

Image 2.1.2. Percentage (%) of students, in descending order, compared to teachers

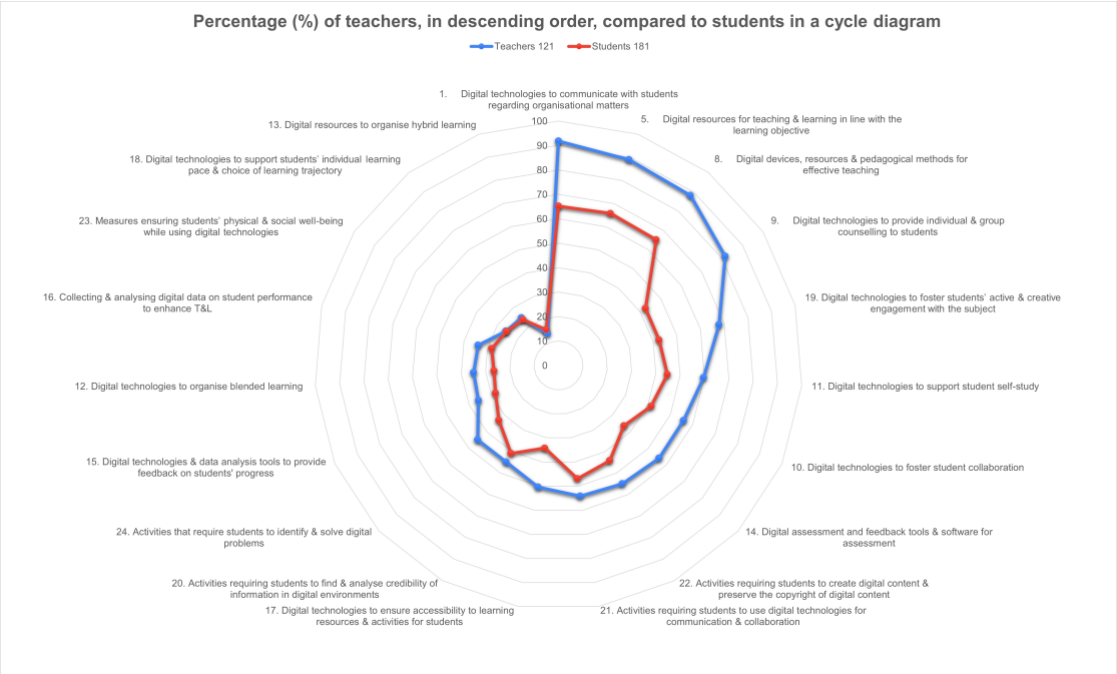

Image 2.1.3. Percentage (%) of teachers, in descending order, compared to students in a cycle diagram

2.2. Level of Need for Developing the Digital Competencies and Technologies[1]

As reflected in Images 2.2.1 to 2.2.3, students at ASUE expressed a noticeably higher demand for further development of digital competencies than their teachers. On a scale of 0 (no need) to 3 (high need), students consistently rated their needs above 2.5 for several key competencies, including:

- selecting appropriate digital resources aligned with learning outcomes;
- ensuring accessibility for all learners, including students with special needs;
- using digital technologies for effective self-study and independent learning;
- applying digital tools for formative and summative assessment.

Teachers, while indicating lower overall urgency, prioritized the following digital competence development areas:

- collecting and analyzing performance data using digital tools;
- creating and adapting digital learning materials in accordance with copyright laws;
- engaging students through digital content creation, critical evaluation, and active participation.

[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 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).

Both groups showed strong interest in improving their competencies around inclusivity, feedback, and interactive engagement, though the level of that interest varied.

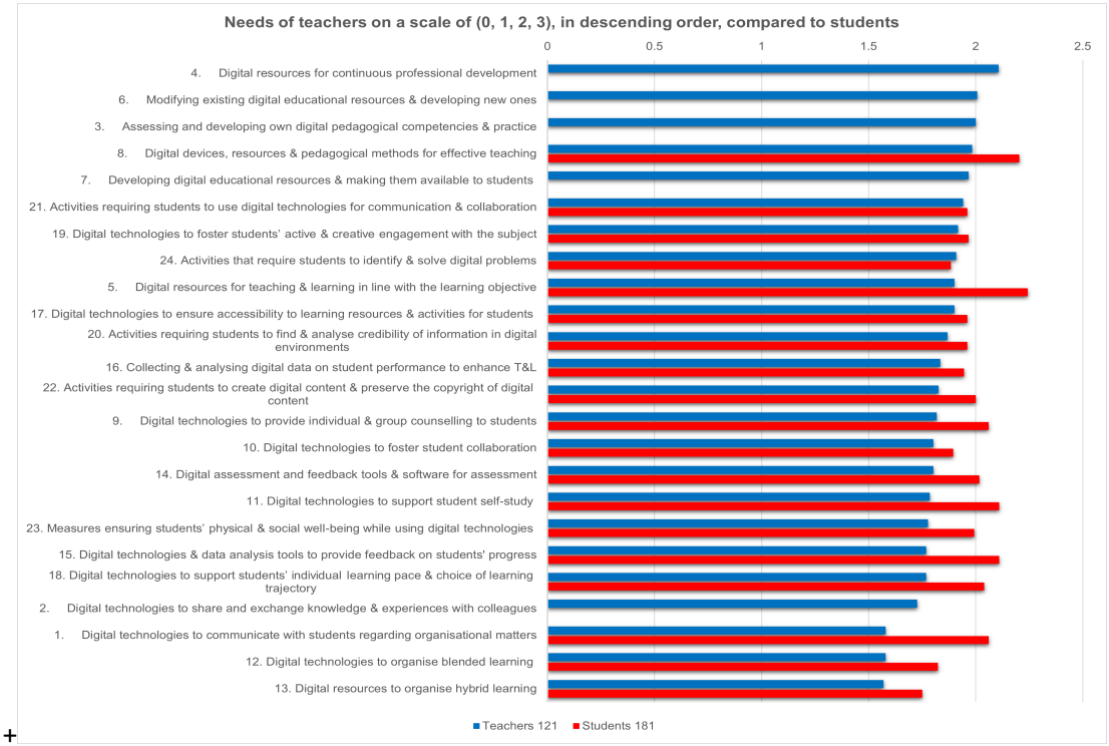

Image 2.2.1. Needs of teachers on a scale of (0, 1, 2, 3), in descending order, compared to students

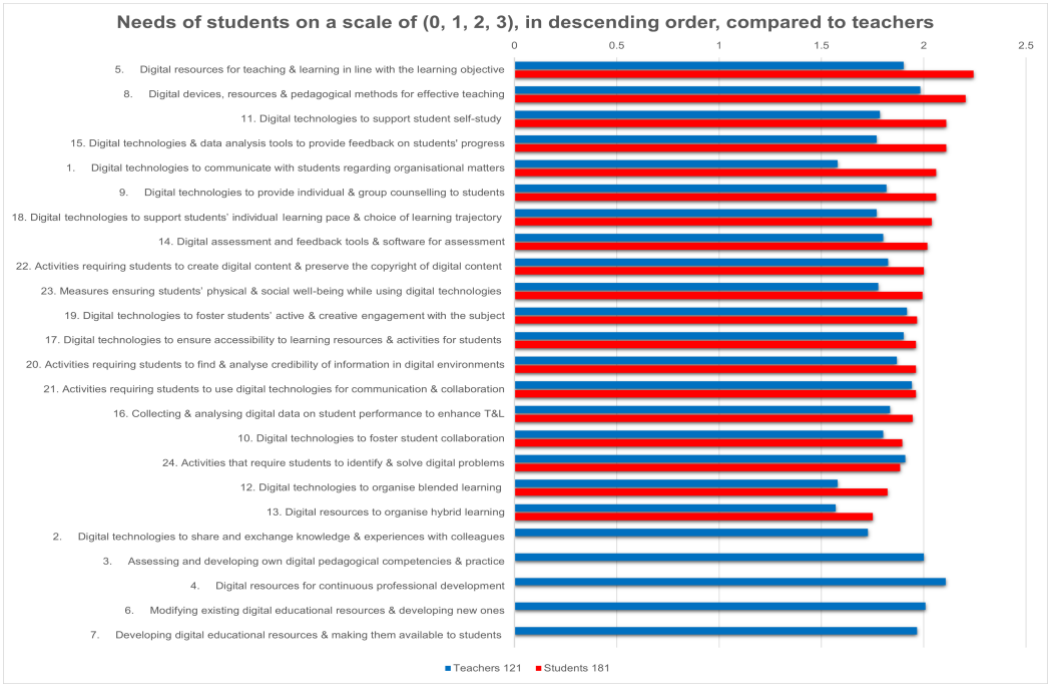

Image 2.2.2. Needs of students on a scale of (0, 1, 2, 3), in descending order, compared to teachers

