Mapping of higher education communication programmes where accessibility training can be included

Version 1.0

Authors: **University of Maribor, FUNKA, INUK Institute for Advanced Communication Management, Paris Lodron University of Salzburg, Tallinn University**

ADORE - Accessibility in Digital Communication Higher Education Curricula Erasmus+ KA220-HED - Cooperation partnerships in higher education

AUTHORS

Name, Organisation name

Boštjan Šumak, *Faculty of Electrical Engineering and Computer Science, University of Maribor*

Maja Pušnik, *Faculty of Electrical Engineering and Computer Science, University of Maribor*

Katja Kous, *Faculty of Electrical Engineering and Computer Science, University of Maribor*

Jon Switters, *FUNKA*

Darja Ivanuša Kline, *INUK Inštitut za napredno upravljanje komunikacij*

Sergio Sparviero, *Department of Communication Studies, Paris Lodron University of Salzburg*

Simone Schöndorfer, *Department of Communication Studies, Paris Lodron University of Salzburg*

Anastassia Zabrodskaja, *Tallinn University*

PROJECT PARTNERS:

Contents

Figures

Tables

1. Introduction

1.1. Overview

The main objective of Project Result 2 (PR2) was to carry out the mapping of university programmes in fields related to communication where accessibility training can be implemented. The results of the performed activities provide an overview of the different subjects and specific modules covered in this domain, focusing on the university partners in the consortium and a sample of other European universities. The analysis carried out here has identified differences in the structure of courses, ranging from courses whose primary focus is communication, right through those which are elective courses or part of a broader study programme. It also highlights geographic differences in the definition of curricula related to communication between different EU countries.

1.2. Needs analysis

Communication is a broad field related to many other higher education programmes. Before introducing accessibility into the courses and programmes related to communication, a detailed overview of which areas could be targeted with the provision of training materials and possible links to other study areas is required.

This mapping was carried out through desk research and by collecting data from the university partners using a developed information template, which was designed during PR2 activities. The following groups were targeted in this research:

- ADORE university partner representatives;
- Staff from other European universities including:
    - o Teachers and trainers working in the field of communication and
    - o Management staff.

1.3. Elements of innovation

This result provides a European-wide focus on higher education programmes in fields related to communication. It provides a blueprint for education in this field which, to the best of our knowledge, has not been done before.

1.4. Expected impact and transferability potential

This result provides an overview of all the potential courses and programmes related to communication that could include the training materials on accessibility. It is a beneficial resource for any university considering incorporating accessibility training into its communication programmes. It is one of the primary reference documents for the recommendations that are being developed in activities carried out within Project Result 5.

2. Methodology

The development of this result was divided into the following subtasks:

2.1. Definition of information collection template design

University of Maribor (Univerza v Mariboru) defined a template for collecting information from the other university partners in the consortium (TALLINN, SALZBURG). The aim of the template definition was to design it so that it was easy to fill in the needed information. The purpose was also to identify all the study programmes and courses related to communication.

2.2. Desk research

In addition to the information provided by the other university consortium partners through the information collection template, Univerza v Mariboru carried out desk research on the higher education communication programmes in a sample of other European universities.

2.3. Data Mapping

Using the information gathered from the partners through the information template and the data collected by conducting the desk research, Univerza v Mariboru produced a draft version of the mapping document for European higher education communication programmes.

2.4. Peer review

Paris Lodron University of Salzburg and Tallinn University conducted a peer review of the mapping document providing constructive comments and suggestions to improve the document. Furthermore, the initial results of the mapping document were discussed during the 1st working meeting in Stockholm on 14th June 2022.

2.5. Identification of main conclusions

Based on the comments provided with the peer review, the University of Maribor produced a final version of the mapping document. The conclusions based on the mapping will feed into the recommendations that will be developed in Result 5.

3. Information Collection Template Design

An information collection template was developed to collect information about study programmes and courses related to communication.

First, some basic information about study programmes had to be acquired, including the name of the university or institution, address, city, country, web site address.

For study programmes related to communication, the mapping focused on the following information:

(1) name of the study programme,
(2) study level: First Cycle Bologna Study Programme (Bachelor's level), Second Cycle Bologna Study Programme (Master's level), etc.,
(3) faculty/department that is responsible for carrying out the study programme,
(4) language of instruction,

(5) description of the study programme,

(6) subject,

(7) number of years,

(8) web site address, and

(9) study programme classification.

The study programmes were classified based on the [International Standard Classification of Education (ISCED)](#).

Each course within the identified study programme was described with various information needed for mapping, including:

(1) the name of the course,

(2) website address,

(3) level,

(4) year,

(5) language,

(6) course content description,

(7) course objectives, competencies, and intended learning outcomes, and information about the knowledge level of digital accessibility of the teacher and other staff responsible for carrying out the course.

The last part of the information collection template for acquiring information about the course was designed in the form of a short questionnaire, which was intended for the teacher or the person responsible for carrying out the course.

The form of an information collection template is presented in the following subchapters.

3.1. Information About The Institution/University

- **Institution/University name** - Name of the university or institution where the study programme is being organized
- **Address** - Street name, street number, post number
- **City**
- **Country**
- **URL** - URL of the institution/university website
- Which of the following statements define better this institution?
    - Traditional university with different faculty and departments
    - Applied or technical university offering specialised educational opportunities

3.2. Information About The Study Program*

(Repeat this section for each study program)

- **Name** - Name of the study program
- **Level** - e.g., First Cycle Bologna Study programme (Bachelor's level), Second Cycle Bologna Study programme (Master's level), Third Cycle Bologna Study programme (Ph.D. level)
- **Faculty/department responsible for education** - Name of the faculty or department (e.g., institute) within the institution/university responsible for carrying out the study programme
- **Contact info** - Name and contact information (e.g., email, phone number) of the person responsible for the study programme publicly available on the website
- **Language**
- **Description** - A short description of the study programme (if available)
- **Subject** - for e.g., Media and communications: Advertising and Public Relations, Journalism, Media, and Communication Studies
- **Number of years**
- **URL** - URL of the study programme website
- **Study programme classification based on International Standard Classification of Education (ISCED)**

3.3. ISCED classification schema (broad field and detailed field)

- 00 Generic programmes and qualifications
  - 0011 Basic programmes and qualifications
  - 0021 Literacy and numeracy
  - 0031 Personal skills and development
- 01 Education
  - 0111 Education science
  - 0112 Training for pre-school teachers
  - 0113 Teacher training without subject specialisation
  - 0114 Teacher training with subject specialisation
- 02 Arts and humanities
  - 0211 Audio-visual techniques and media production
  - 0212 Fashion, interior and industrial design
  - 0213 Fine arts
  - 0214 Handicrafts
  - 0215 Music and performing arts
  - 0221 Religion and theology
  - 0222 History and archaeology
  - 0223 Philosophy and ethics
  - 0231 Language acquisition
  - 0232 Literature and linguistics
- 03 Social sciences, journalism and information
  - 0311 Economics
  - 0312 Political sciences and civics
  - 0313 Psychology
  - 0314 Sociology and cultural studies
  - 0321 Journalism and reporting, Communication programs
  - 0322 Library, information and archival studies
- 04 Business, administration and law
  - 0411 Accounting and taxation
  - 0412 Finance, banking and insurance
  - 0413 Management and administration, Communication Management
  - 0414 Marketing and advertising
  - 0415 Secretarial and office work
  - 0416 Wholesale and retail sales
  - 0417 Work skills
  - 0421 Law
- 05 Natural sciences, mathematics and statistics
  - 0511 Biology
  - 0512 Biochemistry
  - 0521 Environmental sciences
  - 0522 Natural environments and wildlife
  - 0531 Chemistry
  - 0532 Earth sciences

- 0533 Physics
- 0541 Mathematics
- 0542 Statistics
- 06 Information and Communication Technologies (ICTs)
  - 0611 Computer use
  - 0612 Database and network design and administration
  - 0613 Software and applications development and analysis
- 07 Engineering, manufacturing and construction
  - 0711 Chemical engineering and processes
  - 0712 Environmental protection technology
  - 0713 Electricity and energy
  - 0714 Electronics and automation
  - 0715 Mechanics and metal trades
  - 0716 Motor vehicles, ships and aircraft
  - 0721 Food processing
  - 0722 Materials (glass, paper, plastic and wood)
  - 0723 Textiles (clothes, footwear and leather)
  - 0724 Mining and extraction
  - 0731 Architecture and town planning
  - 0732 Building and civil engineering
- 08 Agriculture, forestry, fisheries and veterinary
  - 0811 Crop and livestock production
  - 0812 Horticulture
  - 0821 Forestry
  - 0831 Fisheries
  - 0841 Veterinary
- 09 Health and welfare
  - 0911 Dental studies
  - 0912 Medicine
  - 0913 Nursing and midwifery
  - 0914 Medical diagnostic and treatment technology
  - 0915 Therapy and rehabilitation
  - 0916 Pharmacy
  - 0917 Traditional and complementary medicine and therapy
  - 0921 Care of the elderly and of disabled adults
  - 0922 Child care and youth services
  - 0923 Social work and counselling
- 10 Services
  - 1011 Domestic services
  - 1012 Hair and beauty services
  - 1013 Hotel, restaurants and catering
  - 1014 Sports
  - 1015 Travel, tourism and leisure
  - 1021 Community sanitation
  - 1022 Occupational health and safety
  - 1031 Military and defence

- • 1032 Protection of persons and property
- • 1041 Transport services
- Other

3.4. Information About The Course*

(Repeat this section for each course within the study program)

*This table is used for all courses within a specific study programme for which we would like to collect information.

