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SIMULATION-BASED LEARNING IN OCCUPATIONAL THERAPY EDUCATION (SIMBA)

Report on Activity 2, Work Package 2:

A structured narrative literature review to examine occupational therapy competencies and simulation-based learning in occupational therapy education

May 2023

AP UNIVERSITY OF APPLIED SCIENCES AND ARTS ANTWERP
ZDRAVSTVENO VELEUČILIŠTE ZV MCMLXVI
FH JOANNEUM University of Applied Sciences
MEDIPOL ISTANBUL MEDIPOL UNIVERSITY
TURKU AMK TURKU UNIVERSITY OF APPLIED SCIENCES

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LEAD AUTHORS

Claire Sangster Jokić, University of Applied Health Sciences, Zagreb, Croatia
Laurence Magerat, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Andreja Bartolac, University of Applied Health Sciences, Zagreb, Croatia
Ivana Klepo, Special Hospital for Medical Rehabilitation Krapinske Toplice, Croatia

CONTRIBUTORS

Hanne Van Tiggelen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Kuni Vergauwen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Mariotte Wyckaert, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Julia Unger, FH Joanneum Gesellschaft, Graz, Austria
Katrin Pechstadt, FH Joanneum Gesellschaft, Graz, Austria
Ahmet Emir, Istanbul Medipol Universitesi Vafki, Istanbul, Turkey
Hilal Bostanci, Istanbul Medipol Universitesi Vafki, Istanbul, Turkey
Heli Arokki, Turun Ammattikorkeakoulu OY, Turku, Finland
Anu Kuikkaniemi, Turun Ammattikorkeakoulu OY, Turku, Finland

Project website: https://simba.turkuamk.fi/

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This document provides a report of activities completed in Work package 2 of the Simulation-based learning in occupational therapy (SIMBA) project (2022-1-BE02-KA220-HED-000088974). It will describe work carried out within Activity Two (WP2 A2) of this Work package, for which the following achievement was defined:

Achievement 1: Conducting a review of the literature to identify competencies and influencing factors for implementing simulation-based learning in occupational therapy education

Introduction/Background

This review of the literature was carried out to collect, analyse and synthesize current information regarding occupational therapy competencies and the application of simulation-based learning in occupational therapy education. The results of this review are subsequently being applied to achieving the first milestone in this Work package – the preparation of a first draft of a *Framework of occupational therapy competencies* and *Guidelines for the application of simulation-based learning (SBL) in occupational therapy education* (MS1.1.) (hereinafter referred to as the *Framework* and *Guidelines)*.

Three indicators were defined within this activity:

- A-priori study protocol describing rationale, hypothesis, and method for literature review
- Precise documentation of the data collection and analysis process
- Final report demonstrating scientific rigour of the literature review

In order to achieve these indicators and conduct the literature review, a structured narrative literature review methodology was applied. This methodology and the study protocol itself will be described in detail in this report and supported by documents found in Appendices. All activities described in this report were completed during the period from January, 2023 to June, 2023.

The leading project partner for this activity was Zdravstveno veleučilište (ZVU), with AP Hogeschool Anterwerpen (AP) acting as supporting partner. The following individuals participated and made direct contributions to the work conducted within this Activity:

- Claire Sangster Jokić, ZVU – activity coordinator; participated in planning and implementing the search and review of the literature, data analysis and synthesis, and preparation of the final report.
- Laurence Magerat, AP - participated in planning and implementing the search and review of the literature, data analysis and synthesis, and preparation of the final report.
- Ivana Klepo, ZVU - participated in planning and implementing the search and review of the literature, data analysis and synthesis, and preparation of the final report.
- Andreja Bartolac, ZVU - participated in planning and implementing the search and review of the literature, data analysis and synthesis, and preparation of the final report.
- Hanne van Tiggelen, AP – provided consultation and feedback during planning and implementation of the literature search and review activities.

Other project partners provided direct input and feedback during development of the research questions and study protocol and will review and provide feedback on the first draft of the *Framework* and *Guidelines*.

Timeline

Figure 1 presents the timeline in which all activities described here were conducted.

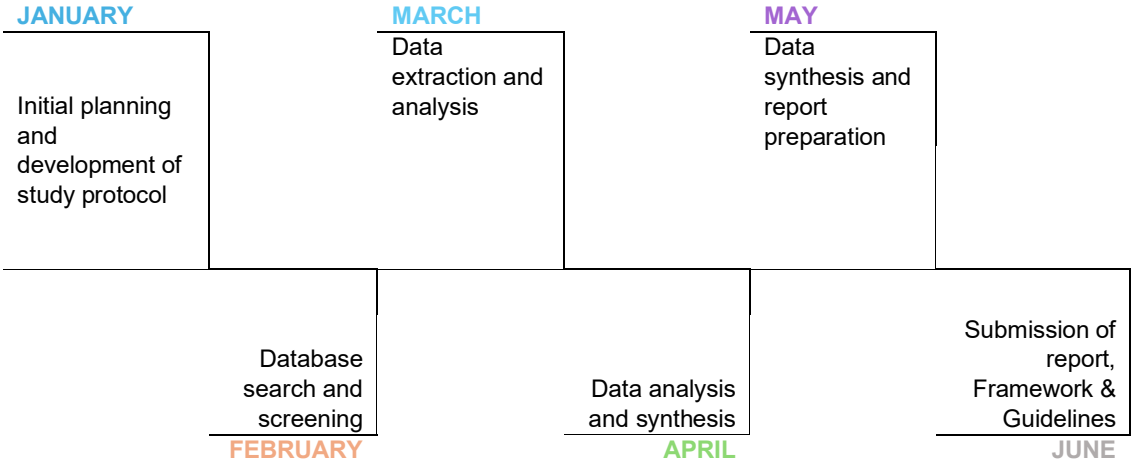

Figure 1: Timeline of activities completed in 2023.

Rationale

As one of the first phases of the SIMBA project, the purpose of this review is embedded within the larger aim of the SIMBA project itself, which is to design and implement a tool kit for simulation-based learning and assessment in the occupational therapy education programmes of the five partner organizations. In health profession education, simulation-based learning practices have been shown to better prepare students for future practice and motivate students to learn in an authentic and supportive learning context (e.g., Colethorpe et al., 2021; Shea, 2015). Using Miller's (1990) model of clinical skill learning and assessment, SBL approaches enable the transition from knowledge-based ('know') to skill-based ('show how') competence. While SBL is commonly used in other professional education programs such as medicine and nursing and has begun to emerge in occupational therapy (OT) education, the design, and delivery of SBL practices in OT is not yet clearly defined (Grant et al., 2021; Imms et al., 2018).

As such, to develop an SBL program that would be effective and appropriate for supporting professional competency development in OT education specifically, the first objective of the project was to develop a *Framework* in which professional competencies expected of a novice occupational therapy practitioner were clearly defined and to construct *Guidelines* for the implementation of SBL in OT education. To do so, it was first necessary to conduct a review of the literature with the following objectives:

1. To gather information about essential professional competencies for the novice occupational therapy practitioner.
2. To gather information about the models, frameworks, methods, practices and approaches for simulation and simulation-based learning used in occupational therapy education.

Research questions and secondary questions

To address the above stated objectives, two research questions were developed for the literature review. Secondary questions were also identified to further demarcate the information being sought and to inform development and implementation of the search protocol.

1. What are the essential professional competencies of a novice occupational therapy practitioner?

a. How are professional competencies of a novice occupational therapy practitioner classified?

b. How is the phased progression of professional competencies formulated across different levels of occupational therapy education?

2. What are the constructs, theories, frameworks, and principles used to inform the implementation of simulation and simulation-based learning in OT education?

a. What constructs, models, theories, and frameworks are applied in the design and implementation of simulation and simulation—based learning in occupational therapy education?
b. What are essential practices and methods used to implement simulation and simulation-based learning in in occupational therapy education?
c. Which professional competences or learning outcomes are addressed using simulation or SBL methods in OT education?
d. Which mediating factors (e.g., learning context, authenticity, educational level) inform the development and implementation of simulation and simulation-based learning in occupational therapy education?

In this review, we have defined *professional competencies* as a combination of knowledge and understanding, interpersonal and practical skills, ethical values and attitudes, and occupational therapy responsibilities that are required for competent occupational therapy practice (European Tuning Occupational Therapy Project Group, 2016). Competence in this instance represents the level (novice-expert or beginner-advanced) at which an individual demonstrates given competency/ies. This review has examined professional competencies expected of a *novice occupational therapy practitioner*, defined as an individual who has successfully completed a pre-registration (undergraduate) education programme in occupational therapy and is deemed eligible to practice as an occupational therapist.

Here, simulation-based learning has been defined as a learning and teaching situation in which simulation is applied as a key pedagogical methodology, where simulation refers to a teaching, learning and assessment methodology that recreates all or part of a clinical or professional experience in which a learner gains experience in performing one or more professional competencies under varying levels of support or guidance. It may apply a variety of modalities and methods, ranging from virtual and computer-systems that reproduce practice situations, simulated patients, role play and case study, whereby competencies applied in fulfilling a professional role with clients are practiced and acquired.

Methods

Search strategy/protocol

The first step in this literature review was the development of a study protocol and search strategy. The study protocol in full is included in Appendix A. In accordance with the overall research objectives, this protocol defined the target literature to be searched under each main research question. For the first research question, this was defined as all literature that presents or discusses a framework for professional competencies in OT education at the university level and could include:

- research papers of any kind
- position statements
- documents presenting and describing competency framework
- policy documents from governments or professional bodies.

For the second research question, target literature was defined as that which presents a framework, model, theory, approach or method for simulation or simulation-based learning in occupational therapy education at the university level and included:

- research papers of any kind
- position statements
- documents presenting and describing framework, model, theory, or approach

- policy documents from governments or professional bodies.

In both cases, grey literature was excluded as a source of literature. A list of keywords was developed based on the research questions and objectives, from which search terms were constructed. The keywords and search terms applied in the search are presented in Appendix B.

Databases in which the searches were conducted were selected to capture a diverse range of academic domains deemed relevant for the research questions: Scopus, Medline, ERIC, EBSCOHost – PsycINFO and Web of Science. Searches were limited to literature in the English language. In addition to the database searches, a targeted search using the Google search engine was conducted to collect key literature not typically included in academic databases that was deemed critical for addressing the research questions. Specifically, this involved a search of websites and documents from national and international occupational therapy associations (e.g., World Federation of Occupational Therapists, Canadian Association of Occupational Therapists, Australian…) for existing frameworks of professional competencies in occupational therapy. Finally, additional searching was conducted via a review of reference lists of the articles identified and included in the review from the databases search.

Database searching was conducted by two researchers for each research question using the search terms and pre-defined inclusion and exclusion criteria. The results of all searches were exported into shared libraries (one for each research question) using the Zotero reference manager.

Inclusion and exclusion criteria

Clear inclusion and exclusion criteria for search and screening procedures were defined in the study protocol. These criteria are presented in Table 1.

Table 1: Inclusion and exclusion criteria

Research question	1 – What are the essential professional competencies of a novice occupational therapy practitioner?	2 – What are the constructs, theories, frameworks, and principles used to inform the implementation of simulation-based learning in occupational therapy education?

Inclusion criteria	• English language
	• Date of publication – From 2008 onwards
	• Full text
	• All evidence that discusses professional competencies of the novice occupational therapy practitioner
	• Source of evidence:
	  ○ primary research studies
	  ○ literature reviews (narrative, systematic, scoping review, meta-analysis)
	  ○ frameworks, guidelines
		• English language
		• Date of publication – From 1998 onwards
		• Full text
		• All evidence that discusses a theory, framework, model, approach, method or outcome for simulation or simulation-based learning in post-secondary occupational therapy education
		• Source of evidence:
		  ○ primary research studies
		  ○ literature reviews (narrative, systematic, scoping review, meta-analysis)
		  ○ frameworks, guidelines

Exclusion criteria	• Literature for which the full text is not available • Literature from databases without an abstract • Unpublished papers (e.g., thesis, conference abstracts) • Literature about occupational therapy competencies beyond pre-registration	• Literature for which the full text is not available • Literature from databases without an abstract • Unpublished papers (e.g., thesis, conference abstracts) • Literature that discusses simulation or simulation-based learning in disciplines other than occupational therapy

	education level (i.e., graduate or post-graduate – MSc, PhD) • Literature that discusses competencies specific to a distinct practice area or geographical context • Opinion papers and book reviews	• Literature that did not primarily use simulation for educational purposes of students (e.g., in practice) • Literature that discusses simulation, but where IPE (interprofessional education) is the central aim • Opinion papers and book reviews

Screening and selection (data collection)

Database searches revealed a total of 2 288 and 2 068 results for research questions one and two, respectively. Following removal of duplicates, the total number of results were 1 855 (RQ1) and 1 480 (RQ2). To determine eligibility for inclusion in the review, these results were screened inside the Zotero reference manager by two researchers using the criteria defined in the study protocol. During screening, results that could not be immediately and equivocally included or excluded based on title or abstract alone were placed in a 'to discuss' folder. Questions that arose regarding these results were related to deciding whether to include literature that was focused on a specific practice area, context or competency that may not have relevance or applicability to achieving a broader understanding of professional competencies or the application of SBL in occupational therapy. These questions were resolved through discussion and review of results with all researchers, which resulted in a clearer delineation of inclusion/exclusion criteria. Using the refined criteria, all instances of undecided inclusion were resolved. Upon completion of the screening process, a total of 27 and 54 results were included in the final collection of literature assessed for eligibility for research questions one and two, respectively. Using the guidelines proposed by Page et al. (2021), the PRISMA diagrams presented in Appendix C provide an overview of the data collection and screening process for both searches. A full bibliography of included literature is included in Appendix D.

Data extraction

Following screening, full texts were retrieved for all included results. These texts were reviewed in their entirety to confirm eligibility for inclusion in the review, which resulted in the exclusion of 3 and 18 results from the OT competency and SBL in OT searches, respectively. Reasons for exclusion included articles that did not discuss competencies or SBL for occupational therapy specifically, that were outside the defined period of publication, or presented a framework or model from an already included article. The remaining literature (23 works for OT competencies and 37 works for SBL in OT) was included in the data extraction process. Here, each full text was carefully reviewed and, using pre-defined data extraction categories based on the concepts and themes included in the research questions, data identified as relevant for addressing the research questions was extracted and recorded in two data extraction spreadsheets. This included general source data as well as specific information that, depending on the nature of the document, was related to the aim, scope and context of the study, framework, theory, or model presented in the work; the content and structure of the presented framework, model, or theory; key features of the simulation described in the work; study methodology and outcomes; strengths and limitations; etc.

Data analysis/synthesis

Following data extraction, analysis of data extracted from the OT competencies and SBL in OT literature continued separately for research questions one and two, respectively. Each analysis process will be described in the following paragraphs.

Analysis of occupational therapy competencies data

Analysis of the literature on OT competencies began with the exportation of all extracted data that referred to a specific competency into the Quirkos software for qualitative data analysis. Here, a detailed thematic content analysis was carried out using a combined inductive-deductive coding technique in which individual

competencies were coded and clustered into competency domains by one researcher. These domains were initially defined based on a preliminary review of existing OT competency frameworks included in the literature review and reflected the key competency domains identified across many frameworks. During this coding process, additional domains or sub-domains were created when data pertaining to competencies that could not be categorized in the preliminary coding structure or could more accurately be categorized and organized as a specific group of competencies were identified.

The results of this initial coding analysis were then reviewed by the first researcher together with a second researcher in a gradual and data-driven analytical process that allowed for the reorganization of codes and clusters into categories that reflected common competency domains. Coded data in each domain was reviewed to confirm that codes and code categories accurately reflected the data. This process allowed for the graduated development of a final structure of competency domains in which all unique competencies identified in the data were coded and classified.

To address the secondary research question that pertained to how the progression of OT competency development is described, data extracted from the included literature in which a framework or model describing competency development were analysed separately using narrative content analysis.

Analysis of SBL in occupational therapy data

To address the questions posed under the second research question, a detailed thematic content analysis of extracted data was conducted to identify:

- models, theories and frameworks applied in the design and implementation of simulation and simulation-based learning in occupational therapy education principles of SBL
- essential practices and methods used to implement simulation and simulation-based learning in in occupational therapy education
- professional competences or learning outcomes addressed using simulation and simulation-based learning in occupational therapy education
- mediating factors (methodological, contextual) that inform the development and implementation of simulation and simulation-based learning in occupational therapy education

Using the NVIVO software for qualitative analysis, one researcher conducted a grounded, inductive thematic analysis of all extracted data. This resulted in the development of a thematic coding structure reflecting the specific concepts and questions of interest. This coding structure and all coded data were subsequently reviewed by the first researcher and an additional two researchers, during which code definitions and code/cluster structure were clarified and refined. Using the final coding structure, the coded data was synthesized into a descriptive summary of analysed data that addresses the posed research questions.

Post-hoc analysis

In a post-hoc analysis phase, data extracted from the literature that pertained to the specific competencies being addressed using simulation or SBL methodology in OT education were mapped onto the framework of competency domains that arose from the analysis of the literature on OT competencies. This allowed us to address research question 2c, or rather to determine which professional competencies and competency domains are most commonly addressed using simulation methodology in OT education.

The descriptive syntheses of the analysis processes described here formed the basis for preparing the first drafts of the *Framework of occupational therapy competencies* and *Guidelines for application of SBL in OT education*. While a summary of the results of the literature review is presented in the following section, these draft documents (*Framework* and *Guidelines*) represent the full results of this review of the literature.

Brief overview of results

Data from the included literature was extracted and categorized according to key questions, topics, and concepts of interest into two data matrices for the OT competency and SBL in OT literature, respectively. The results of this analysis (i.e., data extraction matrices) can be made available upon reasonable request. As previously mentioned, this process was carried out separately for the literature on OT competencies and literature on SBL in OT education.

Extracted data matrices were subsequently used in ongoing thematic content analysis. To address research questions 1 and 1a, initial analysis and thematic coding of extracted data from the OT competencies literature produced the coding structure presented in Figure 2, which represents the categorization of data into common competency domains identified in the literature. Here, the frequency of codes falling under each category is also presented.



Figure 2: Schematic representation of the results of initial thematic content analysis of OT competency literature (Quirkos)

These results underwent a second analysis, in which code clusters were further reviewed, refined, organized, and grouped according to shared characteristics. This produced a final structure of six competency domains, under which code clusters (representing unique categories of competencies under each domain) were grouped. This framework is presented in Figure 3. The full results of this analysis and a detailed description of competencies included in each domain are presented in the final outcome of this review and the first milestone in this Work package - the first draft of the *Framework of occupational therapy competencies.*



Figure 3: Classification of occupational therapy competency domains based on thematic content analysis of OT competency literature

To answer research question 1b, data extracted from the OT competency literature that identified a specific framework, model, or method for describing or measuring competency development or skill acquisition was reviewed through a narrative content analysis. Although this represented a very small portion of the extracted data, this analysis identified several frameworks used in the literature to describe and measure OT competency development. The results of this analysis and discussion of these frameworks are presented in the *Framework of occupational therapy competencies.*

The second group of research questions examining models, theories, frameworks, essential practices, and mediating factors informing the development and application of SBL methodology in occupational therapy education were addressed through thematic content analysis of the data extracted from the included literature examining SBL in OT education. This process was guided by a schematic structure of key concepts derived from the research questions, into which extracted data was organized and categorized. This coding process was iterative in nature, during which codes and code categories gradually arose and evolved to capture the content and meaning of all extracted data. The codes and code categories produced during this process are presented in Appendix E, which presents a table derived from the original Codebook. During initial coding, these codes were gradually organized into a larger framework of eight domains that pertained to various elements included in the research questions. This framework is presented in Table 2 and was subsequently used in ongoing analysis and synthesis of the data.

Subsequent review of this coded data by three researchers allowed for the confirmation of overall code structure, clarification of code definitions and checking that codes accurately reflected the content of the data. This also contributed to a gradual thematic synthesis of data included under each code category, which in turn resulted in a descriptive presentation of findings under the main conceptual themes housed within the research questions. These results will be presented in the second milestone of this Work package – the first draft of the *Guidelines for the application of SBL in OT education*.

