

Cultural Differences as Catalyst for Research in Technology-Based Learning

A Delphi Study on Adaptive Learning (AL)



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1. Background & Objectives

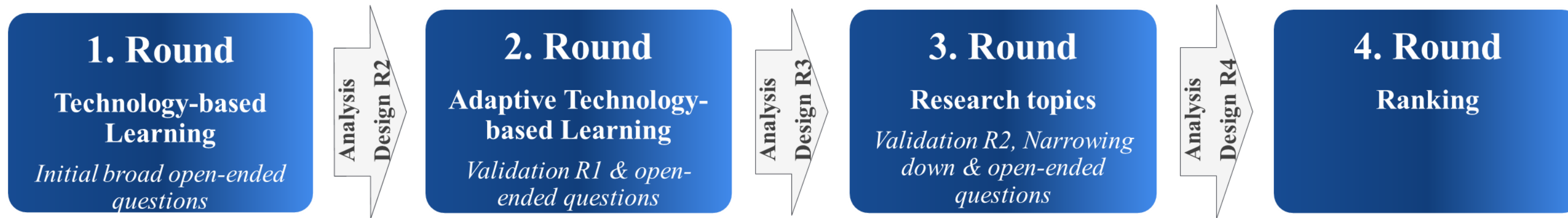
The use of information technologies in education is spreading increasingly. However, it is difficult for developing regions and countries to keep up with the speed of technological progress (Bloom et al., 2014). Following Elletson & Burgess (2015), we argue that the implementation of adaptive learning technologies will lead to the upgrading of technical infrastructures, development of new learning concepts, materials, competencies as well as adjustments of educational policies, curricula and, thus, to the sustainable development of educational systems in these regions, as well as globally.

This Delphi study was carried out at the FFHS and NWU universities. The study focuses on identifying 1) challenges on the implementation of adaptive learning as well as 2) future research topics in the field of adaptive learning, which should lead to the development of a research strategy for joint activities of the both universities in the framework of the UNESCO Chair on Personalized and Adaptive Distance Education (PADE).

2. Materials & Methods

- Data collection:** A four-stage online Delphi survey with a case study approach was chosen.

Delphi study design:

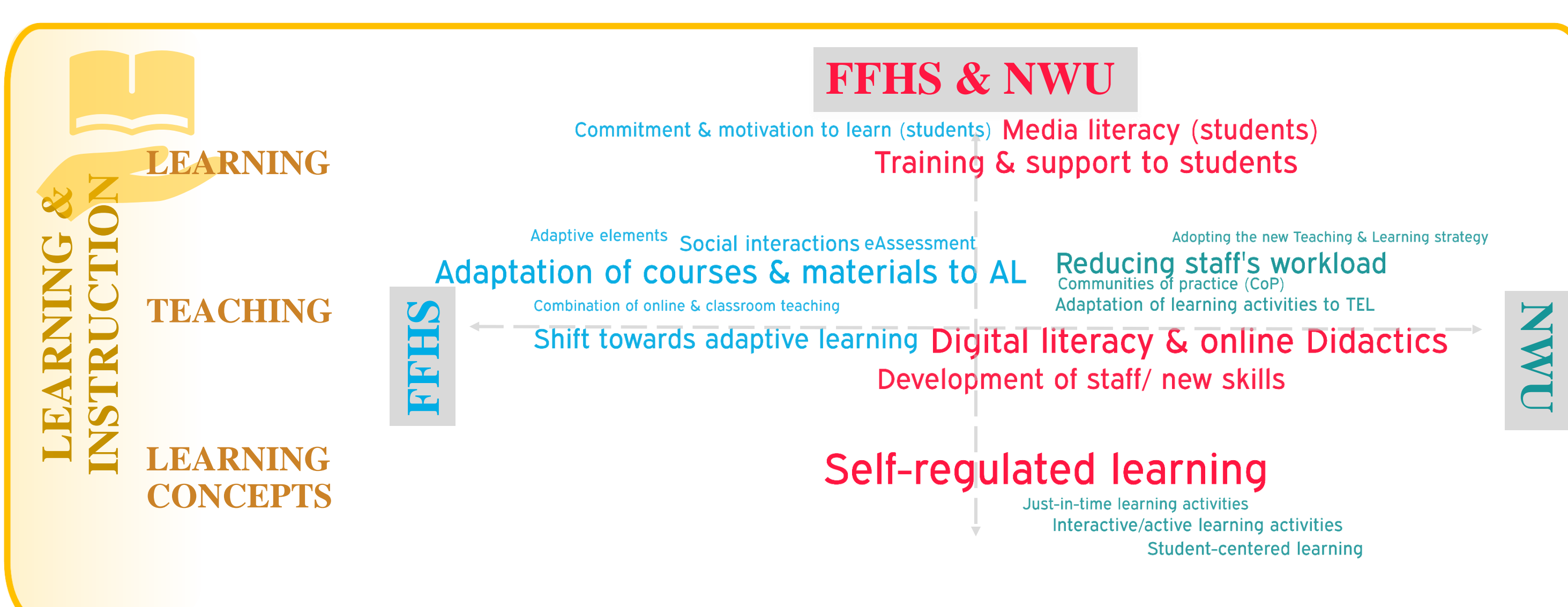
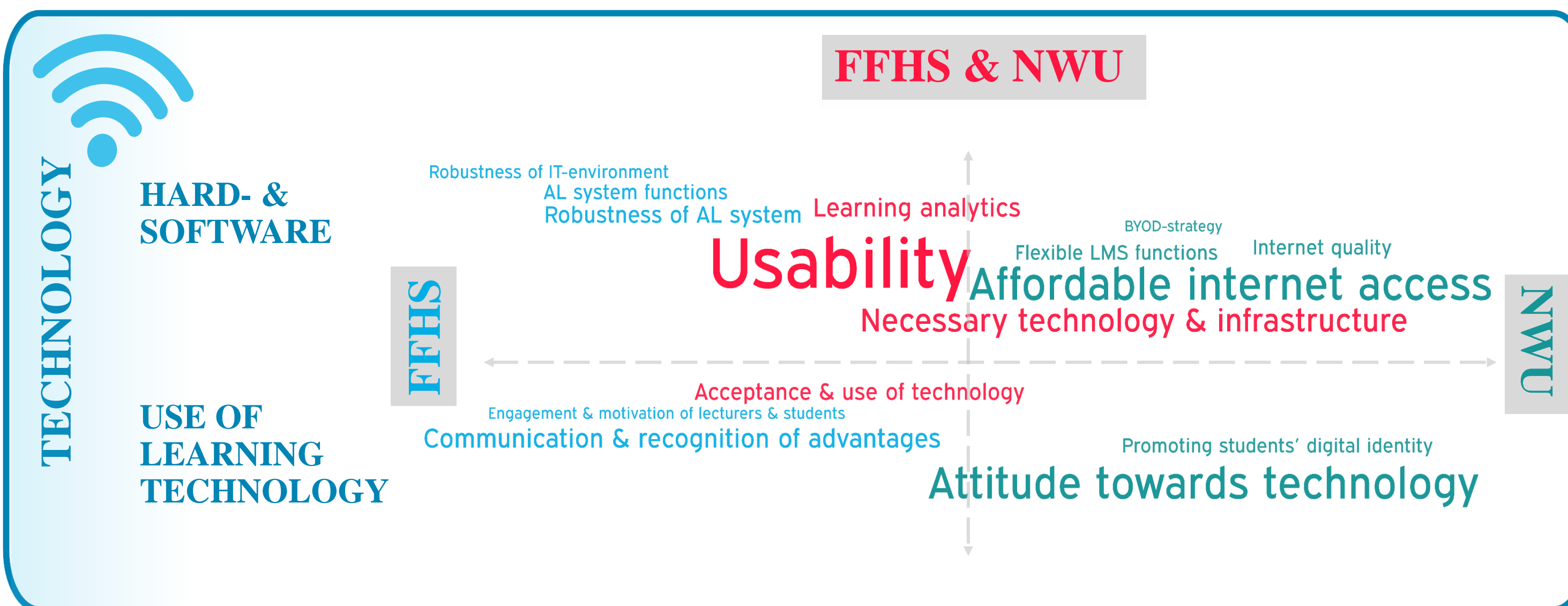


- Purposive sampling** strategy, (Elo et al., 2014). The qualitative sampling consists of experts on (adaptive) technology-based learning and self-regulated learning and reflects a balanced distribution of academic function, years of professional experience and sex. Participants: N (FFHS) = 24 and N (NWU) = 20.
- Data analysis:** The open-ended survey data were analyzed and managed with the qualitative software MAXQDA Analytics Pro12. Emergent themes were coded inductively consistent with the methodology proposed by Saldana (2009).