- • **Name** - Name of the course

- • **URL** - URL of the course website

- • **Level** - e.g., first level/Bachelor's level, second level/Master's level, third level/PhD level

- • **Year** - First Year, Second Year, Third Year, etc.

- • **Language**

- • **Course Content Description** - A brief description of the course content (if available)

- • **Course objectives, competencies, and intended learning outcomes**
    - o A list of course objectives and competencies (if available)
    - o Knowledge and understanding
    - o Transferable/key skills and other attributes

- • **Questions about Digital Accessibility (DA)**
    - o What kind of knowledge do you think the course provides?
        - ▪ practical knowledge and skillset,
        - ▪ a balanced mixture of practical and theoretical knowledge,
        - ▪ theoretical knowledge.
    - o Do you have appropriate theoretical and practical knowledge needed for teaching topics related to DA?
        - ▪ Yes (**If Yes**) - Would you be interested in getting additional knowledge by getting access to learning materials provided within ADORE project?
        - ▪ No (**If No**) - Would you be interested in learning the content provided within the ADORE project activities?
    - o Does the course already include topics related to digital accessibility (DA)?
        - ▪ Yes
        - ▪ No
        - ▪ I don't know

- (IF YES) **Some DA-related topics are already included in the course**
  - Please provide a short description what DA-related topics are included in the course:
  - Do students get practical work or exercises related to digital accessibility (digital media, communication, etc.)?
    - Yes
    - No
    - I don't know
  - If students get practical work/exercises related to DA, please briefly describe the practical exercises:
  - Do all teaching staff (professor, teaching assistant, etc.) that are responsible for the course have appropriate DA knowledge and skills needed for giving the lectures on DA-related topics?
    - Yes
    - No
    - I don't know
- (IF NO) **No DA-related topics are included in the course**
  - Do you think that there is a need to include topics about DA in the course?
    - Yes
    - No
    - I don't know
  - Please explain:

4. Data Collection

Data was collected for 32 study programmes from six countries, including 225 courses. Partners recorded publicly available data about the courses in addition to performing interviews with professors/lecturers of the courses when it was possible. The following information about the courses was recorded:

- Code of the course,
- Country,
- Owner,
- Institution/University name,
- The Study Programme,
- The Course,
- Level,
- Year,

- Broad Field,

- Detailed Field,

- Language,

- Comment, whether digital accessibility is addressed in the description of the course content,

- Comment, whether answer from professors/lecturers were available,

- Knowledge the course provides:

  o practical knowledge and skillset,

  o balanced mixture of practical and theoretical knowledge,

  o theoretical knowledge,

- Do you have the appropriate theoretical and practical knowledge needed for teaching topics related to DA?

  o Yes

  o No

- Would you be interested in the ADORE project activities?

  o Yes

  o No

  o I don't know

- Does the course already include topics related to digital accessibility (DA)?

  o Yes

  o No

  o I don't know

- Do students get practical work or exercises related to digital accessibility (digital media, communication, etc.)?

  o Yes

  o No

  o I don't know

- Do all teaching staff have appropriate DA knowledge and skills needed for giving the lectures on DA related topics?

  o Yes

  o No

  o I don't know

- Do you think that there is a need to include topics about DA in the course?

  o Yes

Co-funded by the
Erasmus+ Programme
of the European Union

15

- o No
- o I don't know
- Comments of the professor/lecturer, if available
- Comments of the researcher, if there was no feedback from author:
  - o DA not mentioned,
  - o The course includes some elements of DA without naming it,
  - o The course includes several elements of DA without naming it,
- Best found synonym for DA in the course description,
- Type of course:
  - o Technically oriented,
  - o Semi-technical,
  - o Non-technical.

The process of collecting data included basic data about the courses, as presented in Figure 1, and was performed manually, by gathering data available online, combined with a survey approach to get information from course organisers/professors.
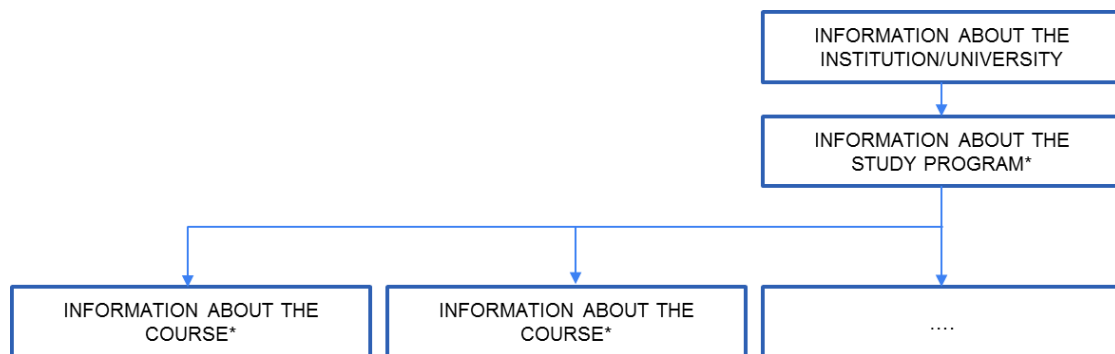

Figure 1 The process of collecting data

Due to limited access to professors and/or organisers of courses, most of the data was gathered by project participants from available online data (the desktop research), and the following parameters were further used for analysis in all cases:

- country,
- language of instructions used for lectures,

- study programme classification,

- name of the course,

- level of the course,

- year of the course,

- course content description and

- course objectives, competencies, and intended learning outcomes.

The information about the course was only provided for courses, where answers from professors were obtained. A detailed analysis was carried out based on 119 answers about courses (out of 225) from professors or responsible people for courses.

5. Data analysis and results

5.1. Analysis of data on study programmes covered by the data collection

The data collection process resulted in a set of 32 study programmes and a large set of study subjects (225 in total) within these programmes, from six countries. As the table below shows (see Table 1), most of the study programmes that we covered in the data collection process were collected from Estonia and Slovenia.

Table 1 Number of collected data on study programmes and courses by individual country

Country	Number of study programmes	Number of courses
Austria	3	45
Belgium	2	14
Denmark	2	15
Estonia	9	110
Poland	1	1
Slovenia	15	40
Together	32	225

According to the data, we analysed the most study courses from study programmes in Estonia, Slovenia, and Austria (see Figure 2 and Figure 3).
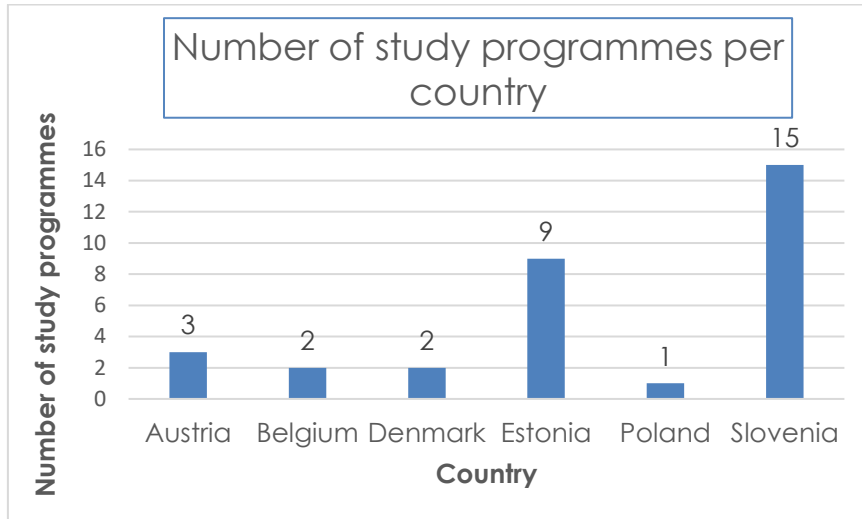
Figure 2 Number of study programmes per country
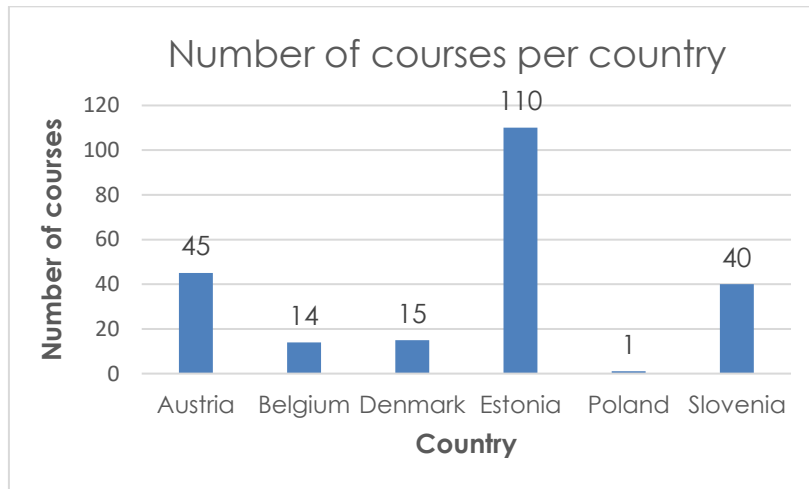
Figure 3 Number of courses per country