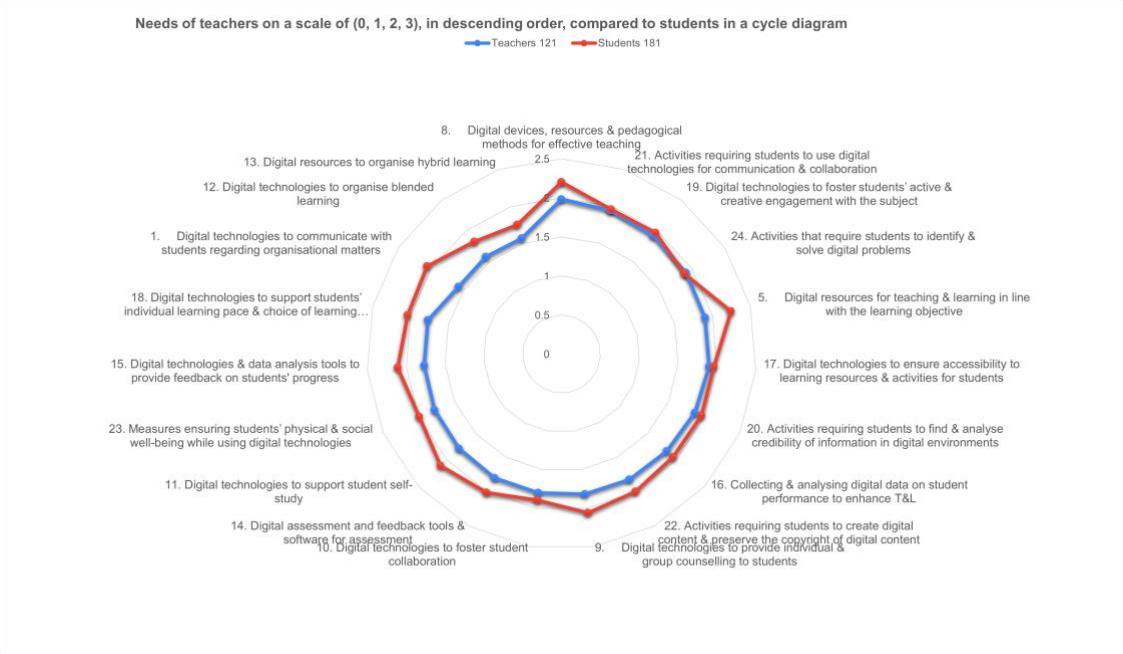

Image 2.2.3. Needs of teachers on a scale of (0, 1, 2, 3), in descending order, compared to students in a cycle diagram

Section 3: Technologies and Facilities Supporting Digital TLA

Overall, there is a noticeable difference between teachers and students in terms of their usage of technologies and facilities to support digital TLA. The most used technologies/facilities by teachers are personal computing devices (laptops, tablets, desktops, 2-in-1 hybrid devices), virtual classrooms (Zoom/MS Teams/Google Meet/ClassIn/Webex), printers/copiers/scanners, and portable (mobile) projectors, while comparatively lower percent of students have indicating using those. At the same time, students have reported higher usage of more advanced technology than teachers, such as multimedia content creation tools, gamified learning platforms and digital simulations, as well as AI feedback tools. Thus, overall, there is a noticeable difference between teachers and students in terms of their technology use. Compared to teachers, students have indicated a higher level of usage of more advanced technologies.

However, when rating the effectiveness of technologies and facilities applied to support TLA, teachers and students provided more or less comparable/similar answers, considering interactive whiteboards/smartboards and panel/screen; personal computing devices (laptops, tablets, desktops, 2-in-1 hybrid devices), and Learning Management Systems (LMS) as the most effective.

3.1. Technologies and Facilities Currently Applied to Support Digital TLA

The survey results at the Armenian State University of Economics (ASUE) demonstrate noticeable differences in teachers' and students' use of digital technologies and facilities to support teaching, learning, and assessment (TLA).

According to Images 3.1.1 through 3.1.3, teachers report high levels of use of the following technologies:

- personal computing devices (laptops, desktops, tablets, 2-in-1 hybrids),
- virtual classrooms and video conferencing tools (Zoom, MS Teams, Google Meet),
- printers, copiers, and scanners for digitizing and distributing resources,
- projectors and other presentation devices.

These technologies are typically associated with the delivery of content and formal instruction and are consistent with standard teaching infrastructure across higher education institutions.

On the other hand, students reported comparatively lower usage of traditional hardware but a relatively higher engagement with advanced and interactive technologies, such as:

- multimedia content creation tools (e.g., Canva, Prezi),
- gamified learning platforms and digital simulations,
- AI-based feedback and support tools.

A particularly interesting finding is that Learning Management Systems (LMS) are used almost equally by both students and teachers, indicating a shared digital environment for organizing learning materials, communication, and assessment.

This contrast in usage patterns reflects a generational difference: teachers appear to rely more on institutionally provided hardware and platforms, while students experiment more with interactive, AI-driven, and user-friendly digital tools that align with autonomous and informal learning habits.

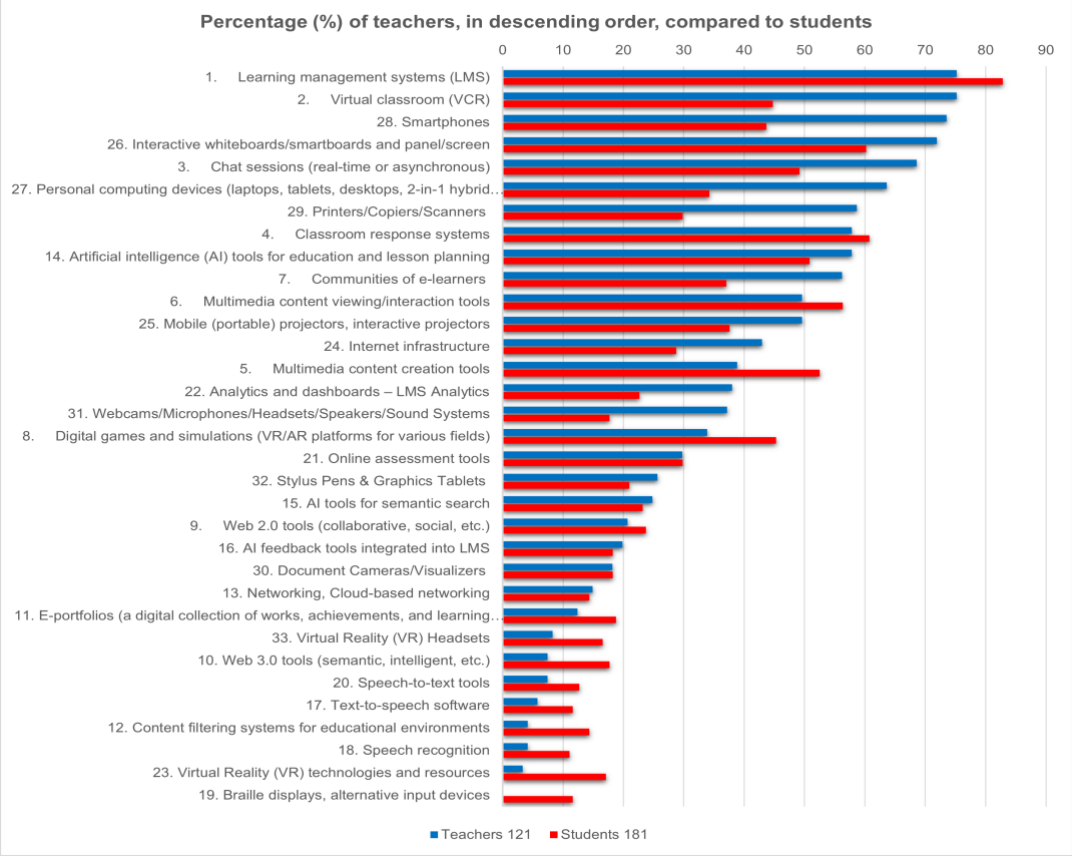

Image 3.1.1. Percentage (%) of teachers, in descending order, compared to students

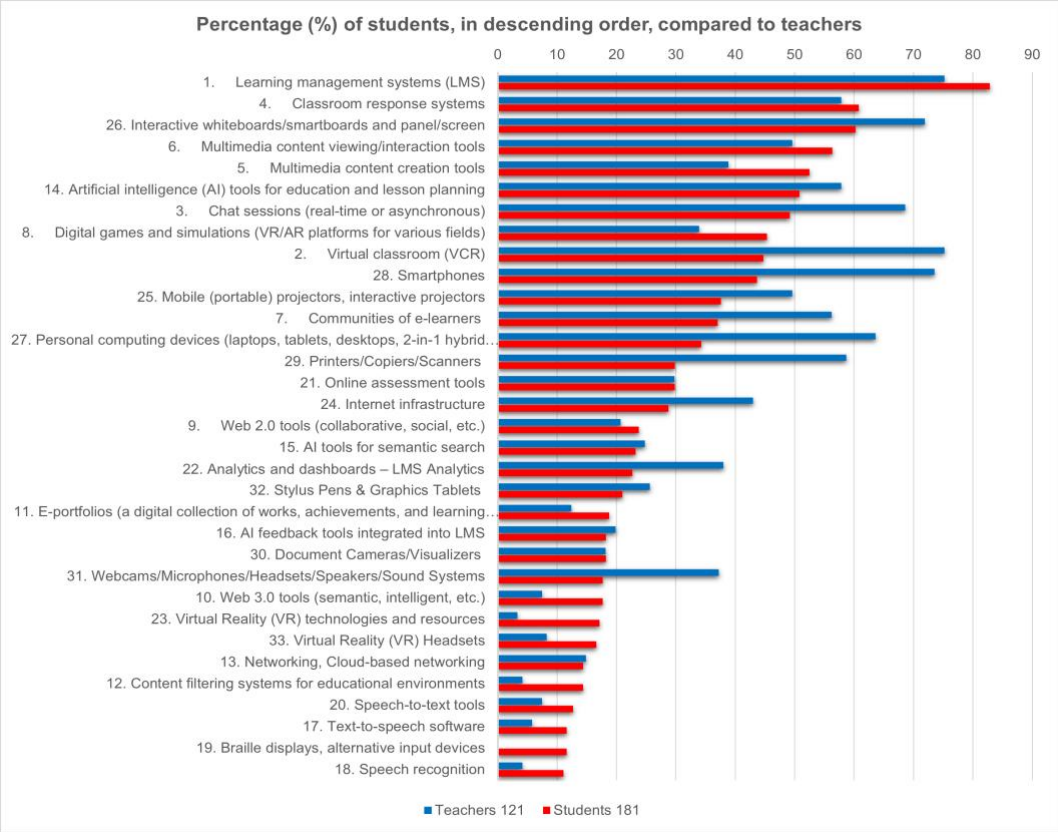

Image 3.1.2. Percentage (%) of students, in descending order, compared to teachers

