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Note: The original questionnaire was written in German and contains items from other studies, which have been cited accordingly in the German version. The English translation was done by the authors themselves and therefore does not contain any citation references.

DiKoS – Analysis and Development of Digital Competencies of Students

Dear first-semester student,

in the course of a project by the Styrian University Conference (CAMPUS 02 University of Applied Sciences, Graz University of Technology, JOANNEUM University of Applied Sciences, Medical University of Graz, Montanuniversitaet Leoben, Private University College of Teacher Education Diocese Graz-Seckau, University College of Teacher Education Styria, University of Graz, and University of Music and Performing Arts Graz) the University of Graz is conducting a study regarding the self-assessment of digital competencies among students.

We would like to invite you to take part in this survey. It will take you about 15 minutes to complete.

Your data will be stored without your name or other direct identifiers and will be processed exclusively for scientific research purposes.

Thank you very much for your support!

The project team

Data protection information on the research project "DiKoS – Analysis and Development of the Acquisition of Digital Competencies by Students" pursuant to Art 12, 13 GDPR

First-semester students of all Styrian universities are asked about their digital skills and some personal information by means of a paper-pencil survey without having to state names or other direct identifiers or sensitive data. The aim is to identify existing prior knowledge in the field of digital competencies, depending on the field of study. This makes it possible, for example, to adapt the range of courses offered by the universities to the level of competencies in the best way possible. Because of the degree of detail given in the section on personal non-sensitive data of the survey and the possibility of small group sizes among participants, it cannot be completely ruled out that some conclusions can be drawn about individual persons. The data is processed in compliance with the requirements of the GDPR and the Data Protection Act. Participation in the research project is voluntary. The survey can be terminated at any time without giving reasons and without any consequences.

What personal data is collected and processed?

Only **non-sensitive data** of the following categories will be processed:

- Information on digital competencies
- Gender
- Age group
- University
- First-time enrolment (yes/no)
- Study program/Course of studies
- Origin (urban or suburban/rural environment)
- Type of university entrance qualification (type of school completed, university entrance examination, non-Austrian education, other)
- Attendance of a laptop and/or tablet class (yes/no)
- Employment prior to studies with additional information

What happens to the collected data?

The data will be processed exclusively for the purposes of the research project described above and for any thematically relevant joint follow-up projects (see below) and will be treated strictly confidentially, i.e. only made available to the project staff of the participating universities. An agreement on joint responsibility pursuant to Art 26 GDPR exists between the participating universities.

The data is collected at the respective locations by the Department of Business Education and Development at the University of Graz. The completed questionnaires will be digitized by the project staff with special scanners at the Graz University of Technology and the University of Graz. Data analysis will subsequently take place at the Department of Business Education and Development of the University of Graz.

Further use of the data in any thematically relevant joint follow-up projects (within the 7-year retention period) is not excluded (and is based on the consent given; broad consent as defined in Recital 33 GDPR). In the case of a follow-up project, additional information will be provided via the Department's homepage https://wirtschaftspaedagogik.uni-graz.at/en/researching/.

Questionnaire - DiKoS

In project reports and scientific publications, the data is presented in a completely anonymous and aggregated form – on this basis it is not possible to draw conclusions about specific persons. Open access publication of data or any other further processing will only take place after the data has been completely anonymized.

Legal basis for data processing
The processing of the data takes place on the basis of your consent (Art 6 para 1 lit a GDPR in conjunction with Recital 33). You consent to the processing of your personal data for the purpose of the research project described above (including thematically related follow-up projects) by completing and submitting the questionnaire.

Where and for how long is the data stored?
The data will be kept for the duration of the project and beyond – as far as it forms the basis of a publication – to prove good scientific practice (justified interest/legal obligation from the statutes of the university) for 7 years after publication of the research results in encrypted form on secured data storage devices of the University of Graz. In the case of permissible processing for a relevant follow-up project, the storage period shall be extended accordingly.