In the data collection process, we collected and analysed data about the study programmes listed below. Detailed information about study programmes and courses is provided in Appendix, attached to the main document. The list of study programmes included in the analysis is the following (including data about University, Study programme and Faculty/department responsible for education):

• University of Maribor, Slovenia, Science of Education (Faculty of Education)

• University of Maribor, Slovenia, Nursing care (Faculty of Health Services)

- University of Maribor, Slovenia, Fine art education (Faculty of Education)

- University of Maribor, Slovenia, Contemporary tourism practices (Faculty of Tourism)

- University of Maribor, Slovenia, Subject Teacher (Faculty of Natural Sciences and Mathematics)

- University of Maribor, Slovenia, Telecommunications (Faculty of Electrical Engineering and Computer Science)

- University of Maribor, Slovenia, Media Communications (Faculty of Electrical Engineering and Computer Science)

- University of Maribor, Slovenia, Informatics and Technologies of Communication (Faculty of Electrical Engineering and Computer Science)

- University of Maribor, Slovenia, Informatics and Data Technologies (Faculty of Electrical Engineering and Computer Science)

- University of Maribor, Slovenia, Computer science and information technologies (Faculty of Electrical Engineering and Computer Science)

- Paris Lodron Universität Salzburg, Austria, Digital Technology and Management (TECMAN)

- Paris Lodron Universität Salzburg, Austria, Digital Communication Leadership, specialisation "Digital Communication (Policy and Innovation in Europe (POLINN))

- Paris Lodron Universität Salzburg, Austria, Digital Communication Leadership, specialisation (Faculty of Communications Information and Communication Technology for Development (ICT4D))

- VUB - Vrije Universiteit Brussel, Belgium, Communication Studies: Journalism and Media in Europe (Social Sciences & Solvay Business School/Communication Sciences)

- VUB - Vrije Universiteit Brussel, Belgium, Communication Studies: Digital Media in Europe (Social Sciences & Solvay Business School)

- Aalborg University (AAU), Denmark, Culture, Communication and Globalisation (The Faculty of Humanities)

- Aalborg University (AAU), Denmark, Innovative Communication Technologies and Entrepreneurship (The Faculty of Humanities)

- Tallinn University, Estonia, Screen Media and Innovation (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Journalism (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Integrated Arts, Music and Multimedia (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Crossmedia (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Contemporary Media (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Communication Management (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Audio-visual Media (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Audio-visual Arts and Media Studies (Baltic Film, Media and Arts School)

- Tallinn University, Estonia, Advertising and Public Relations (Baltic Film, Media and Arts School)

- University Of Ljubljana, Slovenia, Communicology - media and communication studies (Faculty of Social Sciences)

- University Of Ljubljana, Slovenia, Journalism (Faculty of Social Sciences)

- University Of Ljubljana, Slovenia, Economics and business studies – marketing (Faculty of Economics and Business)

- University Of Ljubljana, Slovenia, The university school of business and economics (Faculty of economics)

- University Of Ljubljana, Slovenia, Communicology - marketing communication and public relations (Faculty of Social Sciences)

- Siedlce University of Natural Sciences and Humanities, Poland, Computer Science (Institute of Computer Science)

The results show that most courses occur in the first year of the first bologna study (see Table 2).

Table 2 Year of study

	First Year	**Second Year**	**Third Year**	**Fourth Year**	**Together**
First cycle bologna study programme (Bachelor's level)	48	33	27	3	111
Second cycle bologna study programme (Master's level)	75	34	0	0	109
Third cycle bologna study programme (PhD level)	3	0	0	0	5

The Broad subjects included 7 main fields:

- 01 Education,
- 02 Arts and humanities,
- 03 Social sciences, journalism and information,
- 04 Business, administration and law,
- 06 Information and Communication Technologies (ICTs),
- 09 Health and welfare and
- 10 Services.

The detailed field of the subject included 34 sub-fields and 7 broader fields:

- 01 Education
    - o 0111 Education science
    - o 0112 Training for pre-school teachers
    - o 0113 Teacher training without subject specialisation
    - o 0114 Teacher training with subject specialisation

- 02 Arts and humanities
    - 0211 Audio-visual techniques and media production
    - 0215 Music and performing arts
    - 0221 Religion and theology
    - 0222 History and archaeology
    - 0223 Philosophy and ethics
    - 0231 Language acquisition
    - 0232 Literature and linguistics
- 03 Social sciences, journalism and information
    - 0311 Economics
    - 0312 Political sciences and civics
    - 0313 Psychology
    - 0314 Sociology and cultural studies
    - 0321 Journalism and reporting, Communication programs
    - 0322 Library, information and archival studies
- 04 Business, administration and law
    - 0411 Accounting and taxation
    - 0412 Finance, banking and insurance
    - 0413 Management and administration, Communication Management
    - 0414 Marketing and advertising
    - 0421 Law
- 06 Information and Communication Technologies (ICTs)
    - 0611 Computer use
    - 0612 Database and network design and administration
    - 0613 Software and applications development and analysis
- 09 Health and welfare
    - 0913 Nursing and midwifery
    - 0915 Therapy and rehabilitation
    - 0916 Pharmacy
    - 0917 Traditional and complementary medicine and therapy
    - 0921 Care of the elderly and of disabled adults

- o 0922 Child care and youth services
- o 0923 Social work and counselling
- 10 Services
  - o 1015 Travel, tourism and leisure

The knowledge the course provides had three possibilities:

- practical knowledge and skillset,
- the balanced mixture of practical and theoretical knowledge and
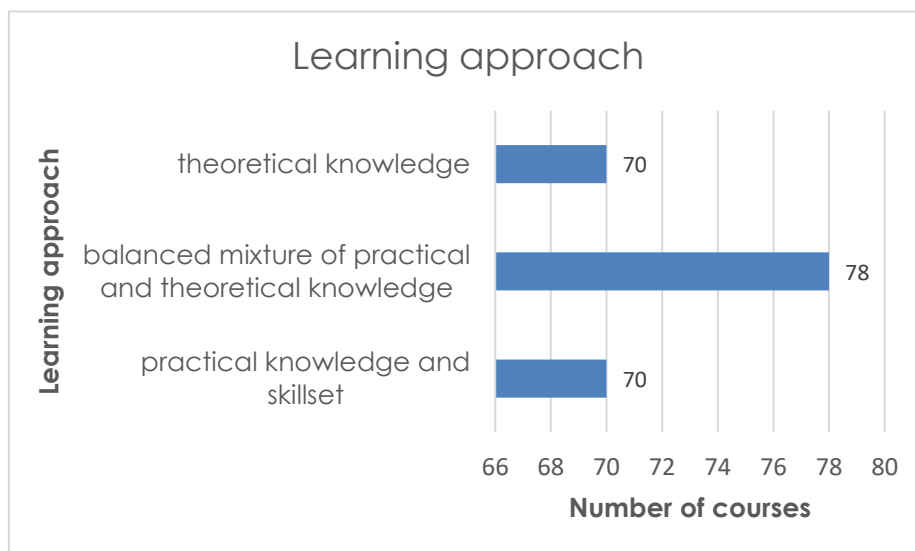- theoretical knowledge.

Figure 4 The knowledge the course provides

The balanced mixture was the most often chosen approach to a course, followed by theoretical knowledge (see Figure 4), however rather differently distributed among countries, as presented in Table 3.

Table 3 The knowledge the course provides in different countries

Country	Practical knowledge and skillset	Balanced mixture of practical and theoretical knowledge	Theoretical knowledge
Austria	0%	11%	89%
Belgium	0%	0%	100%
Denmark	53%	27%	20%
Estonia	51%	46%	3%
Poland	0%	100%	0%
Slovenia	15%	45%	40%

Based on the desktop research, we reviewed all course descriptions. As presented in Table 4, only a few of them mentioned digital accessibility. Most of them did not include any elements of digital accessibility, although some included elements of digital accessibility but did not explicitly name them.

Table 4 Mentions of digital accessibility in countries

Country	The course includes several elements of digital accessibility without naming it	The course includes some elements of digital accessibility without naming it	Digital accessibility not mentioned
Austria	0%	11%	89%
Belgium	0%	7%	93%
Denmark	0%	40%	60%
Estonia	0%	5%	95%
Poland	100%	0%	0%
Slovenia	10%	13%	78%

Another point of view was the technicality of the course, whether or not the subject was very technically oriented or non-technical. The results are in the table below (see

Table 5), revealing that most subjects that include communication are non-technical nature.

Table 5 Technical and non-technical orientation of studies

Country	Non-technical study	Semi-technical study	Technically oriented study
Austria	95%	5%	0%
Belgium	100%	0%	0%
Denmark	27%	7%	66%
Estonia	100%	0%	0%
Poland	0%	0%	100%
Slovenia	38%	28%	35%

Additionally, the project team was interested whether the technical type of the course relates to the inclusion of digital accessibility. In the following table (see Table 6), it can be seen that non-technical, as well as more technical courses, include various amounts of digital accessibility elements. The analysis does not include results from Denmark.