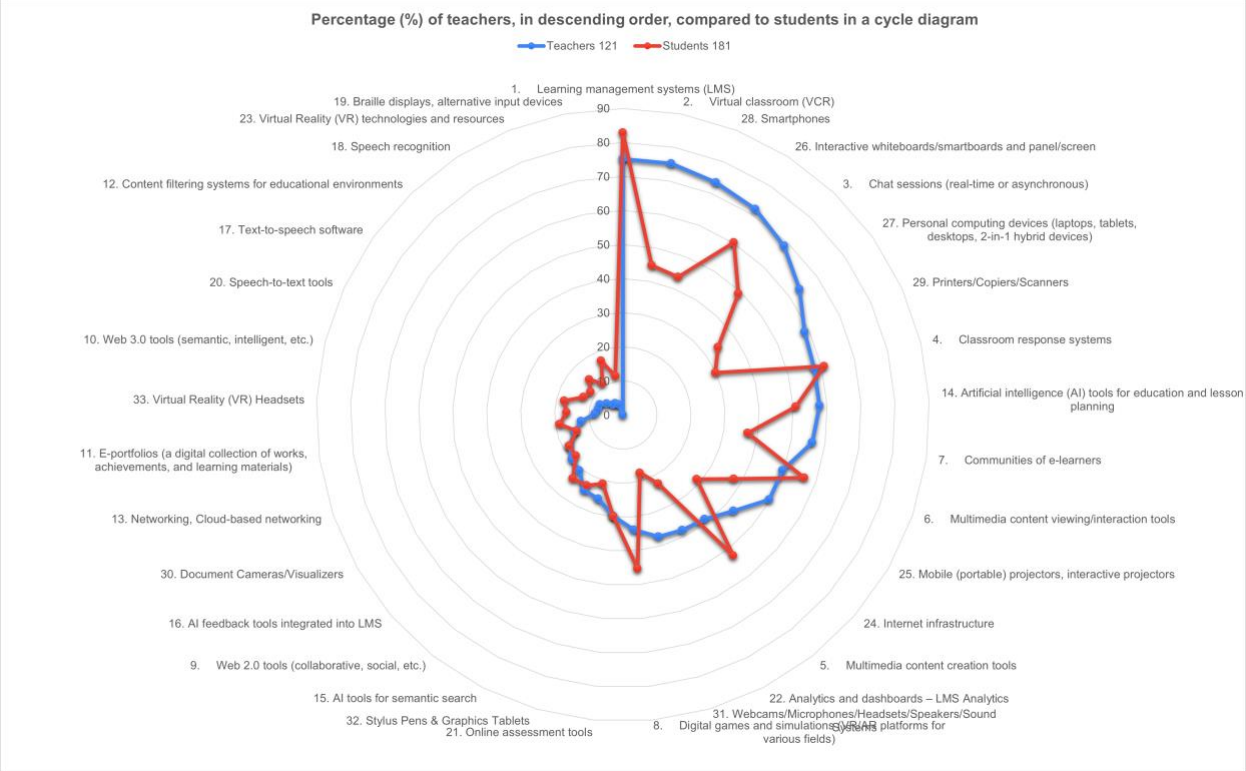

Image 3.1.3. Percentage (%) of teachers, in descending order, compared to students in a cycle diagram

3.2. Usefulness of the Technologies and Facilities Supporting Digital TLA

While actual usage differs between groups, the perceived usefulness of digital technologies and facilities is remarkably aligned across both teachers and students.

As shown in Images 3.2.1 through 3.2.3, the following were rated as the most effective tools (scoring above 2.5 on a 0–3 scale):

- interactive whiteboards / smart panels,
- personal computing devices,
- learning Management Systems (LMS).

These tools are viewed as essential for content delivery, learner engagement, and assessment management.

Technologies rated as least effective by both groups include:

- Virtual Reality (VR) headsets, which are perceived as either underutilized or lacking pedagogical integration,
- Braille displays and alternative input devices, likely due to limited exposure or specialized user needs,
- cloud networking and infrastructure tools, which may be underappreciated by end-users despite their critical backend role.

It is notable that although students rated personal computing devices as highly effective, only a minority reported regular access to such devices—highlighting a gap between perceived value and availability.

This finding points to a clear institutional priority: to increase equitable access to high-impact digital tools through targeted investment, training, and inclusive policy development.

