REPORT

3.1 Development a web-based e-learning Toolkit (e-Toolkit) including the OER and the online materials.

The working group: MENDELU

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End Date 2023-05-01

Introduction

The *Weeks of International Teaching Inclusive and Digital (WITEA-ID),* as transnational project, draws on existing and emerging digital and international mobility competencies and skills needs in higher education, translating them into an approach of short-term events with highly relevant inputs and reflecting critical cybersecurity issues. The project intends to create the infrastructure necessary for learning events (typically *International Collaborative Scientific Mobilities – ICSM's*) with transnational and international participants on the side of students as well as teachers. Opening such events to the broader public due to digital transfer of the teaching sessions should enable more inclusivity of the education (overcoming the geographical, health and other obstacles and age barriers).

WITEA-ID therefore aims to bring an innovative approach to internationalization in higher education in the digital environment. In the development process of the e-Toolkit the following aspects were considered important in the development, structuring, eventual creation and implementation of this e-Toolkit.

- The WITEA-ID project needed to introduce an innovative approach to promoting inclusive internationalization in higher education, offering solutions for developing and effectively preparing current and future professionals with innovative enhanced digital competences.
- The primary objective of the project is to deliver a web-based e-learning Toolkit, including Online Educational Resources (OER's), to strengthen scientific cooperation mobilities (SCM's) and support current EU frameworks applied in the Erasmus Programme. These OER's have the possibility to be delivered in a variety of ways, due to the way the e-Toolkit can be constructed.

lIntellectual Output 3 (IO3) is the culmination of a number of pre-completed tasks and preparations that were done to develop the final deliverable of the – a functionally effective and interactive digitally positioned Toolkit which has the overall objective to support Staff and Students who embark on International Collaborative Scientific Mobilities (ICSM's) as part of the Erasmus Programme – or any other collaborative mobility programme that demands careful planning and execution to try and improve the success, experience, sustainability and educational value and impact of the mobility.

The following very important demands and objectives received careful attention in the creation and implementation of the e-Toolkit:

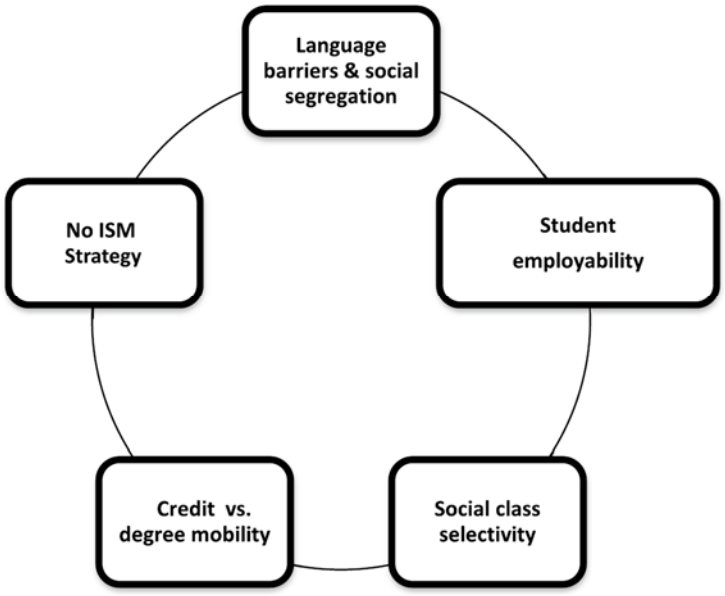
- Create the necessary support to ensure that HEI students and teachers are at the forefront of research, technological developments, and innovation in digitalisation; (to enhance digital competences).
- Create or develop opportunities that will ensure that current and future professionals have the work attitude, knowledge, flexibility, and competencies that they can cope with rapid changing EU (and global) job market demands.
- Contribute actively to enhance the necessary competences for international mobility and multilingualism).
- Identify the existing and emerging needs of teachers in digital education and enhance the responsiveness of initial and continuing training for teachers to these needs through enhanced digital competences.
- Promote synergies, cooperation, and cross-fertilisation among partners (to enhance internationalisation on the participating institutions.
- Include new stakeholder groups in short time events (to enhance inclusivity).

The e-Toolkit should therefore actively contribute, through International Weeks and similar events, to the cultivation of important skills like oral communication, thinking skills, continuous learning- document use, working with others (intercultural collaboration), the effective communication of ideas and information, and the development of interpersonal and intrapersonal skills and global citizenship.