Table 6 Connection of technical studies with DA

Type of study	Digital accessibility is addressed	Digital accessibility not addressed	Together
Non-technical study	8	172	180
Semi-technical study	2	11	13
Technically oriented study	1	14	15

In general, digital accessibility was rarely mentioned in the courses, as shown in the following figure (see Figure 5), however, some courses addressed digital accessibility indirectly based on other keywords such as the inclusion of people with disabilities, providing a positive user experience for everyone, amongst others.
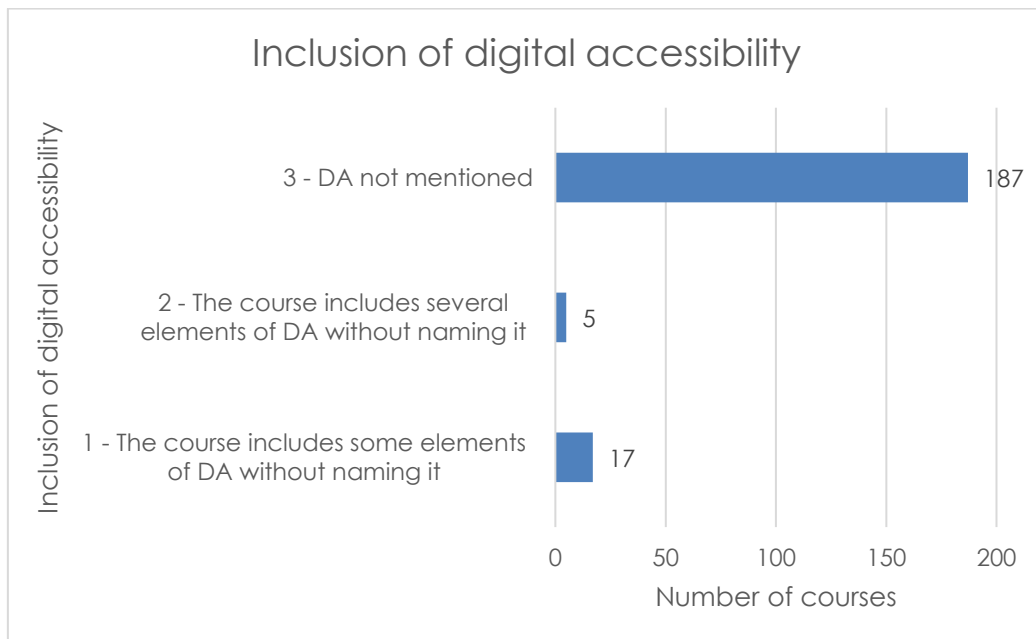
Figure 5 Mentions of digital accessibility in general

The analysis included 225 courses, however, only 119 courses were filled out by answers and comments of professors (providing fully completed information collection templates), the majority of them from Estonia:

- Austria (2)
- Estonia (11)
- Poland (1)
- Slovenia (6)

5.2. Quantitative analysis of needs and possibilities of digital accessibility inclusion in existing study programmes and courses

One of the goals of collecting information on study programmes and courses was also to obtain more detailed information on whether content related to digital accessibility is taught in existing study programmes and courses, whether the teaching staff has sufficient theoretical and practical knowledge, and whether they would need additional training that could be offered to them based on the results of the ADORE project activities.

1. Do you have the appropriate theoretical and practical knowledge needed for teaching topics related to DA? (see Figure 6)

2. Would you be interested in the ADORE project activities? (see Figure 7)

3. Does the course already include topics related to digital accessibility? (DA) (see Figure 8)

4. Do all teaching staff have appropriate digital accessibility knowledge and skills needed for giving the lectures on digital accessibility related topics? (see Figure 9)

5. Do you think that there is a need to include topics about digital accessibility in the course? (see Figure 10)

The results are presented in the following subchapters.

Q1: Do you have the appropriate theoretical and practical knowledge needed for teaching topics related to DA?

The first question that the professors were asked, was the following: **Do you have the appropriate theoretical and practical knowledge needed for teaching topics related to DA?**
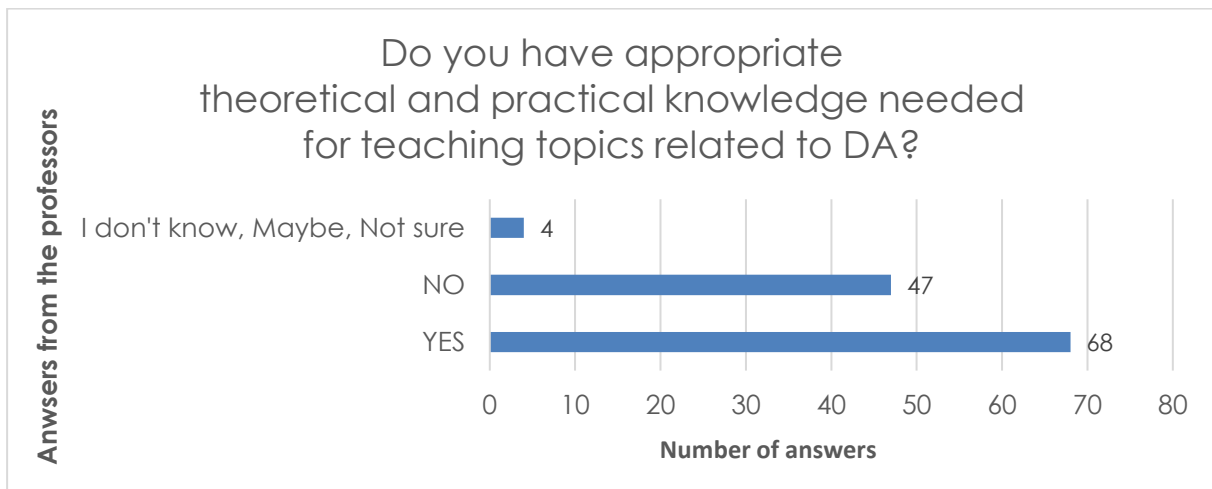
Figure 6 Q1: Do you have the appropriate theoretical and practical knowledge needed for teaching topics related to DA

The results are presented in Figure 6. Results show that the majority of professors feel that they have enough appropriate theoretical knowledge, needed for teaching topics related to digital accessibility (68 out of 119 received answers). However, there are also several which were sure they don't have enough theoretical and practical knowledge (47 professors out of 119 received answers) or they are just not sure (4 out of 119). The results show that almost half of professors do not have enough knowledge about DA.

Q2: Would you be interested in the ADORE project activities?

Possibilities and opportunities for direct integration of project results into existing study programmes and subjects were analysed based on the question: **Would you be interested in the ADORE project activities?**

The descriptive statistic shows that the majority of professors (67 out of 119 received answers) that answered this question were interested in the ADORE project activities (see Figure 7). Only 31 professors expressed that they would not be interested in ADORE project activities, while 21 of them have not decided yet whether the ADORE activities would be interesting for them.
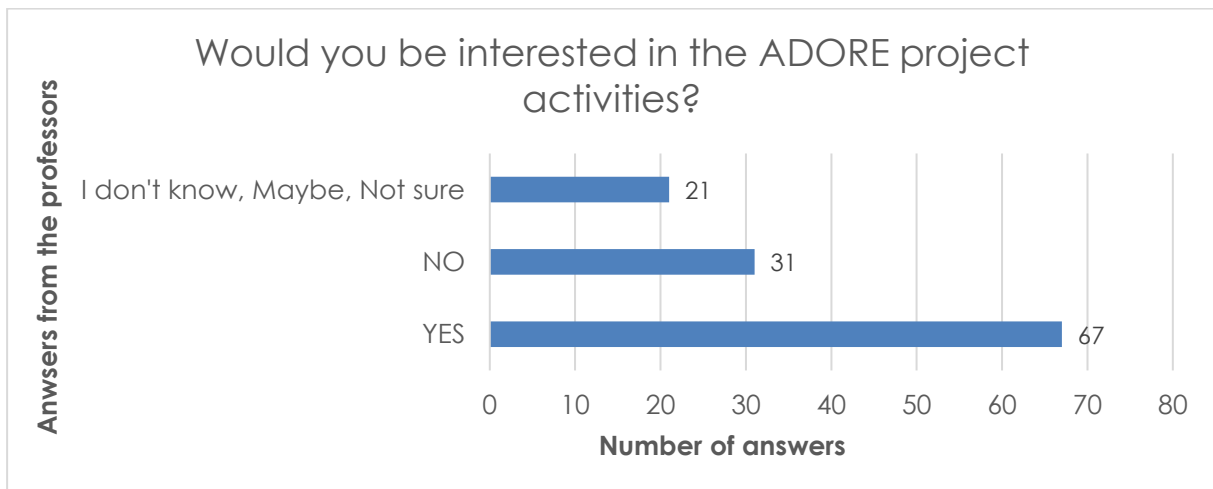
Figure 7 Q2: Would you be interested in the ADORE project activities?

Q3: Does the course already include topics related to digital accessibility?