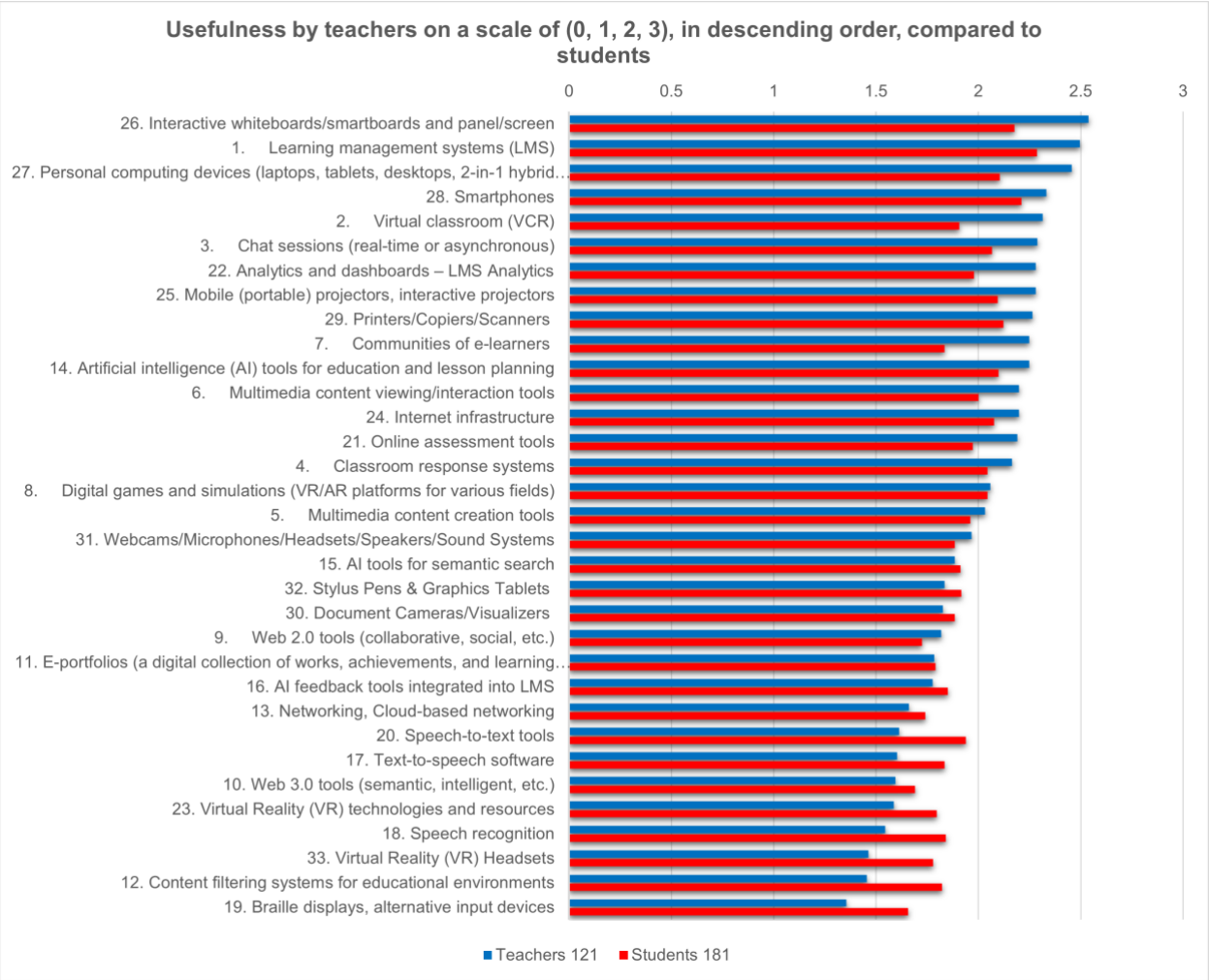

Image 3.2.1. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students

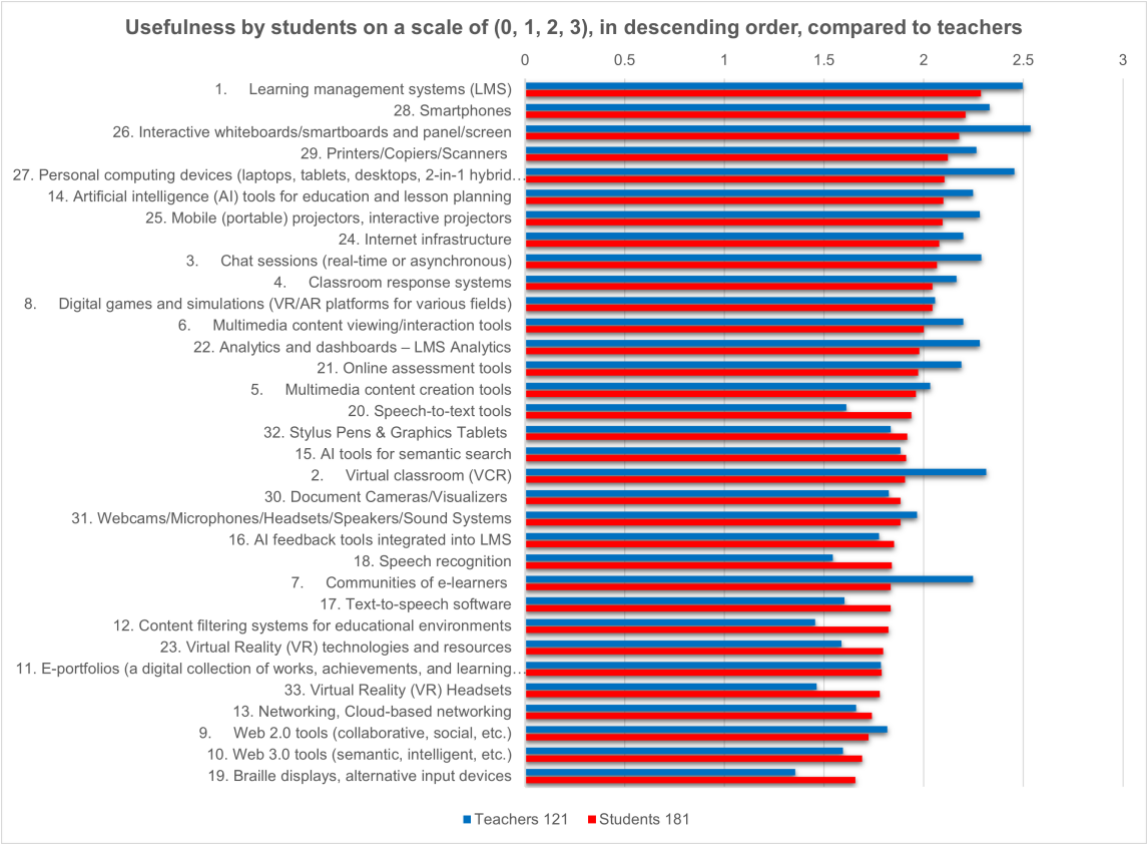

Image 3.2.2. Usefulness by students on a scale of (0, 1, 2, 3), in descending order, compared to teachers

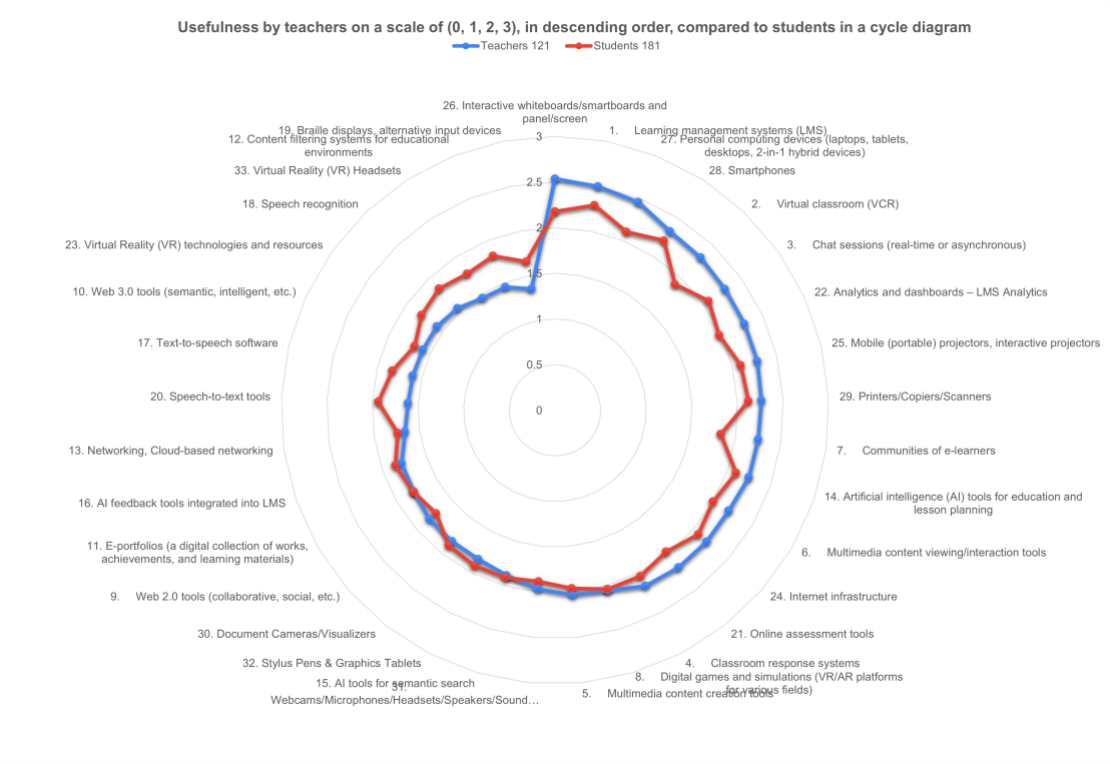

Image 3.2.3. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students in a cycle diagram

Section 4: Teaching and Learning (Study) Materials

Overall, students and teachers have identified **e-books, textbooks course/lecture notes and presentation** as both **most used** and most useful study materials.

4.1. Study Materials Currently in Use

The feedback from ASUE's teachers and students highlights a shared reliance on core instructional materials to support teaching and learning processes. As shown in the Images 4.1.1 through 4.1.3, the most commonly used materials by both groups include:

- E-books
- Textbooks
- Course and lecture notes
- Presentation slides (e.g., PowerPoint, Prezi).

These materials form the backbone of instructional delivery at the university and are widely used across disciplines. Interestingly, while teachers reported slightly higher usage of e-books, textbooks, and presentations, students reported higher use of lecture notes, likely due to their centrality in exam preparation and class review.

There are notable differences in the use of other materials. For example:

- Academic journals and research articles are used by over 80% of teachers, but only by about 44% of students, indicating a potential gap in research-based learning.
- Manuals and user guides, as well as handouts and worksheets, are used by majority of teachers but less frequently by students, possibly due to limited supply or perceived lower relevance.
- Collaborative tools, such as wikis and shared documents, and MOOCs and virtual labs remain underutilized by both groups, reflecting either low awareness or limited integration into the curriculum.

This distribution suggests that while traditional resources are well embedded in teaching practices, interactive and innovative digital materials are yet to become mainstream at ASUE.

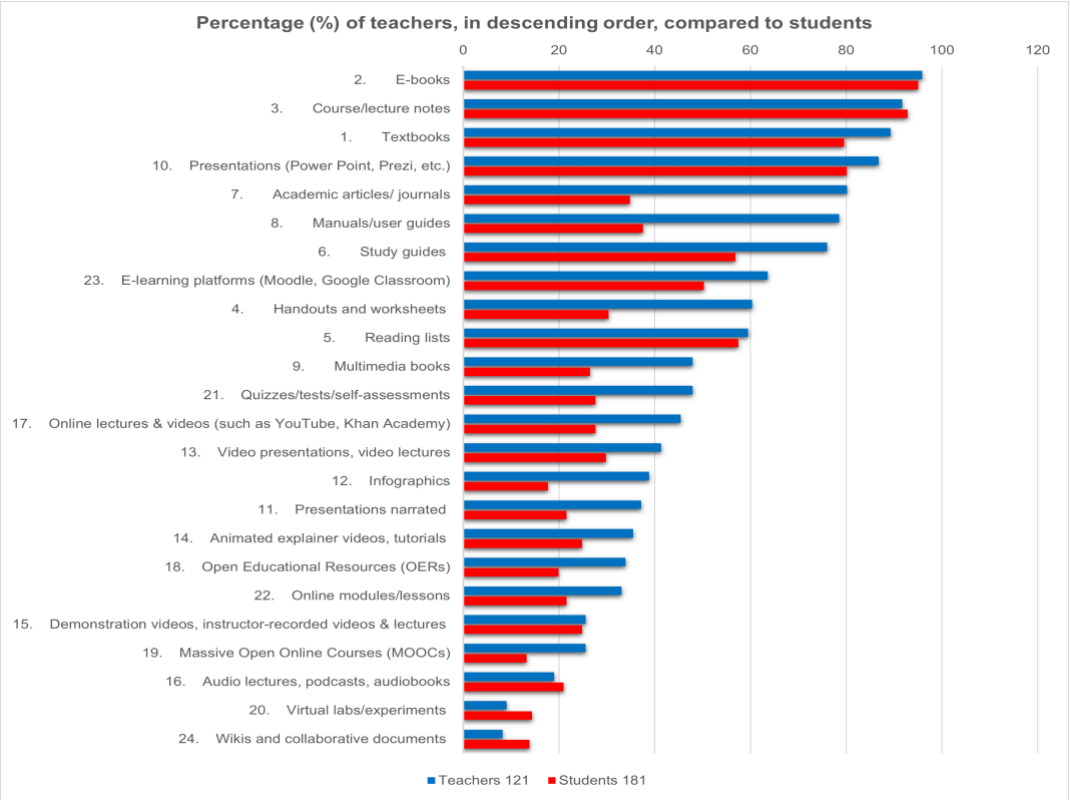

Image 4.1.1. Percentage (%) of teachers, in descending order, compared to students

