

Digitalisation in Higher Education: Modern Challenges and Prospects - Comments from the Lecturer's Perspective -

- Comments from the perspective of a lecturer with more than 30 years of teaching experience. Note that comments from the students' or management's perspective or even from young lecturers may be different...

I. 40 years of digitalisation in higher education: Have the high expectations been met?

1. Certainly yes - but the decisive progress was already made in the 1980s and 1990s
 - the broad introduction of word processing², electronic spreadsheets and searchable databases in the 1980s
 - allowing but henceforth also requiring to constantly perfect one's academic text, visualize quantitative correlations and manage and process large collections of facts
 - the broad introduction of *e-mail* for electronic written communication in the late 1990s
 - the development of a browsable public internet in the 1990s
 - allowing easy access of a broad public to a large quantity of knowledge
 - soon also *easy access to legislation and jurisprudence* (with → electronic search within the documents)
 - the early internet was dominated by scientists and public institutions and information was mostly reliable
 - in particular: the instrument of *internet links*
 - allowing lecturers to easily inter-connect knowledge from different sources to comprehensive knowledge compendia
2. No progress but rather a challenge for higher education: the rise of social media
 - disinformation, emotionalisation, irrationalisation: the shift from the expert internet as reliable source of information to the *bullshit internet* in the 21st century
 - making it more and more difficult for students to extract reliable information
 - the growing distortion of the flow of information by *manipulative algorithms*
 - feeds that favour right-wing propaganda and neglect content provided by experts and the civil society
 - an attempt to manipulate the public discourse - and your research!
3. No progress but rather abuse of power by the IT companies: the forced use of clouds
 - modern software too often requires or preconfigures complete data storage in the cloud
 - consequences: *inadequate data protection* (esp. if the cloud servers are located in the USA or China), unreliability, waste of energy and internet traffic, frequent *slowdowns in the work process*
 - Is it really appropriate that Microsoft, Google & Co. (and thus the U.S. Government under Donald Trump) can read every text you write and every data you collect?
4. A questionable progress: the rise of half-baked university e-learning platforms
 - even after decades of development, most are still *ugly, complicated, unergonomic and slow*
 - the *tendency to patronise the students like school kids* instead of boosting their self-initiative, self-responsibility and intellectual autonomy
 - with functions for school-like exercises (even homework and quiz games) but not to encourage & support self-directed advanced studying
 - the *tendency to shift administrative work* that should be done by admin. staff *to the lecturers*, who, consequently, have less time for the academic preparation of the course and the individual support of the students
 - example: *lecture attendance must be monitored by the administration, not the lecturers!*
 - *lecturers hiding their course materials* on e-learning platforms with limited access instead of making them publicly available on an own website
 - a significant regress: the *loss of the numerous valuable, rich expert websites* of academic lecturers of the early 2000s
 - Has the quality of course materials become so bad that students from other courses or universities must not see them?

II. More important than new digital instruments and functions: students must learn to master the existing ones

1. It is ridiculous to discuss the students' use of artificial intelligence as long as they do not even know how to use the advanced functions of word processors for academic papers
 - automatic formatting via templates
 - automatic generation of tables of contents, general indexes and indexes of legislation and jurisprudence, bibliographies and summaries
 - automatic internal referencing
 - Are you familiar with these crucial software functions for academic work?

¹ DAAD Lecturer in Law at Universitas Gadjah Mada, Yogyakarta; Außerplanmäßiger Professor (adjunct professor) at the University of Göttingen, Germany; www.thomas-schmitz-yogyakarta.id, www.thomas-schmitz-eu.de; E-Mail: tschmit1@thomas-schmitz-eu.de.

² Underlined text passages indicate links to relevant internet resources. Just click on the link in the pdf file!

2. Two necessary compulsory courses on the use of digital instruments in academic work:
 - a) Advanced use of general digital instruments (including artificial intelligence)
 - professional use of word processing, presentation, spreadsheet & database software, with a focus on their special functions for the academic work
 - professional use of internet resources for scientific research (smart use of search machines and web repositories, managing of large bookmark collections, tools and precautions to detect fakes etc.)
 - must include *special training in identifying reliable sources and disinformation* in the internet
 - a big part of the course must be reserved to the *correct use of artificial intelligence in academic research & writing*
 - not to replace but to improve the student's own work
 - enabling students to utilise the full potential while respecting the limits of serious work with AI
 - in particular, introducing to the *art of prompting for scientific research*
 - b) Introduction to the specific software, databases, online resources and online forums for the respective discipline
 - the best digital environment is useless if the students do not know it
 - in the field of law, *specific legal software* is usually too specialised, for small groups of legal practitioners, to include it in the curricula at university
 - but students must be familiar with the *broad spectrum of legal databases and other software & online resources*:
 - databases of legislation, international treaties and other sources of law
 - databases of jurisprudence
 - databases of legal literature (also at the international level)
 - databases of other official documents of international and national institutions and authorities
 - online legal journals, blogs and forums
 - expert websites of legal scholars, public institutions and civil society organisations
 - link collections to legal internet resources
 - skills need to include
 - how to browse and search the digital resources efficiently and exhaustively (!)
 - how to cite and link correctly to digital resources and to avoid plagiarism