Analysis of specification and needs of students and educators in the terms of international mobility (ICSM's)

Figure 1 offers a very concise but accurate illustration of the major types of problems WITEA-ID is focusing on – offering a solution and effective tool in the delivery of the e-Toolkit.

Fig. 1 The challenges of ISM in the European arena



Source: Lopez-Duarte, C., Maley, J.F. and Vidal-Suarez, M.M. 2021. Main challenges to international student mobility in the European arena. Scientometrics (2021) 126:8957–8980. Springer Link. https://doi.org/10.1007/s11192-021-04155-y

It became abundantly clear that the e-Toolkit could only accurately be developed if it would measure and analyse the following important aspects regarding the skills and competencies of staff embarking on teaching and research mobilities to foreign destinations.

Online data collection instrument was developed to measure and analyse the following with staff who have completed at least one ICSM:

1. To identify the main challenges and needs of such staff members.

2. To analyse and describe the subjective assessments of such staff members of their own levels of competencies and successes when completing such mobilities.
3. To assess the perceived comparative and absolute importance of a number of important aspects of teaching and research mobilities in the successful completion of mobilities at foreign destinations.
4. To identify the possible important dynamic interrelationships between competencies, levels of achieved success and experience in mobilities, that are considered critical in making teaching and research mobilities successful.

Selection of important variables and design of next level structure

Based on the work that IO1, IO2, IO3 and IO4 did and published to identify, structure and also accurately define the essential skills and competencies students and staff find crucial for successful ICSM's [1,2], the e-Toolkit was structured.

Firstly, the competencies proposal list was prepared, followed by conducting a Delphi survey. A Delphi technique was carried out by the Hellenic Mediterranean University in the Output 1, more precisely in the 1.2 and 1.3 at the part Definition of teachers' and students' IM competences. Both activities aimed to define the competences on IM for students and teachers in higher education in an international content and to gather, evaluate and synthesize current evidence about the IM competences developed in higher education for teachers and learners.

The important steps in the creation of the e-Toolkit were as follows.

- A comprehensive assessment of the essential skills and competences that were considered fundamental to the successful completion of ICSM's. The inputs and final information that was used as structural inputs to the e-Toolkit, were published.

- It became essential to study the practical environment of students and staff on ICSM's to gain some understanding of the realities, skills-demands, challenges, etc. that were practically experienced and sought after during such ICSM's. Two separate studies were conducted – one for Staff and one for Students.

[1] Patelarou, A., Zourmpakis, A.-I., Mens˘´ıkova,´ M., Ljubisi˘ c, N. B., Ampartzaki, M., Sifaki, E., Pa- ´ padourakis, G. M., Papadakis, S. E., Kalogiannakis, M., & Patelarou, E. (2022). Teaching and learning in the content of International Mobility: An overview of the existing evidence. Advances in Mobile Learning Educational Research, 2(2), 427-434. https://doi.org/10.25082/AMLER.2022.02.011

[2] Kalogiannakis, M., Zourmpakis, A. I., Mens˘´ıkova, M., Lategan, F., Patelarou, A., Patelarou, ´ E., Ljubisi˘ c, N. B., Ampartzaki, M., Sifaki, E., Pa- ´ padourakis, G., & Gonianakis, E. (2023). Organizational evaluation and human resources behavior. Advances in Mobile Learning Educational Research, 3(1), 702-717. https://doi.org/10.25082/AMLER.2023.01.019

- Following careful conceptualization, a questionnaire was developed for each group. Careful consideration wat given to the type of questions that would be suitable without compromising on the type and quality of information that was considered important to achieve the objectives of this study.

- These realities also imposed important restrictions on the type and depth of statistical analysis that could be performed. Analyses were limited to basic descriptive statistics and the investigation of a series of important two-variable analyses.

- These were, however, sufficient to meet the quality expectations for the investigation. These questionnaires were placed on the Survey Monkey data collection platform. Through all the existing databases the groups were encouraged to complete the questionnaires.

Table 1. Matrix of essential practical areas of engagement and skills needed to manage them.