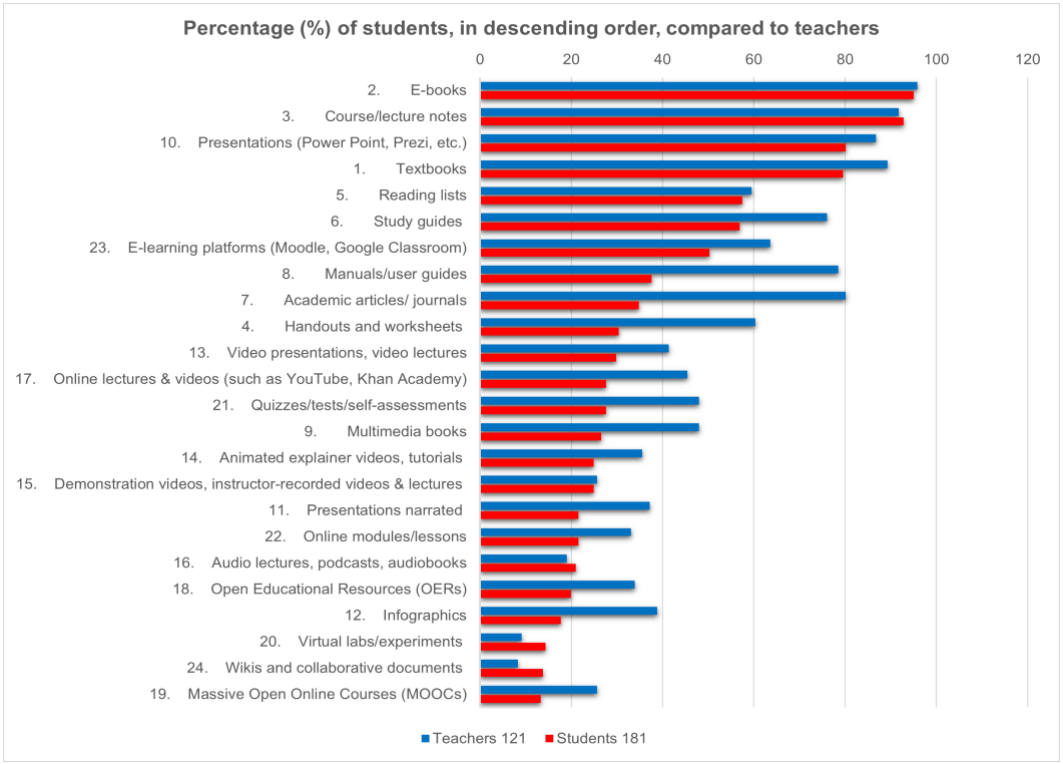

Image 4.1.2. Percentage (%) of students, in descending order, compared to teachers

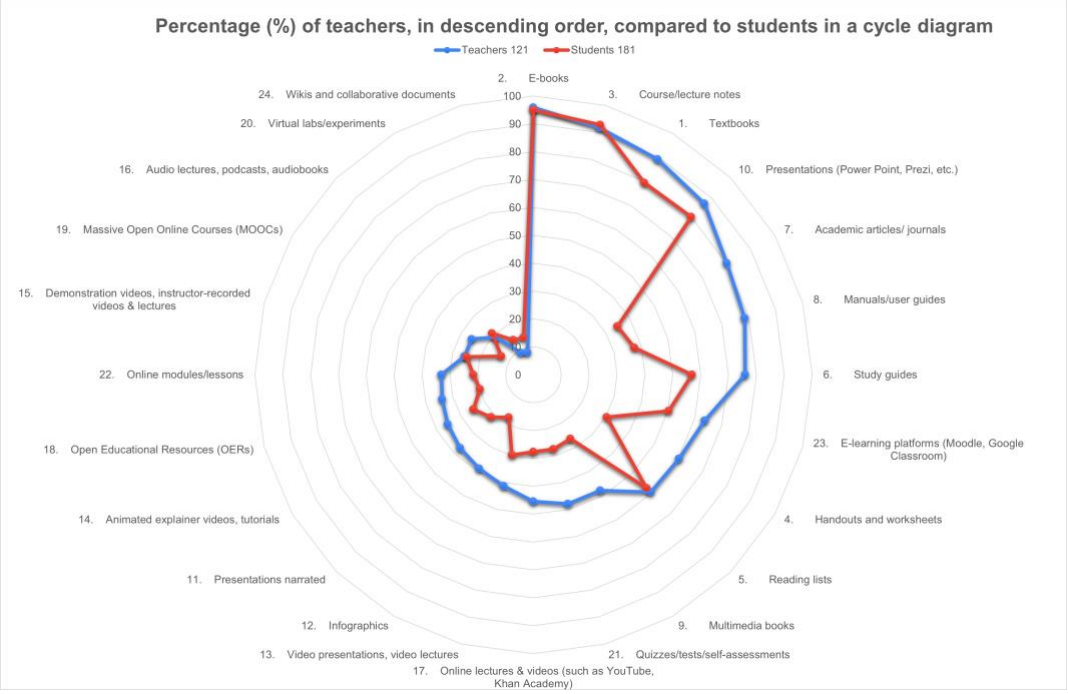

Image 4.1.3. Percentage (%) of teachers, in descending order, compared to students in a cycle diagram

4.2. Usefulness of the Study Materials for TLA

In evaluating the usefulness of various study materials, both teachers and students provided remarkably similar ratings, as reflected in the Images 4.2.1 through 4.2.3. Materials most frequently used were also perceived as most effective, particularly:

- E-books
- Textbooks
- Course/lecture notes
- Presentations.

Each of these resources was rated above 2.5 on a 0–3 effectiveness scale by both groups, indicating perceived high value in the learning process.

However, a few differences emerged:

- Teachers rated the usefulness of academic articles and journals significantly higher than students did, reflecting a more research-oriented teaching perspective.
- Students showed preference for concise, accessible resources (e.g., notes and slides), while teachers placed more value on comprehensive and formal sources.

Materials such as MOOCs, collaborative documents, and virtual simulations were rated lowest by both groups in terms of usefulness, which may be due to limited experience with these formats or insufficient integration in course structures.

The findings indicate a need to diversify and modernize teaching materials, including:

- increasing access to Armenian-language academic content,
- promoting use of interactive resources (e.g., H5P, video lectures, simulations),
- encouraging faculty to integrate emerging formats into their courses.