To find out more about whether topics from the field of digital accessibility are taught in existing study programmes and subjects, we asked the professors the following question: **Does the course already include topics related to digital accessibility?**

As presented in Figure 8, only 21 courses already include topics related to digital accessibility, while 47 of them do not include topics related to digital accessibility. Surprisingly, most professors (51) did not know if their courses already included topics related to digital accessibility.
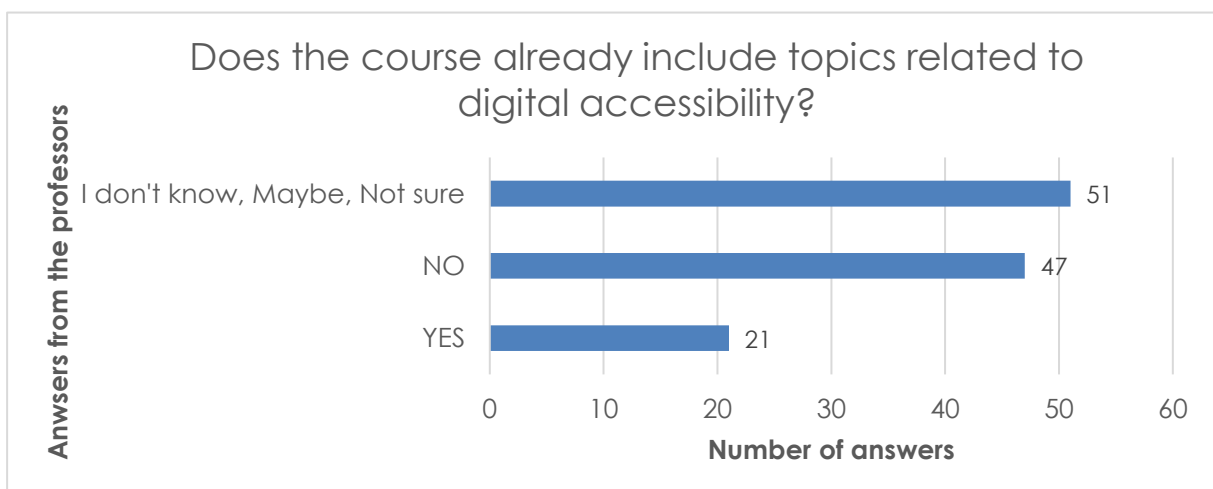

Figure 8 Q3: Does the course already include topics related to digital accessibility (DA)?

Considering that in the first question, more than half of the professors believed that they had enough theoretical and practical knowledge about digital accessibility, the results of the analysis of the answers to the third question were rather surprising (see Figure 8). The result of the analysis of the answers to the third question showed that digital accessibility related topics are taught in a very small proportion of existing study programmes and subjects. Moreover, a very large proportion of professors were not sure whether digital accessibility is being taught in existing courses. Almost half of the professors confirmed that topics from the field of digital accessibility are not taught in the existing study subjects and programmes at the institutions where they come from.

Q4: Do all teaching staff have appropriate digital accessibility knowledge and skills needed for giving lectures on digital accessibility related topics?

Since several staff usually participate in the teaching process, we wanted to find out whether all teaching staff actively involved in the teaching process of a particular subject are theoretically and practically qualified enough to teach topics related to digital accessibility. Accordingly, the professors were asked the following question: **Do all teaching staff have appropriate digital accessibility knowledge and skills needed for giving the lectures on digital accessibility related topics?**

Most of the professors were not sure or do not know whether all teaching staff have the appropriate knowledge and skills needed for giving lectures on digital accessibility related topics (see Figure 9).
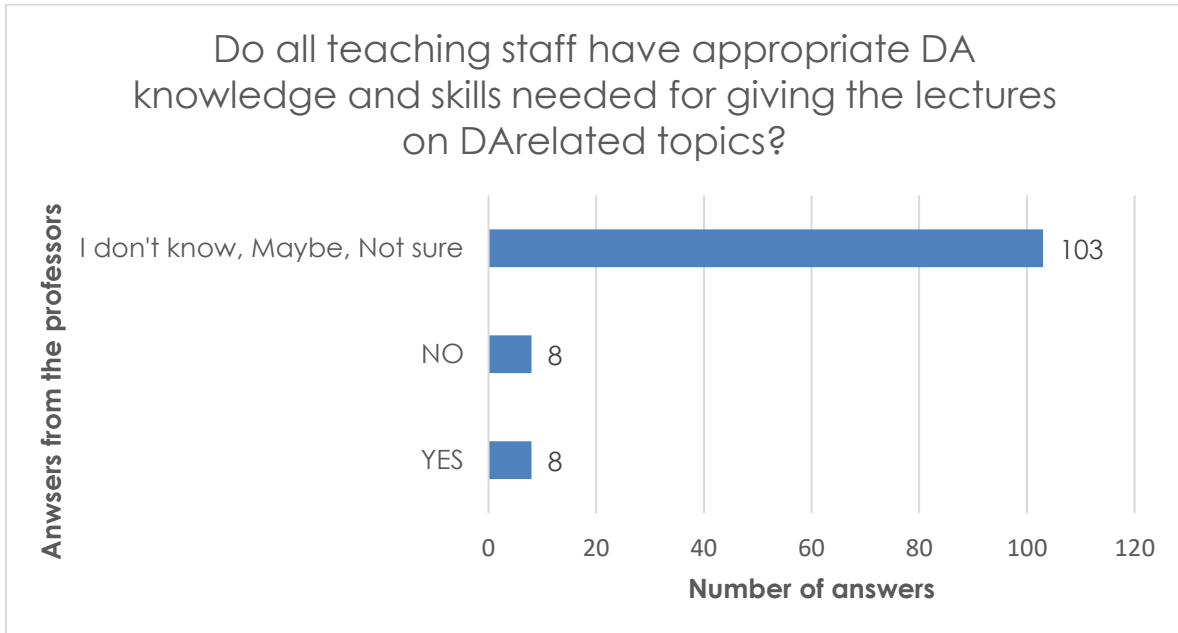
Figure 9 Q4: Do all teaching staff have appropriate digital accessibility knowledge and skills needed for giving the lectures on digital accessibility related topics?

Q5: Do you think that there is a need to include topics about digital accessibility in the course?

With the last question in this part of the information collection template, we wanted to find out the general opinion of the teaching staff about the need to include topics from the field of digital accessibility in existing study programmes and subjects. Therefore, we asked the professors the following question: **Do you think that there is a need to include topics about digital accessibility in the course?**
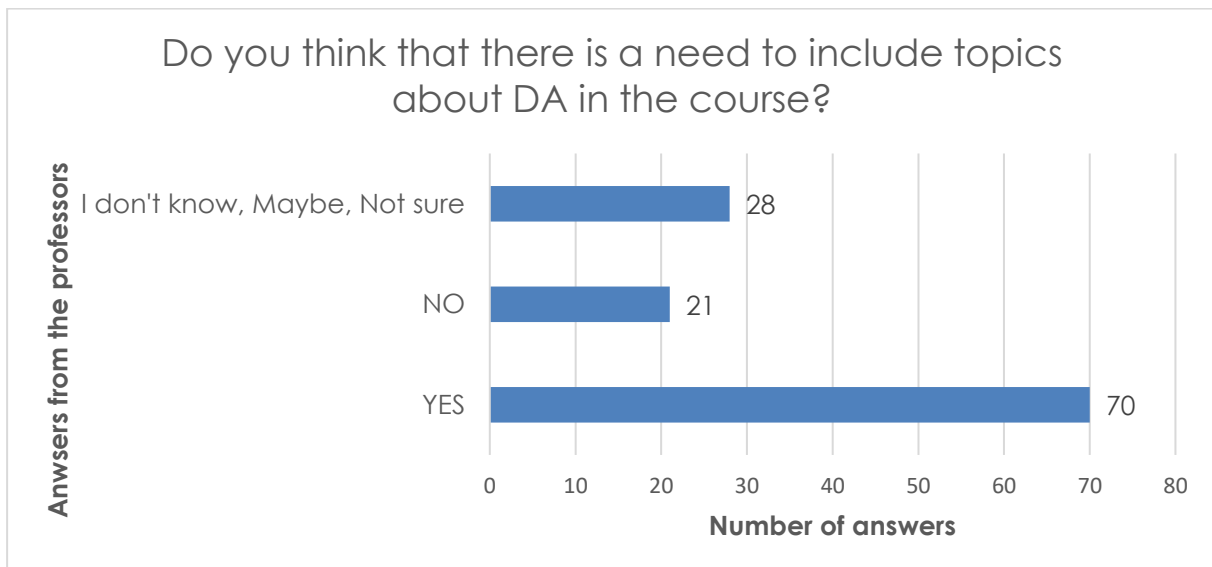
Figure 10 Q5: Do you think that there is a need to include topics about digital accessibility in the course?

The results show that, in general, teaching staff support and are in favour of including content and topics related to digital accessibility in existing study programmes and study subjects (see Figure 10).

To sum up, although many professors were familiar with digital accessibility, only a few of them included it in their courses, and most of them are unsure if digital accessibility is included in the courses or not which opens many questions. When asked whether other staff members have appropriate knowledge about digital accessibility, the most common answer was "I don't know", identifying a lot of confusion, vagueness, and misunderstandings connected to digital accessibility. Most of the professors acknowledged the need to include topics about digital accessibility in the course (70), however, due to previously identified confusion we believe that providing proper knowledge is crucial if we want to succeed in properly teaching digital accessibility to teaching staff.

5.3. Qualitative analysis

The results also included comments from professors, which are presented here as direct quotes:

1. "One of the objectives of Information System Convergence is to improve existing solutions and to ensure solutions with better usability and user experience for all users."

2. "Students need to learn early on about the importance of digital accessibility."

3. "One of the main topics in user centred software engineering is related to the design and development of software systems with high level of usability and user experience."