Practical areas of engagement	Most important aspects of area	Competencies to investigate (Staff and students on Erasmus Internship mobility)		
		Communication	Learning Strategies	Ethics
		❑ Intercultural communication, ❑ negotiation skills, ❑ group discussion skills, ❑ intercultural management, ❑ intercultural competence, ❑ presentation skills, ❑ language skills, ❑ conflict management, ❑ social interaction	❑ Continuous Learning, ❑ instruction comprehension, ❑ problem solving, ❑ decision making, ❑ creativity, ❑ innovation and originality skills, ❑ conceptual skills, ❑ critical thinking, ❑ teamwork, ❑ adaptability, ❑ stress management, ❑ leadership, ❑ organisation skills, ❑ resource management, ❑ post arrival orientation	•loyalty, •integrity, •tolerance, •commitment, •responsibility, •trust, •cultural tolerance, •respect, •assertiveness
How to deal with academic environment	Conceptual development and interpretation of task and assignment			
	Academic groupwork			
	Interacting with study and international departments			
	Interacting with other academic staff and research content			
	Mobility accountability and reporting			
How to deal with practical life	Procuring normal life and study equipment and food			
	Planning and managing travel and accommodation needs			
	Financial management and budgeting to meet mobility requirements			
	Regional orientation and planning site visits and tourist attractions			
How to deal with society and social life	Social engagement and assimilation into society			
	Language issues and positioning to overcome communication challenges			
	Group and individual relationships and protocols in society			
	Informal institutions and how to use them for a better mobility experience			

Development of a web-based e-learning Toolkit (e-Toolkit)

After the empirical study and literature review, the development of the structure was a crucial part. This approach necessitated the following important considerations in the design:

- A framework illustration should be used in the structuring and development of the e-Toolkit on the WordPress platform.
- A mind map of the approaches in the planning and populating of the e-Toolkit.
- Identification and motivation for the flowchart approach. To accommodate this important orientation mechanism, the e-Toolkit is developed to allow for several access points, depending on the needs of the user. The conventional access will be through the problem-based route where the direct felt need acts as a point of departure.
- The system's characteristics of the competencies and skills sets' interactions leading to successful ICSM's are clearly illustrated in Figure 2.
- Suggested possible ways of improving the utility value of the toolkit by applying different ways of engaging with it. The internal structuring allows for multiple road mapping experiences to allow for different angles to possible solutions through its modular structuring allowing for future changes or adaptations.
- The e-Toolkit offers a more spherical (holistic) growth experience than a linear, single-outcome process. This is supported by the systems approach to digitalizing mobility skills and competencies necessitating an ecosystem of skills demands for a successful mobility exercise.

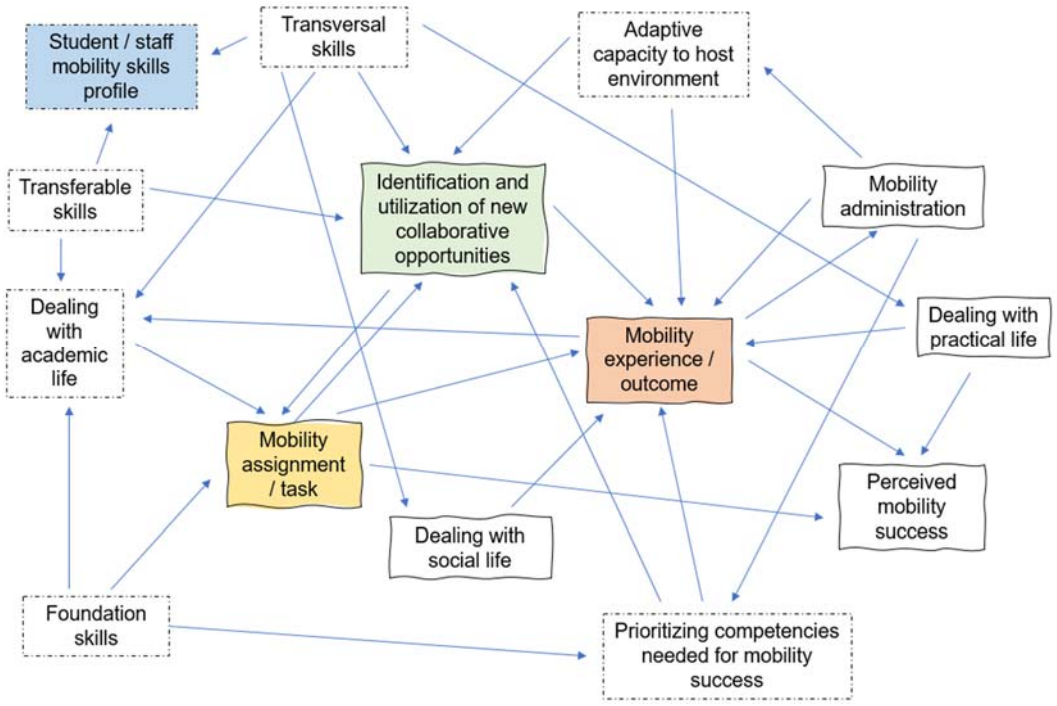


Figure 2. Illustration of the systems characteristics of the competencies and skills interactions leading to successful ICSM's.