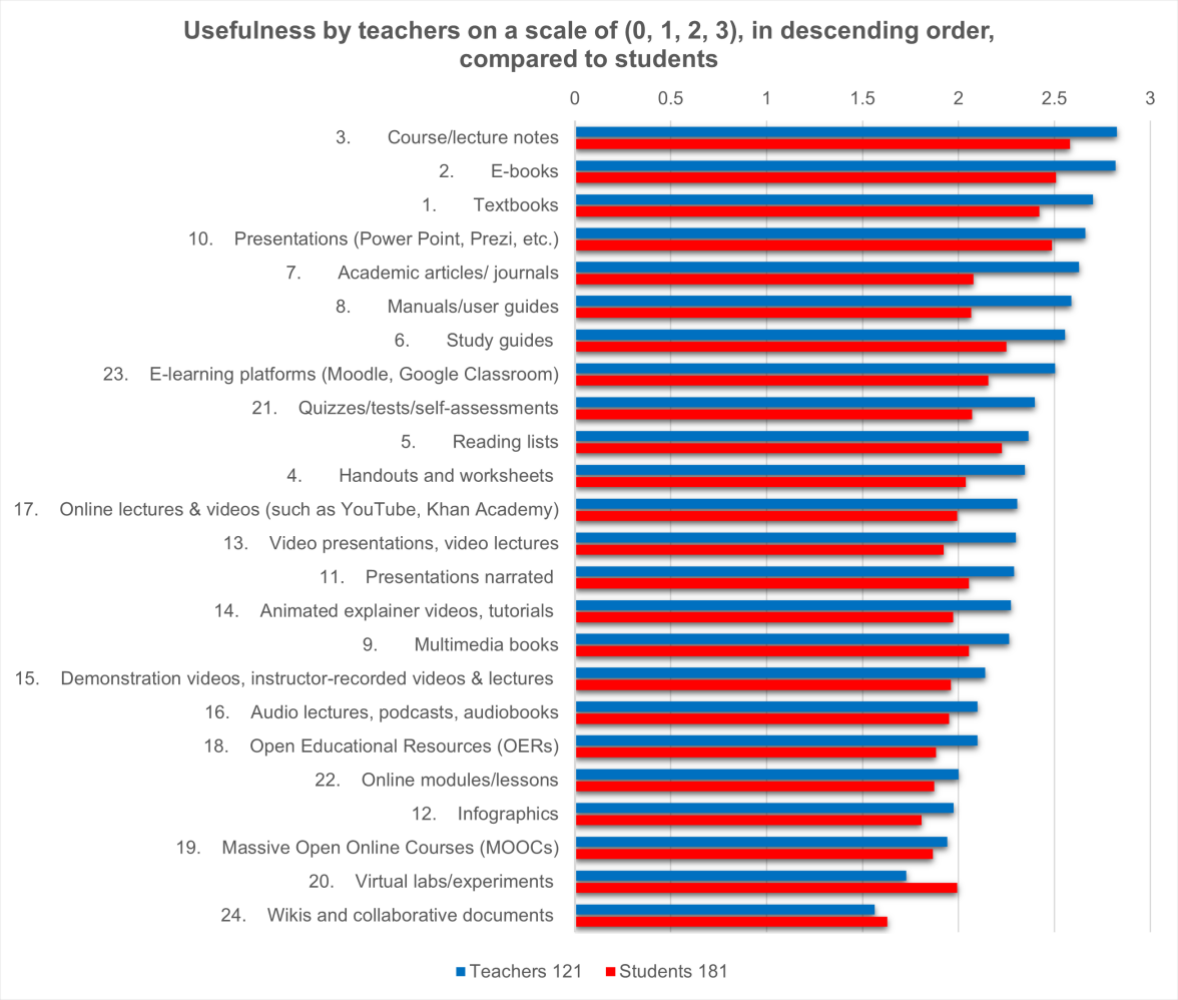

Image 4.2.1. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students

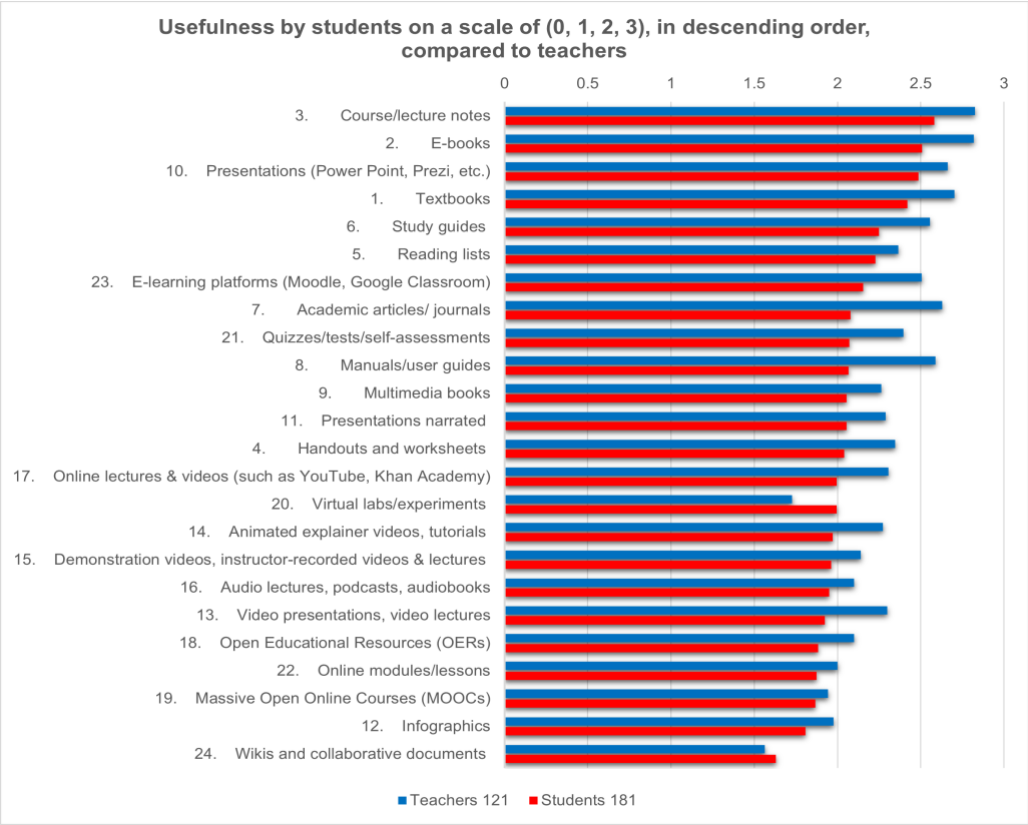

Image 4.2.2. Usefulness by students on a scale of (0, 1, 2, 3), in descending order, compared to teachers

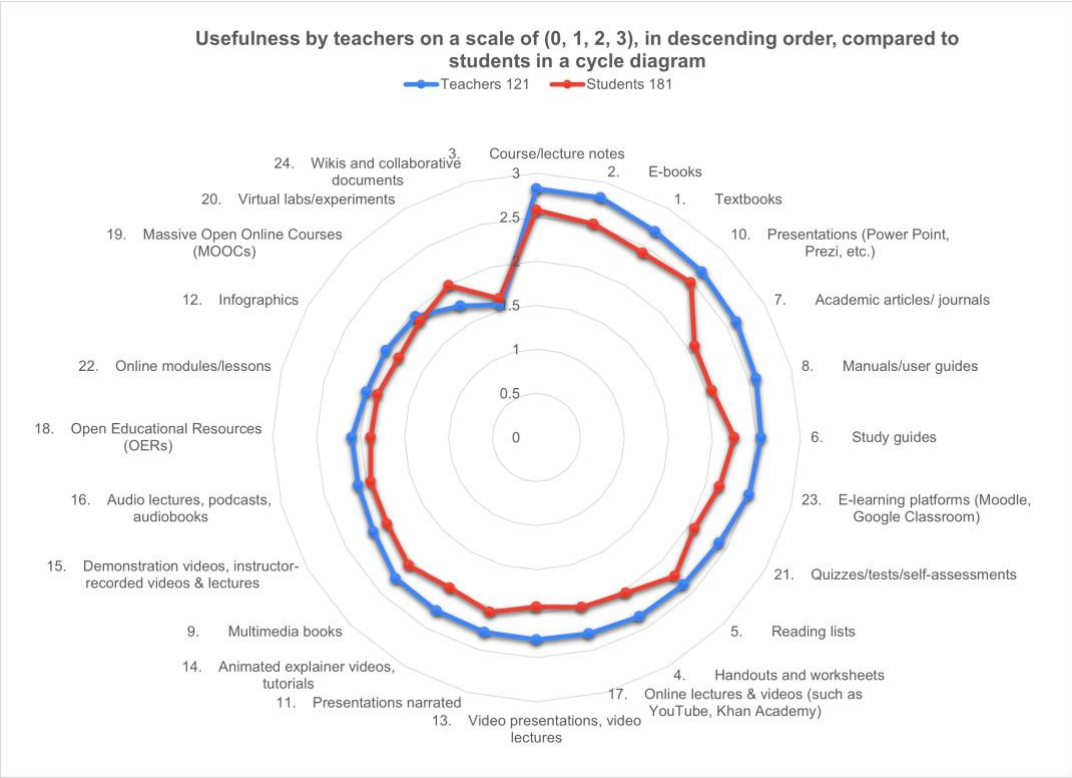

Image 4.2.3. Usefulness by teachers on a scale of (0, 1, 2, 3), in descending order, compared to students in a cycle diagra

Section 5. Main Obstacles to Digital TLA

5.1. Main Obstacles to Digital TLA in HEIs

According to survey responses at ASUE, both teachers and students identified several significant barriers hindering the effective use of digital technologies in teaching, learning, and assessment (TLA). As illustrated in Image 5.1, the following were the most commonly cited challenges:

- underdeveloped digital infrastructure and lack of modern equipment;
- limited digital competences among teaching staff;
- insufficient access to high-quality digital resources.

While both groups acknowledged these issues, students were more concerned about the lack of accessible digital resources in Armenia, especially Armenian-language content. Nearly 70% of students selected this as a major obstacle. Teachers, on the other hand, emphasized infrastructure and their own skill gaps as key limiting factors.

This divergence suggests that while teachers need institutional support for capacity building, students are advocating for better digital content and tools that align with their learning needs.

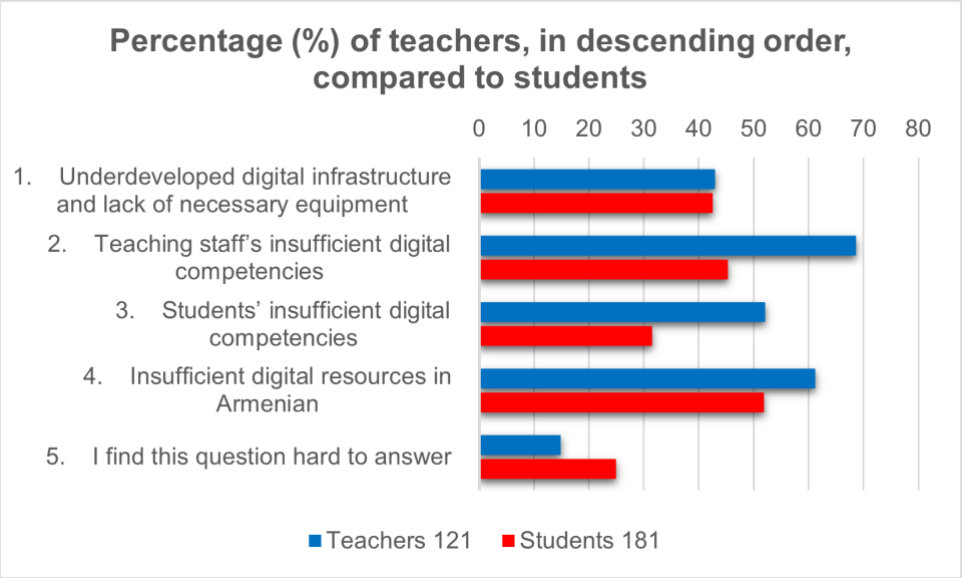

Image 5.1. Percentage (%) of teachers, in descending order, compared to students

5.2. Teachers' Previous Participation in the Training on Digital TLA

As shown in the Image 5.2, a significant proportion of ASUE's teaching staff has not participated in professional training specifically targeting digital TLA. This lack of structured professional development limits their ability to explore new methods and technologies effectively.