Information about your rights
Your consent for the processing of your data can be revoked freely and at any time by contacting the Department under indication of the identifier assigned to you (code on the information letter and the questionnaire).
With regard to your rights of access (Art 15 GDPR), rectification (Art 16 GDPR), deletion (Art 17 GDPR) and limitation of processing (Art 18 GDPR), please contact the organizational unit carrying out the data processing or the data protection officer of the University of Graz as listed below. If you are of the opinion that our processing violates the GDPR, you have the right to complain (Art 77 GDPR) to the Austrian Data Protection Authority, Barichgasse 40–42, 1030 Vienna, telephone: +43 1 52 1520, e-mail: dsb@dsb.gv.at.

Responsible for data protection:
CAMPUS 02 University of Applied Sciences, Körblergasse 126, 8010 Graz
Graz University of Technology, Rechbauerstraße 12, 8010 Graz
JOANNEUM University of Applied Sciences, Alte Poststraße 149, 8020 Graz
Medical University of Graz, Auenbruggerplatz 2, 8036 Graz
Montanuniversitaet Leoben, Franz Josef-Straße 18, 8700 Leoben
Private University College of Teacher Education Diocese Graz-Seckau, Lange Gasse 2, 8010 Graz
University College of Teacher Education Styria, Hasnerplatz 12, 8010 Graz
University of Graz, Universitätsplatz 3, 8010 Graz
University of Music and Performing Arts Graz, Leonhardstraße 15, 8010 Graz

Executing organizational unit/project management and joint points of contact:
Center for Digital Teaching and Learning, Liebiggasse 9, 8010 Graz
Dr. Michael Kopp (Project Management)
Contact: digital@uni-graz.at
Data Protection Officer of the University of Graz: datenschutz@uni-graz.at

Updated as of: August 2019

Questionnaire - Diros

Instructions for completing the questionnaire

This questionnaire is processed digitally. Please use a **regular pen or a thin felt-tip pen.**

☐ Multiple Choice (select **more than one** answer)
○ Single Choice (select only **one** answer)

selected
 selected
selection withdrawn
 selection withdrawn

For most questions you can mark your answer **by putting an X in a circle**:	How is the weather today? ○ Very good ⊗ Good ○ Moderate ○ Bad ○ Very bad
Example of a **corrected answer**: *(the option "Very good" will be evaluated here as the given answer)*	How is the weather today? ⊗ Very good ● Good ○ Moderate ○ Bad ○ Very bad
For some questions you can select **multiple answers**:	Which pets do you have? *(You can select multiple answers here)* ☐ Dog ☒ Cat ☐ Rabbit ☐ Fish ☒ Lion

If you would like to comment on questions or give more detailed answers on certain questions, you are welcome to do so on the last page of the questionnaire.

At this point, we would like to thank you very much for your participation. We appreciate your time!

Questionnaire - DiKoS

Questionnaire - DIKOS

1. Equipment and Usage

Please indicate in the following table which of the listed devices you **own** and whether you **use** them in **your free time** and/or **for educational or professional activities**.

(You can select multiple answers here)

	I don't own	I own, but I don't use	I own and I use in **my free time**	I own and I use for **educational or professional activities**
Smartphone (with Internet access)	☐	☐	☐	☐
Mobile phone (without Internet access)	☐	☐	☐	☐
Laptop/Notebook	☐	☐	☐	☐
PC (Desktop/Computer)	☐	☐	☐	☐
Tablet	☐	☐	☐	☐
E-Book-Reader	☐	☐	☐	☐
Television (e.g. LED-TV, Smart-TV)	☐	☐	☐	☐
Wearables (e.g. Smartwatch)	☐	☐	☐	☐
Portable Media Player (e.g. MP3-Player, iPod)	☐	☐	☐	☐

2. Social Media and Online Services

2a) Please indicate which of the following social media and online services you **know** and whether you **use** them in **your free time** and/or **for educational or professional activities**.