Based on the findings obtained in the surveys as well as observations from the analyses of the results, the potentially important interactions identified as drivers for successful mobilities can be illustrated as follows:

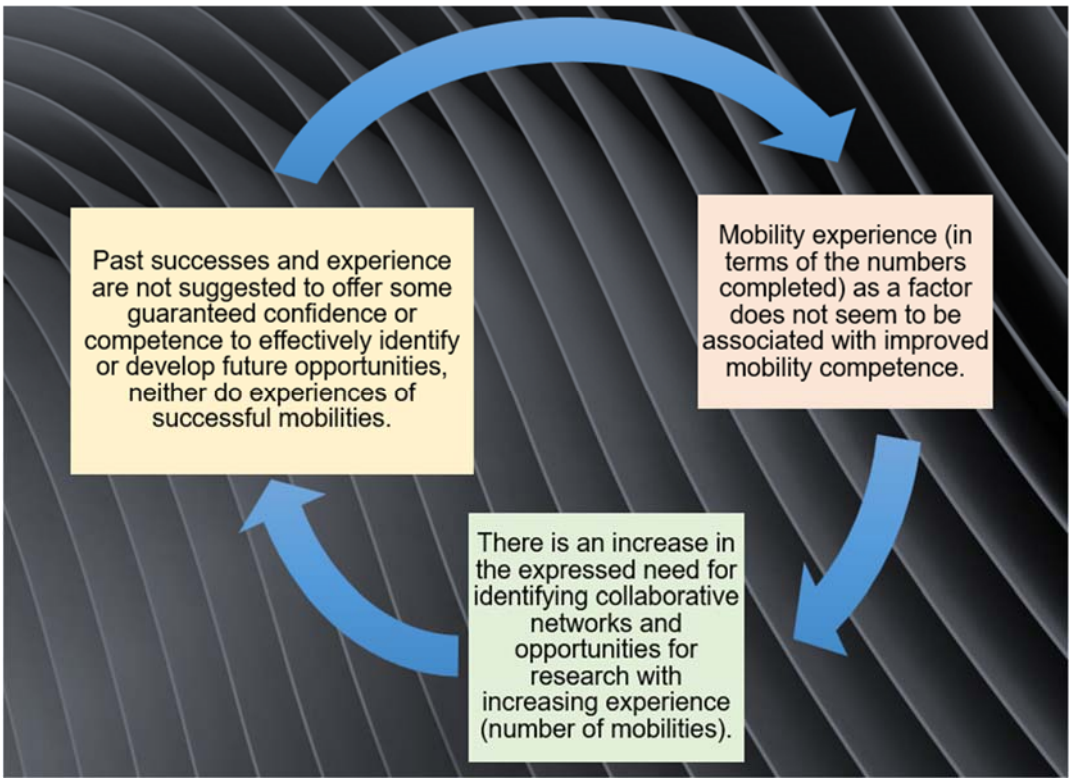


Figure 3. Illustration of expected interaction between the drivers of mobility success.

Based on the aforementioned results, literature information as well as the observations collected during the empirical phase, the following recommendations for an innovative educational e-Toolkit *(considering content and structure and educational and functional value)* were adopted.