3. Results

3.1. Comparison of the key challenges of adaptive learning between the FFHS & NWU

The size of the phrases indicate the frequency of the coded challenges. The colors show differences and commonalities in challenges on adaptive learning. The position of the common challenges (red) show their relevance for the corresponding university.



3.2. Rankings. TOP 5 challenges of adaptive learning for both universities

Which challenges need to be overcome first, so that adaptive technology-based learning can be implemented sustainably in your institution?

FFHS



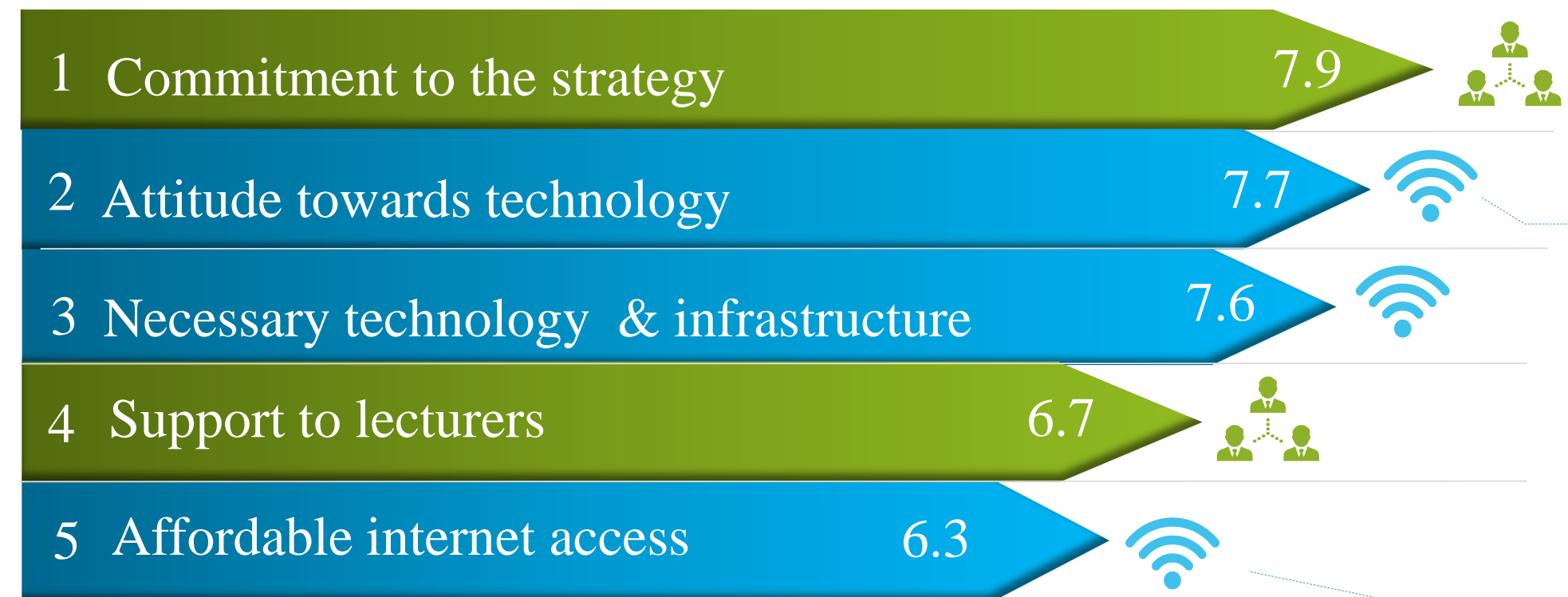
Statements:

«It needs the right people with experience, expertise and creativity!»

«A clear and definite YES to adaptive learning is needed from the management.»