(You can select multiple answers here)

	I don't know	I know, but I don't use	I know and I use in my **free time**	I know and I use for **educational or professional activities**
Messenger services (e.g. WhatsApp, Snapchat)	☐	☐	☐	☐
Social networks (e.g. Facebook, Twitter, Instagram)	☐	☐	☐	☐
Professional social networks (e.g. LinkedIn, XING)	☐	☐	☐	☐
Forums, Communities, Blogs	☐	☐	☐	☐
Cloud storage services (e.g. Google Drive, Dropbox, OneDrive)	☐	☐	☐	☐
Videos and podcasts (e.g. YouTube)	☐	☐	☐	☐
Online encyclopedias (e.g. Wikipedia)	☐	☐	☐	☐

Questionnaire-Bites

2b) There are many **digital services** that can be used for learning. Please indicate which of the following resources you **know** and whether you use them **free of charge** or **fee-based**.

(You can select multiple answers here)

	I don't know	I know, but I **don't** use	I use **free of charge**	I use **fee-based**
Digital texts (e.g. eBooks, PDF documents)	☐	☐	☐	☐
Learning Apps (e.g. Duolingo, Babbel)	☐	☐	☐	☐
Learning platforms (e.g. Moodle, LMS.at)	☐	☐	☐	☐
Online courses (e.g. MOOCs, iMooX, online tutoring courses)	☐	☐	☐	☐
Additional online material from textbooks	☐	☐	☐	☐

3. Attitude towards the Internet and Digitalization

3a) The following statements refer to the topics of **Internet and Digitalization**. Please indicate to what extent you agree with these statements on a scale from "Strongly agree" to "Strongly disagree".

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Don't know
If the Internet and digital devices were gone tomorrow, it would have a negative impact on my daily life.	○	○	○	○	○
I often use the Internet longer than I intended to.	○	○	○	○	○
I am always interested in the latest trends in the digital environment (e.g. new equipment, new software, new apps).	○	○	○	○	○
I would like to be consciously "offline" more often in the future.	○	○	○	○	○
On the Internet, I am rather reserved, for fear of making mistakes.	○	○	○	○	○
The Internet and digital services allow me to be more socially and politically active.	○	○	○	○	○
The dynamics and complexity of digitalization overwhelm me.	○	○	○	○	○
A life without the Internet would be unimaginable for me.	○	○	○	○	○
The idea that in the future much can be done only via the Internet worries me.	○	○	○	○	○
When I need information, I search the Internet first.	○	○	○	○	○
The Internet helps me to stay more closely in touch with people.	○	○	○	○	○
I use digital tools (e.g. calendars, notes, e-mails) to organize my everyday life.	○	○	○	○	○
School has prepared me well for the digital future.	○	○	○	○	○

3b) How often do you use the Internet (e.g. websites, apps, search engines)?

- ○ I'm actually never offline
- ○ Several times a day
- ○ Once a day
- ○ Several times a week
- ○ Several times a month
- ○ Once in a while
- ○ Never

3c) How do you rate your Internet skills?

- ○ Very good
- ○ Good
- ○ Sufficient
- ○ Poor
- ○ Insufficient
- ○ Don't know

4. Analog/Digital

4a) Please go with your first instinct where you would rate yourself on a spectrum from **analog to digital**:

Analog	○	○	○	○	○	○	○	○	○	○	**Digital**

4b) Which media do you use to keep up with **current news**? Please indicate the **three services** you use most frequently. If you don't inform yourself about the latest news, please select "I do not inform myself about current news".

(Please select a maximum of three answers)

- ☐ Television
- ☐ Radio
- ☐ Print media (e.g. daily newspapers, magazines)
- ☐ Online news portals (e.g. by daily newspapers, TV stations)
- ☐ Messenger services (e.g. WhatsApp, Snapchat)
- ☐ Social networks (e.g. Facebook, Twitter)
- ☐ Video Channels (e.g. YouTube)
- ☐ Conversations with friends and/or family members
- ☐ I do not inform myself about current news.
- ☐ Others: _____

Questionnaire - DiKoS

5. Online Research Behavior

The following statements refer to **your online research behavior**. Please indicate to what extent you agree with these statements on a scale from "Strongly agree" to "Strongly disagree".