- Incorporate evidence through literature search and theory; develop a robust evaluation method to assess intervention and e-Toolkit effectiveness; include Online Educational Resources so that all learners will have access to, in rural or urban areas and with no economic resources.
- Engage users and stakeholders during modules and intervention development including e-Toolkit; contain a main well-structured module in the area of digital literacy and ICT.
- Consider instructional design and testing including how the learner is guided effectively to the content and given meaningful feedback; incorporate features that accommodate different cultural pedagogy and learning styles to prevent learners from feeling lost or feeling dissatisfied with the online learning experience.
- Recognize, appreciate, and cherish cultural differences, while avoiding cultural stereotypes to create a more welcoming environment for international students; expect for minimal technical knowledge and computer skills as each learner's technology experience will vary.
- Contain modules in other areas of International Mobilities competences including literacy competence, multilingual competence, mathematical competence and competence in science, social and learning to learn competence, citizenship competence, entrepreneurship competence, cultural awareness and expression competence; incorporate modules in one e-Toolkit with the use of online digital platforms so that the educational material will be available in open access to groups; state clear expectations and include examples and summaries when possible for each module to help avoid miscommunication, assumptions, or ambiguity.

Conceptual functional structure of the e-Toolkit

Built around competences developed and identified in the work done by IO1 and IO2, the e-Toolkit has important Basic Aspects that describe the structure and the eventual effective functional utilization to achieve its objectives. The following Basics describe these structuring phases and functioning within the e-Toolkit. The structuring makes it possible to interactively engage with the e-Toolkit.

Basic 1 (following the work done by IO1 and IO2)

This provides the basic framework for the construction of the fundamental competencies matrix as included in the e-Toolkit. This provides the structural framework from where the further development is done to facilitate manoeuvrability inside the e-Toolkit and give the use the possibilities to do more flexible searches in the e-Toolkit (based on the user's own need and questions to deal with).

Communication (learning areas)	
Interpersonal communication skills	**Scientific communication skills**
Learning Strategies (learning areas)	
Learning Strategies (General)	**Creativity and Innovation Skills**
Ethics (learning areas)	
Ethics (General)	**Trust**

Figure 4. Illustration of the structure and organization of the competences and skills sets associated with successful ICSM's.

Basic 2 (following the work done by IO1 and IO2)

This section describes the important skills-needs associated with the different competencies necessary for staff and students. It provides the more specialised needs for information and competencies development that are required to effectively use the e-Toolkit and a "surfing" environment but also, more importantly, gain some specialised knowledge and references to develop own competencies.

Communication	Learning Strategies	Ethics
Interpersonal communication skills	Learning Strategies (General)	Ethics (General)
• Intercultural communication • negotiation skills • intercultural management , • intercultural competence,	• Continuous Learning, • instruction comprehension • teamwork, • adaptability, • organisation skills, • resource management, • post arrival orientation • stress management	• assertiveness • commitment • responsibility, • cultural tolerance
Scientific communication skills	Creativity and Innovation Skills	Trust
• language skills, • conflict management,	• problem solving, • decision making,	• loyalty, • integrity,

• social interaction • group discussion skills, • presentation skills	• creativity, • innovation and originality skills • conceptual skills • critical thinking, • leadership	• respect, • tolerance

Table 2. Indication of the skill sets associated with each competence associated with ICSM success.

Basic 3. Functional access points into the e-Toolkit to ensure smooth engagement.

Expanded with the research findings of research done by IO3 and reflected in Table 2. This offers the user a more focused access point into the e-Toolkit. This access point is offered to provide the user with more focused and functionally effective access into the e-Toolkit. The user can immediately proceed to work on specific questions or problem he/she wishes to address or solve or learn about. The spherical structure of the e-Toolkit allows for more systematic collection of information to support the learning process.

Basic 4. Mental engagement map of the e-Toolkit illustratinbg the interactive characteristics and possibilities inside the e-Toolkit.

This Mental map of the e-Toolkit describes the multidimensional structure of the e-Toolkit – offering a more conducive holistic and interactive first route of engagement. An important benefit of this structure is its modular structure. This means that the necessary changes and improvements may be made inside the e-Toolkit without excessive effort. This improves the sustainability aspect of the e-Toolkit.