This finding reinforces the need for systematic, university-wide digital competence development programs, with a focus on pedagogical integration of digital tools—not just technical usage.

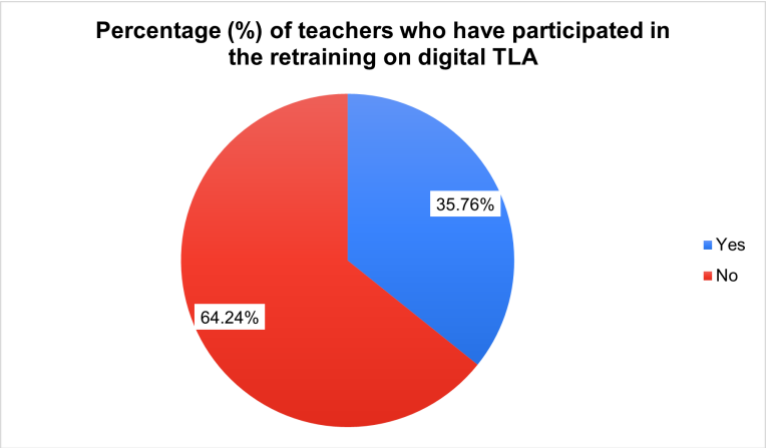

Image 5.2. Percentage (%) of teachers who have participated in the retraining on digital TLA

5.3. Main topics of the Teachers' Previous Training

Teachers who had previously attended digital training sessions reported exposure to a narrow range of tools and topics. Based on their feedback, the most frequently mentioned training areas included:

- Use of LMS platforms (e.g., Moodle, Google Classroom)
- Virtual conferencing tools (Zoom, MS Teams)
- Introduction to AI-based educational tools (e.g., ChatGPT, Grammarly, Quillbot)
- Formative assessment platforms such as Google Forms, Kahoot, and Mentimeter

In a few cases, teachers also referred to training in interactive content creation tools (e.g., H5P, Canva), though such experiences were reported inconsistently.

Overall, the training landscape at ASUE appears to be fragmented and tool-specific, lacking a unified, pedagogy-driven framework. This underscores the need for:

- institutionally coordinated professional development programs,
- inclusion of inclusive digital practices, feedback methodologies, and hybrid teaching strategies,
- focus on practical application and long-term impact rather than tool familiarity alone.

Section 6: Additional Information Provided by Teachers and Students

6.1. Teachers' Responses

Teachers provided a variety of insights regarding their experiences with digital tools and their perceptions of current teaching practices. Many highlighted the importance of integrating advanced digital technologies into their teaching methods. Some noted their previous participation in various training programs focused on Learning Management Systems (LMS), digital assessment tools, and interactive teaching methods.

Several teachers emphasized the need for structured professional development opportunities that not only focus on technical skills, but also on pedagogical strategies that enhance student engagement. They pointed out that while they are familiar with basic digital tools, there is a significant gap in knowledge regarding the use of more advanced technologies like AI-driven educational tools.

Additionally, teachers expressed concerns about the adequacy of digital resources available to them and their students. Many indicated a desire for more comprehensive training in digital pedagogy to better support diverse learning needs in their classrooms.

6.2. Students' Responses

Students provided valuable feedback regarding their experience with digital learning environments. Many students expressed a strong interest in using digital tools that facilitate collaboration and interactive learning. They indicted preference for platforms that allow for real-time feedback and communication with instructors.

A recurring theme in student responses was the need for improved access to quality digital learning materials, particularly in Armenian. They highlighted the importance of having centralized access to course materials and resources to enhance their learning experience.

Students also raised concerns about the inconsistency in the availability of digital resources across different courses and instructors. They suggested that a standardized approach to digital resource sharing would significantly improve their educational experience.

Moreover, students emphasized the importance of training programs that equip them with necessary skills to effectively utilize digital tools in their studies, particularly in using AI technologies for research and assignment completion.

Conclusions and Recommendations

1. Specific Digital Competences to Develop

- **Digital Literacy:** Enhance both teaching staff and students' proficiency in using digital tools effectively, including LMS, communication platforms, and educational software.

- **Data Analysis Skills:** Equip faculty with the ability to analyze and utilize student performance data to inform teaching strategies and enhance learning outcomes.
- **AI Integration:** Develop competencies related to the use of AI tools for personalized learning and assessment, ensuring both educators and students understand their applications and implications.
- **Interactive Teaching Methods:** Foster skills in using interactive and gamified learning platforms to engage students and facilitate collaborative learning environments.

2. Technologies and Facilities for Enhancement

- **Learning Management Systems (LMS):** Upgrade existing LMS platforms (e.g., Canvas, Moodle) to support more interactive features and better analytics.
- **Digital Infrastructure:** Invest in high-quality computers and internet access for both students and faculty to ensure equitable access to digital learning resources.
- **Multimedia Tools:** Provide access to advanced multimedia creation tools and virtual classroom technologies to enhance the learning experience.
- **Data Visualization Tools:** Implement tools for data analysis and visualization, such as Power BI and Tableau, to help faculty assess student performance effectively.

3. Types of Digital Teaching and Learning Materials

- **Interactive e-Resources:** Develop engaging e-books, video lectures, and interactive simulations that align with educational objectives.
- **Translated Materials:** Create Armenian-language academic content to support students' understanding, especially in complex subjects.
- **Online Collaborative Tools:** Encourage the use of platforms like Padlet and Google Docs for collaborative projects and peer feedback.
- **Assessment Resources:** Develop digital assessment tools that provide instant feedback and analytics to help students track their progress.

4. Strategies to Address Barriers and Obstacles

- **Professional Development Programs:** Implement structured training programs focused on digital pedagogy and the integration of technology in teaching practices.
- **Resource Accessibility:** Establish a centralized digital repository for educational materials, ensuring all students have access to necessary resources regardless of their physical location.
- **Community Engagement:** Foster a culture of collaboration among faculty to share best practices and resources, creating a supportive network for digital teaching initiatives.
- **Feedback Mechanisms:** Create channels for continuous feedback from both students and teachers regarding the effectiveness of digital tools and resources, allowing for ongoing improvement.

By addressing these areas, the Armenian State University of Economics can significantly enhance its digital teaching and learning environment, ensuring that both faculty and students are well-equipped to thrive in a modern educational landscape. Implementing these recommendations will lead to improved educational outcomes and a more inclusive and engaging learning experience.

Practical Recommendations for Enhancing Teachers' Digital Competence

1. **Structured Professional Development**
    - Regular Workshops: Organize workshops focusing on the integration of digital tools into teaching practices, covering topics such as LMS, digital assessment, and AI applications.
    - Certification Programs: Encourage participation in certification courses related to digital pedagogy (e.g., DigCompEdu) to formalize teachers' digital competencies.
2. **Peer Collaboration and Mentoring**
    - Mentorship Programs: Pair less experienced teachers with digital-savvy colleagues to facilitate knowledge sharing and support.
    - Collaborative Projects: Promote team teaching and collaborative projects that encourage the use of digital tools and shared resources.
3. **Resource Development and Sharing**
    - Digital Resource Repository: Create a centralized platform where teachers can share digital teaching materials, lesson plans, and best practices.
    - Interactive Content Creation: Train teachers in using tools like H5P, Canva, and Adobe Spark to develop engaging and interactive learning materials.
4. **Integration of AI Tools**
    - AI Training Sessions: Provide training on the effective use of AI tools (e.g., ChatGPT, Grammarly) to enhance teaching and support student learning.
    - Use Case Development: Encourage teachers to develop specific use cases for AI in their courses, demonstrating practical applications.
5. **Feedback and Evaluation Mechanisms**
    - Digital Competence Assessment: Implement self-assessment tools to help teachers evaluate their digital skills and identify areas for improvement.
    - Feedback Loops: Establish mechanisms for teachers to receive feedback on their use of digital tools in the classroom from both peers and students.
6. **Encouraging Innovative Teaching Practices**
    - Flipped Classroom Models: Promote the adoption of flipped classroom approaches, where digital resources are used for self-study, allowing for more interactive classroom time.

- Gamification: Encourage the incorporation of gamification elements in teaching to increase student engagement and motivation.

7. **Access to Technology and Infrastructure**
    - Upgrade Digital Tools: Ensure that teachers have access to up-to-date hardware and software necessary for effective digital teaching.
    - Technical Support: Provide ongoing technical support to assist teachers in navigating digital tools and troubleshooting issues.
8. **Community of Practice**
    - Establish Networks: Create communities of practice where educators can discuss challenges, share resources, and collaborate on digital initiatives.
    - Regular Forums: Host forums or discussion groups focused on specific digital education topics, fostering an environment of continuous learning.