4. "It might be linked to digital Inequalities, digital divide."

5. "It is important for teaching topics of inclusiveness."

6. "As the course is problem-based learning, the need for digital accessibility topics depends on the problem each group decides to tackle. In some cases, digital accessibility topics are crucial, but on others, they might be irrelevant."

7. "I would like to see examples of assignments and topics to consider for inclusion."

8. "Probably, since the students will all become creators of digital content in their professional life and will need to consider accessibility."

9. "Intercultural Communication course should include topics on inclusion (i.e., digital accessibility)."

10. "A balanced mixture of practical and theoretical knowledge, knowledge when it comes to how platform society and platform economy works, how platforms are developed and governed, how users can resist platform affordances and algorithmic sorting."

11. "This is not directly the subject of this course, but finding different contemporary examples is important and makes it easy for students to understand the material. In this sense, we cannot."

12. "I am interested in your project."

13. "In digital internet homepage and campaign building practices."

14. "I still do not understand what is actually meant in these questions."

15. "Subjects related to the customer value creation (product, service) and customer value delivering/communication."

16. "The digital accessibility questions topical in the part where we look at the medialization of society and the various social barriers to this; as well as questions about the emergence of these barriers."

17. "I need to take a training and decide afterwards."

18. "This is a theoretically oriented course that should improve the students' analytical, writing and presentation, and critical thinking skills. Students have to write reflection papers and a final essay, attend seminars."

19. "Not sure–I have appropriate knowledge where it comes to any member of society living in a digitally saturated environment the structures of which are often built by those with structurally more power. I have no specific knowledge where it comes to accessibility as a disability / neurodiversity issue."

20. "Super-diversity courses discuss all kind of diversity in our society, including people with special needs, disabled peopled, etc."

21. "It is difficult to understand what you actually mean under digital accessibility."

22. "Crisis communication is meant to include all members of our society."

23. "This course aims to prepare ethical intercultural communicators who are able to understand and accept different communication needs."

24. "Depends on the topic of a PhD thesis."

25. "Yes, I would be interested in additional information / training depending on the content and time availability. In digital internet homepage and campaign building practices."

26. "As the course covers new ways to communicate with customers so there should be also covered Digital accessibility issues related with new advertising technologies."

27. "As the course covers how to automate communication in digital channels with objectives to convert customers to purchase products so digital accessibility should also be addressed throughout in customer buying journey."

28. "Subjects related to the customer value creation (product, service) and customer value delivering/communication."

29. "Crisis communication is important for everyone."

Figure 11 presents the most often used keywords by professors when answering our questions or commenting within the information collection template. The most common used connexion to digital accessibility was that the topic is important for education students and providing a better service for potential customers. Several comments also included the importance of digital accessibility to reduce social barriers and increase inclusion. Other connected keywords were also to increase user experience, improve communication and usability, followed by reduction of digital inequalities, reducing the digital divide and general improvement of solutions.
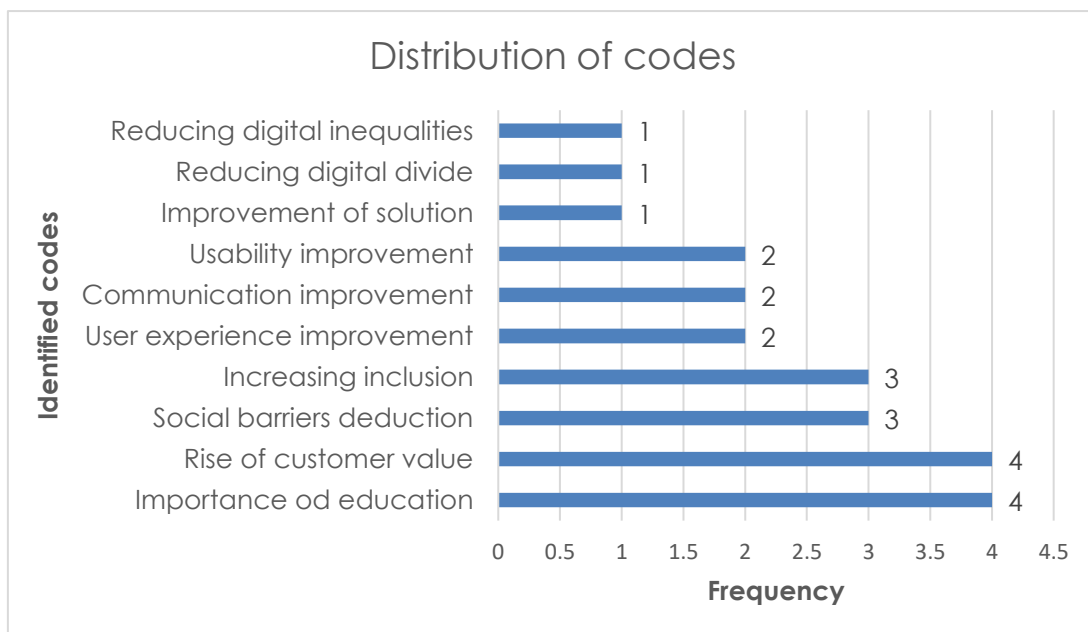

Figure 11 Commonly used keywords in answers

5.4. Elements in the course description, that could be interpreted as digital accessibility

1. Analysis of communication situation and adapting to the audience
2. Challenges and best practices for developing modern web solution
3. Communication
4. Communication skill
5. Communication concepts
6. Communication principles
7. Constructive attitude whilst having respect for other views and beliefs
8. Contemporary approaches
9. Current problems of modern digital media societies
10. Dangers of digital convergence
11. Differences and needs
12. Digital communication
13. Digitally accessible web solution
14. Diversity of European cultures
15. Diversity of people of different origins and cultures
16. Ethical, legal and social issues related to digital social research
17. Holistic understanding of social responsibility and communication of social responsibility
18. Inclusion
19. Influences of culture, intercultural communication and gender on the 'art of 21st century leadership
20. Accessibility of websites (WCAG standard)
21. Positive communication in general
22. Recommendations for e-learning processes and communication
23. User experience design and evaluation
24. Working with people with intellectual/ learning disability

From the descriptions, the following keywords indicate the potential to include digital accessibility in a course. These were identified based on country (see Table 7). Although most courses used the word "communication" and advertised their subject

as communication oriented, only a few of them included accessibility in their courses (Belgium, Estonia and Slovenia). Other common words that could be related to accessibility were identified, such as diversity (mostly used in Austria), inclusion (mostly used in Slovenia), user experience (mostly used in Slovenia), user behaviour (mostly used in Belgium and Estonia), and availability (mostly used in Estonia).

Table 7 Frequent keywords in selected courses

Keyword	Austria	Belgium	Denmark	Estonia	Poland	Slovenia
Communication	144	47	45	332	0	329
Accessibility	0	3	0	10	1	10
Diversity	21	5	0	16	0	4
Inclusion	9	1	0	3	0	36
User experience	8	0	5	0	0	31
User behaviour	1	2	1	2	0	0
Disability	0	0	0	4	0	12
Availability	3	0	0	9	0	1

5.5. Geographical specifics

Austria

- **Country** - Austria, 3 study programmes, 45 courses
- **Field**:
  - o 02 Arts and humanities
  - o 03 Social sciences, journalism and information
  - o 04 Business, administration and law
  - o 06 Information and Communication Technologies (ICTs)
- Knowledge the courses provide
  - o 0% of practical knowledge and skillset
  - o 11% balanced mixture of practical and theoretical knowledge
  - o 89% of theoretical knowledge

- Technical approach to the courses
    - 0% of technically oriented study
    - 5% of semi-technical study
    - 95% of non-technical study
- DA addressed in course description
    - 0% of the course includes several elements of DA without naming it
    - 11% of the course includes some elements of DA without naming it
    - 89% of the course does not mention DA

The study included three study programmes in Austria, covering 45 courses. The broad fields included were Arts and humanities, Social sciences, journalism and information, Business, administration and law, and Information and Communication Technologies (ICTs). The courses delivered mostly theoretical knowledge and were non-technically orientated. Digital accessibility was mostly not mentioned or mentioned only through other keywords.

Belgium

- **Country** - Belgium, 2 study programmes, 14 courses
- **Field**:
    - 02 Arts and humanities
    - 03 Social sciences, journalism and information
    - 04 Business, administration and law
    - 06 Information and Communication Technologies (ICTs)
- Knowledge the courses provide
    - 0% of practical knowledge and skillset
    - 0% balanced mixture of practical and theoretical knowledge
    - 100% of theoretical knowledge
- Technical approach to the courses
    - 0% of technically oriented study
    - 0% of semi-technical study
    - 100% of non-technical study
- DA addressed in course description
    - 0% of the course includes several elements of DA without naming it

- 7% of the course includes some elements of DA without naming it
- 93% of the course do not mention DA

The study included two study programmes in Belgium, covering 14 courses. The broad fields included were Arts and humanities, Social sciences, journalism and information, Business, administration and law, and Information and Communication Technologies (ICTs). The courses delivered only theoretical knowledge and were completely non-technically orientated. Digital accessibility was mostly not mentioned or mentioned only through other keywords.

Denmark

The study included two study programmes in Denmark, covering 15 courses. The broad fields included were Arts and humanities, Social sciences, journalism and information, Business, administration and law, and Information and Communication Technologies (ICTs). The courses were mostly practically oriented and technical. Digital accessibility was mostly not mentioned or mentioned only through other keywords.