III. For most scientific disciplines, specific software, databases and online resources are available but need to be developed much further

- digitalisation in higher education focuses too much on general software functions, even playful functions, but often neglects the deeper connection to the scientific knowledge and methods in the respective discipline
 - example: *in legal science*, in most countries, a *complete and smart* (annotated & interconnected) *digital database of all laws & regulations*, incl. their previous versions, related international texts, jurisprudence and publications, is still missing
- substantial progress may require *more work in terms of science and content* than in IT technology and a closer cooperation with the scientists and practitioners; this will make it more expensive
- the *potential of smartphone use* still needs to be utilised
 - smartphones are ideal for looking up brief information in daily life, even for students in the lectures
 - therefore, reference works and similar compendiums should (also) be offered as smartphone apps
 - unbelievable: even in 2025, there are no elaborate general compendiums of laws available for Android

IV. The hype about artificial intelligence is premature and exaggerated

1. Artificial intelligence will certainly play a significant role in all fields of science and academic work, but not in the close future
 - work in these fields - especially in law - requires absolute reliability, accuracy and precision
 - *as long as AI risks to "hallucinate" (lie)*, even if only in exceptional cases, *it is useless*
 - a student inevitably fails the exam if in his course paper even a single reference is "hallucinated"...
 - see the spectacular case of a lawyer in trouble after presenting court filings prepared with the help of ChatGTP that cited 6 fake precedent cases
 - Update 17.03.: new research reveals that AI chatbots repeat Russian disinformation at scale
 - some Russian propaganda media likely designed to manipulate AI models rather than to generate human traffic
 - Do you really want to base your own research on such sources?
 - for lawyers, the answers of AI chatbots are often *too vague*; they do not clearly answer the legal question
 - AI cannot replace the work of a lawyer, as long as it is not able to precise and complex legal reasoning
2. The rise of artificial intelligence will increase the burden on the students, since they must learn both, to work with and without it
 - they must learn to work with AI, since in the future they will probably need to use it in their daily work
 - they must learn to work without AI, because it must assist but not replace their own performance and they *must still be* the master of the process, *able to verify* and, where necessary, correct each step of the AI's work
 - they must in particular *learn to write academic papers without AI*, so that they are able to do all research and reading, designing and structuring of the paper, scientific formulating and scientific citing themselves
 - where they are allowed to use AI, it will make their work easier but in return increase the demands

3. Artificial intelligence will assist the lecturer but not take over his work
 - AI will carry out administrative, preparatory or finishing work (e.g. entering grades, searching databases, helping with translations) but cannot perform the genuine work of the lecturer
 - AI will in particular *not* be able to design or correct academic exams - at least not if this task is taken seriously!
4. In legal science, in the near future artificial intelligence will not be able to write exam papers without an attentive lecturer being able to notice it
 - so far, AI-written texts do not provide accurate & precise, correctly & uniformly formulated references to the source of every single information given in the paper, as it is required by the standards of scientific citing
 - so far, AI-written texts are usually structured more like a journalistic than a scientific article
 - so far, AI usually formulates in a style too vague and flowery for legal writing
 - however, already now, AI can serve as a *tool to provide helpful inspiration* to the students on how to design, formulate or optimise their paper; the lecturer must *take this into account in the grading*
5. The quality of artificial intelligence depends decisively on the quality of its training and the used training material; this demands specialisation and expensive comprehensive preparation by large think tanks of best qualified scientists
 - usually, only certain highly specialised professors and experienced practitioners will be able to train the AI appropriately
 - a major challenge, esp. in the field of law and legal science: the filtering out of disinformative, manipulative, AI-generated and other misleading or low quality resources without falling into censorship
 - *general AI chatbots* trained by the quasi-entirety of the internet are *unsuitable* for academic work or education
 - How can you expect an unbiased, scientific outcome if you train your AI on the present bullshit internet full of propaganda, fake news, conspiracy theories, hate speech, racism and sexism?
 - however, *specialised AI chatbots* designed for their special purpose and trained by the best specialists with the best training material can provide valuable assistance to practitioners, lecturers and students - especially in the field of law