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Don't know
Overall, I can usually judge whether something I read or see on the Internet is true or not.	○	○	○	○	○
The reporting on the Internet is more trustworthy than the reporting in the print media.	○	○	○	○	○
The more clicks or likes a post on social media has, the more I trust it.	○	○	○	○	○
When it comes to search engines, I rely mainly on the results that appear on the first page.	○	○	○	○	○
It is difficult for me to recognize advertisements in search engine results.	○	○	○	○	○
I use several sources (e.g. websites, search engines) for Internet research.	○	○	○	○	○

6. Protection on the Internet

Which of the following options do you personally use to **protect yourself on the Internet**? Please select **all applicable answers**.

(You can select multiple answers here)

☐ I use different passwords.
☐ I regularly change my password(s).
☐ I read the privacy policies.
☐ I read the General Terms and Conditions (GTC) on websites that I use.
☐ I use an antivirus program.
☐ I have activated my firewall.
☐ I use pop-up blockers or ad blockers.
☐ I don't open e-mails or links that seem suspicious to me.
☐ I don't use any of the options listed.
☐ Others: _____

7. Attitude towards Data Security

7a) How safe do you think personal data is on the Internet (e.g. photos, private messages, your address, etc.)?

○ Very safe
○ Somewhat safe
○ Somewhat unsafe
○ Very unsafe
○ Don't know

Questionnaire - DKO

7b) The following statements refer to the topic of **security on the Internet**. Please indicate to what extent you agree with these statements on a scale from "Strongly agree" to "Strongly disagree".

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Don't know
Data security on the Internet can't exist.	○	○	○	○	○
I assume that my data will be handled more carefully due to the new General Data Protection Regulation (GDPR).	○	○	○	○	○
I lack information about what I can do by myself to protect my data on the Internet.	○	○	○	○	○
Personalized advertising is useful because I get offers that I'm interested in.	○	○	○	○	○
It is okay for me that providers of free Internet services (e.g. social media) use my data.	○	○	○	○	○
I feel able to correctly assess security risks on the Internet and to react accordingly.	○	○	○	○	○
Personally, I don't care what happens to my data on the Internet.	○	○	○	○	○
The General Data Protection Regulation (GDPR) has led to the fact that I now feel more informed about how my data is handled than before.	○	○	○	○	○
I want to share as little data about myself as possible, so I rarely or never post anything.	○	○	○	○	○
I trust that the operators of social networks handle my personal data responsibly.	○	○	○	○	○

8. Knowledge Acquisition

8a) How do you acquire new **knowledge on computers, the Internet and digital topics**? Please select the **three options** that best represent you. If you do not acquire knowledge in these areas, please select "I am not educating myself in these areas".

(Please select a maximum of three answers)

☐ I teach myself by trial and error
☐ I teach myself with the help of the Internet (e.g. forums, videos)
☐ I was taught in school
☐ I get help and tips from friends and/or family members
☐ I get help and tips from work and/or school colleagues
☐ I take part in **fee-based** training courses and further education
☐ I take part in training courses and further education **free of charge**
☐ I am not educating myself in these areas
☐ Others: _____

Questionnaire Digis

8b) How interested are you in developing your knowledge of computers, the Internet and digital topics?

- ○ Very interested
- ○ Rather interested
- ○ Moderately interested
- ○ Not interested at all
- ○ Don’t know

9. Expectations of Teaching and Learning in Higher Education

The following statements refer to your **expectations of the courses you will complete during your studies**. Please indicate to what extent you agree with these statements on a scale from "Strongly agree" to "Strongly disagree".

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Don’t know
It should be allowed to use smartphones or tablets for studying during class time.	○	○	○	○	○
Lecturers should often try something new with digital media.	○	○	○	○	○
I think it's good when digital devices (e.g. smartphones, tablets) are banned for private use in courses.	○	○	○	○	○
I think it's good if some courses are offered online.					
I think it's good when lecturers use traditional teaching materials (e.g. the blackboard).	○	○	○	○	○
Lecturers should focus on their expertise; which media they use, doesn't matter.	○	○	○	○	○
My studies should teach me IT skills (e.g. hardware, software and/or programming skills).	○	○	○	○	○
I think it's good if a course is held with both online and face-to-face elements (e.g. in the lecture hall).	○	○	○	○	○

Questionnaire DIKOS

10. Self-Assessment

10a) The following statements refer to your **skills in handling digital applications and content**. Please assess your abilities by choosing the one answer that suits you best from the given options.