Table 2: General framework of coded data after thematic content analysis (NVIVO)

Code cluster	Name	Description
1	SBL definition	Data that pertains to a general definition of simulation or SBL
2	Basic requirements	Data that identifies the basic prerequisites for the successful implementation of SBL in OT education
3	Outcome_impact	Data that discusses the measured outcomes or impact of SBL in OT education
4	Participants (educators, students)	Data that describes or discusses attributes of participants in SBL (e.g., experience, expectations, roles, learning style...)
5	Prerequisite knowledge_ skills	Data that identifies prerequisite learner knowledge/skills for SBL
6	Simulation experiences_ simulation process	Data that relates to the specific practices, steps, elements or methods used in implementing SBL in OT education
7	Feedback - briefing activity	Data that discusses methods, practices, or key elements in briefing and/or feedback processes applied in SBL
8	Quality of simulation design	Data that discusses key factors influencing quality of SBL (e.g., fidelity, grounded in educational theory, implementation guide, technical resources...)

Finally, a post-hoc analysis was carried out to identify which competencies are currently being addressed using simulation methodologies in occupational therapy education. Here, data extracted from the SBL in OT education literature that identified a specific competency (knowledge, skill, or attitude) being addressed using simulation was mapped onto the competency domains identified through the analysis of the OT competency literature. Table 3 presents the frequencies with which competencies from each domain were identified as those being addressed using simulation methodology. From these results, it is evident that application of simulation methodology in OT education is predominantly addressing competencies in two domains: conducting the OT process and professional reasoning; communication and professional relationships. A full discussion of this analysis is presented in the first draft of *Framework of occupational therapy competencies*.

Table 3: Frequency and type of professional competencies identified in the literature examining SBL in OT education

Domain	Examples from extracted data in SBL in OT literature	Frequency
A: Knowledge and attitudes	Knowledge in a specific practice area or attitudes towards client group, lived experiences, etc.	Know: 2 Att: 2
B: OT process and professional reasoning	General reasoning skills: decision making, problem solving; Specific OT process skills: diagnose client-specific occupational problems, safe transfer techniques, client-centred interview…	58
C: Communication and professional relationships	General and specific skills related to communication and establishing rapport/relationship with client or team/colleagues.	19
D: Professional autonomy / responsibility	General competencies: exhibiting professional behaviours, understanding the profession and establishing professional identity, developing autonomy, self-reflection.	9
E: Advocating for profession or social change	No data identified under this domain.	0
F: General skills	General competencies: self-efficacy, confidence in working with specific groups, self-directedness. Specific non-OT competencies: following infection control guidelines, using safe body mechanics.	14

Non-domain specific outcomes	General outcomes of SBL: expand knowledge, skills and experience; better preparedness for fieldwork, practice in safe environment, acquisition/testing minimum competency standards.	10

Conclusion

The structured narrative literature review described in this report allowed for a detailed analysis of current literature examining two key topics of interest in this project: essential professional competencies in occupational therapy and the application of SBL methodology in occupational therapy education. Defined under Activity Two of Work package 2 of the SIMBA project, it has enabled the achievement of the identified indicators:

- A-priori study protocol describing rationale, hypothesis, and method for literature review
- Precise documentation of the data collection and analysis process
- Final report demonstrating scientific rigour of the literature review

The results of this review have enabled the preparation of first drafts of two key documents (the *Framework* and the *Guidelines*) that will serve as a foundation for future activities in the project. In their final forms, these documents will be a resource for developing, piloting, and implementing methodologies for simulation-based learning and assessment in the occupational therapy education programmes of five partner programmes.

Prior to this, the *Framework* and the *Guidelines* will undergo further review, revision, and validation in the ongoing activities of this Work package. This will include a consultation process in which two focus group studies will be conducted to gain insight into the perspectives of key informants regarding professional competencies of occupational therapists, the manner in which these competencies are acquired, and the potential of SBL in OT Education for supporting competency acquisition and assessment. In the first phase of this process, focus groups will be conducted by each project partner (representing OT education programmes in five different European contexts) with stakeholders from three profiles: OT educators, OT students, OT practitioners. Participants in these focus groups will be invited to share their perspectives and experiences on key professional competencies for occupational therapists and the use of SBL methodologies in OT education. Second, an expert focus group will be conducted in which individuals with expertise in the design, development, and implementation of simulation and SBL in higher education will be invited to review and provide feedback on the *Framework* and *Guidelines*. Analysis of the data collected during the focus groups will inform a review and revision of these documents.

Revision of the first draft of the *Guidelines* will be additionally informed by a post-hoc comparative analysis of the findings of this literature review with key literature on simulation and simulation-based learning from other health profession disciplines (nursing, medicine, physical therapy, speech-language pathology). In this way, the Guidelines will be informed by the wider simulation and SBL literature but also remain grounded in current evidence for its' implementation in occupational therapy education and for the acquisition of competencies specific to occupational therapy.

Finalized and validated versions of the Framework and Guidelines are expected to be completed by the end of 2023.

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Appendix A: Study protocol for structured narrative literature review (WP2 A2)

Activity Two (WP2 A2): To identify competences and influencing factors for application of SBL in occupational therapy programs
Milestone (MS1.1): First draft of framework (SBL in OT education)

Methodology: Structured narrative literature review *Time frame*: February - May 2023.

Plan for the literature review:

	Framework of professional competences in occupational therapy	**Guidelines for application of SBL in occupational therapy education**
	Review aims and questions	
Review question (general statement of review topic)	What are the essential professional competences of a novice occupational therapy practitioner?	What are the constructs, theories, framework and principles used to inform the implementation of simulation-based learning in occupational therapy education?
Objective (specific statement of aim of review)	To gather information and construct a framework of essential professional competences for the novice occupational therapy practitioner.	To gather information about the models, frameworks, methods and approaches for simulation and simulation-based learning used in occupational therapy education.
Secondary questions (additional information we seek about the topic)	• How are professional competences of a novice occupational therapy practitioner classified? • How is the phased progression of professional competences formulated across different levels of pre-registration occupational therapy education?	• What constructs, models, theories and frameworks are applied in the design and implementation of simulation and simulation—based learning in occupational therapy education? • What are essential practices and methods used to implement simulation and simulation-based learning in in occupational therapy education? • Which professional competences or learning outcomes are addressed using simulation or SBL methods in OT education? • Which mediating factors (e.g., learning context, authenticity, educational level) inform the development and implementation of simulation and simulation-based learning in occupational therapy education?
	Search strategy	
What?	Literature that presents a framework for professional competences in OT education at the university level: • research papers of any kind • position statements	Literature that presents a framework, model, theory, approach or method for simulation or simulation-based learning in occupational therapy education at the university level: • research papers of any kind

	• documents presenting and describing competence framework • policy documents from governments or professional bodies	• position statements • documents presenting and describing framework, model, theory or approach • policy documents from governments or professional bodies

Where?	• Google – Websites of (inter)national occupational therapy associations
	  ○ WFOT
	  ○ ENOTHE
	  ○ COTEC
	  ○ National associations (CAOT, AOTA, Australian...)
	• Databases:
	  ○ Scopus
	  ○ Medline
	  ○ ERIC
	  ○ EBSCO - PsycINFO
	  ○ Web of Science
		• Databases:
		  ○ Scopus
		  ○ Medline
		  ○ ERIC
		  ○ EBSCO - PsycINFO
		  ○ Web of Science
		• Review of reference lists of the articles included from database search

Inclusion criteria	• English language
	• Date of publication – From 2008 onwards
	• Full text
	• All evidence that discusses professional competences of the novice occupational therapy practitioner
	• Source of evidence:
	  • primary research studies
	  • literature reviews (narrative, systematic, scoping review, meta-analysis)
	  • frameworks, guidelines
		• English language
		• Date of publication – From 1998 onwards
		• Full text
		• All evidence that discusses a theory, framework, model, approach, method or outcome for simulation or simulation-based learning in post-secondary occupational therapy education
		• Source of evidence:
		  • primary research studies
		  • literature reviews (narrative, systematic, scoping review, meta-analysis)
		  • frameworks, guidelines

Exclusion criteria	• literature for which the full text is not available • literature from databases without an abstract • literature about occupational therapy competences beyond pre-registration education level (i.e., graduate or post-graduate – MSc, PhD)	• literature for which the full text is not available • literature from databases without an abstract • unpublished papers (e.g., thesis, conference abstracts) • literature that discusses simulation or simulation-based learning in disciplines other than occupational therapy

	• literature that discusses OT competences specific to a distinct practice area or cultural/geographical context • opinion papers • book reviews	• literature that did not primarily use simulation for educational purposes of students (e.g., in practice) • Literature that discusses interprofessional competence (IPE)
Search terms (keywords)	Appendix B: List of keywords and search terms for structured narrative literature review	Appendix B: List of keywords and search terms for structured narrative literature review
Evidence screening and study selection	Two reviewers for each step • evidence screening • exporting evidence from databases (Zotero) and removing duplicates • titles and abstracts screening followed by full text screening using inclusion/exclusion criteria • no methodological quality assessment	Two reviewers for each step • evidence screening • exporting evidence (Zotero) and removing duplicates • titles and abstracts screening followed by full text screening using inclusion/exclusion criteria • no methodological quality assessment
Data extraction	Shared data extraction table: • source data (author, year, …) • source type (research, review...) • aim of framework/theory • content of theory/ framework (structure, classification of competences) • strengths/weaknesses of the theory/framework, • application setting (context) • …	Shared data extraction table: • source data (author, year, journal, …) • source type (research article, review…) • aim of model/framework/theory/approach/method • content of theory/ framework/method/approach, • strengths/weaknesses of the theory/framework, • application setting (participants, country/context, simulation modality) • outcomes...

Data analysis	Content analysis to identify: • shared/unique professional competences • classification of professional competences • approaches to describing progression of competence development	Thematic content analysis to identify: • models, theories and frameworks applied in the design and implementation of simulation and simulation-based learning in occupational therapy education principles of SBL • essential practices and methods used to implement simulation and simulation-based learning in in occupational therapy education • professional competences or learning outcomes addressed using simulation and simulation-based learning in occupational therapy education • mediating factors (methodological, contextual) that inform the development and implementation of simulation and simulation-based learning in occupational therapy education
Data synthesis 1 (at level of individual research question)	Descriptive synthesis of data into single competence framework	Descriptive synthesis/summary of content analysis
Data synthesis 2 (post-hoc analysis)	1. Data mapping of professional OT competences that are (or can be) addressed through simulation-based learning and assessment. 2. Post-hoc comparative analysis of review findings with key literature on simulation and simulation-based learning from other health profession disciplines (nursing, medicine, physical therapy, speech-language pathology): • Systematic/scoping reviews of the literature • Guidelines for simulation and SBL from (inter)national associations and networks for simulation and/or SBL or university faculties or programmes	
Application/ integration (i.e., preparing draft)	Results of the preliminary analysis, synthesis and post-hoc analysis of the data included in the literature review described in this protocol will be used to prepare, validate, and revise drafts of a *Framework of occupational therapy competencies* and *Guidelines for implementation of simulation-based learning in OT education*. In this way, these documents will reflect a full presentation and discussion of the overall results of this narrative literature review.	

Appendix B: List of keywords and search terms for structured narrative literature review

Review question 1: *What are the essential professional competencies of a novice occupational therapy practitioner upon completion of pre-qualification OT education?*

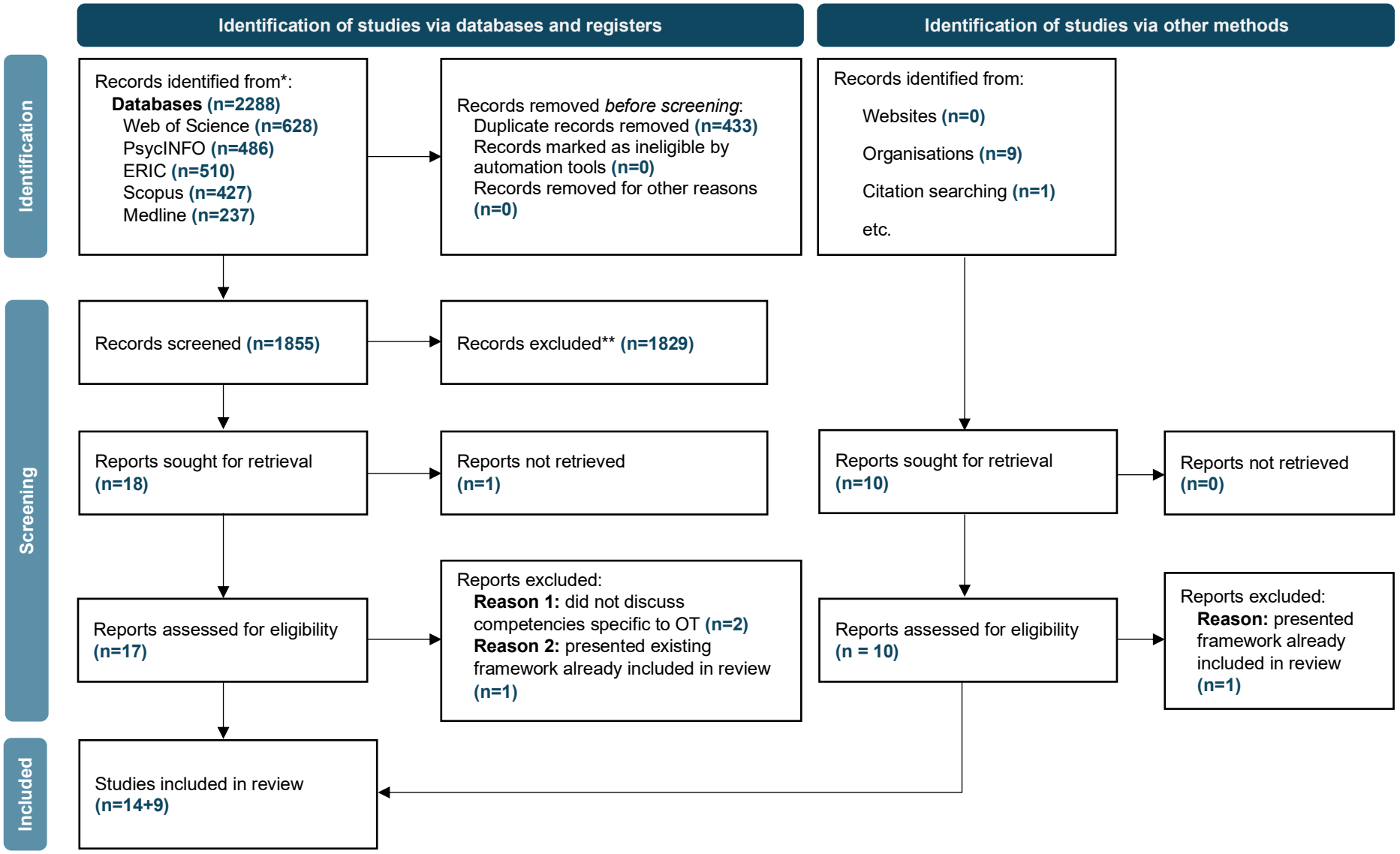
Key concept	Synonyms	Search terms/keywords	Subject terms /headings
• Professional competences	• Competences • Clinical competences • Professional skills • qualification • Learning outcomes	competenc* **OR** "clinical competences" **OR** "professional skills" **OR** qualification **OR** "learning outcome" **AND**	Some databases offer subject terms or headings, so it should be searched as well
• Entry level	• Bachelor degree • Newly qualified • Novice; Beginner • Curriculum • Education • Pre-qualification	"Bachelor degree" **OR** "newly qualified" **OR** begin* **OR** curriculum **OR** educat* **OR** "pre-qualification" **OR** novice **AND**	
• Occupational therapy practitioner	• Occupational therapy • Occupational therapist	"occupational therapy" **OR** "occupational therapist" **OR** OT	

Review question 2*: What are the constructs, theories, frameworks, and principles used to inform the implementation of simulation and SBL in OT education?*

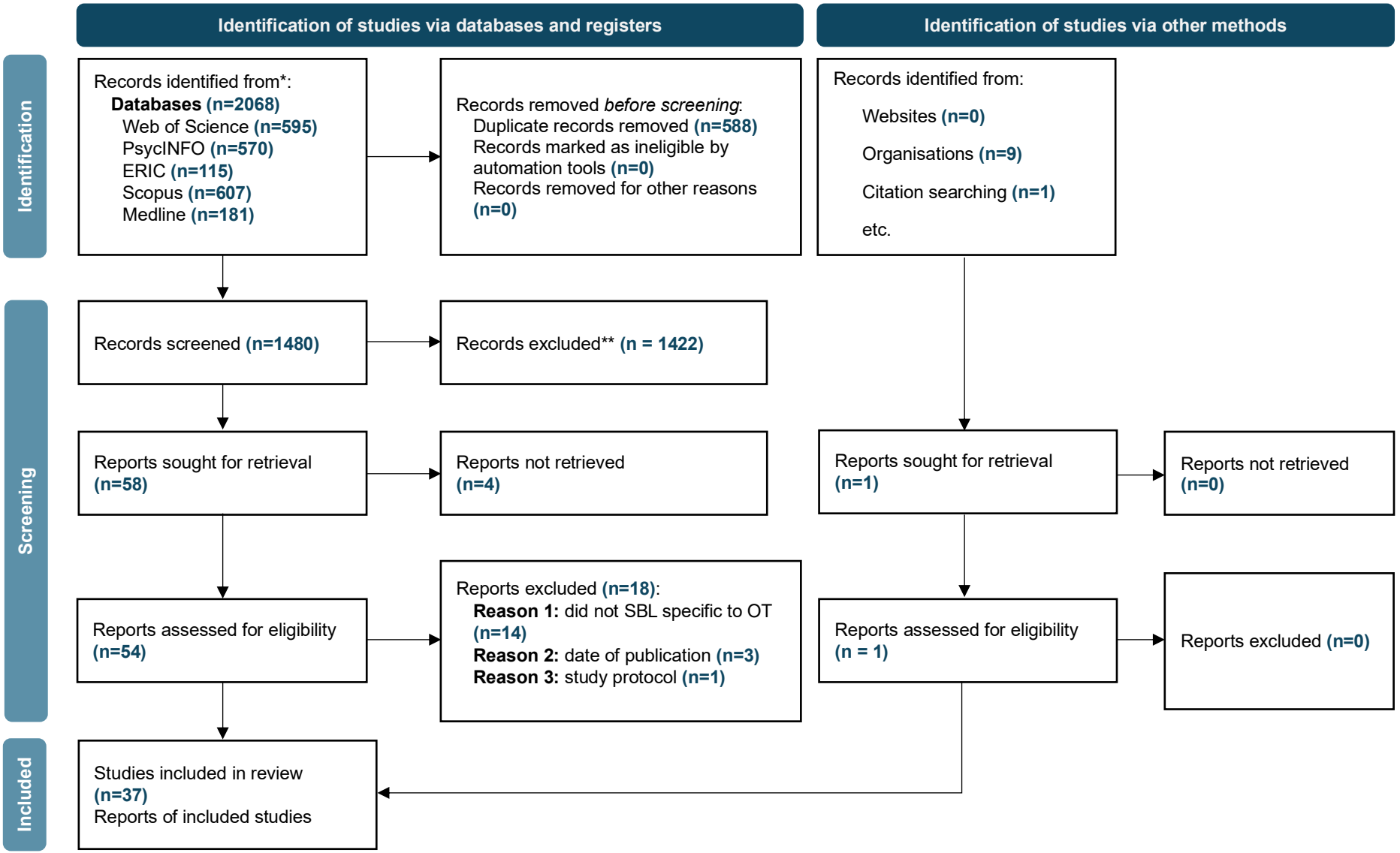
Key concept	Synonyms	Search terms/keywords	Subject terms/headings
• Simulation/simulation-based learning	• Simulation • Simulation theory • Simulation framework • Concept of simulation • Human simulation • Patient simulation • Standardized patient • High fidelity • Role play; Case study/scenario	simulat* **OR** "simulation theory" **OR** "simulation framework" **OR** "concept of simulation" **OR** "simulation based learning" **OR** "patient simulation" **OR** "standardized patient" **OR** "high fidelity" **OR** "role play" **OR** "case study" **OR** "virtual reality" **OR** "authentic learning" **AND**	Some databases offer subject terms or headings, so it should be searched as well
• Education	• Curriculum • Teaching • Learning • Assessment	educat* **OR** curriculum **OR** teach* **OR** learn* **OR** assess* **AND**	
• Occupational therapy	• Occupational therapy • Occupational therapist	"occupational therapy" **OR** "occupational therapist" **OR** OT	

Appendix C: Prisma 2020 Flow diagrams

Search and screening of literature on occupational therapy competencies



Search and screening of literature on simulation and simulation-based learning in occupational therapy



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Appendix E: Table of thematic code categories and codes generated from SBL Codebook

Available upon reasonable request.