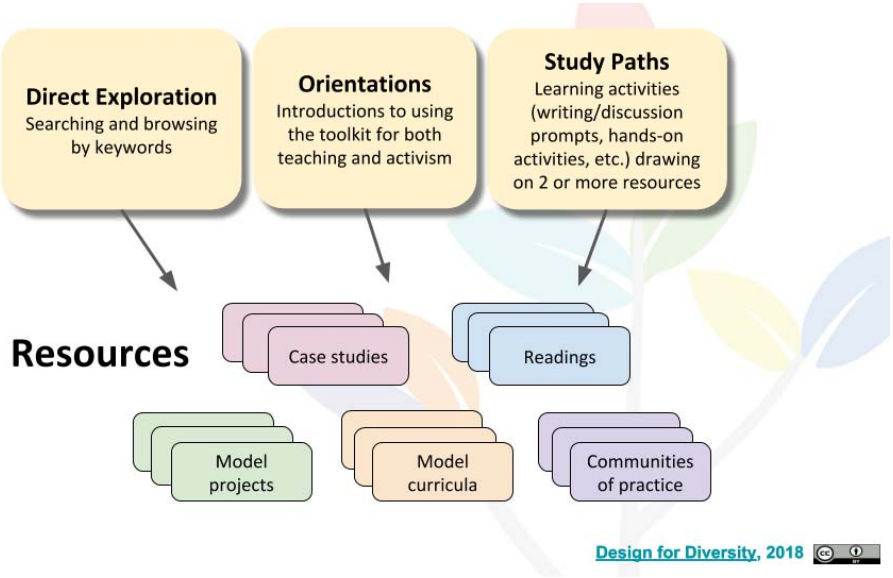


Figure 5. Illustration showing the versatility of engagement with the e-Toolkit through its modular design of the mental engagement map. This utility value of the e-Toolkit is currently sufficiently developed for use by staff and students but offers great opportunity for expansion.

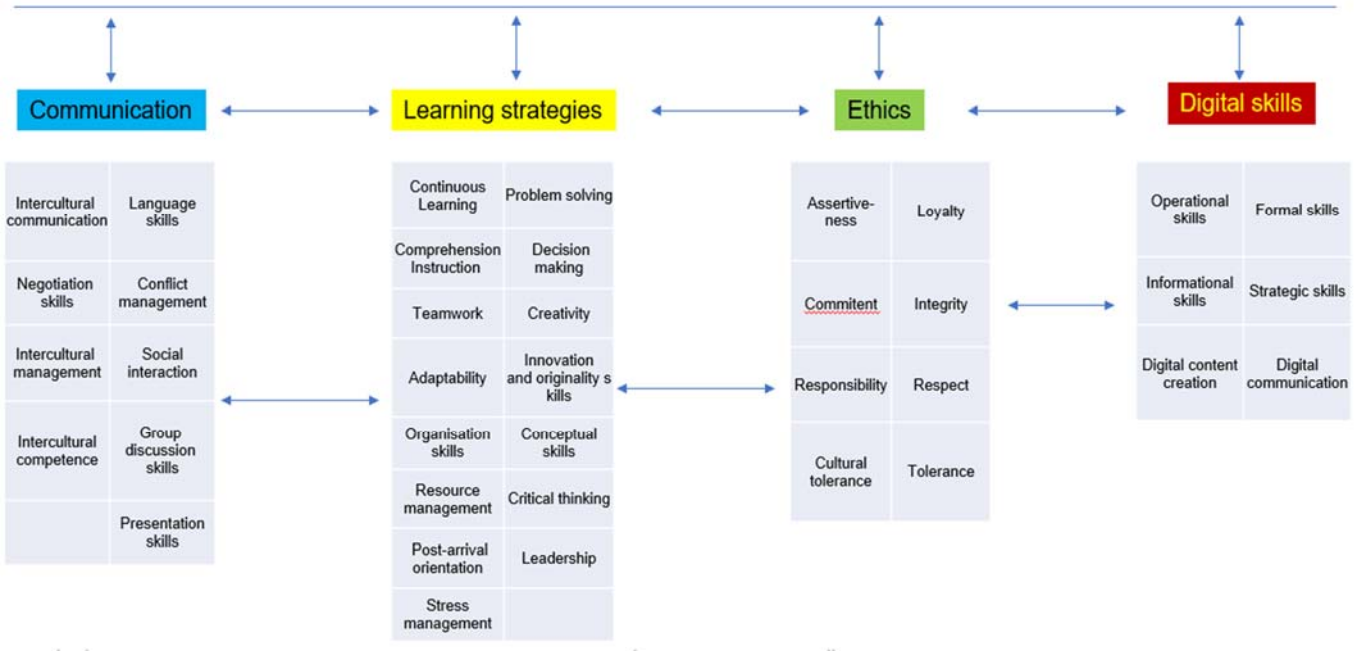


Figure 6. Linear illustration of the operational map of e-Toolkit - web-based e-learning Toolkit (e-Toolkit) showing the positioning of the Online Educational Resources and the online materials. The arrows indicate the interrelationships and potential interactiveness inside the e-Toolkit and offers a one level deeper insight into the structure of the e-Toolkit offered in Table 2.