	I can't do it, and I'll disregard it because I never need it.	I can't do it, and if necessary I'll find someone to show me how to do it.	I can't do it, but I'll try it myself and ask others if necessary.	I can do it myself.	I know this well and can also problem-solve.	Don't know
I can use digital tools to create documents and manage information with other people.	○	○	○	○	○	○
I can back up my data and restore it in the event of a computer failure.	○	○	○	○	○	○
I can adjust profile settings to protect personal information on social networks (e.g. visibility of photos and personal information).	○	○	○	○	○	○
I can prepare and compose written papers (e.g. minutes, reports, essays) using digital media.	○	○	○	○	○	○
I can use media (e.g. texts, images) in compliance with copyright and data protection regulations.	○	○	○	○	○	○
I can digitally apply for a job.	○	○	○	○	○	○
I can exchange data between different devices (e.g. between computer and smartphone).	○	○	○	○	○	○
I can work with a learning management system (e.g. Moodle, LMS.at).	○	○	○	○	○	○
I can do calculations with a spreadsheet program (e.g. Excel, Calc).	○	○	○	○	○	○
Using search engines, I can quickly find the information I'm looking for.	○	○	○	○	○	○
I can do basic coding.	○	○	○	○	○	○
I know the basics of a programming language (e.g. PHP, JavaScript).	○	○	○	○	○	○
I can design web applications (e.g. create websites with WordPress).	○	○	○	○	○	○
I can set up a virtual private network (VPN) connection.	○	○	○	○	○	○
I can set up and use an electronic ID (e.g. Mobile Phone Signature, Citizen Card).	○	○	○	○	○	○

10b) The following terms are all related to **digitalization**. Please assess your skills by choosing the answer that best describes your knowledge of the term.

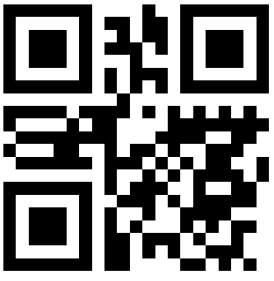
	I don't know	I know more or less what the term means	I can explain it
Algorithm	○	○	○
Artificial Intelligence	○	○	○
Big Data	○	○	○
Blended Learning	○	○	○
Blockchain	○	○	○
Bots	○	○	○
Cookies	○	○	○
Digital Native	○	○	○
E-Government	○	○	○
E-Health	○	○	○
General Data Protection Regulation (GDPR)	○	○	○
Industry 4.0	○	○	○
Internet of Things	○	○	○
Tor-network	○	○	○
Virtual Reality	○	○	○

11. Knowledge Questions (Multiple Choice)

Below you will find some questions about **digitalization**. Please select all the answers that you think are correct. **One or more answers** may be correct.

(You can select multiple answers)

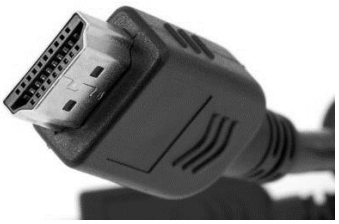
11a) This illustration …



☐ ... shows a code that shortens information so that it can be recalled quickly.
☐ ... shows the logo of a software producer.
☐ ... shows a programming code of the programming language Java.
☐ ... shows a code that can be decoded using a smartphone.
☐ Don't know

Questionnaire Digis

11b) Which cable do you recognize in the picture?



☐ HDMI
☐ USB
☐ VGA
☐ DisplayPort
☐ Don’t know

11c) What are the dangers of using free Wi-Fi?