Conclusion

By implementing these practical recommendations, educational institutions can significantly enhance teachers' digital competencies, leading to improved teaching practices and better learning outcomes for students. These initiatives will cultivate a culture of innovation and continuous professional growth within the academic community.

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	83.5 %	74.6 %
3.2	83.5 %	66.3 %
4.2	83.5 %	69.6 %

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

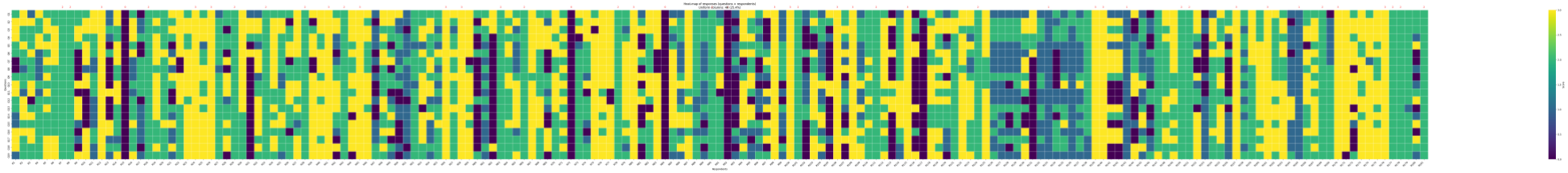

Fig. 2.2.1: Students responses

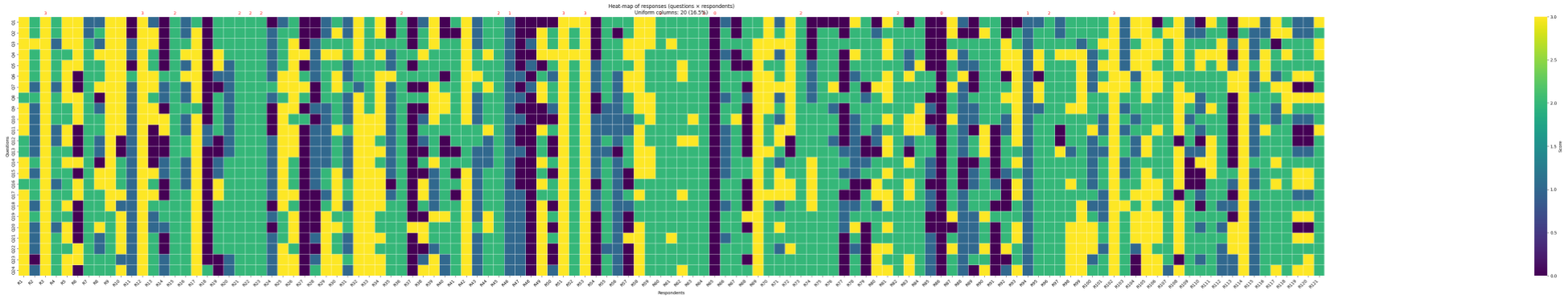

Fig. 2.2.2: Teachers responses

3.2. Usefulness of the technologies & facilities supporting digital TLA

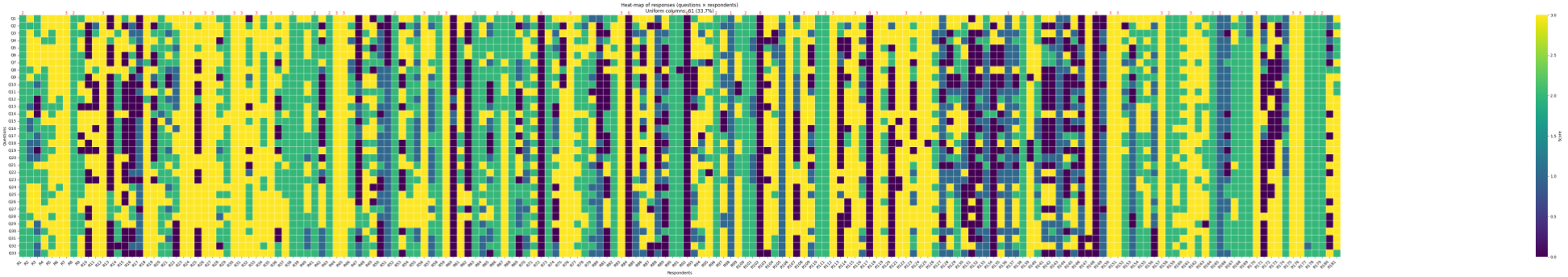

Fig. 3.2.1: Students responses

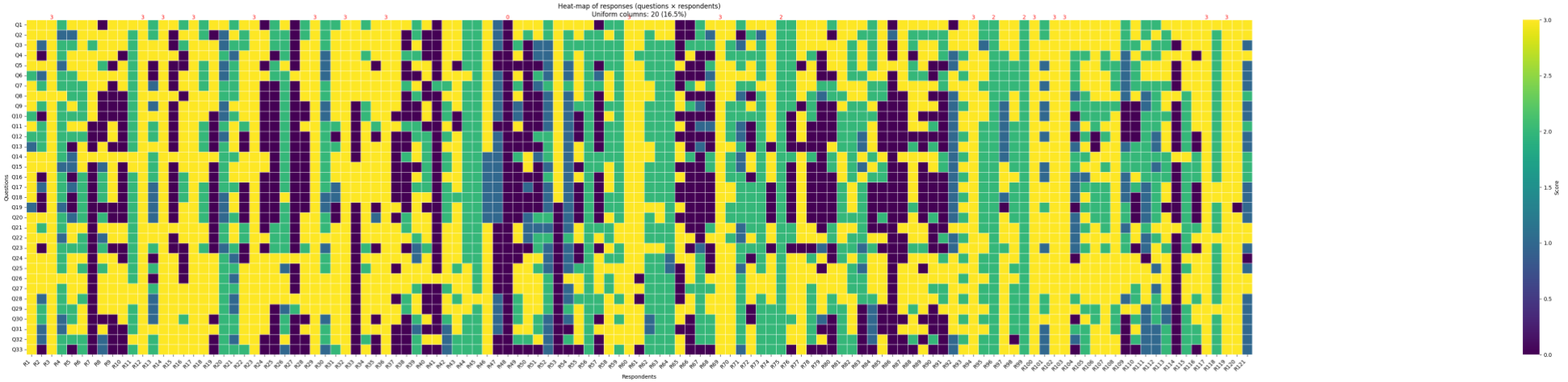

Fig. 3.2.2: Teachers responses

4.2. Usefulness of the study materials for TLA

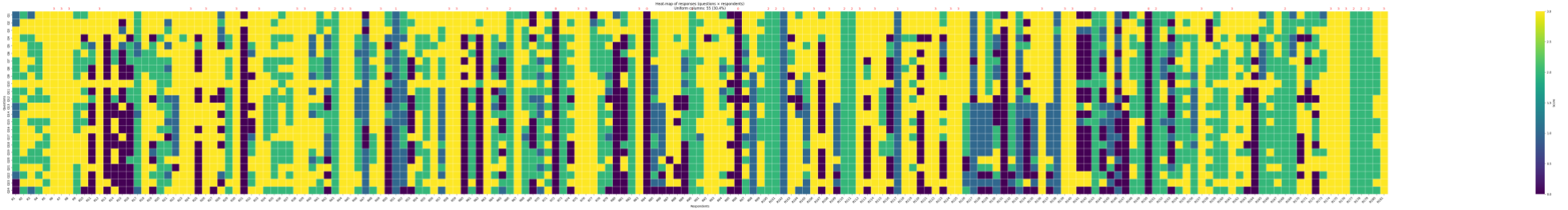

Fig 4.2.1: Students responses

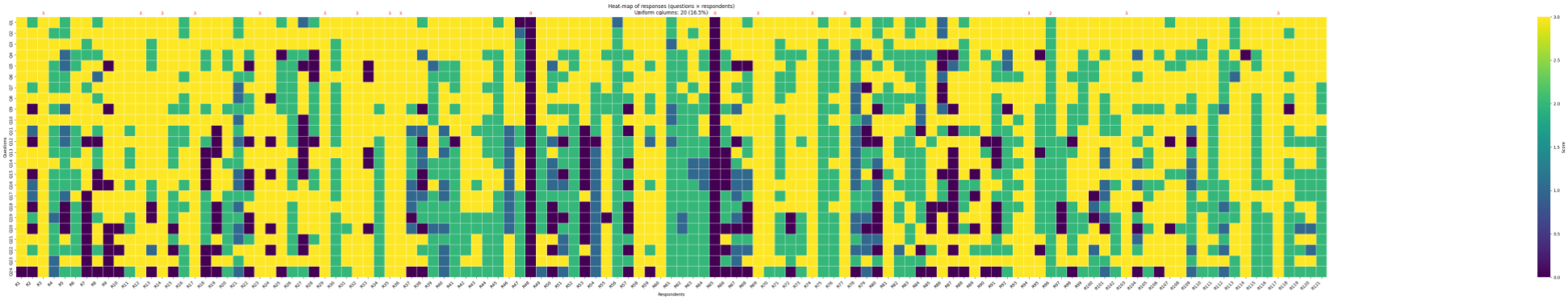

Fig 4.2.2: Teachers responses

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