Co-funded by
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SIMULATION-BASED LEARNING IN OCCUPATIONAL THERAPY EDUCATION (SIMBA)

Report on Activity 2, Work Package 4:

Overall report best practice visits simulation-based learning

May 2024

AP UNIVERSITY OF APPLIED SCIENCES AND ARTS ANTWERP
ZDRAVSTVENO VELEUČILIŠTE MCMLXVI
FH JOANNEUM University of Applied Sciences
MEDIPOL ISTANBUL MEDIPOL UNIVERSITY
TURKU AMK TURKU UNIVERSITY OF APPLIED SCIENCES

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LEAD AUTHORS

Greet Schrauwen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Brigitte Loder-Fink, FH Joanneum Gesellschaft, Graz, Austria
Ahmet Emir, Istanbul Medipol Universitesi Vafki, Istanbul, Turkey
Anu Kuikkaniemi, Turun Ammattikorkeakoulu OY, Turku, Finland
Claire Sangster Jokić, University of Applied Health Sciences, Zagreb, Croatia

COLLABORATING AUTHORS

Kuni Vergauwen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Laurence Magerat, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Karien Maes, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Katrin Pechstadt, FH Joanneum Gesellschaft, Graz, Austria
Elisabeth Schwab, FH Joanneum Gesellschaft, Graz, Austria
Hilal Bostanci, Istanbul Medipol Universitesi Vafki, Istanbul, Turkey
Heli Arokki, Turun Ammattikorkeakoulu OY, Turku, Finland
Andreja Bartolac, University of Applied Health Sciences, Zagreb, Croatia

CONTRIBUTORS

FH Johanneum (Austria): nursing department
Hanze University of Applied Sciences (the Netherlands): occupational therapy department
Istanbul Medipol Universitesi Vafki (Turkey): nursing department
Rotterdam University of Applied Sciences (the Netherlands): occupational therapy department
Turku University of Applied Sciences (Finland): nursing department
University of Applied Health Sciences (Croatia): nursing department

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Introduction

During the period from November 2023 to February 2024, visits to the following educational programs took place:

- FH Johanneum (Austria): nursing department
- Hanze University of Applied Sciences (the Netherlands): occupational therapy department
- Istanbul Medipol Universitesi Vafki (Turkey): nursing department
- Rotterdam University of Applied Sciences (the Netherlands): occupational therapy department
- Turku University of Applied Sciences (Finland): nursing department
- University of Applied Health Sciences (Croatia): nursing department

When visiting the various educational programs, an evaluation of simulation-based education was consistently conducted based on a SWOT analysis. The internal analysis focused on the strengths and weaknesses of simulation-based education, while the external analysis examined potential threats and opportunities regarding simulation-based education. This report consolidates all the findings gathered from the reports of the good practice visits.

The following sections present the evaluated themes in a structured manner, along with an overview of the key findings.

Evaluated themes

When conducting the SWOT analysis, the evaluation of the following themes was included:

1. Simulation-based learning (SBL) method
    a. learning needs and objectives/goals
    b. competencies *(i.e., soft skills vs. technical skills)*
    c. forms of simulation *(e.g., case-report, simulated or standardized patient, hands on/digital, etc.)*
    d. structure of simulation *(i.e., duration, number of students, included elements e.g., briefing & debriefing, etc.)*
    e. student involvement *(e.g. active participant, observer, etc.)*
    f. prerequisite knowledge and skills *(including how do students gather the prerequisite knowledge and skills? e.g. digital or physical classes, self-study, etc.)*

2. Development of simulation-based learning
    a. involved stakeholders *(e.g., experts didactics and simulation, professional experts, current students, former students, teachers, IT, etc.)*
    b. selecting scenarios
    c. practical considerations *(i.e., creating environment, scheduling and organization, materials)*

3. Resources
    a. staff / personnel *(including teachers, live models, volunteers, administrative support, IT, etc.)*
    b. infrastructure
    c. materials
    d. administrative and financial *(e.g., how are simulants reimbursed, how is SBL scheduled, how are simulants kept involved, etc.)*
4. Assessment
    a. form(s) of assessment *(e.g., Observational Structured Clinical Examination (OSCE), formative, summative, etc.)*
    b. scoring, assigning grade/point
    c. structure and practical considerations *(i.e., duration, number of teachers, content, materials, student level (junior, intermediate, senior), scheduling, etc.)*

d. number of assessments / items per competency
e. development process
f. involved stakeholders *(e.g., experts didactics and simulation, professional experts, current students, former students, teachers, IT, etc.)*
g. congruence between SBL and assessment (*an assessment that uses simulation used for program-based assessment or only for specific course content/competencies?*)

Overview of the key findings

1. Simulation-based learning method

In which areas do the programs excel in terms of used SBL method (STRENGTHS)?
A key strength was the integration of SBL into the curriculum across all 3/4 years of undergraduate study and in a continuous or weekly basis.
In some programs, there is a strong emphasis on student self-regulated learning. The student takes on the role of director of their own learning. Within the SBL trajectory, this can involve tasks such as seeking persons to take on the role of simulated client, scheduling feedback sessions, arranging briefing sessions with selected simulated clients, etc.
The utilization of detailed simulation scenarios, accompanied by supplementary background information provided to both the simulant and the student, enhances the learning experience. These scenarios vary according to student level and depend on the structure of the curriculum.
SBL within nursing and occupational therapy education is predominantly employed for the acquisition and assessment of professional competencies in anticipation of fieldwork and practice. Enhancing communicative skills occupies a significant role.
Allowing ample time for students to thoroughly prepare for simulations (e.g., gathering necessary background information, processing data, preparing for interventions to be performed) was also identified as a key strength.
Effective coordination among all involved instructors and SBL experts.

Which points require additional attention? Potential issues that may arise include (WEAKNESSES):
Within occupational therapy programs there is limited diversity in forms of SBL, the emphasis is on role play as a form of simulation, with only limited use of trained simulated clients. In nursing education, mannequins are frequently employed.
Inadequate attention to a safe learning environment in SBL, which may impede learning opportunities.

Which factors may pose a threat to the good practice of SBL? Examples of potential threats include (THREATS):
The abandonment of traditional theory classes and summative testing may pose a potential threat to the quality of the occupational therapy profession.

What opportunities for growth and improvement exist? Events that could provide opportunities include (OPPORTUNITIES):
The use of a variety of simulations (e.g., hands-on, digital, case reports, trained simulators), involvement of SBL experts, and increasing complexity throughout the progression of the program are identified as significant opportunities.

2. Development of simulation-based learning

In which areas do the programs excel in terms of development of SBL (STRENGTHS)?
The development and selection of scenarios that align with the intended learning objectives (generic or specific).
The integration of SBL into the curriculum throughout the entire program, featuring a gradual progression from basic to complex levels. In this manner, it ensures thorough preparation for workplace learning.

Establishing a safe learning environment for SBL, allowing students to practice without inhibition, dare to make mistakes, freely provide feedback, etc.

Which points require additional attention? Potential issues that may arise include (WEAKNESS):
The lack of uniformity in the design of written scripts (e.g. use of a template for the development).
The development of SBL requires a significant amount of time, as does the preparation of the simulation environment, the necessary materials, and the cleanup work after the simulation experiences.

Which factors may pose a threat to the good practice of SBL? Examples of potential threats include (THREATS):
One major challenge is scheduling simulation experiences within already packed program schedules, often with a large number of students.
Having a large group of teachers can make it difficult to achieve and maintain a consistent approach to planning and implementing simulation methods within one team.

What opportunities for growth and improvement exist? Events that could provide opportunities include (OPPORTUNITIES):
Developing SBL scripts and scenarios for different skill levels so that they can be used throughout the different years of the education program. The Simba Guidelines refers to this as constructive alignment and grading over time to increase complexity (dynamic, upward and spiral evolution of learning cycle).
Exploring the possibility of introducing actors as simulation models.
Integrating role-playing at the start of the programme to gradually familiarise students with simulation.

3. Resources

In which areas do the programs excel in terms of resources for SBL (STRENGTHS)?
Educators with extensive experience and expertise.
Simulation labs, fully equipped with mannequins, necessary materials, recording equipment and the ability to seal off the room from ambient noise, passing students, etc. An environment that is also very close to reality and therefore ensuring authenticity.
Ability to use enclosed practice rooms with a one-way screen and recording and sound equipment.
Incorporating adequate time for training colleagues with limited experience and ensuring consistency in student supervision during SBL.

Which points require additional attention? Potential issues that may arise include (WEAKNESS):
Using a spacious room divided by curtains to create all kinds of utility areas is not recommended. It provides too many stimuli, especially auditory ones. This raises the question of whether this environment provides enough ‘safety’ to allow unhindered engagement with SBL. Moreover, authenticity comes under pressure.

Which factors may pose a threat to the good practice of SBL? Examples of potential threats include (THREATS):
The availability of financial resources, e.g. for adjustments to infrastructure, purchase of supporting didactic materials (e.g. recording and sound equipment), is limited. This may hinder proper development and implementation of SBL in the curriculum.
The availability of time, as a valuable resource for planning and implementation of SBL, is often limited within educational programmes.

What opportunities for growth and improvement exist? Events that could provide opportunities include (OPPORTUNITIES):
The cooperation of administrative departments in scheduling classes in the required classrooms, scheduling simulants and teachers, gives the teachers involved more space to prepare the SBL classes.

4. Assessment

In which areas do the programs excel in terms of SBL (STRENGTHS)?
Maintaining the Constructive Alignment between the predetermined learning objectives, the learning activities, and the assessment.

A combination of well-considered formative and summative assessment moments, wherein the formative assessments are primarily oriented towards *'assessment FOR learning' (emphasis on growth of student)*. The summative assessments are utilized for both *'assessment FOR / AS learning'* and *'assessment OF learning'*.

As part of formative assessment: from the start of the study programme, providing extensive opportunities and avenues for learning to give and receiving feedback, wherein various forms can be viewed positively:

- 360° feedback (delivered orally or via an e-portfolio): provided by peers, facilitators, and instructors
- Feed up – feedback – feedforward (Hattie & Timperley, 2007)
- Pendleton's feedback Model: furnishing positive feedback, suggestions for growth opportunities, and a concluding summary. Participation from each stakeholder.

For summative assessment:

- Ensuring that student-level assessments adhere to (the national) proficiency standards established for occupational therapy.
- The use of standardized protocols for conducting evaluation/assessment of target competencies (e.g. OSCE).

Which points require additional attention? Potential issues that may arise include (WEAKNESS):
While placing significant emphasis on student growth is commendable, solely relying on formative assessments may pose a potential threat to the adequate acquisition and consolidation of necessary knowledge for professional practice.
Giving and receiving feedback:

- Unstructured process, e.g. absence of note-taking, lack of guidelines
- Students are still insufficiently proficient in giving and receiving feedback, leading to a sense of insecurity when they are required to evaluate each other in the full classroom setting.

Which factors may pose a threat to the good practice of SBL? Examples of potential threats include (THREATS):
When students know they are undergoing a summative assessment, it can cause them stress, anxiety and a sense of insecurity.

What opportunities for growth and improvement exist? Events that could provide opportunities include (OPPORTUNITIES):
The giving and receiving of feedback is not straightforward. Students require guidelines and sufficient time to learn and master this process step by step. It is a process that must be practiced repeatedly from the beginning of the program in a safe learning environment where making mistakes is allowed. This way, students become proficient.
By utilizing a simulation-based assessment, which can be employed for both formative and summative evaluation, students can identify areas for learning and growth as well as understand the expected level of proficiency.
When designing an assessment, it should be considered that the instrument must also be deployable for high-stakes evaluation of the students.

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SIMULATION-BASED LEARNING IN OCCUPATIONAL THERAPY EDUCATION (SIMBA)

Report on Activity 3, Work Package 2:

Report on an expert focus group on SBL in occupational therapy education

February 2024

AP UNIVERSITY OF APPLIED SCIENCES AND ARTS ANTWERP
ZDRAVSTVENO VELEUČILIŠTE MCMLXVI
FH JOANNEUM University of Applied Sciences
MEDIPOL ISTANBUL MEDIPOL UNIVERSITY
TURKU AMK TURKU UNIVERSITY OF APPLIED SCIENCES

This publication is a collaborative product of the SIMBA partnership.

LEAD AUTHORS

Claire Sangster Jokić, University of Applied Health Sciences, Zagreb, Croatia
Andreja Bartolac, University of Applied Health Sciences, Zagreb, Croatia
Myrthe Logist, Universiteit Hasselt, Hasselt, Belgium
Ingrid Sanders, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Annick Van Gils, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium

CONTRIBUTORS

Mariotte Wyckaert, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Kuni Vergauwen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Laurence Magerat, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Katrin Pechstadt, FH Joanneum Gesellschaft, Graz, Austria
Julia Unger, FH Joanneum Gesellschaft, Graz, Austria
Hilal Bostanci, Istanbul Medipol Universitesi Vafki, Istanbul, Turkey
Ahmet Emir, Istanbul Medipol Universitesi Vafki, Istanbul, Turkey
Anu Kuikkaniemi, Turun Ammattikorkeakoulu OY, Turku, Finland
Heli Arokki, Turun Ammattikorkeakoulu OY, Turku, Finland

EXPERT FOCUS GROUP PARTICIPANTS

Elspeth Froude, Australian Catholic University, Sydney, Australia
Sally Bennett, University of Queensland, Brisbane, Australia
Terri Grant, University of Worcester, Worcester, England
Emma Green, Glasgow Caledonian University, Glasgow, Scotland

Project website: https://simba.turkuamk.fi/

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Introduction

This report presents the results of an expert focus group study conducted in Work package Two of the Erasmus+ SIMBA (Simulation-based learning in Occupational Therapy) project. This focus group was preceded by a structured narrative review of the literature on professional occupational therapy (OT) competencies and simulation-based learning (SBL) in OT education, which culminated in the development of the first drafts of a *Framework of Occupational Therapy Competencies* and *Guidelines for the Implementation of Simulation-based Learning in Occupational Therapy Education*. The aims of this focus group were:

- To gather information from individuals with specific interest, experience and/or expertise in the implementation of simulation or simulation-based learning (SBL) as a learning and assessment method in occupational therapy education.
- To inform and validate the development of the *Framework* of key professional competencies in occupational therapy and the *Guidelines* for application of SBL in OT education.

Scope of the focus group

The expert focus group was carried out by project partners from AP Hogeschool Antwerpen (Belgium) and the University of Applied Health Sciences Zagreb (Croatia) in online format. The focus group was conducted in English using a standardized interview protocol developed for the purposes of the focus group. This protocol included themes and questions related to the aims of the focus group study:

- What are the professional occupational therapy competencies most effectively addressed using simulation methodologies?
- How is the sequential development and acquisition of OT competencies integrated into the simulation experience?
- What theoretical frameworks and models inform simulation design in OT education?
- What are the essential elements in simulation design and implementation?
- What is unique about simulation in OT education (i.e., what are unique factors that should be included in simulation for OT education and acquisition of OT competencies; how are theories, models, concepts of occupation and occupational therapy integrated into simulation experiences)?
- What are the factors influencing learning outcomes, learner experience and sustainability of simulation in OT education?
- What are the necessary resources (human, spatial, temporal, material) needed for successful implementation of simulation?
- What are current challenges and/or areas for further inquiry in terms of strengthening current understanding and application of simulation in OT education?

The focus group study received ethical approval from the Ethics Committee of AP Hogeschool Antwerpen (project coordinator) (ex_SHW_2023_14_1) and written informed consent was received by all participants prior to the focus group. The full study protocol, including a description of participant recruitment, data collection and data analysis procedures, is included in Appendix A. The interview protocol is included in Appendix B.

Four individuals participated in the focus group. These individuals were identified and invited to participate based on their professional and scientific expertise and experience in SBL in OT education. Participants were all OT educators involved in the design, delivery, and research of SBL in occupational therapy education. They were all working in university contexts in Europe and Australia.

Two partners from AP Hogeschool (AP) led the focus group and conducted the interview while a third partner from AP was present as an observer for purposes of later transcription. Two partners from the University of Applied Health Sciences (ZVU) were also present as observers, note takers and commenters. The focus group was video recorded with the consent of all participants. The video recording was used to transcribe the focus group discussion in full (AP) and this transcription was subsequently used in further analysis (ZVU).

Focus group results

The results presented below represent findings arising from a qualitative analysis of the focus group data using an inductive thematic content analysis method. Specifically, the focus group transcript was analysed using the Quirkos software for qualitative analysis by one researcher (ZVU), who reviewed the transcript in detail and gradually identified and coded participant responses according to codes and code categories arising from the transcript content. These codes were subsequently clustered into several themes. Themes and codes were organized into a structured framework, which was subsequently reviewed by a second researcher (ZVU) alongside the original transcript to confirm the trustworthiness of the coded data (i.e., that the analysis accurately reflected the content of the focus group discussion). Table 1 presents the themes and codes arising from this analysis. Each theme will be presented in detail in the following sections.

Table 1: Results of thematic content analysis of expert focus group (themes and code structure)

Theme	Code	Total codes
Perspectives on SBL in OT education	Experience with SBL	19
	Benefits of SBL	30
	SBL in OT education	9
	Interprofessional SBL	1
SBL design	Planning and implementing SBL	37
	Assessment in SBL	2
	Diversity and inclusion in SBL design	10
SBL as a medium for competency development	Competencies acquired via SBL	12
	Competencies difficult to address using SBL	2
	Gradually developing competencies via SBL	7
	Learning outcomes in SBL	3
SBL challenges	Challenges in implementation of SBL	25
	Resolving challenges	10

The completed coding results (i.e., anonymized quotes from the focus group transcript clustered under themes within the coding structure) are included in Appendix C. The results of this focus group study have informed revisions to the *Framework* of occupational therapy competencies and *Guidelines* for the implementation of SBL in OT education.

1. Theme 1: Perspectives on simulated-based learning in OT education

During the focus group, participants were asked to describe and reflect upon their experience in the development, design, and implementation of SBL in occupational therapy education. Participant responses were analysed and coded under four unique codes, each of which are discussed in detail below.

Participants' experience with SBL

Participants reported a diverse range of practice and research experience in implementing and examining SBL in OT education, including evaluation of SBL through a randomized control trial and international collaboration to implement simulation in OT programmes. Participants' experience in SBL implementation included the application of diverse methods and modalities, such as case study, group work, simulated environments and clients, and week-long simulations in which students manage a case load. They also discussed underlying rationale for the inclusion of SBL in their own study programmes. In some cases, this was prompted by reduced opportunities for practical fieldwork during the COVID-19 pandemic, while in other instances, simulation was viewed as a means through which students can gain learning experience in fields in which placements were less accessible (e.g. vocational rehabilitation, mental health). All participants remarked on the notion that simulation might be considered as a potential replacement for (a small part of) clinical placement as a way to more feasibly meet educational programme standards for clinical practice experience.

Benefits of SBL

Based on their practical and scientific experience in the implementation and examination of simulation-based learning, participants identified numerous potential and actual benefits of SBL in occupational therapy education. This included:

- fostering a safe and supportive learning environment for competency development,
- providing an opportunity to apply theoretical knowledge to practice of professional skills/competencies,
- offering an opportunity for repeated practice in a safe environment (e.g. trial-and-error learning),
- nurturing learner confidence and reducing challenges/errors during fieldwork,
- learning how to build the client-therapist relationship,
- providing an opportunity for self-reflection and self-awareness of own competencies,
- learning how to use and respond to feedback (self-reflection, communication),
- acquiring professional skills (e.g. teamwork, communication, presenting oneself),
- learning at one's own pace.

SBL in OT education

Participants were asked to offer their insight on what is unique about simulation-based learning in occupational therapy education, or rather how does SBL in this context differ from the application of this methodology in educational programmes of other related professions (e.g. medicine, nursing, physiotherapy). Participants emphasized that SBL in OT education is unique due to the unique nature of the profession itself, in which occupational therapy practice encapsulates a complex transaction between human, occupational and environmental factors with the overall aim of enabling performance and participation in occupations meaningful and important to individuals, groups or communities as a means for achieving health, well-being and quality of life. Participants emphasized that, to be effective in promoting competency development, simulations must capture these essential elements of OT practice. Some participants emphasized that, while in other health professions SBL is focused on acquisition of specific skills or clinical techniques using structured, repeated practice, SBL in OT education should address more complex competencies that involve communication, observation and understanding the interaction between a person, their occupations, and the environment and what's important for a given client. As such, they argued that simulation in OT education requires a unique approach in which students are prompted to inquire and observe these various elements, understand how they interact, identify what's important to understanding the client as an occupational being and subsequently use this understanding to make decisions related to the OT process. One participant emphasized that an important means to achieve this is through the direct integration of models and theories of occupation and occupational therapy into simulation-based learning.