Mean values, N = 19, Items = 16

NWU



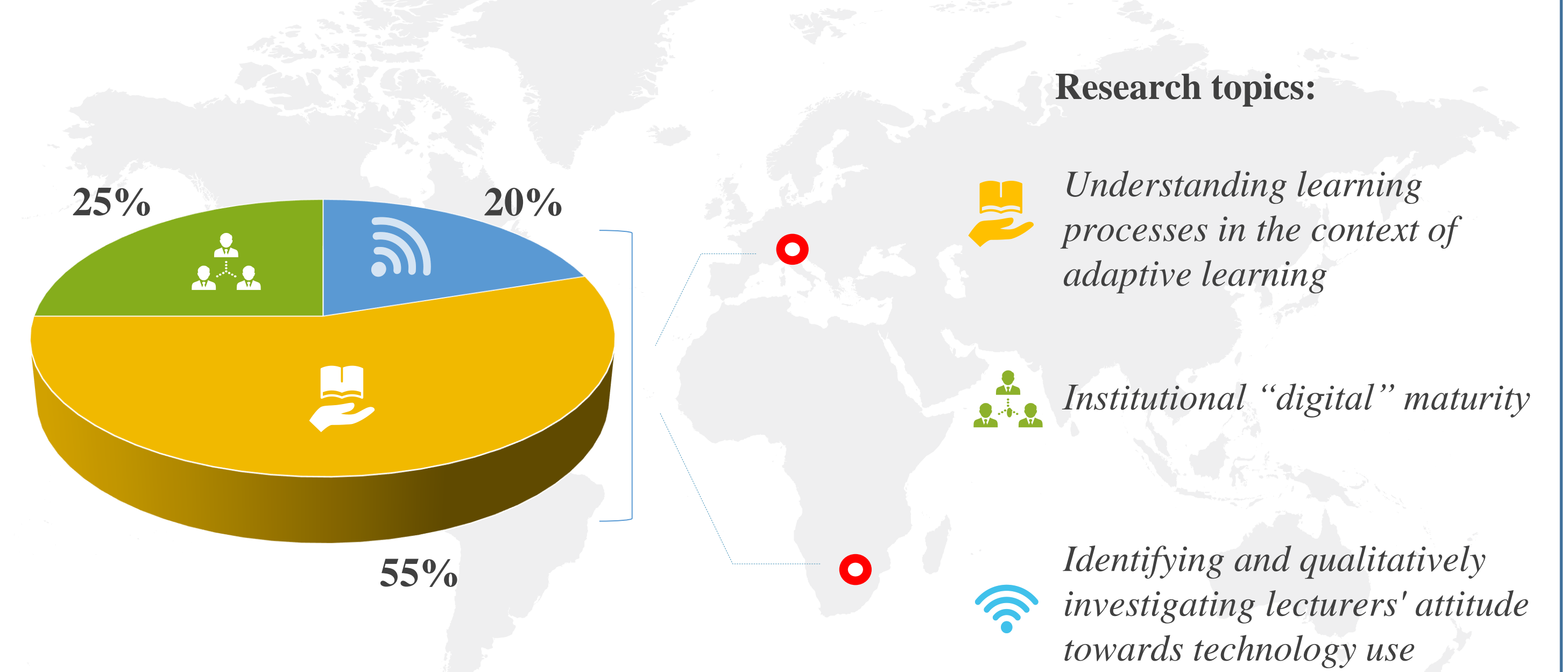
«The biggest problem is that students have not yet realised the value of the availability and use of technology.»

«Internet access on a mobile device is very expensive if not on the NWU wifi, making mobile learning an issue.»

Mean values, N = 10, Items = 11

3.3. Future research topics

In which identified categories are there an urgent need for research on adaptive technology-based learning?



4. Discussion

The findings suggest that there are some differences in challenges and their priorities between the universities. These differences could be due e.g. 1) **cultural and economic conditions** (e.g. NWU: “affordable internet access”), 2) **a specific organizational system of the university** (e.g. NWU: “reducing the staff’s workload”) or 3) **a different experience with adaptive learning** (e.g. FFHS: “robustness of an AL system”). Interestingly, the commonalities (e.g. “usability”) often show specific nuances for each university (e.g. FFHS: usability of AL systems; NWU: usability of learning technology in general). Taking into consideration different characteristics and backgrounds of the universities (e.g. distance vs. on-campus, with experience vs. no experience in adaptive learning, Switzerland vs. South Africa), the differences in challenges between the universities provide important information about the key aspects to be considered during the implementation process of adaptive learning.

5. Conclusions & Outlook

- The thematic category system of the challenges of adaptive learning was developed (3.1).
- The differences in challenges and their priorities are essential for planning joint research projects and viz. for implementing adaptive learning in higher education institutions in general.
- The category “learning and instruction” seems to be the main domain for research with 55% of the reported research topics.
- In a next step, these findings will serve as a basis for determining possible interrelationships between coded categories and developing a common research strategy in the field of adaptive learning.

6. References

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