Basic 5. The interactive functioning of the e-Toolkit in the structure clearly illustrating the access point and interactive ability to allow for random or structured "surfing" in the e-Toolkit..

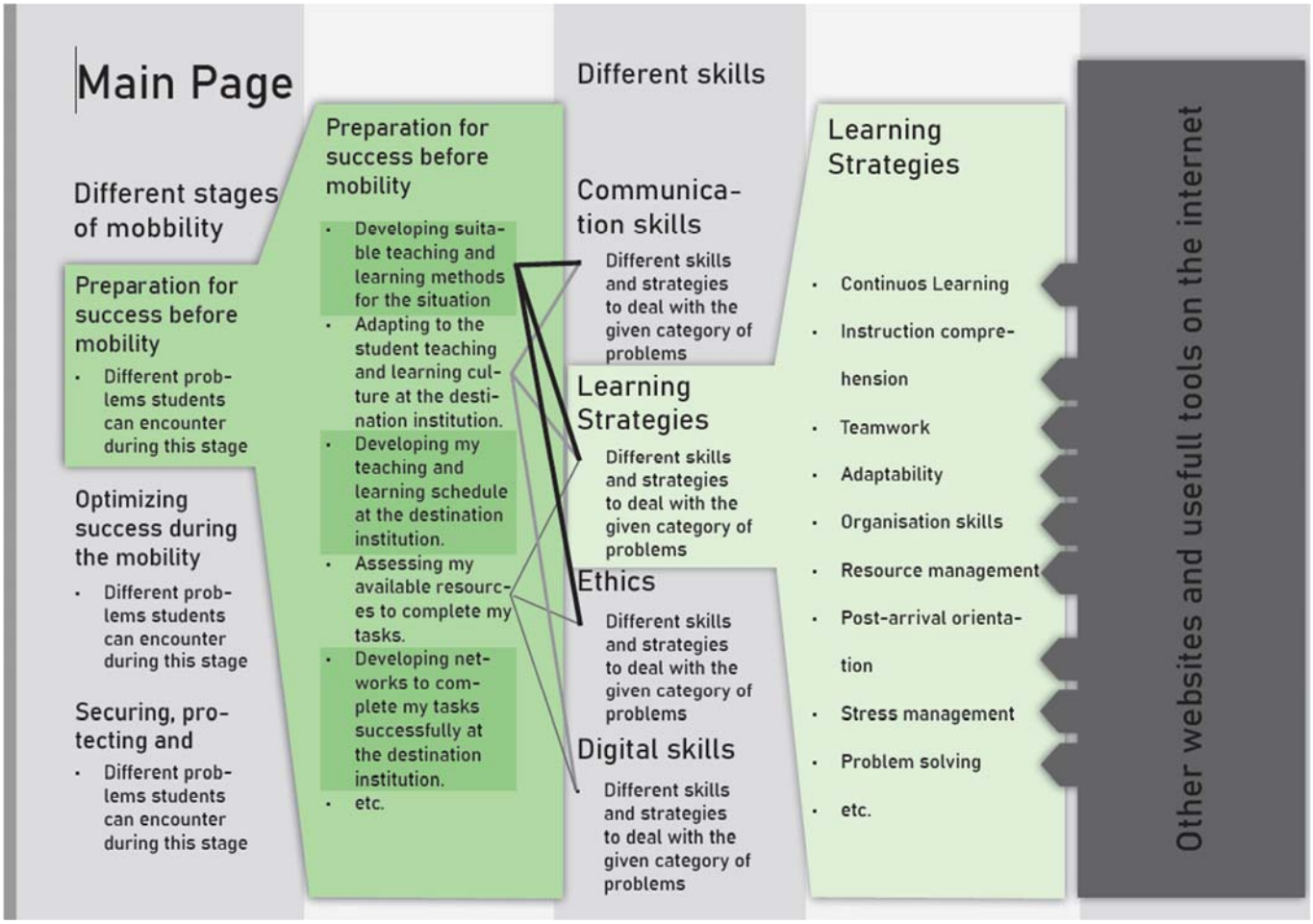


Figure 7. Main page

The access point is the preferred skills or competence need expressed by the user. This reflects on the main page of the e-Toolkit. There is provision for different stages of mobility as well, allowing the user to be more specific in his/her search while easily being able to adjust the search.