Interprofessional SBL

In one instance, a participant also described an interprofessional SBL experience in which OT students collaborated with students from other study programmes in a simulation scenario that required students to work in an inter-disciplinary team in a simulated environment to create and implement treatment plans for several clients.

2. Theme 2: SBL design

Focus group participants were invited to share their experiences and insight into the process of planning and implementing SBL in occupational therapy education. Analysis of their shared perspectives identified several key elements important in SBL design and implementation for ensuring effective and sustainable learning, competency development and evaluation.

Planning and implementing SBL

During the discussion around planning and implementing SBL, participants highlighted a number of key features that should be present in order to ensure a feasible, successful, and sustainable simulation. First and foremost, adequate preparation, training, and education of all simulation participants (students, educators, facilitators, simulants) was emphasized by all experts. This includes education and training regarding the scope or role of each participant; assignment of tasks, expectations and responsibilities; setting clear learning expectations and outcomes; preparation and familiarization of case studies; establishing how/when to facilitate learning and performance during a simulation; and familiarizing volunteers, actors or actual clients with the simulation scenario and preparing simulants to authentically fulfil the client role and (when applicable) respond and provide feedback to students.

In addition, participants identified several other specific considerations deemed essential in SBL, including:

- carefully weighing the potential risks, costs, impacts and benefits of the methods, modalities, tools and other resources required to successfully implement a given simulation,
- ensuring authentic and reproducible situations and scenarios that offer students the perception of a ‘real’ practice experience,
- providing sufficient preparation to students prior to participation in the simulation, including familiarization with the nature of the simulation and its objectives, the simulation process (what they will do), and the skills or competencies they are expected to develop,
- securing the necessary time, space, and funding for successful implementation with the programme,
- planning and integrating structured debriefing within the simulation experience in which students give and receive feedback, engage in self-reflection, and identify areas for ongoing learning (i.e. create an action plan for applying feedback),
- ensuring that feedback provided during simulation is student-centred, strengths-based and competency-focused.

Indeed, these latter elements of debriefing and feedback were identified by experts as an especially meaningful and important component of the simulation experience in which the act of giving and receiving feedback during simulation enabled students to make better use of later practice situations by allowing them to receive, reflect on, and apply feedback more readily. Participants agreed that feedback can come from many sources, including educators and/or simulation facilitators, peers and through self-evaluation. Encouraging students to receive, reflect upon and determine an action plan related to feedback might be achieved during debriefing sessions but also through written activities and self-reflection tasks. One participant also discussed a simulation experience in which simulated clients offered feedback to students. In this case, feedback was not focused on simulation content or student performance but rather on the client experience (i.e., how they would have felt in the situation had they been an actual client). In all instances, ensuring that the student can successfully and effectively receive and give feedback was reported to be an important element in preparing students prior to simulation (*prebriefing*). Finally, ensuring that the simulated clients and facilitators also receive feedback following the simulation was also identified as important.

Assessment in SBL

While assessment and evaluation within the SBL paradigm was not a topic of focus for this focus group, participants did mention this as another important element to consider when planning and implementing simulation. Firstly, participants agreed that any assessment method should be grounded in clearly defined learning outcomes. Secondly, one participant emphasized that the assessment method used in a simulation experience should align with the method used for assessing student performance in clinical practice (e.g. uses a similar evaluation scale, evaluates similar/same competency domains). This was deemed important to ensure that assessment was authentic and that students become familiar with the competencies on which they will be evaluated during clinical placement.

Diversity and inclusion in SBL design

During the focus group, participants were asked to reflect on the manner in which issues related to diversity and inclusion (among client groups as well as among students) might be addressed in SBL design. For participants, careful scenario design and construction of simulated cases was an important means for ensuring that the cultural, gender, socioeconomic and language diversity of a given context was adequately and appropriately reflected. In addition, strategies for supporting students with diverse learning levels and needs were discussed by participants. This included following up with individual students as required and ensuring physical, socio-cultural, and technological accessibility for all students. Examples reported by participants included:

- ensuring access to and sufficient competency for using equipment and technology necessary for completing the simulation,
- conducting simulations in physically accessible and accommodating spaces,
- being aware of and understanding how some student groups might be confronted or uncomfortable with certain case content,
- understanding and respecting cultural differences in certain elements of practice (e.g., communication style and practices, portraying oneself as a professional, client-therapist interactions).

One participant discussed the potential role of *co-production* of simulation experiences as a means to develop more diverse, inclusive and authentic scenarios, in which scenarios are developed in a collaborative fashion with input from various stakeholders (educators, students, volunteers, practitioners, OT service users).

3. Theme 3: SBL as a medium for competency development

An important theme included in the focus group was the potential of SBL as a method for supporting development of occupational therapy competencies. In the discussion on this topic, participants identified the competencies they perceived as most suitable for the SBL paradigm as well as those more difficult to address using simulation methodology.

Competencies acquired via SBL

Based on their experience and expertise in the application of SBL in OT education, participants identified numerous occupational therapy competencies deemed appropriate for simulation. In general, they emphasized that simulation should address competencies at various learner levels (i.e. from beginner-level competencies to the advanced skills of the proficient practitioner). More specifically, competency areas named by participants included:

- communication skills, such active listening, demonstrating empathy, gathering information using appropriate questions (especially for sensitive information),
- interacting and building a therapeutic relationship with a client,
- examining and responding to ethical issues,
- performing one or more elements of the occupational therapy process using a process model (assessment, goal setting, intervention planning…),
- applying evidence to support decision making in the OT process, communicating this evidence to client and/or colleagues, and responding appropriately in a setting where practice is not evidence-based,

- supporting client's acquisition of daily living skills (e.g. using public transport).

Competencies difficult to address using SBL

When participants were asked to identify any occupational therapy competencies that might be more difficult to address under a simulation paradigm, one participant expressed the challenges inherent in simulating competencies and skills for working with (young) children. However, another participant reported that recently they had begun working with *SIM babies* (authentic simulator mannequins used to simulate an infant) in scenarios involving specific OT competencies in paediatrics, suggesting that modern simulation technology might offer solutions for addressing specific competencies and practice areas in OT education.

Gradually developing competencies via SBL

During the discussion of occupational competencies that might be addressed using SBL, participants highlighted the importance of aligning simulation experiences with the gradually developing nature of competency acquisition. That is, simulation should be planned with careful consideration of the proficiency level of the learner and align simulation expectations and learning objectives with student levels across various stages of the educational programme. Furthermore, simulation experiences should be sufficiently flexible to allow for grading and scaffolding and the development of scenarios that offer varying levels of complexity depending on the learning stage at which it will be implemented. Participants described how grading complexity can be achieved in part through the identification of the specific competencies to be acquired or performed, where simulation in early learning stages was typically focused on concrete professional competencies related to conducting the OT process as a means to prepare students for their first placement experience while simulation experiences in the final year of study addressed more complex competencies in interprofessional collaboration and communication. In all cases, participants agreed that appropriately graded simulation experiences that align with objectives at different stages of learning should be integrated across the entire study programme. In this way, simulation offers a gradual learning experience in which students progressively build upon previously acquired skills to develop proficiency in increasingly complex competencies.

Learning outcomes

As previously mentioned, focus group participants agreed that clearly defined and competency-based learning outcomes are an important element in simulation design and a means through which simulation experiences can offer increasing complexity as the student progresses through an educational programme. Indeed, learning outcomes were emphasized as a means to establish a clear understanding of the ultimate goals of the simulation and the manner in which these goals align with the aims of a given educational programme. However, participants also recognized that, while a given simulation experience should include clear and concrete learning outcomes, the actual experience of individual students will vary in a single simulation and individual learning needs will differ student to student. For one participant, this meant that a simulation should also allow for sufficient flexibility in adapting to and addressing individual learner levels and needs rather than focusing solely on predefined learning outcomes and standardized scenarios/scripts.

4. Theme 4: SBL Challenges

During the discussion about their experiences in using simulation in OT education, participants identified a number of specific challenges that can and do arise during design and implementation phases as well as strategies that have been successful in resolving, avoiding or otherwise minimizing these challenges.

Challenges in implementing SBL

Participant responses regarding challenges experienced in the implementation of SBL could generally be grouped into four general categories, which are summarized and described in Table 2.

Table 2: Challenges in SBL design and implementation

Area of challenge	Description
Student engagement	- students failing to take simulation seriously (especially in later years of study or after returning from fieldwork) - offering a consistent simulation experience across a very large cohort - each student does not have opportunity to engage in a scenario with every client group
Feasibility & sustainability	- resource intensive nature of SBL - cost of simulated patients and/or actors - difficulty securing adequate funding - challenges in securing an adequate equipment base - securing time and resources for adequate preparation and continuous support of all participants (e.g. simulated patients, facilitators…)
Challenges in simulation design and implementation	- integrating simulation at an appropriate timepoint in the programme (i.e., not too early, nor too late) - constructing a simulation with adequate complexity - consistent adherence of facilitators to simulation scenarios, standards, or guidelines
Insufficient empirical evidence for SBL in OT education	- limited evidence for impact of SBL in OT education, particularly in later years of study (for more advanced learners) - limited evidence examining student perspectives on SBL in OT education (e.g. value of simulation, satisfaction, perceived knowledge/skill acquisition) - lack of evidence examining whether simulation is better at achieving certain learning objectives than other teaching methods or modalities - lack of evidence examining the potential of simulation to (in part) replace clinical practice hours

Resolving challenges

Alongside identified challenges, focus group participants also offered several potential and actual solutions for addressing these challenges based on their own experiences in the design and implementation of SBL in OT educational programmes. For example, one participant discussed how lack of seriousness or engagement among students was often minimized through the 'power of the group', where more engaged students who approached the simulation as a 'real' practice situation acted as role models for less engaged students. Such peer-to-peer modelling and feedback was an important element in establishing expectations and roles in a group simulation experience. Participants also mentioned that student engagement is also improved when the preparation phase prior to the simulation (i.e., prebriefing) provides sufficient information about the aims and potential outcomes of the simulation and clear expectations for students.

For all participants, ensuring adherence to simulation scenarios, standards and guidelines can be supported by strategies for adequately training and supporting all simulation participants throughout the development, preparation, and implementation process. This included things such as clearly defined and standardized scenario scripts, video demonstrations or other examples of various aspects of the simulation process, and teaching manuals or other resources in which specific guidelines for conducting various aspects of the simulation process (e.g. different modalities, how to plan a debriefing or provide feedback, simulation for small/large groups) are provided.

Participants also identified several strategies used to mitigate cost and resources challenges, particularly in relation to the costs of employing simulated clients or paid actors. For this purpose, participants reported engaging volunteers (sometimes retired health care professionals), other staff members or senior year students as simulated clients or using written or digital case scenarios. For one participant, use of case scenarios also

allowed for the construction of more diverse and complex client cases beyond that which could be readily and authentically simulated by a volunteer or actor.

Conclusion

The results of the focus group study presented in this report have provided an overview of the perspectives of four international experts regarding numerous aspects in the design, implementation, and examination of SBL in OT education, as well as the potential impact of this paradigm in supporting professional competency development among OT students. This study has succeeded in addressing its first aim, that is to gather information from individuals with specific interest, experience and/or expertise in the implementation of simulation or simulation-based learning (SBL) as a learning and assessment method in occupational therapy education. Indeed, many of the views expressed by participants represent a shared understanding of the potential for simulation in occupational therapy and specific aspects, challenges and solutions in the design and implementation of SBL in OT education. Participants also provided valuable insight into the potential future of simulation in occupational therapy and directions for the development of clear guidelines and standards of practice for implementation of SBL in OT education. Indeed, focus group participants were invited to offer specific feedback, comments, and suggestions on the first draft of the *Guidelines* developed in the SIMBA project. These perspectives were integrated into the coding analysis and informed revisions to these *Guidelines*. Finally, directions for further research into the effectiveness and value of simulation for promoting acquisition of occupational therapy competencies also arose during the focus group discussion.

Together, the findings of this study offer a rich resource for ongoing development of the *Framework of Occupational Therapy Competencies* and *Guidelines for the Implementation of Simulation-based Learning in Occupational Therapy Education* within the SIMBA project. Integration of the perspectives of experts in this process together with the results of an in-depth review of the literature and a stakeholder focus group study will ensure that the final Framework and Guidelines offers a complete, valid, and useful resource for ongoing development, implementation, and research in simulation-based learning in occupational therapy education.

Appendix A: Expert focus group study protocol

Available upon reasonable request

Appendix B: Expert focus group interview guideline

Available upon reasonable request

Appendix C: Expert focus group thematic content analysis

Available upon reasonable request

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SIMULATION-BASED LEARNING IN OCCUPATIONAL THERAPY EDUCATION (SIMBA)

Report on Activity 3, Work Package 3:

Usage of SBL-Assessments in current practice

December 2024

AP UNIVERSITY OF APPLIED SCIENCES AND ARTS ANTWERP
ZDRAVSTVENO VELEUČILIŠTE MCMLXVI
FH JOANNEUM University of Applied Sciences
MEDIPOL ISTANBUL MEDIPOL UNIVERSITY
TURKU AMK TURKU UNIVERSITY OF APPLIED SCIENCES

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LEAD AUTHORS

Katrin Pechstädt, FH JOANNEUM GmbH, Graz, Austria
Elisabeth Schwab, FH JOANNEUM GmbH, Graz, Austria
Brigitte Loder-Fink, FH JOANNEUM GmbH, Graz, Austria
Julia Unger, FH JOANNEUM GmbH, Graz, Austria

COLLABORATING AUTHORS

Kuni Vergauwen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Greet Schrauwen, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Claire Sangster Jokić, University of Applied Health Sciences, Zagreb Croatia
Andreja Bartolac, University of Applied Health Sciences, Zagreb, Croatia
Annick Van Gils, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Ingrid Sanders, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Myrthe Logist, Artesis Plantijn Hogeschool Antwerpen, Antwerpen, Belgium
Ahmet Emir, Istanbul Medipol University, Istanbul, Türkiye
Hilal Bostanci, Istanbul Medipol University, Istanbul, Türkiye
Anu Kuikkaniemi, Turun Ammattikorkeakoulu OY, Turku, Finland
Heli Arokki, Turun Ammattikorkeakoulu OY, Turku, Finland
Arina Ventela, Turun Ammattikorkeakoulu OY, Turku, Finland

Project website: https://simba.turkuamk.fi/

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Introduction

The ERASMUS+ funded project SIMBA ("Simulation-based learning and assessment in occupational therapy education") aims to build a bridge between higher education in occupational therapy and the challenges of practice through simulation-based learning (SBL). Within the SIMBA project, SBL is defined as an *"array of structured activities that represent actual or potential situations in education and practice. These activities allow participants to develop or enhance their knowledge, skills, and attitudes, or to analyse and respond to realistic situations in a simulated environment*"(Lioce & Society for Simulation in Healthcare, 2020) To achieve this goal, the first step was to create a framework for the competencies of novice practitioners in occupational therapy and to develop guidelines for the requirements of possible simulation-based learning in higher education for occupational therapy (work package 2). This involved conducting literature research and focus groups included OT students, practitioners and educators and persons with specific expertise in SBL in OT education. The results were then summarized in written reports and published in the SIMBA Framework of occupational therapy competencies for simulation-based learning and SIMBA Guidelines for the implementation of simulation-based learning in OT (SimOT) in education.

Work package 3 focuses primarily on the development of an assessment that can be used to measure learning progress in simulation-based learning (SBL assessment). To develop this assessment, a systematic literature review was required to determine which assessments are currently used for SBL in physiotherapy, occupational therapy and speech and language therapy (WP3 - Activity 2; WP2-2). The results of this literature review and the findings from WP2-2 were subsequently used as the basis for 2 focus groups to explore the user experience of teachers and students with assessments currently used in simulation-based learning.

The methodological approach and the results of the focus groups are therefore presented below to gain "[a]n insight into the perspectives and views of students and health professional teachers who are experienced with SBL assessments, is gained" (SIMBA ERASMUS application, p. 44)

Method

In the activity, it was planned to conduct a qualitative study based on 2 focus groups to record user experiences. To do this, an ethics committee first had to approve the conduct of the study. Subsequently, worldwide experts and occupational therapy students were recruited to participate in the study. The detailed methodology steps are described below.

Ethical Approval

As this qualitative study involves the recording and subsequent transcription of sensitive data for the purpose of the study, it was necessary to obtain a positive ethics vote from the Ethics Committee for the Social Sciences and Humanities (EASHW). All necessary documents were submitted for a review in July 2023 and a positive ethics vote followed on September 13th, 2023 by the ECSH (reference: EX_SHW_2023_15_1). The documents for the ethical approval included the participants' information and the Declaration of Informed Consent (appendix) and details regarding information of the planned data collection and data analysis as stated below.

Data collection

The study aims to conduct 2 focus groups with a total of 9-15 participants. This results in 2 focus groups with approximately 7 participants. Participants were recruited using a purposive sampling method in which potential candidates were identified based on a review of the literature examining simulation-based learning in OT education and via an open call for participation to the members of the European Network of Occupational Therapy in Higher Education (ENOTHE). Participants were invited to participate via a standardized invitation e-mail. E-mail addresses were acquired through publications (person mentioned as corresponding author) or supplied by participants answering the open call for participation.

There was a joint procedure with the researchers of WP2, who also were conducting interviews with experts in the same period, although they had a different research focus. To avoid unnecessary duplication of requests to the target group of experts who could contribute to both WP2 and WP3, close coordination between the researchers of the two work packages had been agreed. Thereby it was planned to send out joint invitations and to ask the experts for further colleagues who could contribute. Once participants are identified according to the inclusion criteria listed below, invitations were sent with possible dates to participate in the focus groups. The invitation suggested dates between August to mid-October 2023 for the focus group to be conducted.

Table 1 Inclusion Criteria

SBL-assessment users	Health Education Teachers
Experienced using SBL assessments	Experienced using and/ or developing SBL assessments
Fourth or sixth semester Student or recently graduated (<1 year) of physiotherapy, occupational therapy, or Speech Language Pathology	Teaching in the fields of PT, OT, and/ or Speech Language Pathology
Sufficient knowledge of English to express themselves and their thoughts	Sufficient knowledge of English to express themselves and their thoughts

All experts identified in the literature on the topic of simulation from WP2 and WP3 were contacted via a joint email, and their feedback was systematically recorded. If necessary, reminders were sent to prompt a response. Organizing two focus groups with international experts through this approach proved to be challenging and time-consuming due to the significant variation in time zones and professional commitments of the participants. In addition, students and teachers with experience in the use of SBL had to be found, whereby the availability of students in the summer was just as limited as the availability of teachers after the start of the semester. Consequently, only one focus group was conducted online, while another was held during the annual ENOTHE meeting. Several speakers, who were invited to present on the topic of SBL at the ENOTHE annual meeting, were asked to participate in a live focus group meeting. The research team collected the contact details of these

experts and provided two dates for the focus group. The second focus group was held live on the date when most of the experts were available and were recorded using and voice recording app, which stores the audio file locally and secured with a code on the mobile phone. Directly after the meeting the audio file has been transferred to the secured file system and has been the deleted on the mobile phone of the participating researcher.

Participants accepting the invitation to participate will complete and sign a standardized informed consent form prior to the focus group. Participants will be asked to fill out a demographic questionnaire. To summarize the demographic characteristics of the participants, the following data will be requested in a questionnaire prior to the focus groups after their given consent in the IC:
Country of origin
Age
Gender
Number of years in teaching OT
The questionnaires and signed consent forms will be collected and stored by the coordinator of the SIMBA-project on the secured N-server of AP University college only accessible to the project coordinator.

Interview Guideline

The research group of WP3 uses the SPSS system (Helfferich, 2009) as a basis for the development of the interview guide. On this basis, all relevant questions on the topic are collected.
The interview guide should not only be suitable for capturing the users' experiences, but also reflect the competency framework developed and give insights which domains of competence are relevant for SimOT and should therefore considered to be measured in a SBL assessment.
This semi-structured interview guide should cover the following topics:

- Experiences with SBL assessments
- Advantages
- Pitfalls
- Competencies, that could be measured with an SBL assessment
- Considerations in the development of an SBL assessment

The collected questions for this topics are then clustered and sorted, resulting in a first draft of the interview guide. This draft was discussed with partners involved in work package 3 (AP and FHJ) and then adapted and finalized with their input and approved by the EASHW (Appendix 1).
To assess the competences that could be measured using an SBL assessment, the participants will be shown the preliminary results of work package 2, the Framework of Competences, during the interview. They were given the opportunity to ask questions about it prior to express their thoughts about how and which competences could be assessed in an SimOT-scenario.