- **Country** - Denmark, 2 study programmes, 15 courses
- **Field**:
  - 02 Arts and humanities
  - 03 Social sciences, journalism and information
  - 04 Business, administration and law
  - 06 Information and Communication Technologies (ICTs)
- Knowledge the courses provide
  - 53% of practical knowledge and skillset
  - 27% balanced mixture of practical and theoretical knowledge
  - 20% of theoretical knowledge
- Technical approach to the courses
  - 66% of technically oriented study
  - 7% of semi-technical study
  - 27% of non-technical study

- DA addressed in course description
  - 0% of the course includes several elements of DA without naming it
  - 40% of the course includes some elements of DA without naming it
  - 60% of the course do not mention DA

Estonia

The study included nine study programmes in Estonia, covering 110 courses. The broad fields included were Arts and humanities, Social sciences, journalism and information, and Business, administration and law. The courses delivered knowledge, which was mostly a balanced mixture of practical and theoretical knowledge and only practical knowledge. The courses were non-technical. Digital accessibility was mostly not mentioned in all courses or through other keywords.

- **Country** - Estonia, 9 study programmes, 110 courses
- **Field**:
  - 02 Arts and humanities
  - 0211 Audio-visual techniques and media production
  - 0215 Music and performing arts
  - 0221 Religion and theology
  - 0222 History and archaeology
  - 0223 Philosophy and ethics
  - 0231 Language acquisition
  - 0232 Literature and linguistics
  - 03 Social sciences, journalism and information
  - 0311 Economics
  - 0312 Political sciences and civics
  - 0313 Psychology
  - 0314 Sociology and cultural studies
  - 0321 Journalism and reporting, Communication programs
  - 0322 Library, information and archival studies
  - 04 Business, administration and law
  - 0411 Accounting and taxation
  - 0412 Finance, banking and Insurance

- o 0414 Marketing and advertising)
- Knowledge the courses provide
  - o 51% of practical knowledge and skillset
  - o 46% balanced mixture of practical and theoretical knowledge
  - o 3% of theoretical knowledge
- Technical approach to the courses
  - o 0% of technically oriented study
  - o 0% of semi-technical study
  - o 100% of non-technical study
- DA addressed in course description
  - o 0% of the course includes several elements of DA without naming it
  - o 5% of the course includes some elements of DA without naming it
  - o 95% of the course do not mention DA

Poland

The study included one study programme from Poland, covering 1 course. The broad field included Communication Technologies (ICTs). The course delivered a balanced mixture of practical and theoretical knowledge, it was technically orientated, and it did not mention digital accessibility, however, it did mention it through other keywords.

- **Country** - Poland, 1 study programmes, 1 course
- **Field**:
  - o 06 Information and Communication Technologies (ICTs)
- Knowledge the courses provide
  - o 0% of practical knowledge and skillset
  - o 100% balanced mixture of practical and theoretical knowledge
  - o 0% of theoretical knowledge
- Technical approach to the courses
  - o 100% of technically oriented study
  - o 0% of semi-technical study
  - o 0% of non-technical study

- DA addressed in course description
    - 100% of the course includes several elements of DA without naming it
    - 0% of the course includes some elements of DA without naming it
    - 0% of the course do not mention DA

Slovenia

The study included 16 study programmes in Slovenia, covering 40 courses. The broad fields included were Education, Arts and humanities, Social sciences, journalism and information, Information and Communication Technologies (ICTs), Health and welfare, and Services. The courses delivered knowledge was mostly a balanced mixture of practical and theoretical knowledge or only theoretical knowledge. The courses were balanced regarding technical and non-technical orientation. Digital accessibility was mostly not mentioned, and it was addressed in 10% of courses with the exact word, while 13% mentioned it only through other keywords.

- **Country** - Slovenia, 16 study programmes, 40 courses
- **Field**:
    - 01 Education
    - 02 Arts and humanities
    - 03 Social sciences, journalism and information
    - 06 Information and Communication Technologies (ICTs)
    - 09 Health and welfare
    - 10 Services
- Knowledge the courses provide
    - 15% of practical knowledge and skillset
    - 45% balanced mixture of practical and theoretical knowledge
    - 40% of theoretical knowledge
- Technical approach to the courses
    - 35% of technically oriented study
    - 28% of semi-technical study
    - 38% of non-technical study
- DA addressed in course description
    - 10% of the course includes several elements of DA without naming it

      ○   13% of the course includes some elements of DA without naming it

      ○   78% of the course do not mention DA

Limitations of research

The challenges with collecting data included:

- The web pages do not include all the required information.
- The courses are only superficially described.
- The description of the course is potentially misleading.
- The professors did not cooperate.

6. Conclusions

Most courses as well as study programmes were included in the study due to the inclusion of communication in their contents and the potential to include digital accessibility in the agenda. However, few of them addressed digital accessibility in any way. On the one hand, few of them promised the inclusion of digital accessibility in the course, however, after reading the more detailed description of the course as well as including the answers from professors, this was not the case, digital accessibility was not further discussed in the description. On the other hand, most courses did not mention digital accessibility specifically, however, based on the course description and used keywords, it is possible that content connected to digital accessibility is in fact included in the courses or has great potential to be included in the future.

The lists below show broader fields and subfields, which were mentioned during courses descriptions and where communication is an important topic. The most used fields are Arts and humanities in general, followed by Social sciences, journalism and information, and Business, administration and law. The most often cited sub-field was Marketing and advertising, followed by Economics and Political sciences and civics.

Most common identified communication-related fields

- 02 Arts and humanities
- 03 Social sciences, journalism and information
- 04 Business, administration and law
- 06 Information and Communication Technologies (ICTs)

Most common identified communication-related sub-fields

- 0414 Marketing and advertising
- 0311 Economics
- 0312 Political sciences and civics
- 0314 Sociology and cultural studies
- 0321 Journalism and reporting, Communication programs
- 0413 Management and administration, Communication Management
- 0421 Law

Based on the received data, digital accessibility is partially addressed in all countries, included in the study, however, differences are large. In Figures 12-14 and Figure 15, a mapping of study types and digital accessibility mentioning in different countries is presented, highlighting that Estonia has the most mentioning of digital accessibility. In addition to digital accessibility identification, we also discovered that digital accessibility is variously addressed in courses, which are non-technical as well as technical, therefore it is difficult to set a clear rule.

The results show that digital accessibility is not sufficiently included in courses, connected to communication. In all six countries, there are several fields which include communication topics; although courses from Slovenia and Estonia prevailed, other countries face similar issues: most of them acknowledge the importance of digital accessibility, some of them are informed about this topic but most of them do not include digital accessibility in their courses and would like to learn more.

The courses, which are most appropriate for the inclusion of digital accessibility, are typically organized in the beginning years of the first and second bologna study program, less so in later study years. Since the largest number of identified courses included a balanced mixture of practical and theoretical knowledge, we may suggest that this is the most appropriate approach to provide knowledge about digital accessibility in technically oriented studies and semi-technical studies, but mostly in non-technically oriented studies.

Furthermore, based on the results, there was an additional observation and potential issue in the research. As we wanted to gain as many courses as possible, we included every available course. However, after the first iteration of data gathering, we discovered that many courses are not in its core compatible with digital accessibility, although they included it in the course description and advertised it online. On the other hand, we also discovered types of courses, appropriate for including digital accessibility. They had the following characteristics:

- The courses are theoretical oriented or have a balanced mixture of theoretical and practical knowledge
- Courses, that include instructions for education
- Courses, which are customer oriented
- Courses from the field of arts and humanities
- Courses, from the field of journalism and information
- Courses from the field of Business, administration and law
- Courses, from the field of Information and Communication Technologies (ICTs)
- Courses, from the field of marketing and advertising
- Courses, from the field of economics
- Courses, from the field of political sciences and civics
- Courses, from the field of Sociology and cultural studies
- Courses, from the field of Journalism and reporting, Communication programs
- Courses, from the field of Management and administration, Communication Management
- Courses, from the field of Law
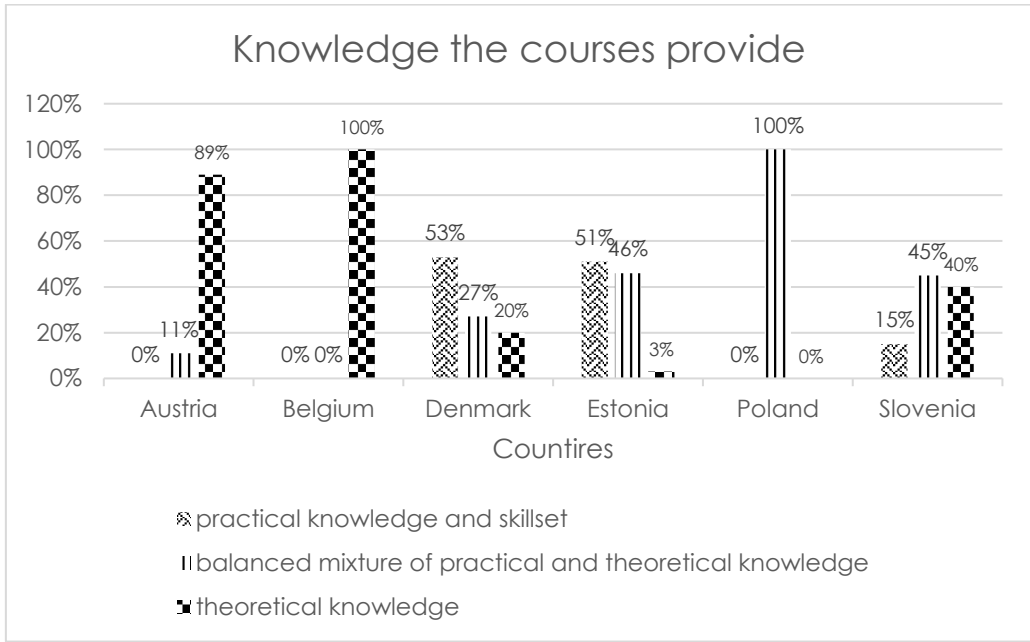
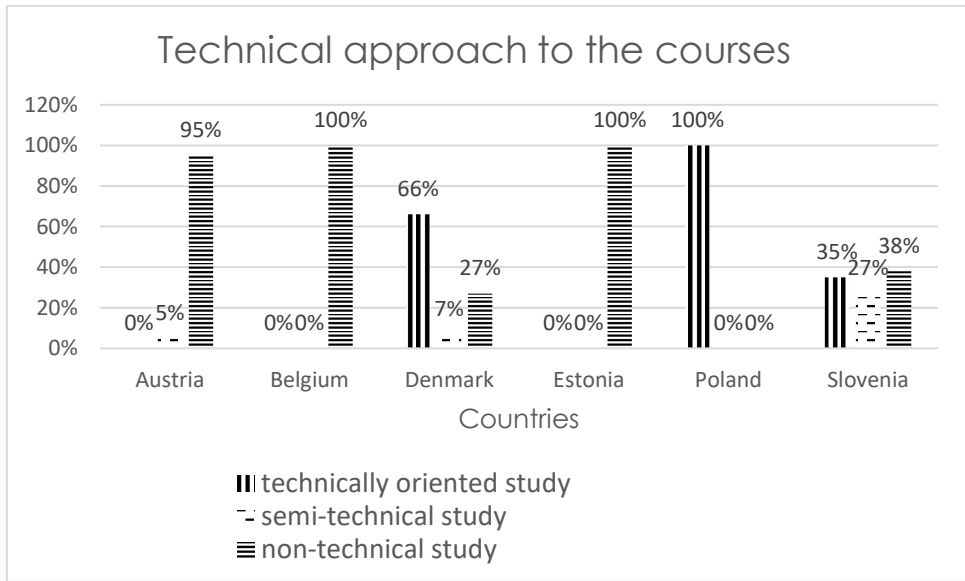Figure 12 Knowledge the courses provide across countries

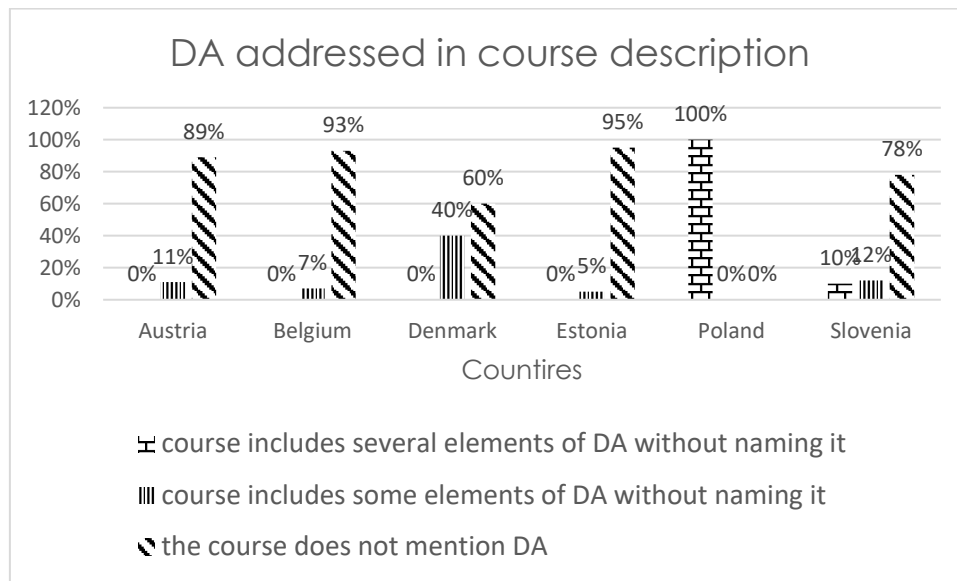Figure 13 Technical approach to the courses across countries

Figure 14 DA addressed in course description across countries

The research also has several limitations as we analysed mostly only studies of partner faculties, which do not provide a representative sample. Therefore, the graphical material and interpretation of the results must be met critically and with caution, having these limitations in mind.

Mapping of identified study fields (The classification and No. of occurrence)

01 Education   7

- 0111 Education science   7
- 0112 Training for pre-school teachers   7
- 0113 Teacher training without subject specialisation   7
- 0114 Teacher training with subject specialisation   7

02 Arts and humanities   100

- 0211 Audio-visual techniques and media production   11
- 0215 Music and performing arts   11
- 0221 Religion and theology   11
- 0222 History and archaeology   11
- 0223 Philosophy and ethics   11
- 0231 Language acquisition   11
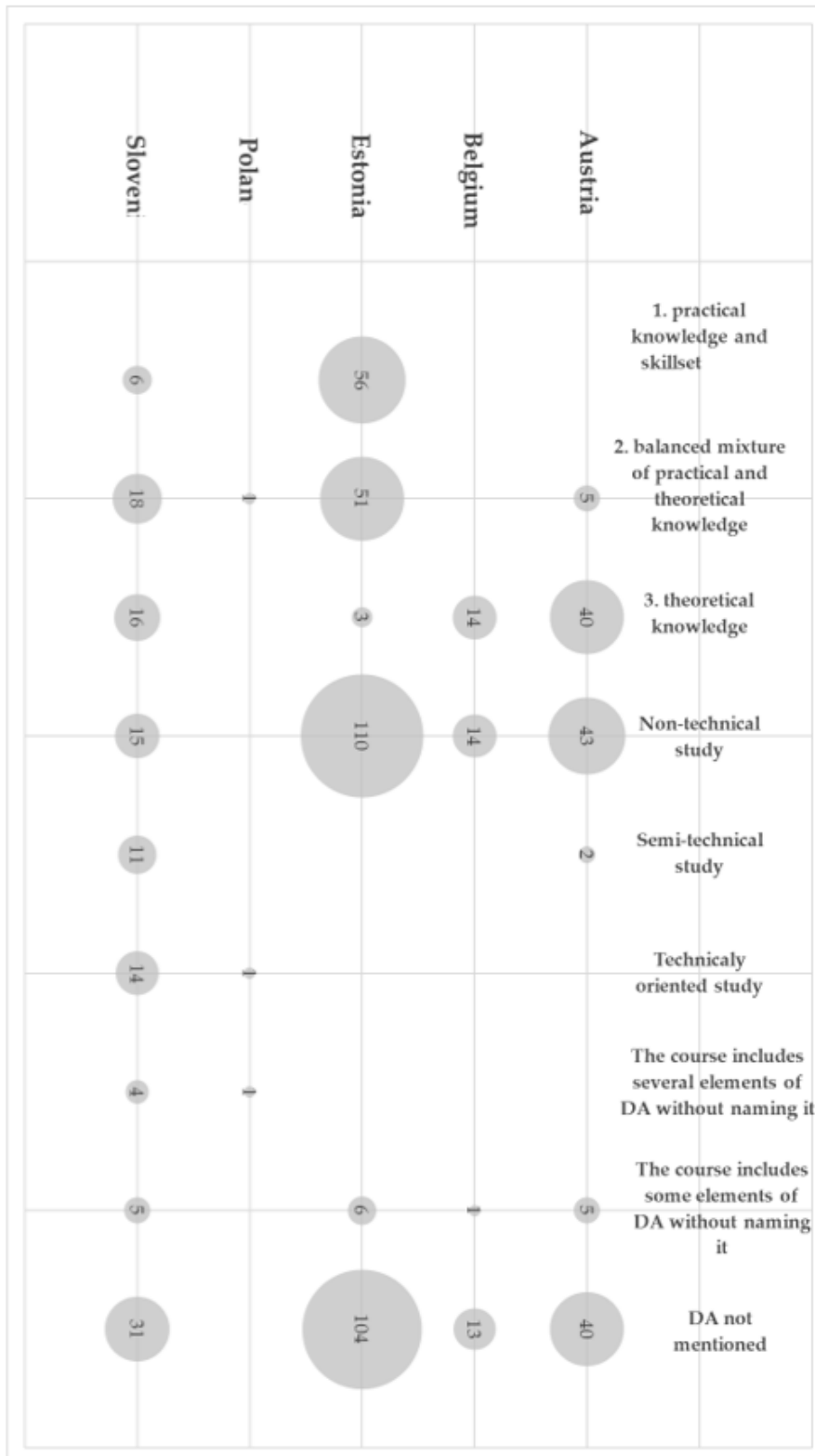- 0232 Literature and linguistics   11

Figure 15 Mapping of study types and DA mentioning in different countries