Basic 6. Mind map describing the functional engagement process step-by-step of the user with the e-Toolkit. This will allow the user to access the functionalities of the e-Toolkit and use it to solve problems or create better preparation plan for ICSM visits.

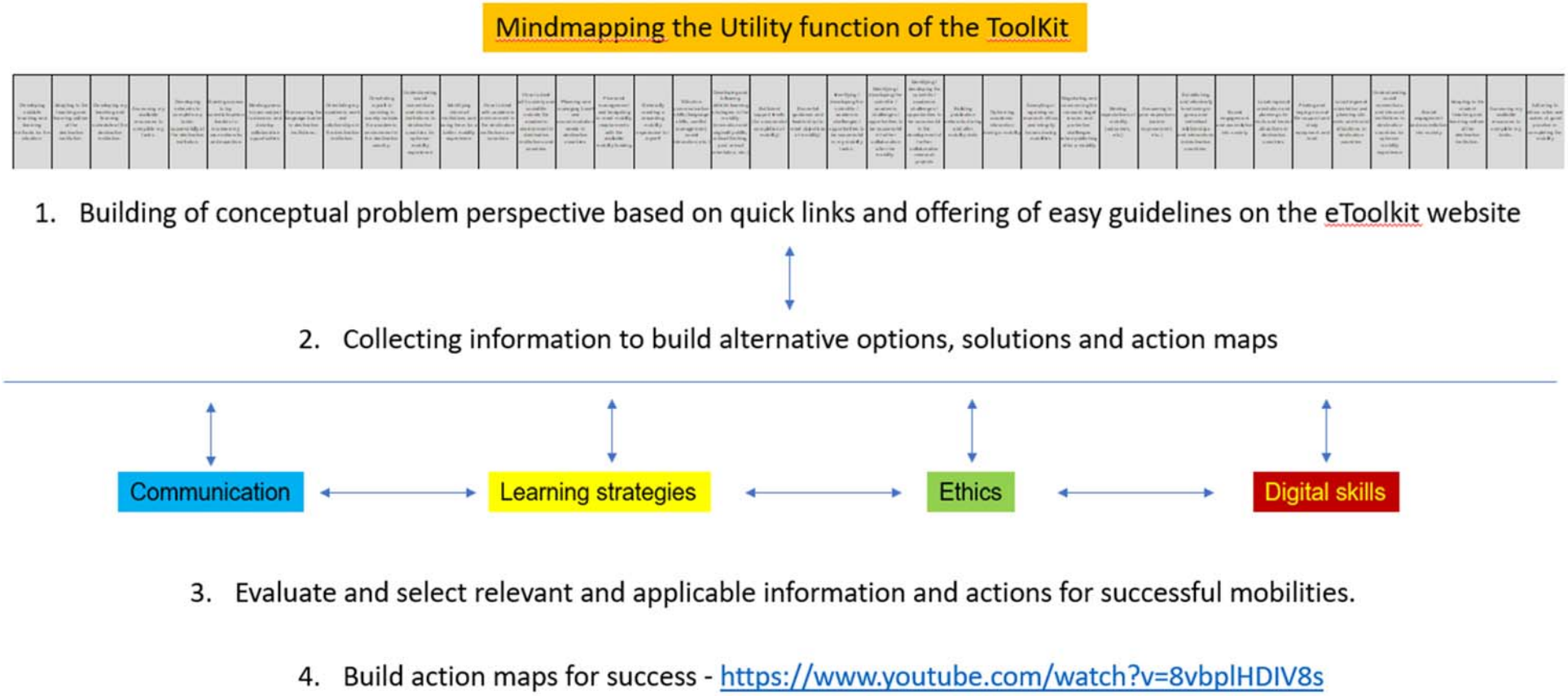


Figure 8. Mindmapping the Utility function

Conclusion

The development of the whole e-toolkit was a long process to finish. Having completed the empirical study and literature review sections, the next important step was to development the structure that could offer the functional effectiveness and utility value of the e-Toolkit and Analysis of technical specifications of the e-Toolkit.

To get the structure and the flow in the e-Toolkit functionally effective, several examples of functioning e-Toolkits were studied, and efforts made to identify the characteristics that made them successful. From this process, some important impressions, ideas and advice was recorded to implement in the structuring of the e-Toolkit.