Data Analysis

The focus group will be conducted online on the Microsoft Teams platform. To enable transcription and analysis of focus group data, focus groups will be audio and video recorded through Microsoft Teams or a local recording app of the researcher’s computer, which stored the data according to the data management protocol in a password secured file. Specific consent will be sought from participants for this purpose in the Informed Consent form. Participants will be offered the opportunity to contact focus group leaders after the focus group if they wish to provide additional comments or information that they did not have a chance or feel able to provide during the group discussion.
Following the conduction of focus groups, the recorded conversations will be transcribed in full in preparation for analysis. During transcription, all information that could potentially identify individual participants will be removed. Storage of and access to all collected data, including audio and video recordings, notes and focus group transcripts, will be managed on the secured SharePoint platform of the SIMBA project, hosted by AP, to

which only the researchers involved have access. Focus group transcripts and raw data will be stored separately so no connection can be made between both.
The recordings are not pseudonymized and therefore will be handled as non-pseudonymized data. It will therefore be stored securely only on the AP server. During transcription, all information that could potentially identify individual participants will be removed and from this point on data is anonymized. All data will be linked to an arbitrary code for each participant and not one's name, to demarcate participant responses. This is meant to ensure that data cannot be directly attributed to a specific individual during data analysis. After transcription, estimated a maximum of two months after the focus group took place, the original recordings will be removed from the secured SharePoint platform of the SIMBA project. A copy of the anonymized transcripts will be stored on the secured N-server of the AP University college as a back-up. Raw data and processed data will always be stored separately during the project. After project completion (30/11/2025) the processed data will be stored for a period of 10 years on the secured N-server of AP University college only accessible to the project coordinator.

Analysis of focus group data will be carried out, using a structuring analysis of content (Kuckartz & Rädiker, 2022). Themes and codes will be organized into a structured framework. The completed coding matrix (i.e., anonymized quotes from focus group transcript organized within the coding framework) will be stored on the secured Sharepoint environment. No one outside the group of researchers involved in this research will have access to the data, apart from that which is presented in publication, or any of the personal information of the participants.

The deductive-inductive approach makes it possible to cluster specifically according to the categories expected based on the research question and consequently the interview guideline. Accordingly, the data analysis started with the following deductive data category system:

- Experience with SBL- assessments
- Used SBL- assessments
    - Advantages
    - Disadvantages
- Competencies addressed

Depending on the data material, further categories are formed inductively during the analysis and the categories are systematized and organized until they fully reflect the content of the interviews (Kuckartz & Rädiker, 2022).

Results

Participants

A total of eight people participated in the two focus groups, all of whom were female. Three of the participants were students between the ages of 22 and 36 from Sweden, Spain, and Australia, who reported that they had experience using SBL. The remaining five participants were teachers between the ages of 31 and 54 from Spain, Norway, Germany, the United Kingdom, and the United States. Two of them had extensive experience in using SBL, while the other three had some experience.

Findings

As mentioned above, the research team started with very broad, open-ended deductive categories.

These categories were supplemented by inductive categories according to the given deductive-inductive approach used in the study (Kuckartz & Rädiker, 2022) All categories (deductive and inductive found) were renamed and rearranged into categories and subcategories until they could fully describe the data material.
The final code system included the following (sub)categories:

1. **Preparation of students before SBL**
    a. No preparation
    b. preparation of the SBL experience
        a. Stressed also prepared
        b. Safe environment
    c. Theoretical knowledge of skills/competencies
2. **Assessments used**
    a. summative
    b. formative
        a. self-created assessments
        b. reflection/ feedback
        c. Video assessment
        d. Written assessment
3. **Domains of the SIMBA Framework of Competencies**
    a. Domain A – knowledge and attitudes supporting the occupational therapy competence
    b. Domain B – managing and conducting the occupational therapy process
    c. Domain C – developing and maintaining professional relationships and partnerships
    d. Domain D – professional autonomy and continuous professional development
    e. Domain E – promoting and advocating for the advancement of the profession and social change
    f. Domain F – general professional skills and competencies
4. **Ideal SBL Assessment Requirements**
    a. Student
    b. Institutional

Each of these categories are presented in detail below and could be read in conjunction with appendix 2, which represents all coded elements of each (sub-) category.

1. Preparation of students before SBL experience

This category summarizes statements that include steps that should be taken before conducting an SBL assessment beforehand by students and how teachers support this.

It contains three subcategories, which express that on one hand sometimes (1) **students been not prepared at all** for the SBL assessment, but even if the (2) **had been prepared**, they are stressed before the SBL. Furthermore, it had been expressed that a safe environment is necessary for a less stressful students' experience. The last subcategory expresses that (3) **theoretical knowledge about the skills needed or competencies expected** are taught beforehand in lectures and lessons, so the SBL accompanies the lectures.

It was mentioned several times that the upcoming SBL experience is very stressful for students and that the focus should be on reducing stress and empathizing with the students in the situation.

> *""I had a lot of class mates, that had been having a really hard time and crying before the exam and then they have failed, because they were so stressed. Next time, they got a bit better because then they knew how to work it but I still have some class mates, that haven't made it yet and still failing and have to do it again, because they get so nervous. I talked to them, they know, they know how exactly and we have been trained together they do very good when I am playing the patient, but as soon as they get in there with the teacher, they get so nervous." (Person 1, focus group 1, paragraph 53)*

This quote shows the importance of creating a stress-free environment for students. It is important to convey that SBL is an experience, and that assessment is a learning opportunity. Students are often afraid of doing something wrong or that their theoretical knowledge will not enable them to demonstrate their knowledge in the SBL situation.

> *"[…] we see what they have written and he was a bit afraid of that because maybe it was wrong and I think that is something, I can totally understand that they want to do the correct thing." (Person 3, focus group 2, paragraph 56)*

The subcategory (2) "**preparation of the SBL experience"** summarized the following named elements for the preparation of students for the SBL-assessment.

- Prebriefing: Explanation of the rules and procedures, as well as the points to be reflected upon.
- Showing the environment: Visiting the premises where the simulation will take place.
- Explain the rules and expectations: Explaining in part that there is no right answer and that the case cannot be solved correctly, to reduce the expectation of doing everything right.
- Show and explain examples of past scenarios to clear expectations
- Lots of support at the beginning, less at the end: Students should learn to grasp the main points with as little introduction to the scenario as possible, as is the case later in their professional lives.

In addition to the prebriefing, there is also information for the students about the SBL. In some cases, students are given lectures on the topic, in others they are given video material. It was also described that the cases presented are mostly based on case descriptions from OT colleagues in practice.
It was also reported that real clinical cases are presented at the beginning of a module and these cases are worked with for a semester. It was also described that prior to the SBL experience, students were assessed using specific rubrics to determine whether a particular skill had been learned. This made it possible to track learning after the SBL assessment.

> *"And prelearning could be a video of a similar case, it could be reading material, a case history, practicing of techniques that might be afflickable to the session, so they do all of their prelearning and the expectation is that they must do the prelearning before they come. So there will be tasks on virtual learning environment that they have to finish, so we can, we know who's finished and who hasn't. So that you know that when they come to the simulation they are prepared, then they come to the simulation and they do whatever the task is and then there is debrief. So they have to follow all the stages, so that we know that they have learned effectively." (Person 3, focus group 2, paragraph 39)*

2. Assessments used in simulation

> *"I think assessing simulation based learning is superior to I guess the tests and the essays, obviously, they have their place but I think we are a patient-facing profession so being assessed on things that you need to know to be a good clinician is really important, and getting feedback on that, and then being actually able to improve those skills before you are helping people, I think it is a really valuable way to assess." (Person 2, focus group 1, paragraph 42)*

None of the participants had experience using (1) **summative** assessments. The assessments they had experience with were all (2) **formative** assessments. The formative assessments used were mostly self-developed rubrics that tested the application of knowledge that had been gathered in the lessons before in the simulated situation.

The focus was mostly on student self-reflection. It was described as very important to give the student feedback after the SBL. This should be timely and facilitate personal growth in the situations.
Feedback should be appreciative, authentic, and timely.

> *“And it's a comfortable place to make mistakes and you got your teachers there to say: "Actually, no, that is not the way you do it" or "that's okay, but maybe think about this". I think it is a really valuable way to learn.“ (Person 3, focus group , paragraph 31)*

If feedback is given by peers, it should also be authentic and not superficial. It was also discussed that it should be possible to upload a video to a platform as part of an SBL and then rate it using categories. This means that feedback does not always have to be verbal after the SBL experience but is also possibly assessed with the rating of a video.

The written assessments were, for example, reports written by a group of students after the SBL experience and subsequently assessed by the teachers. Feedback from the people who played the simulated patients was also described as enriching for the learning experience.

3. Domains of the SIMBA Framework of Competencies

> *„It is such a practical profession, you are out there, working with people, doing manual handling and all those sorts of things, so I think, it is just, it makes so much sense to be able to assess those skills in a simulated way before we go out into the big wild world. “ (Person 3, focus group 1, paragraph 36)*

To provide a structured framework for the experts to reflect on possible assessable competencies, they were briefly introduced to the pre-final competency framework (WP2), indicating that it was pre-final.
The experts were then given the opportunity to share their views on which competencies could be tested as part of an SBL assessment.
It was noted that in an SBL situation, both individual skills and multiple competencies could be assessed in a more complex case addressing for example communication skills, application of knowledge about the occupational process and dealing adequately with a medical condition.

(1) DOMAIN A Knowledge and attitudes supporting occupational therapy competence “describes the knowledge and attitudes possessed by the novice occupational practitioner that support competent OT practice” (Bartolac et al., 2024) to alone is hardly tested in SimOT, but the knowledge and attitude of the learner is indirectly reflected in the performance of the occupational therapy process.
However, (2) **DOMAIN B: Managing and conducting the occupational therapy process describing** “the general and specific competencies of the novice occupational therapy practitioner for organizing and conducting the occupational therapy process” (Bartolac et al., 2024) and can be well tested in SBL and can also be partially used and applied in an SBL experience.
In this context, it is also important to note that the only SBL assessment mentioned was the SPEF-R2 (person, focus group 1, paragraph 10), which summarizes the competencies for the placement. According to the respondents, the assessment of practical skills as an occupational therapist is the main focus of the currently used procedures in SimOT.
(3) DOMAIN C: Developing and maintaining professional relationships and partnerships was considered by all to be very suitable for assessment in an SBL scenario. „This domain describes the competencies possessed by occupational therapists for establishing and maintaining relationships with clients, colleagues and other partners involved in the OT process” (Bartolac et al., 2024). Communication is seen as an observable

phenomenon that could be used to observe students' abilities to position themselves in an interprofessional team and to explain what occupational therapy could contribute to a case.
(4) DOMAIN D: Professional autonomy and continuous professional development was also considered suitable for testing with SBL assessments, also this "competencies possessed by occupational therapists as autonomous and accountable professionals" (Bartolac et al., 2024) were only mentioned to be assessed together with other domains (e.g. Domain C communication)
There were conflicting statements regarding **(5) DOMAIN E: Promoting and advocating for the advancement of the profession and social change, which summarizes "**competencies possessed by occupational therapists for engaging in activities related to promoting and advancing the profession and advocating for greater social change" (Bartolac et al., 2024): while some could well imagine testing it with SBL (person 2, focus group 1, paragraph 80), others found it almost inconceivable (person 1, focus group 2, paragraph 67). Specifically, it was suggested to advocate for a client in a role play.
(6) DOMAIN F: General professional skills and competencies „describes the general professional skills and competencies possessed by occupational therapists. While these competencies are not necessarily skills specific to the occupational therapy profession alone, they are considered essential skills for effective occupational therapy practice" (Bartolac et al., 2024) Similar to Domain A, Domain F was hardly suggested. Here it was said that it would be easy to present in conjunction with Domains C and D.

4. Ideal SBL assessment requirements

For an ideal SBL assessment, participating **(1) students** need to be well prepared and know exactly what will happen and what is expected of them during the SimOT. In addition, an SBL assessment being the final course exam was considered critical in the focus groups as this is resulting in stress and anxiety and could block a good learning experience.
Therefore, for the simulation to be a safe learning environment in which students can adapt and learn to cope, it is important to slowly introduce students to SBL assessment and reduce their stress about it. An SBL assessment should not be an additional component to existing testing situations and assignments but should at best replace or/and supplement them, so as not to increase the workload of students using an SimOT in the course.
The SimOT itself is described to be a helpful tool for students to train both individual skills and how to deal with complex situations in everyday life of occupational therapists. It is essential for personal and professional growth that an SBL assessment is always embedded in the prebriefing session (explicating the learning outcomes and rating) and that the learning experience is reflected upon with the students. If grading is done with an SBL assessment it should be accompanied by feedback and reflection. The focus should be on student growth. The institution should provide self-learning activities that prepare students for the SimOT and introduce the assessment method and used tools. Teachers also pointed out that there should be a competency based SBL assessment that shows students' learning progress in a standardized way. This assessment should be objective and able to assess clearly defined competencies.

This means for an **(2) institution** the implementation of SBL requires significant support from IT and a dedicated SBL team to handle the logistics, such as room setups, technical support, and scenario preparations. The participants highlight the complexities and resources involved in integrating simulation-based learning (SBL) into curricula. Participants noted the extensive initial setup required for effective SBL. This setup is resource-intensive not only in terms of material costs, such as purchasing equipment like VR glasses, but also in terms of human resources needed to prepare and manage simulations.
Educators emphasized the need for clear learning objectives and the adaptation of assessments to these objectives to ensure educational efficacy. The discussions also touched upon the benefits of flexible assessments that could cater to both formative and summative needs, allowing for adjustments based on the focus areas of each simulation.
Overall, the integration of SBL into curricula demands careful planning, significant resources, and ongoing support to be effective and sustainable.

Discussion

Regarding the methodology used, it can be said that it was well suited for collecting data to complement the systematic literature reviews of work package 2 and 3. As planned, 2 focus groups were held, but the planned number of 9-15 participants was not reached.

Despite the small number of participants, the spread of participants in terms of age, countries and continents was very satisfactory. In addition, all participants had experience with SBL assessments, which is pleasing, as this meant that the inclusion criteria for the individuals could be met well.

Unfortunately, the planned implementation with 2 online focus groups could not take place. Instead, one online and one live group were conducted. The advantage of a live interview is the personal relationship between interviewer and interviewee. However, this meant that there was more background noise, which slightly affected the transcription process and subsequently the data analysis.

The final code system was very different from the deductive code system. This was due to the fact that the advantages and disadvantages could not be clearly identified and therefore were not presented as separate categories. The categories "experience with SBL assessment" and "use of SBL assessment" were combined into the category "assessments used" to better reflect the diverse discussions. When the preliminary framework was presented to the participants, the category "Competences addressed" was renamed "Domains addressed". In general, however, it was very helpful to start with a deductive category system and then modify it. According to Kuckartz & Rädiker (2022) the disadvantages of the two approaches (deductive or inductive) are thus balanced and advantageously complemented for content analysis.

Table 2 comparison of deductive and finalized code system.

Deductive Categories	Completed code system with inductive and deductive categories

---	**Preparation of students before SBL**
	• No preparation
	• preparation of the SBL experience
	  ○ Stressed also prepared
	  ○ Safe environment
	• Theoretical knowledge of skills/competencies

Experience with SBL- assessments
 	
Used SBL- assessments
• Advantages
• Disadvantages
	• **Assessments used**
	  ○ summative
	  ○ formative
	  ▪ self-created assessments
	  ▪ reflection/ feedback
	  ▪ Video assessment
	  ▪ Written assessment

Competencies addressed	**Domains Addressed** • Domain A • Domain B • Domain C • Domain D • Domain E • Domain F

---	**Ideal SBL Assessment Requirements**
	  ○ Student
	  ○ Institutional

Regarding the results of the interviews, it is important to emphasize the importance of preparation for the SimOT and thus for the SBL assessment. Although this does not concern the assessment itself, it is important for a successful implementation and an anxiety-free, sustainable experience on the part of the students. This leads to the conclusion, that the SBL assessment need to be introduces in the prebriefing to state clearly the learning objectives for the SimOT and set clear expectations for the student performing the SimOT.
It is also surprising that all experts and students concluded that they use formative rather than summative assessments to evaluate an SBL experience. This can be explained by the fact that there seem to be only a few known assessments for the evaluation of the whole SBL experience because as shown in the report on WP3 Activity 2 ("Systematic Literature Review"), there are also only a few assessments that test all competencies. But also, the SBL assessment tool needs to be very flexible and therefore, participants reported to prefer self-developed rubrics to measure and rate specific competencies of a scenario. This should be taken into account when developing the SBL assessment tool for SIMBA and consequently there should be room for adaption depending on the SIMOT-scenario performed.
Furthermore, the SBL assessment needs to consider the fidelity of the SimOT-scenario. Fidelity is defined as “the degree to which the simulation replicates the real event and/or workplace; this includes physical, psychological, and environmental elements” (Lioce & Society for Simulation in Healthcare, 2020)
Given increased complexity by

- Increasing knowledge of the students
- Different fidelity of the SimOT and
- Different/ multiple domains of competency addressed

It becomes obvious how flexible the SBL assessment needs to be on one hand, illustrated in figure 1. On the other hand, it needs to be reliable to measure students’ outcome in the different scenarios over the course of their studies.

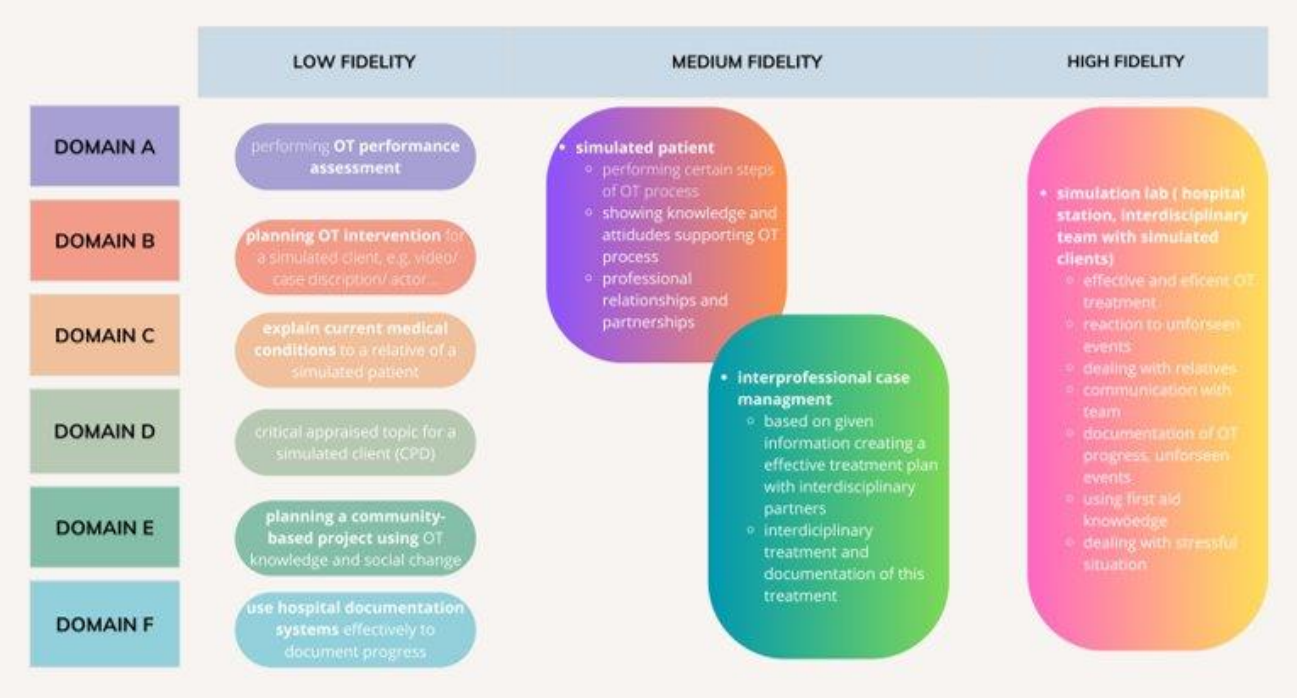

Figure 1 use cases for the SBL assessment tool

For the further course of the project, it is therefore important to ensure that the evaluation has a modular structure. It should enable both a formative and a summative evaluation. The participants stressed that an ideal assessment also needs to be used in variable SimOT, which tests different levels of complexity in the SimOT. Accordingly, an SBL assessment should be flexible in its use to cover the use case assessing one domain or up to all domains of the framework.