☐ Unencrypted data can easily be intercepted.
☐ The computer is vulnerable to malicious attacks such as viruses or spyware.
☐ Free Wi-Fi generates more electrosmog than secured Wi-Fi.
☐ Wireless access is sometimes set up to spy on users.
☐ Don’t know

11d) Which advantage(s) do computer networks have?

☐ A regular backup of the data is not necessary.
☐ A computer in a network is safe from computer viruses.
☐ Resources (e.g. printers, hard disk storage) can be shared by many clients.
☐ The speed of your own computer is increased.
☐ Don’t know

11e) Which input calculates a sum in Excel?

☐ =SUM(M1:M7)
☐ A1+A2+A3
☐ =ADDITION(M1:M4)
☐ =B1+C1+D1
☐ Don’t know

11f) I am allowed to use images that I find online, if ...

☐ ... appropriate licenses indicate permission.
☐ ... I asked the photographer and obtained their consent.
☐ ... no people are depicted in the pictures.
☐ ... the image contains the attribute "CC BY ...".
☐ Don’t know

Questionnaire - DiKoS

12. General Questions

12a) Please indicate your **gender**:

- ○ Male
- ○ Female
- ○ Diverse

12b) Please select your **age group**:

- ○ under 18
- ○ 18 to 20
- ○ 21 to 23
- ○ 24 to 26
- ○ 27 to 30
- ○ over 30

12c) At which **institution of higher education** do you study? *(If you are enrolled at several institutions, please indicate the one at which you will predominantly pursue your studies)*

- ○ CAMPUS 02 University of Applied Sciences
- ○ Graz University of Technology
- ○ JOANNEUM University of Applied Sciences
- ○ Medical University of Graz
- ○ Montanuniversitaet Leoben
- ○ Private University College of Teacher Education Diocese Graz-Seckau
- ○ University College of Teacher Education Styria
- ○ University of Graz
- ○ University of Music and Performing Arts Graz

12d) Are you enrolled to **study in Austria for the first time in the winter semester 2019/2020?**

- ○ Yes, I am a first-year student and have not studied either in Austria or abroad.
- ○ Yes, I am a first-year student in Austria, but have already studied abroad.
- ○ No, I have already studied in Austria.

12e) For **which studies** are you currently enrolled in for the first time (winter semester 2019/2020)? *(Please indicate all studies you are enrolled in for the first time)*

_____

_____

Questionnaire - DiKoS

12f) Did you grow up in a **city or suburban environment** or in a **rural environment**? *(Please indicate the environment in which you grew up predominantly)*

- ○ City or suburban environment
- ○ Rural environment

12g) I acquired the **university entrance qualification** via:

- ○ General Qualification for University Entrance (Matura) at a higher secondary school **in Austria**

  Please indicate the type of school you visited:
  - ○ AHS (e.g. Gymnasium, BORG)
  - ○ HAK
  - ○ HLW/HBLA (incl. Art/Fashion/Tourism/Environment)
  - ○ HTL/HTBLA
  - ○ BAKIP/BAfEP/BASOP
  - ○ Others: _____

- ○ Berufsreifeprüfung/Lehre mit Matura/Abendmatura **in Austria**
- ○ Higher Education Entrance Exam (Studienberechtigungsprüfung) **in Austria**
- ○ **Non-Austrian** Education
- ○ Others: _____

12h) Did you spend at least one school year in a **laptop and/or tablet class** (or similar) during your school days?

- ○ Yes
- ○ No

12i) Were you already **employed before** your studies?

- ○ No, I wasn't employed.
- ○ Yes, as part of a vocational training (apprenticeship).
- ○ Yes, in the context of occasional jobs (e.g. internships/vacation jobs) or "geringfügiger Erwerbstätigkeit" (less than 20 hours per week).
- ○ Yes, I was regularly employed (at least 20 hours per week).

  Please indicate how long you have worked continuously for at least 20 hours per week:
  - ○ less than 1 year
  - ○ 1 to 2 years
  - ○ 3 to 4 years
  - ○ more than 4 years

Is there anything else you want to tell us?

_____

_____

Thank you very much for your participation
and have a successful semester!

Questionnaire - DiKoS