In summary, the following points should therefore be considered when developing the SBL assessment:

- **Make it flexible:** easily adaptable for different fields of OT work and circumstances in different countries.
- **Make it scalable:**
    - Assessments must be adjustable to
        - fidelity of the SimOT-Scenario,
        - the domains assessed
        - the increasing knowledge level of students
- **Make it joyful and sustainable:**
    - Introduce assessment in prebriefing – state clear expectations
    - Enable the track of personal growth by comparable results over the course of study
    - Refer to the assessment in the feedback process facilitate learning rather than use it as grading

Literature

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Appendix 1 – Interview guideline

Topic	Main question	Detailed question
Introduction: (1min) Thank you for agreeing to participate in this Stakeholder Focus Group, which is being conducted as part of Work Package 2 of the Erasmus+ funded project SIMBA. We are… The purpose of this group interview is to gather information from stakeholders about your perspectives on your experiences with Simulation Based Learning in Occupational Therapy education. The anonymized results of this focus group will inform the ongoing development of Assessment for SBL in OT education. When finished, these documents will be publicly available to everyone via the project website. Our conversation is planned to last about 60-90 minutes.		
Confirming Consent: (2min) We also want to thank you for agreeing to have this **conversation recorded.** The goal of the recording is to ensure that everything you share in the conversation is recorded exactly as you have said it without the need for extensive notetaking, thus making our conversation more comfortable and natural. Likewise, we would like to emphasize again that all information **will be used exclusively for the purpose of this project,** and that all received information will be **treated as confidential**, as stated in the Informed consent form you have signed.		
Get to know each other (5min)	I would like to ask each of you to **introduce yourselves briefly one by one** so that we can get to know each other better. Please tell us your name, in which country you live and how you experienced simulation-based learning?	Do you have any questions before we start?
Main Part		
Personal Experience with SBL assessment (10min)	Which simulation-based assessments do you know? Which ones have you already used? Please tell us what it was like to be exposed to the SBL assessment for the first time?	Do you know other SBL assessments? Please name the ones you already use. How did you **prepare** for the SBL assessment? What are the characteristics of **conducting** an SBL assessment? What was **assessed** during the delivery of the SBL assessment in which you participated? How **valid is the outcome** of an SBL assessment?
Advantages of an SBL assessment	What do you think: What are the advantages of using a SBL assessment in education?	What would you see as an **advantage in preparing** an SBL assessment as opposed to a traditional assessment?

(10min)		What are the **advantages of conducting** an SBL assessment over other forms of assessment? How is a SBL assessment **helpful in assessing / rating** of students' performance/ competencies? Overall, to what extent is the outcome of an SBL assessment superior to that of a traditional assessment?
Pitfalls (20min)	From your experience: What makes it difficult to use a SBL assessment in the context of health education?	What are **the pitfalls of conducting** an SBL assessment compared to other forms of assessment? When assessing student performance/competencies, in which **areas is an SBL assessment not sufficient**? In your opinion: What are the **disadvantages of results** generated by an SBL assessment? To sum up: What is important to **consider when preparing** for an SBL?
Competencies addressed by SBL assessment (20 min)	What competencies do you think would **be good to measure** with an SBL assessment? Which competencies do you think are **difficult to measure** with an SBL assessment?	Think about OT competencies in regards to (explain as needed)* **a.** Knowledge and attitude supporting the OT process (explain framework as needed) **b.** Conducting the OT process **c.** developing and maintaining professional relationships and partnerships **d.** professional autonomy and continuous prof. development **e.** promoting and advocating for the advancement of the profession and social change **f.** General professional skills and competencies How could these be measured? Could these be measured with an SBL?

Development of new SBL assessment (20min)	If you could make a wish: What should the ideal SBL assessment look like? After all, we as a research group want to develop a new valid SBL assessment. What would you like us to take away for the development of such an assessment?	What **competencies should ideally be covered** by an SBL assessment? What should be considered when creating the SBL assessment for its **ideal implementation, including space and staffing** requirements? How should the SBL assessment **ideally be presented** to students? What should be considered regarding the students and their **ideal learning experiences** with the SBL assessment? **What else is important** for you to say so that we as a research group can develop a valuable new SBL assessment?

Appendix 2 – Report of Results

1. Preparation of students for SBL

1.1 No preparation

1.

"I don't prepare my students."

[WP3-3 Focus group 2; Position: 41-41]

2.

"So for the simulations, before we entered the situation role-play or something, we know we are going to the simulation and how in some situations we don't know what's going to happen"

[WP3-3 Focus group 2; Position: 43-43]

3.

"We had recently practical examination where we get to meet the simulated patient and different scenario so you do not know beforehand, you get there in the room and then you get a little note about the patient and like you are reading a journal, and then you read it, you get like five minutes to figure out what you are going to do then you are going to approach the patient and play it out like you are an OT and we don't get any feedback at right there, we have to wait around two weeks to get if it were accepted or not and the teacher gave us,"

[WP3-3 Focus group 1; Position: 14-14]

4.

"Some stuff you don't get much preparation at all, you just like, okay, now we are going to do this, you have to fix sort of yourself how you are going to do it, we are not going to tell you how to do it, you have to figure it out by yourself but before "pre-trial" it is called a practical examination where we get into a room and test. We get training on different subjects as we get stroke, we get to train a bit about movement, about hips, so we get some training sessions but there was just the teacher and students, so you were a lot of being no clue when you get to actually expect, so we didn't get very much like preparation for it"

[WP3-3 Focus group 1; Position: 26-26]

5.

"I know several peers that had been needing more teacher, teacher-student-preparation before, they didn't make. Because they haven't worked in health care, they don't know how to chart a patient, I think it's very different what background you come from before at our university. So for me it works well, but not for everyone."

[WP3-3 Focus group 1; Position: 28-28]

1.2 Preparation of students for SBL experience in general

1.

“we have a debriefing method where we have the theoretical input and to prepare about the rules and the reflective points. And we also prepare the simulation day itself by showing the rooms, showing how everything will happen and give time to get comfortable with the environment and the simulation will happen.”

[WP3-3 Focus group 2; Position: 38-38]

2.

“So maybe, that’s important to make the students really comfortable and safe, and feel it is a safe environment to do wrong and maybe also the goal is to do the wrong thing. It’s just, we have the time that’s the goal with this simulation that you actually are doing this wrong. Because that’s we want but then you have to prepare the

students very well to make it a safe environment for doing wrong things, because that is not easy for us. We don't like that, at least I don't like it."

[WP3-3 Focus group 2; Position: 56-56]

3.

"I think for us what was really important is not just preparing the students, but preparing the staff. To appreciate that this is slow, and stressful situations for students, so we have simulation teams and we are working towards just having just the simulation team that delivers the simulation and by in that way, they appreciate the students, and they might not want to perform in front of everybody and they have empathy, and they have the kindness to deal with that situation because we have a lot of random people, they might take the time to appreciate so, I think it is not just preparing the students but it's preparing the staff as well. Especially when the clinical scenarios bring up issues that affect the students, and that is really important."

[WP3-3 Focus group 2; Position: 57-57]

4.

"I have started making videos to show the SPs before they come so they have some visuals and show examples from past scenarios that we have done in a while, so there is a lot of that. As far as for the students, lot of them are very nervous so I try to keep it very clear and 20rganized and chilled, you know very calm before they, you know, telling them, we have what we call the "safe container" that we do for each thumb, so it is like a four step thing, where you clarify what the objectives are, you review all the logistiques, you talk about suspending disbelief, and then psychological und emotional safety, and we do that before every single one. As far as we getting ready for the actual scenario, so depending on where they are in our program, when they kind of the first ones, we give them the scenario, like a couple of weeks in advance and we give them time to work with partners, talk about it, but as it get's fortsy in the end of our program so like, Person 1 was saying, the very last one we do, they pretty much show up, read the chart, have ten minutes and then they are going, so the prep-time we adjusted based on were they are, right the closer you are to initial team we give them less time to prepare, and you know, do their research."

[WP3-3 Focus group 1; Position: 22-22]

5.

"with our simulated placement, they give us a rundown of what the health center was that we were working for, and what our role was within that and the sort of patient-base of the health center. We got a minimal amount of the sort of schedule for the week, we did not really know what was going on from day to day, but we knew kind of an overall idea of this is sort of what we are going to achieve by the end of the week"

[WP3-3 Focus group 1; Position: 24-24]

6.

"Where is I had another simulated placement next week, we have been given the same kind of thing like a rundown of the center that we are working in but we are giving a breakdown of the first day will be doing these things not specifically, but this is what you will achieve by the end of the day and this what you are going to achieve by. And they also have been priming us for the one who is coming up that is going to be really self-directed. So they are just going to give us some jobs that we need to do, and it is up to us to manage your time as you are when you are a professional. You are prioritizing things and where is the previous one, it was very directed and they I guess sort of primed us that was how it was going to be because we knew that we are going to have a supervisor with us, like all day, every day, and they would sort of tell us, what we were doing, that sort of thing."

[WP3-3 Focus group 1; Position: 24-24]

Stress/ anxiety also prepared

1.

"Many were extremely stressed about this, they did not feel like they understood, even though we had times with the teacher we could ask and people asked and asked, but all in all you have to find out for yourself, because we are doing problem-learning like PBL so you have to find out for yourself that's the part of our university, so it is a bit less preparation I think, maybe, because you have to figure it out yourself and we do a

PS, that's the all objective, figure it out, because when you are out, then you have to figure it out yourself, you are going to know how to do it, when you are done."

[WP3-3 Focus group 1; Position: 26-26]

2.

"I know several peers that had been needing more teacher, teacher-student-preparation before, they didn't make. Because they haven't worked in health care, they don't know how to chart a patient, I think it's very different what background you come from before at our university. So for me it works well, but not for everyone."

[WP3-3 Focus group 1; Position: 28-28]

3.

"but sometimes the student emotional reactions to and feelings, you know, the anxiety, the stress I think, I mean a little bit of stress is good, because it gets you in your, to be very attentive but sometimes people just have so much anxiety that you know, they, it compromises. They are learning, and just you know all attention, to provoke so much anxiety, that is another thing I think about. It is just student emotional toll, emotional 21elfare."

[WP3-3 Focus group 1; Position: 49-49]

4.

"Sometimes, some part of our scenarios triggers their past trauma and nobody had any idea, because you know, we just walking, read the chart and say, you go. So, yeah they happened"

[WP3-3 Focus group 1; Position: 51-51]

5.

"I had a lot of class mates, that had been having a really hard time and crying before the exam and then they have failed, because they were so stressed. Next time, they got a bit better because then they knew how to work it but I still have some class mates, that haven't made it yet and still failing and have to do it again, because they get so nervous. I talked to them, they know, they I how exactly and we have been trained together they do very good when I am playing the patient, but as soon as they get in there with the teacher, they get so nervous. They are just, they have specifically class mates in my mind they have problems because of this, he gets so nervous and he keeps just failing it right now. He can't pull it through when the teacher is there."

[WP3-3 Focus group 1; Position: 53-53]

Safe learning environment

1.

"We also use challenging situation for the simulation but, also see it like really safe learning environment. But I experience is that it is really challenging for the students to accept like such an offer. The offer to train, to try something new and."

[WP3-3 Focus group 2; Position: 47-47]

2.

"I think because they don't feel safe like I want to. They feel like.
Moderator: I may have, you may speak german.
Person 5: Einfach beobachet, und wertend.
Moderator: They feel like they are observed and judged."
[WP3-3 Focus group 2; Position: 49-52]

3.

"I think a difficulty can be as a person, I don't think you like to show that you don't know a thing."

[WP3-3 Focus group 2; Position: 54-54]

4.

"You, it is a more, it is nice to show that I can it, and I know how to do it. If it's something that you don't know how to do it, it can be quite difficult I think."

[WP3-3 Focus group 2; Position: 54-54]

5.

"It's more like teacher to learn, but then still one of the students told me that it because we see what they have written and he was a bit afraid of that because maybe it was wrong and I think that is something, I can totally understand that they want to do the correct thing."

[WP3-3 Focus group 2; Position: 56-56]

2. Theoretical knowledge of skills/ competencies

1.

"And how do you prepare them and yourself for simulation based assessments?

Person 2: Reading books obviously"

[WP3-3 Focus group 2; Position: 30-31]

2.

"For example, for the study cases is presented during labs. I combine the labs, the theoretical content labs, with the study cases and so I am combining both. Actually, I don't prepare the students for the study cases."

[WP3-3 Focus group 2; Position: 37-37]

3.

"I think similar to what you are doing, we do prelearning. And prelearning could be a video of a similar case, it could be reading material, a case history, practicing of techniques that might be afflickable to the session, so they do all of their prelearning and the expectation is that they must do the prelearning before they come. So there will be tasks on virtual learning environment that they have to finish, so we can, we know who's finished and who hasn't. So that you know that when they come to the simulation they are prepared, then the come to the simulation and they do whatever the task is and then there is debrief. So they have to follow all the stages, so that we know that they have learned effectively. So that's, yeah."

[WP3-3 Focus group 2; Position: 39-39]

4.

"We, before the simulation part and the labs, we know all the theoretical content of the situation. Previously we had a subject for spinal cord patients, and then we have the subject of this."

[WP3-3 Focus group 2; Position: 43-43]

5.

"And then for doing the transfers, transferring, we do not hire actor for that but the students practices with each other but then one again because if it's a competency there are given a rubrique beforehand and then instructor observes so there is like established expectations before going in to the simulations."

[WP3-3 Focus group 1; Position: 12-12]

2.1 Information from people in the field

1.

"I like to use real situations, so I am in contact with occupational therapist friends working in different NGOs. They come to us, meet me, information for example for their other subjects they have, orthopedic techniques"

[WP3-3 Focus group 2; Position: 33-33]

2.

"For me, the preparation of the students are on different layers, so we have the preparation in touch with the cases, so we use clinical cases, that are derived from real practice and give time to, yeah, so we start with the cases at the beginning of the module, and they working for a long time this cases, before the simulations happened. And so they are knowing the patients, the history of the patients and diagnosis and then we start to prepare the simulation"

[WP3-3 Focus group 2; Position: 38-38]

3. Assessments used

3.1 Summative

1.

"I can continue with that so as far as how students performance is assessed, so for the simulations in the program where it is a summative assessment we were looking at as a competency that's handled differently versus the ones where it is just for their formative learnings."

[WP3-3 Focus group 1; Position: 12-12]

3.2 Formative

1.

"We have simulation on side, so we use in our programme we use it mostly for formative, for the teaching process other there's selected skills where it is used as a confidency."

[WP3-3 Focus group 1; Position: 4-4]

2.

"For the simulated placement it was, there were activities throughout the placement for example we had to, we were working on a lot of note taking, like documentation so throughout the placement we did a guess documentation session where we write some documentation and then we got feedback on what we had written and the overall sort of assessment on that I guess it is called the "SPEF-R2", student practice evaluation form revised second edition, so we use that one that's sort of evaluation form we use for all of our placement, so real or simulated, and it is a way of talk about things like communication and professional behaviour and that sort of things so all of the, things you want in an OT and sort of checklist of achieving and not achieving those. So that is the main assessment that our placement was (braided) on a I guess."

[WP3-3 Focus group 1; Position: 10-10]

Self created criteria-based assessments

1.

"So we have created opportunities to have simulated placements and our professional bodies of our college of OT allows us to count 40 hours of that kind of simulation towards practice hours. So we use our assessments forms to do that."

[WP3-3 Focus group 2; Position: 17-17]

2.

"afterwards like in fourth year, with this pedagogical methods, there was like a rubric with, we had to fill in the methodology, the planning, the justification for the .....method of leadership that we had to follow in the session. They had like very specific things that you had to check, that is how the teachers assess it, because we have like precised items."

[WP3-3 Focus group 2; Position: 28-28]

3.

"For the specific assessment we did in a simulated sort of way, I guess that was assessed a rubric so it was a bit of a checklist but also sort of what specific categories and how well we have achieved it."

[WP3-3 Focus group 1; Position: 10-10]

4.

"I start with the more formal ones where we are looking at competencies. So for example you use under.. patient to establish student competency for manual muscle testing and goniometry, range of motion measurement, so in those instances we hire standardised patient to be the actor and prior to participating in the competency the students are provided with a rubric these are all the things were going to looking for that you do, so it is pretty transparent and then during the session there is an instructor who sits and watches and you know, we try to not to, but there is pretty much a list and we look to see if they have done everything and additionally, so that's what determinants whether the student passes the competency or not."

[WP3-3 Focus group 1; Position: 12-12]

5.

"both self-assessment and then a peer-assessment and the content of each one it's R. Simseder has just a general format of similar to whether these are the areas of about you know about your communication skills, safety, your actual clinical skills and like managing, you know there are some broad categories and we adjusted customized for each scenario and usually we asked the students objectively with regard to this expectation what did you see, what did you not see and then usually kind of symphysis."

[WP3-3 Focus group 1; Position: 12-12]

6.

"We also for some of our competencies, thar are more the physical skills, we have just a basic standard precautions you know, did you sanitize your hands if you are going to handle something with bottles, you could go outside, you know just sum up the safety practice are pretty standard, and it's like yes or no, did you do this? Basic safety things right, did you put the bed reel down all the way, did you lock the brakes on the wheelchair before you transfer, so we have those things that they should know. Things are more concrete, like did you this or not do this, I think those work really well"

[WP3-3 Focus group 1; Position: 65-65]

7.

"For things of range of motion measuring and manual muscle testing, those are standardised in terms of the procedures, so I think that is also very meanable to you know say, did they follow the protocol for the manual muscle testing? So, those work well."

[WP3-3 Focus group 1; Position: 65-65]

8.

"A couple of other things that we have on our checklist is just students sometimes forget, when they go introduce themselves, ask the patient what they want to be called like you know, do that every single time, tell them what

OT is because most people are not going to know even if they've had it, you know, so there are some standardised things such as in the patient interactions that are regardless of client profile or situation, you are always going to do."

[WP3-3 Focus group 1; Position: 65-65]

Reflection/ feedback

1.

". For instance, if you will meet violent people in your clinical placement, that was an issue where we were talking about, but we didn't assess that. It was more just a reflection or so, looking at the video through the VR glasses reflecting on what did I experience, how was it, beeing in that session kind of that. And we had a debrief-session after, but that was not assessed in any way, it was more reflecting on the communication, so it is quite different."

[WP3-3 Focus group 2; Position: 23-23]

2.

"I think it starts with a goal to make it transparent for the students because our debriefing session, we are reflecting this goals, and we have items for this goals, for example, in this interdisciplinary modul it is about communication skills and where different items of verbal aspects and nonverbal aspects of communication but we do not have a standardised assessments so it's, yeah. Only follow steps and items."

[WP3-3 Focus group 2; Position: 27-27]

3.

"The assessment part, I mean, it's been really different between the years. Because in the first year we would simulate like strange situations that could happen, in [location] we have like field work, like all years, but field work one and two for preparation for the next field work in pedatrics, not identified mental health. So in simulations in field work 1 and 2 were more based in feedback that the students, we have to teach us about how we felt and in the situations and what we did, and what in the moment we would have done better to get in touch with this situation an."

[WP3-3 Focus group 2; Position: 28-28]

4.

"And also ahm if it's about skills where you do not have a wrong or a right. So they are different ways to handle the situation to make it clear, that it's important to reflect it but there is no really wrong or right, I think it also a point for the lecturers view because there are different perspectives on teaching."

[WP3-3 Focus group 2; Position: 58-58]

5.

"We did do one assessment that was a role play essentially so there was an OT and a patient and it was to do with manually handling, so we had learned various manual handling techniques like movement in bed and movement from a wheelchair to a bed and that sort of thing and the assessment for that was a role play in which one of the other student was the patient and so we had to communicate what was happening and how we were going to to things, and be able to clearly communicate what we wanted the patient to do as well as be able to justify why we chose that particular manual handling technique so we had a scenario that identified a couple of different manual we handling techniques and we had to chose one and justify why that was useful and otherwise it has been in classes we are doing some sort of theory and then well again, role play to be more in the OT role and other student role in a patient or client role."

[WP3-3 Focus group 1; Position: 8-8]

6.

"Additionally just another layer of feedback is the standardised patient after the accounter always gives their perspective about the feedback, so we have that for those two."

[WP3-3 Focus group 1; Position: 12-12]

7.

"For the more the ones where it is more informative and just for their learning experiences, the way we assess is the standardised feedback after the accounter and we provide our standardised patients, it is not a formal checklist, but I usually gave them maybe five or six areas for feedback with like for them to hit on that relates you what are the students' given as the objective for each scenario we have the learning directives that we give to both the standardised patient and the student. So, the feedback is kind of what we structure those establish objectives."

[WP3-3 Focus group 1; Position: 12-12]

8.

"We also have our students doing a self-assessment as part of the feedback process."

[WP3-3 Focus group 1; Position: 12-12]

9.

"I think maybe it might be just their learning style, because I think that the majority of people did get something out of the simulation and the assessment and the feedback, I think"

[WP3-3 Focus group 1; Position: 58-58]

10.

"And how did you deal with this in the debriefing, Person 2? If you experienced it, maybe you have an idea how to just deal with it?

Person 2: Yeah, I think you know. It is acknowleding that others how, how it feel and just appreciating, you know, everybody has range in terms of how much you can suspend disbelief. And then I think for me, just going that, these are the learning objectives, you know, this is what, I try to keep it positive because I can not invalidate what their perception is but I am trying to circle that too, okay, this is what we have said, what you know, we are working on, what did you get, yeah, but. It is hard because then managing the classroom dynamic, right, like, you know keeping it positive for all the other rest. Yeah I don't want, you know, I am not there to argue with the student about, it's yeah. It is a little tricky."

[WP3-3 Focus group 1; Position: 60-61]

Peer feedback

1.

"But if you want to observe the communication skills in an interview, etc. they could video that or you could do a peer observation for that."

[WP3-3 Focus group 2; Position: 64-64]

2.

"I implemented for the curriculum few years ago for the students to do a self-assessment, they processed during the study cases also, assessed in college. The tribunal, for themselves and themselves with the work of the colleagues, so three assessments and combined them. It takes a lot of time because we need to talk with the students, so they can understand why they implement this methodology for assessment.

Moderator: Would you recommend to do it in this way or?

Person 2: Yes, because it is a way that the student take attention to the other aspects and do reflect more about their work and the work of the colleagues."

[WP3-3 Focus group 2; Position: 86-88]

3.

"As a student, it was more effective to see, because when you get the think about some simulation that you have done in the health team or health subject, we have to role-play a whole session. From the start where you meet the patient and when you are at the start for the intervention. So we have like a whole class just to present the video, assess ourselves, assess others project and received feedback from the teacher and from other. You see really where are the mistakes, where are you coming off, and it really shows. Because one teachers says

it, yeah. But when someone makes the same mistake, "you could do it this way" when you see it, because ah,"did you see the mistake?". I can approve it, like she says. More empathy in that way."

[WP3-3 Focus group 2; Position: 90-90]

4.

"It is more like a peer-assessment. We did find that peer-assessment get everybody 90 out of a hundred. It count two percent of the final grade."

[WP3-3 Focus group 2; Position: 91-91]

5.

"We didn't give each other like a number, but we have to adjustifying in an item, so like, following the process or how was the language, and you have to adjustifying why score him a ten or why not? And that is how we deal with everyone assessing."

[WP3-3 Focus group 2; Position: 95-95]

6.

"I think a lot of this can work quite well in scenarios, I am a bit cautionary about peer, to give peer-feedback, depending on the level you are in your studies it can keep very difficult if you are on a higher level and you have to, you have ones that's about lower level education it can be very hard to get a correct feedback and I have been on places where I have made: Oh, okay that is wrong and I have (not identifed) but I was right so I think can be very hard to do too much peer-feedback here"

[WP3-3 Focus group 1; Position: 73-73]

7.

"Okay, this is important, this is we are going to spire to. So then as part of the given feedback, we give feedback with respect, okay did you do, did you follow this priniciple, did you, so it is a little bit structured if you will, for that."

[WP3-3 Focus group 1; Position: 76-76]

Accuracy of peer feedback

1.

"It is more like a peer-assessment. We did find that peer-assessment get everybody 90 out of a hundred. It count two percent of the final grade.

Moderator: Because they are too nice to each other is that what you are saying?

Person 1: They are supporting each others."

[WP3-3 Focus group 2; Position: 91-93]

2.

"I think a lot of this can work quite well in scenarios, I am a bit cautionary about peer, to give peer-feedback, depending on the level you are in your studies it can keep very difficult if you are on a higher level and you have to, you have ones that's about lower level education it can be very hard to get a correct feedback and I have been on places where I have made: Oh, okay that is wrong and I have (not identified) but I was right so I think can be very hard to do too much peer-feedback here"

[WP3-3 Focus group 1; Position: 73-73]

Video assessment

1.

"when we do it in first class, they have to practice, and also have a video presentation of what they learned and how they do it, and that will be assessed by the teachers, if it's a proof or not. So then, it is a video presentation of the, that's the assessment."

[WP3-3 Focus group 2; Position: 23-23]

2.

"Students take on issue online training, so they will practice with every out of, scenarios, they have pre-learning, they come in, they practice, and then they do the assessment. They video themselves during the assessment, and upload it and then we go in later to check whether it is successful or not. Because we have to do it before every placement, they have to be up to date. And when you have 80-90 students, that's a lot of work so we have to find another way of doing it."

[WP3-3 Focus group 2; Position: 29-29]

3.

"So for example, basic skills, if I want to test the student to make sure that they know how to goniometry or if they want to do muscle-strengthening, they can take a video of themselves doing it with a friend and you want to see whether the techniques is correct, whether they are getting to right answer, they can upload that video that is quick assessment, and it is a video-based assessment"

[WP3-3 Focus group 2; Position: 64-64]

Written assessment

1.

"But they also have this group work with students later in second year, they have, the students play roles and the students are the leaders of the group and they have a group session and after, so they have to plan the session, and after the session ready, they have finished, they have to write a report from what's happened and what they did, that is the exam."

[WP3-3 Focus group 2; Position: 23-23]

2.

"then in the simulated practical we had, we were OT students at a made up health center and we were given different clients to work with so we were watched recorded interviews and then we had to interview an actor who was playing this client so we had to plan the interview and do the interview and we had to .. write a report on this particular person...."

[WP3-3 Focus group 1; Position: 8-8]

4. Competencies addressed with SBL

4.1 Domain A- Knowledge and attitude supporting the OT process

1.

"I think, B because it's about the doing part and I could see the knowledge and attitude underlined that you know, kind of what I am seeing what they are conducting I think that's very well underlined with simulation based learning."

[WP3-3 Focus group 1; Position: 78-78]

4.2 Domain B- Conducting the OT process

1.

"If we look at the levels of simulation, so according to the standards it says that if you just doing a skill like doing an assessment that's level 2."

[WP3-3 Focus group 2; Position: 19-19]

2.

"you need to do a study case, show the process of OT from derivation, assessment of the patient, and the planning and intervention and propose for activities for this case in concrete and the students working in groups for 5 students by group and then they give me the work, the written work, and I assess it and I have a rubrics, yes, from 1 to 5 and I check all the items for the rubrics for example."

[WP3-3 Focus group 2; Position: 21-21]

3.

"The process of occupational therapy, the reference use, the activities proposed, the confidence between the dervation, the follow-up. So this is a rubric designed by me, but this rubric is also now at recent used by different teachers in practice."

[WP3-3 Focus group 2; Position: 21-21]

4.

"I think ...conducting the occupational therapy process could definitely be assessed in simulation and the general professional skills and competencies. I think in, like, in the longer simulations that I have done"

[WP3-3 Focus group 1; Position: 69-69]

5.

"I think specific scenarios with actors and educators observing those scenarios I think would be a really good way to look at the professional skills and the maintaining and developing relationships and of course conducting the occupational therapy process"

[WP3-3 Focus group 1; Position: 71-71]

6.

"I think, B because it's about the doing part and I could see the knowledge and attitude underlined that you know, kind of what I am seeing what they are conducting I think that's very well underlined with simulation based learning."

[WP3-3 Focus group 1; Position: 78-78]

7.

"I am not sure if it fits in assessment but I guess I thought of reflection like student reflection as a really important part of it. I think reflecting on your own experience is, the way you have implemented the skills and competencies and the way that you worked through OT process in your simulation I think this is a really valuable way to assess your own skills and experience."

[WP3-3 Focus group 1; Position: 82-82]

4.3 Domain C- developing and maintaining professional relationships

1.

"developing and maintaining professional relationships so I guess, yeah, working with clients and colleagues I think that sort of to me it sounds like the communication side of it."

[WP3-3 Focus group 1; Position: 69-69]

2.

"I think specific scenarios with actors and educators observing those scenarios I think would be a really good way to look at the professional skills and the maintaining and developing relationships and of course conducting the occupational therapy process"

[WP3-3 Focus group 1; Position: 71-71]

3.

". I think peer feedback is useful in assessing C. They are sort of, their experience of your relationship I guess."

[WP3-3 Focus group 1; Position: 71-71]

4.

"I think scenarios, especially for F and C and D can be very good at scenarios with actor or a teacher because it is hard, even if your student is in the same semester, supposed to be on the same level I assume it is not always the case so I think it can be a bit problematic with peer-feedback but I think scenarios could be good in most of this cases even E, to train and advocating because we neet do learn to advocate for the profession and patients. And it can, it takes some more practice because we don't get practice in that."

[WP3-3 Focus group 1; Position: 73-73]

5.

"I think C about the relationships and partnerships because I think that's one where it can be, very realistic, right, the way we do it or we have like let's say OT student, a PT student, a nursing student, like there are all claim themselves in the rooms, you know what I mean, so we don't even, it is just very authentic if you have access to those, we have partner with a group that have social work. So we actually bring in people in their actual roles and they get, so I think right, I think that the best way to learn and assess communication is to have put people in this situation where they actually have to work as a team and communicate."

[WP3-3 Focus group 1; Position: 78-78]

4.4 Domain D- professional autonomy and continuous professional development

1.

"do I think, D, the professional autonomy and continuous professional development could sort of fit in there as well a."

[WP3-3 Focus group 1; Position: 69-69]

2.

"I think scenarios, especially for F and C and D can be very good at scenarios with actor or a teacher because it is hard, even if your student is in the same semester, supposed to be on the same level I assume it is not always the case so I think it can be a bit problematic with peer-feedback but I think scenarios could be good in most of this cases even E, to train and advocating because we neet do learn to advocate for the profession and patients. And it can, it takes some more practice because we don't get practice in that."

[WP3-3 Focus group 1; Position: 73-73]

4.5 Domain E- promoting & advocating for advancement of professional/societal change

1.

"I think that looking at the domains I think that the E the most difficult to implement with the simulation based learning."

[WP3-3 Focus group 2; Position: 65-65]

2.

": "Competence for engage in activities related to promoting and advertising the patient ... [reads out loud the domain competence E]". I think for me, like a teacher, is difficult to process, to some specific simulated based cases thinking about this domain. The rest of them are perfectly up with the SBL. I get that."

[WP3-3 Focus group 2; Position: 67-67]

3.

"Person 5: But I think it's depends also on how the understanding of assessment is and which assessment perspective will be invited in the debriefing, so if we also look at the [disturbance from outside] when we also involve perspectives of the patient's and they assess the situation, so it is possible to handle the E. We do it and it's really interesting about how the perspective is on [disturbance from outside].

Person 3: We also use our patients to do assessments, and it is really to see from their perspectives."

[WP3-3 Focus group 2; Position: 68-69]

4.

"I think scenarios, especially for F and C and D can be very good at scenarios with actor or a teacher because it is hard, even if your student is in the same semester, supposed to be on the same level I assume it is not always the case so I think it can be a bit problematic with peer-feedback but I think scenarios could be good in most of this cases even E, to train and advocating because we neet do learn to advocate for the profession and patients. And it can, it takes some more practice because we don't get practice in that."

[WP3-3 Focus group 1; Position: 73-73]

5.

"I think you can do so much with this if you have a scenario where you have to advocate for a patient, you have two different sides you are supposed to train or advocate I think all of this can do very well in simulation with actors actually because you can do so much things. Just having a bit of fantasy about how to do it, I think it's possible but it can be harder for some things like promote and advocating domain E can be a bit harder because not all people want to do that part, but for those who want to it is very good to practice like how do I do if someone comes for, want to know how we supposed to work. So I think, I am still in love with all the simulation thing. Overall, it can do very much in everyone aspect."

[WP3-3 Focus group 1; Position: 80-80]

4.6 Domain F- General professional skills and competencies

1.

"I think scenarios, especially for F and C and D can be very good at scenarios with actor or a teacher because it is hard, even if your student is in the same semester, supposed to be on the same level I assume it is not always the case so I think it can be a bit problematic with peer-feedback but I think scenarios could be good in most of this cases even E, to train and advocating because we neet do learn to advocate for the profession and patients. And it can, it takes some more practice because we don't get practice in that."

[WP3-3 Focus group 1; Position: 73-73]

5. Ideal SBL assessment

5.1 SBL needs to feel real

1.

"so it felt really weird to play with a patient that was not real and I knew this isn't real but have a teacher to look at you and do, what are you doing? And I am used to teaching the new guys how to do things, so it felt very weird to have a teacher who is going to assess me."

[WP3-3 Focus group 1; Position: 18-18]

2.

"I then it felt very weird to get assessed, yeah."

[WP3-3 Focus group 1; Position: 18-18]

3.

"I have been working in a related field but different for seventeen years and coming into the sort of simulated learning that we did I guess I had expectations of my abilities to do things but then it's a different framework and it's different ways of doing things to how I did it in my other job. So yeah, I went into it with expectations of my abilities and then I doing it with most of what I have done is being role play with other students, so it felt a bit strange, sort of practicing being an OT with the other OT students"

[WP3-3 Focus group 1; Position: 20-20]

4.

"when the instructor switch over to the standardised patients I think the benefit was that it is just much more realistic, right. Because student partners, you know, they know what, I mean maybe not on purpose, but you know if somebody knows okay, I am supposed to this physically they end helping each other, so it is just a much more realistic assessment of somebody who does is not an OT, trained to be an OT, so they have no idea, so I feel like if it's for the hands-on clinical skills, it's a more valide assessment of actual practical skills."

[WP3-3 Focus group 1; Position: 35-35]

5.

"I think it can be hard with certain diagnosis and syndromes because you, sure, you can have someone play that they don't, they have hemiparesis, can't move, but it's a bit different, when you actually meet that patient, I am taking stroke for example, because I have been working with a lot of stroke elderly patients, and it is not the same, it's not. Even if it's very close, it's not really the same, because if something goes wrong, my simulated patient can move up their arm, but my real patient, I can break the arm, I can do harm, so I think it is very hard, you have to think about that. Can I make mistakes with the simulated patient? Mistakes I can't do if it's in real life. So it can be hard to do certain scenarios and certain patients, because you can't act all the way, so everyone is different. So you can't train on every single person, because everyone is different. So it can be hard to do certain diagnosis and problems, I think."

[WP3-3 Focus group 1; Position: 45-45]

6.

"So, it is hard for some people to suspend the disbelief and actually engage with it as a real situation. Yeah, I think that is the challenge of SBL."

[WP3-3 Focus group 1; Position: 47-47]

7.

"Yeah, I would concur what was said about just the standardised patients and they are, you know, they are not real patients, they are definitely limitations in terms of what, how you can do, what the perception of how realistic it is, right."

[WP3-3 Focus group 1; Position: 49-49]

8.

"I think there is also a range of skills in how well the actor can portrait the different roles. I find how the student's SPs, the actor perfom, it has a big impact actually on the quality of the learning experiences. I am so thankful when I get an actor that is spot on. I think another difficulty is just, I think for me it is gotten better over the years, I think I have learned some ways to navigate this,"

[WP3-3 Focus group 1; Position: 49-49]

5.2 Student

(mental) Preparation of students

1.

"I think more preparation in form of videos we can watch over and over again how you supposed to do and act because that can really help to get both, not having it wrong. This is wron, don't do it like this. More like that kind of preparation. Because some scenarios are going to be hard I think and it can be very good for many people to see how to not do it, not only to how to do it but no how to not do it. I think it can be a very good way to make more simulations like we look at videos not how to do it and then you have to try it for yourself, I think that can be very good way to do it. Even better than we do it at our university, more like before not how to do it because it is very easy to do it wrong if you only know how to do it."

[WP3-3 Focus group 1; Position: 86-86]

2.

"I think the growth mindset being part of it I think just everybody being okay with like, this is. You know, I try to tell this my students, they don't always buy it right. The reason we are doing this is because you are not perfect yet, nobody, nobody's perfect, we are never going to be perfect, but it's for the learning process, so kind of celebrate the things that you are identified. Okay, yeah, I could have done that better, so I think it is just. Because from what I understand, we do the simulations that we practice so we can do better with the actual clients, so I think really putting that growth, growth mindset kind of in the center and framing it in that way."

[WP3-3 Focus group 1; Position: 93-93]

3.

"I think ideally it would be in I guess more realistic setting, we do have an appartment, a simulated appartment and I mean, the area, where we did the mental health simulation, there were sort of clinic rooms with big glass windows where the class could watch from the other side. I guess, in an ideal world with limitless money and space, you'd have a separat simulation space, a simulation clinic I guess, we could go and do the simulations."

[WP3-3 Focus group 1; Position: 105-105]

4.

"The other thing I thought as just resources that we use and is helpful. Our rooms are set up so we could record the encounter so as part of our debrief, and for the students to their self-assessment, they have access to that. So that is, like you ideally you have the resource and you could have, if you want to record, you can, if you don't want to, you don't do it. That would be a nice resource if it's possible."

[WP3-3 Focus group 1; Position: 106-106]

Safe environment to learn

1.

"I think for those students that not confident yet, to be in front of patients, I think it provides a really safe environment for them to learn, make all the mistake"

[WP3-3 Focus group 2; Position: 45-45]

2.

"Also the possibility to practice cases that not so often happens, so you can for instance in a way, it is not often that you meet violent people or dangerous situations, but if it happens, it will be very good to practice in front, just to prepared."

[WP3-3 Focus group 2; Position: 46-46]

3.

"We also use challenging situation for the simulation but, also see it like really safe learning environment. But I experience is that it is really challenging for the students to accept like such an offer. The offer to train, to try something new and."

[WP3-3 Focus group 2; Position: 47-47]

4.

"We started using simulation just like simulation open center opened at our side and we were like, oh, what is this? And it really how we started using it is. When the student were on the clinical rotations they were telling us like, we were going to ICU and we know nothing about it, it was very stressful so we really just started, oh let's just like, we just set the room up as an ICU and just let them see how it looks like, like that was all the objective but we were quiet surprised, and it was very cool to see all the staff how you know realistic they can make."

[WP3-3 Focus group 1; Position: 16-16]

5.

"but on the other hand it also felt like a sort of safe place to be able to try these things out and it doesn't matter, so I think I felt positive about being or try the new techniques and new ideas and new strategies on people it is not going to affect their lives, so I am not seeking help from me they are just there to learn as well as I am, and then in the simulated placement, yeah it felt a bit strange being part of this made up health center and it felt like it was hard to connect with the I guess professional experience because we were just at uni and we were in usual classroms but we were there to be health professionals I guess, so it was a bit hard to connect with the professional side of it I guess, it just kind of felt like we were in class doing a role play.."

[WP3-3 Focus group 1; Position: 20-20]

6.

"I think it is really good because many people that don't come out of the health care don't know how to talk with patients, don't know how to do and this is a good way to train because it is better to fail now when you don't have a real patient than to fail with a patient that needs your help. So I think it is a very good way to do it and we should do it more, because it is the best way to learn according to me to just try it with your own hands. Try, try and fail because you learn by those mistakes and I think this is really good for the outcome."

[WP3-3 Focus group 1; Position: 30-30]

7.

"I would echo that I think it is really valuable way to learn. I think it is great to be able to try out the things that we are talking about in a place where it doesn't matter, it's not, if you are not affecting anybody, you are just learning"

[WP3-3 Focus group 1; Position: 31-31]

8.

"And it's a comfortable place to make mistakes and you got your teachers there to say: "Actually, no, that is not the way you do it" or "that's okay, but maybe think about this". I think it is a really valuable way to learn."

[WP3-3 Focus group 1; Position: 31-31]

9.

"It is such a practical profession, you are out there, working with people, doing manual handling and all those sorts of things, so I think, it is just, it makes so much sense to be able to assess those skills in a simulated way before we go out into the big wild world."

[WP3-3 Focus group 1; Position: 36-36]

10.

"It was really nice to get I know you don't get it when you are working, you never know what the patient thinks when you are working, you can get a "oh, you are so nice!" but that's about it. So it was really nice to get feedback."

[WP3-3 Focus group 1; Position: 39-39]

Active learning environment

1.

"I really enjoy the simulation based learning because it is active learning. They are actively participating, so I find it that it's engaging, there are mentally and emotionally engaged. From what we learn about how the brain works, that's when things stick, you remember because you had this active experience, you had the emotion attached to it."

[WP3-3 Focus group 1; Position: 33-33]

2.

"in written or oral exams you can just read, read, read and you forget it quickly after, because you are just focusing on this, but when you do it practically, you have to get it all in, because otherwise you, it is not going to work, you are not going to forget it in the same way when you are doing it. It is easier to forget when we have had test, written tests, those things you forget more easily."

[WP3-3 Focus group 1; Position: 41-41]

3.

"I think it's very important that you can get to scenarios where you can't do it right, you have to do wrong, because you learn so much about this discussing and reflecting, "What did I do wrong? How I am going to do better?" so I think ideally would be, there are programs where you are going to try to get as perfect scores as possible but some way you are not going to get perfect, you are not supposed to get perfect, you are suppose to fail, so you can discuss "why did I fail? How do I fail and how could I do better next time?". Because you learn so much about when you fail and how you can do better. And in some cases in real life you will fail with patients, you can't do always the right and it's good to learn how to handle that fail. So you don't, when you go out in the professional feel very bad, because I just failed, I failed. To help the simulation to get even training how do I fail? How is it okay to fail? I think that would be important to incorporate that failures are okay and how to handle it, so you don't get breaking down."

[WP3-3 Focus group 1; Position: 99-99]

Learn to cope and adapt

1.

"So I think it's definitely an advantage because you are creating a second environment for them to learn. Because all the theory says that when students are in unfamiliar situation, and if they are not able to overcome

their anxiety and the stress, they don't learn effectively. So, you know I think simulation from that perspective is really positive."

[WP3-3 Focus group 2; Position: 45-45]

2.

"your peers are learning from the mistakes you make and you are learning from the mistakes your peers make."

[WP3-3 Focus group 1; Position: 31-31]

3.

"I think also it is a good way to assess professional behaviour because it is, at least in Australia, it is not I mean, you got your clinical supervisor at your hospital or where you are doing placement, but your lecturer don't see what you are doing there so they can't sort of assess you on that sort of those skills in that situation."

[WP3-3 Focus group 1; Position: 67-67]

No adding of student's assessments by SBL

1.

". What we found is that if we are writing a new program, and you are using simulation, is to make sure that you are not creating additional assessments for the students, because that is also stressful."

[WP3-3 Focus group 2; Position: 81-81]

2.

"This assessment, this exercise is not on top, it's more imbedded in the curriculum. Yeah, I agree."

[WP3-3 Focus group 2; Position: 82-82]

Different levels of SBL

1.

"So, depends on what level of simulation they are doing, if it is just skills that doesn't count towards practice hours but if it is a full simulation with a case scenario, they are doing something, and we debrief them, then that counts towards practice hours. So it is very specific what they have to do."

[WP3-3 Focus group 2; Position: 19-19]

2.

"It depends I think it also depends on what's the goal of the simulation because we have, for instance, they have to practice [transfering] patients, and in first grade, when we do it in first class, they have to practice, and also have a video presentation of what they learned and how they do it, and that will be assessed by the teachers, if it's a proof or not. So then, it is a video presentation of the, that's the assessment."

[WP3-3 Focus group 2; Position: 23-23]

3.

"But they also have this group work with students later in second year, they have, the students play roles and the students are the leaders of the group and they have a group session and after, so they have to plan the session, and after the session ready, they have finished, they have to write a report from what's happened and what they did, that is the exam."

[WP3-3 Focus group 2; Position: 23-23]

4.

"Yeah, what's the goal with the simulation, and then, we had different sometimes do assessments and sometimes it is more reflection kind of, it depends on the goal what we are using and what is supposed to be used, what's the goal of the use, yeah."

[WP3-3 Focus group 2; Position: 23-23]

5.

"Ahm, well. The assessment part, I mean, it's been really different between the years. Because in the first year we would simulate like strange situations that could happen, in [location] we have like field work, like all years, but field work one and two for preparation for the next field work in pedatrics, not identified mental health. So in simulations in field work 1 and 2 were more based in feedback that the students, we have to teach us about how we felt and in the situations and what we did, and what in the moment we would have done better to get in touch with this situation and afterwards like in fourth year, with this paedagogical methods, there was like a rubrique with, we had to fill in the methodology, the planning, the justification for the .....method of leadership that we had to follow in the session."

[WP3-3 Focus group 2; Position: 28-28]

6.

"So for example, basic skills, if I want to test the student to make sure that they know how to goniometry or if they want to do muscle-strengthening, they can take a video of themselves doing it with a friend and you want to see wether the techniques is correct, wether they are getting to right answer, they can upload that video that is quick assessment, and it is a video-based assessment. But if you want to observe the communication skills in an interview, etc. they could video that or you could do a peer observation for that. But if you want to, like you mentioned the whole OT process, watch them do an assessment, develop a treatment plan, do the, actually imbed the treatment plan, that might be the practice skills competences that we have. So depending on the level of information you want, there would be an assessment for each one. Does that makes sense?"

[WP3-3 Focus group 2; Position: 64-64]

Debriefing

1.

"think in an ideal world the assessments or at least the feedback from the assessments would be given on an individual basis. They sit down with you with your educator and they go through and say, you did great here but this is what you need to work on and how you could work on it, I think yeah. Ideall that would be amazing and really valuable to hear from individually from your assessors."

[WP3-3 Focus group 1; Position: 87-87]

2.

"But I think also in a more achievable sense, feedbacks in sort of overall assessment information I guess, in sort of looking at assessments of the class and feeding back to everyone, so this is what lots of people did well, and this is what lots of, there were sort of tripped up a lot of people and this is how we can face that problem and you can learn from it and improve in the future."

[WP3-3 Focus group 1; Position: 87-87]

5.3 Institution

Flexible use in curricula

1.

"Because you have six assessments in one modul, so, to see how much it fits in your current modul and your current delivery, there is lots to think of. I don't think you can just develop one."

[WP3-3 Focus group 2; Position: 81-81]

Self driven learning activities

1.

"Yes, yes. And I think, you mentioned it earlier, that would be also a nice opportunity to give options that the students can use good labs or simulation by themselves. I think it could be a good opportunitey. Later with the lectures for example."

[WP3-3 Focus group 2; Position: 53-53]

Lacking resources to create SBL scenarios

1.

"And actually preparing your teams, and preparing [disturbance from outside] the simulation. I think initally it takes a lot of work but once it's set, and the process is there, I am hoping it gets easier, because we are in the process of building our bank of scenarios, but we have a professional body and for all our allied health professional. If there is a really good simulation, you can upload it to their site and anybody can use it, so you don't, all have to create a scenario for readings, for spinal cords, there might be some in the bank, that you can go just download and use. But it is really expensive as well when you are buying the equipment."

[WP3-3 Focus group 2; Position: 78-78]

2.

"Especiall with the VR glasses, oh my god, if I didn't have a person helped me, it would be terrible, because everything can go wrong, goes wrong if you don't have anyone helping you. It's very stressful, I agree, it would be very good to have a team that works for you with you quite often, then it is less and less stressful and you understand it more better and you are more into it and you like it. Because not every teacher likes this simulation based teaching, or VR glasses, or whatever, so."

[WP3-3 Focus group 2; Position: 102-102]

3.

"But I as a teacher was surprised how much work it was, they were like, oh we don't just do tours like come up with what is your learning objective? What is your scenario? You know, so it became this whole big, yeah, that was my inital, wow, it's this whole new world and it was very interesting but it was a lot of there was a lot of that went into it to create the learning experiences."

[WP3-3 Focus group 1; Position: 16-16]

4.

"I would say the preparation is extensive and it is still for every single one so I could talk about what I do with this in-team and we specifically prepare students because we now have a pretty standardised process. So it means for preparing, there is so much in terms of coordination right, reserving the space, I have had times where I had to change my course schedule and siller this because the simulation day you know like this semester I had to rework everything so it is just getting space, hiring the actors, training the actors, we work with our team to get all the props that they need, I did one this week where we needed to see clearly, so the camera, you know it feels like a productive, you know, like a production, so from that stand of point there is a

lot of we train our actors, I have started making videos to show the SPs before they come so they have some visuals and show examples from past scenarios that we have done in a while, so there is a lot of that."

[WP3-3 Focus group 1; Position: 22-22]

Standardised SBL assessments

1.

", we need to think about using what we are doing and not being to standard, so that we are doing it all at the right level. Cause anything can count to simulation but to make sure that the students are getting the right skills at the end of it, you know, might be necessary, it is just a suggest, that it is all up to standards. Not to take away the creativity, though."

[WP3-3 Focus group 2; Position: 26-26]

2.

"So there is something more, there is a scenario which is a lot more complicated that you don't know how it is going to go, so you can use higher levels for that. So because one of the things that we have to do, anybody that wants to do simulation has to map it to the standards and has to map it to the process of simulation we finding that we can meet all of those domains, depending on the level of simulation we are doing."

[WP3-3 Focus group 2; Position: 62-62]

3.

"In addition to that I wonder if there's an opportunity to take international simulation standards and interpret for our profession, because would then aligning to what we want to assess and do not be a word-file exercise to do."

[WP3-3 Focus group 2; Position: 89-89]

4.

"where is others, it's just about the learning process, so I am trying to think if you have an assessment tool, could it be flexible enough or could you have maybe a couple of, it could be the same domains or areas but could be flexible, so that the educator can choose okay, this is a formative assessment, and this is a summative assessment. Because I think it feels very different, right."

[WP3-3 Focus group 1; Position: 97-97]

Focused on competencies

1.

"I liked what Person 2 was saying about having a flexible assessment, so maybe, it has all of the competencies on it, but each simulation has sort of focus-areas, so like you either achieved or didn't achieve certain things but then you have focus-areas you get more in depth feedback on it and how you can improve on that like where you went wrong and how you can improve. Because I think, that is to me that's what simulation based learning, it's seeing, it's putting the theory into practice and learning how you can be better to be the best health professional you can."

[WP3-3 Focus group 1; Position: 101-101]

Clear objectives

1.

"Yeah, I think what the assessment, I mean it needs to be customized for each case but I think having the expectations or intented learning outcomes, very clear outfront and then using that into guide the subsequent

assessment both by everybody involved, you know, peers, faculty, basically if everybody's speaking to "Oh, these are the objectives, these are the outcomes we are looking for, what did they do with respect to that?"'

[WP3-3 Focus group 1; Position: 84-84]

Provide resources to create/ implement SBL

1.

"We went through that scenario, and we have to do a business case to show how if we use a simulation team to do exactly that, it would safe money using several lectures. So we now have two two senior lecturers and three technication that run all of our simulation."

[WP3-3 Focus group 2; Position: 72-72]

2.

"So what we then had to do is we applied for some funding and we bought some really expensive cameras and so when simulation is happening, you might have a group of students here, but you have eighty others in another rooms that are watching the simulation and then they swap."

[WP3-3 Focus group 2; Position: 74-74]

3.

"So when we are considering space and time, you mentioned. Sometimes it takes a lot of time, a lot of staff, we already heard. So what would be ideal for implementation including the space and staff requirements?

Person 1: A simulation team.

Moderator: What is it? Can you explain it for me further?

Person 1: So you have your lead for simulation, so you are an occupational therapist who understands what the scenario is, etc. You need your technicians who can lay out the whole scenario for you so they prepare the room, they prepare the cameras, they do all the audios, they do all of that. They bring the not identified if it stored somewhere else. And of course, they might be other lectures that are helping you to do the debriefing if it's a very big class, so."

[WP3-3 Focus group 2; Position: 96-99]

4.

"I think we have quite good at the university, we have something called "clinicum", it's lot of different rooms like health (not audible) with several patient beds and stuff. It's not only us, it's nurses too. And we have a special appartment for us occupational therapists, I think you could vary them more because we have three different rooms and you could get more, because you don't do, many room are small, it's just one patient. But otherwise I think actually, my unversity is very good in the setting for it because it's at the university that feels you are in a health care facility. So for a setting I think this is very good, but you could do it a bit more like now people can wander through and that's a big problem because you can get distracted, so maybe a bit more excluded, so it's easier to feel real."

[WP3-3 Focus group 1; Position: 103-103]

5.

"I think this flexible space is definitely or broader space,you know, you could make it look more realistic. What Person 3 said about having an (dealing) room for observers to watch while the, I mean for us we just because we can engange more learners as part of you know just, observers learn from the simulation as well."

[WP3-3 Focus group 1; Position: 106-106]

6.

"I think our school is pretty lucky, because we have the whole center. It means far as resources are accessible, we have like a person just a schedulor for all the spaces, we have somebody that recruites the actor, there is a

tech person who runs like all of the technology and then we have a simulation educator that works with me and you know, there are a lot of resources"

[WP3-3 Focus group 1; Position: 108-108]

7.

"First another big scenario, we do this one scenario where we have, like we have 42 students in our cohort. So it's like a day where all 42 of them have to transfer patient out of bed. So that takes like I have to get volunteers, I can't do it all, so getting volunteer faculty to come in and yeah, just I think the human resources, it's. I think it's helpful to have from the teacher's perspective, people who are willing to step in, because it's a lot."

[WP3-3 Focus group 1; Position: 108-108]

Create sustainable learning material/ opportunities

1.

"And actually preparing your teams, and preparing [disturbance from outside] the simulation. I think initally it takes a lot of work but once it's set, and the process is there, I am hoping it gets easier, because we are in the process of building our bank of scenarios, but we have a professional body and for all our allied health professional. If there is a really good simulation, you can upload it to their site and anybody can use it, so you don't, all have to create a scenario for readings, for spinal cords, there might be some in the bank, that you can go just download and use."

[WP3-3 Focus group 2; Position: 78-78]

Lacking time resources

1.

"We also use our patients to do assessments, and it is really to see from their perspectives.

Moderator: That sounds really nice!

Person 3: And it is easy to process. But we haven't been talking about that, it takes quite a lot of ressources. So because, in our university it is more talk about less money, we have to do everything with less ressources, that is a big issue, especially in simulation because that we are not that big classes. So it's, I heard the nurses who run 200 students and I think it is quite difficult with SBL and we around 40 students and it's easier. But still, it takes quite a long time to make, to go through all the simulation, especially if it's not identified it's quite large, preparing, taking the simulation and the debriefing. It takes quite a lot of time, you can't be that many students at the same time. So, it's quite"

[WP3-3 Focus group 2; Position: 69-71]

2.

"And then they get really good at it, also. But still it takes time, though."

[WP3-3 Focus group 2; Position: 73-73]

3.

"I think that is the way to do it, they are talking about that for all the students can do the simulation, but maybe more have to just watch it

Person 1: and then they have to rotate

Person 3: And yeah, in all three or four years, so the students are doing all the simulation and that might be a solution I think because I think it is quite time-consuming."

[WP3-3 Focus group 2; Position: 75-77]

4.

"It takes a lot of time because we need to talk with the students, so they can understand why they implement this methodology for assessment."

[WP3-3 Focus group 2; Position: 86-86]

5.

"And then the last thing I think from just like, let's take an example as a teacher, like it's there's limited time and ressources. This semester, I am teaching a class where we are doing seminars, but not simulation, but not everybody has got the chance to be an active learner and I know, I want to turn, but we just don't have time to you know, because it is just much faster if I just get everybody a test and everybody takes it, and we are done."

[WP3-3 Focus group 1; Position: 49-49]

Suitable equipment (IT requirements/ connectivity)

1.

"But also one of the things which you have mentioned which I am going back to, is the IT. You don't realise how many times you buy equipment and it is not compatible with your universities stuff. So that is really important, you need to make sure that is correct, and that you have the right support, because if you trying to make it link with other systems, and you are wasting your money, you wasting your time. So we learned that lesson."

[WP3-3 Focus group 2; Position: 103-103]

2.

"And it has to link with internet sometimes, how do you that? The technical issue is quite important, if it doesn't work you don't want to try again because then your classes is ruined and you. I think that is very important."

[WP3-3 Focus group 2; Position: 105-105]

Supported by IT/ SBLteam

1.

"Especially also this technical part, it's quite.

Person 1: You need your IT on board, yes."

[WP3-3 Focus group 2; Position: 100-101]

Co-funded by the European Union

SIMULATION-BASED LEARNING IN OCCUPATIONAL THERAPY EDUCATION (SIMBA)

Development of the SimOT Compass

WP3 Activity 4 Report

AP UNIVERSITY OF APPLIED SCIENCES AND ARTS ANTWERP
ZDRAVSTVENO VELEUČILIŠTE MCMLXVI
FH JOANNEUM University of Applied Sciences
MEDIPOL ISTANBUL MEDIPOL UNIVERSITY
TURKU AMK TURKU UNIVERSITY OF APPLIED SCIENCES

This publication is a collaborative product of the SIMBA partnership.

LEAD AUTHORS

Katrin Pechstädt, FH JOANNEUM GmbH, Graz, Austria
Brigitte Loder-Fink, FH JOANNEUM GmbH, Graz, Austria
Greet Schrauwen, AP University College, Antwerpen, Belgium
Annick Van Gils, AP University College, Antwerpen, Belgium

COLLABORATING AUTHORS

Kuni Vergauwen, AP University College, Antwerpen, Belgium
Elisabeth Schwab, FH JOANNEUM GmbH, Graz, Austria
Julia Unger, FH JOANNEUM GmbH, Graz, Austria
Claire Sangster Jokić, University of Applied Health Sciences, Zagreb Croatia
Andreja Bartolac, University of Applied Health Sciences, Zagreb, Croatia
Ahmet Emir, Istanbul Medipol University, Istanbul, Türkiye
Anu Kuikkaniemi, Turun Ammattikorkeakoulu OY, Turku, Finland
Heli Arokki, Turun Ammattikorkeakoulu OY, Turku, Finland
Arina Ventela, Turun Ammattikorkeakoulu OY, Turku, Finland

Project website: https://simba.turkuamk.fi/

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Introduction

The ERASMUS+ funded project SIMBA ("Simulation-based learning and assessment in occupational therapy education") aims to build a bridge between higher education in occupational therapy and the challenges of practice through simulation-based learning (SBL). Within the SIMBA project, SBL is defined as an *"array of structured activities that represent actual or potential situations in education and practice. These activities allow participants to develop or enhance their knowledge, skills, and attitudes, or to analyse and respond to realistic situations in a simulated environment*" (Lioce & Society for Simulation in Healthcare, 2020). To achieve this goal, the first step was to create a framework for the competencies of novice practitioners in occupational therapy and to develop guidelines for the requirements of possible simulation-based learning in higher education for occupational therapy (work package 2). This involved conducting literature research and focus groups included OT students, practitioners and educators and persons with specific expertise in SBL in OT education. The results were then summarized in written reports and published in the SIMBA Framework of occupational therapy competencies for simulation-based learning (Bartolac et al., 2024) and SIMBA Guidelines for the implementation of simulation-based learning in OT (SimOT) in education (Magerat et al., 2024).

Work package 3 of the SIMBA project focuses primarily on the development of an assessment that can be used to measure learning progress in simulation-based learning in Occupational Therapy. To develop this assessment, later named "SimOT Compass", a systematic literature review was required to determine which assessments are currently used for SBL in physiotherapy, occupational therapy and speech and language therapy (WP3 - Activity 2; WP2-2). The results of this literature review and the findings from WP2-2 were subsequently used as the basis for 2 focus groups to explore the user experience of teachers and students with assessments currently used in simulation-based learning (WP3 – Activity 3; WP3-3)
Both will direct the development of the SimOT Compass as to describe in this report. Following the development, two important steps need to be taken:

- the development in different languages of the SBL assessment itself (WP3 A4)
- and determining reliability and validity of the SBL assessment (WP3 A5).

Method

FH JOANNEUM led the development of the SimOT Compass, collaborating with all SIMBA project partners. This Activity 4 of Work Package 3 (WP3) is built on the findings from previous activities conducted under WP3. The structure of this methods section follows the iterative development sequence illustrated in Figure 1, which guided all stages of refinement. Following a systematic literature review and focus group discussions, two existing assessments that met the assessment's requirements were presented at a live meeting of all partners in Zagreb in January 2024. These assessments formed the basis for the development of the SimOT Compass.

Based on this, a first version of the tool was developed. This version underwent several predefined feedback loops in an iterative process, as illustrated in Figure 1. Each feedback loop was followed by a revision process, which was then re-evaluated in subsequent loops. This ensured that the development of the SimOT Compass incorporated various user perspectives, including those of students and teachers, thereby facilitating the creation of a user-friendly assessment tool.

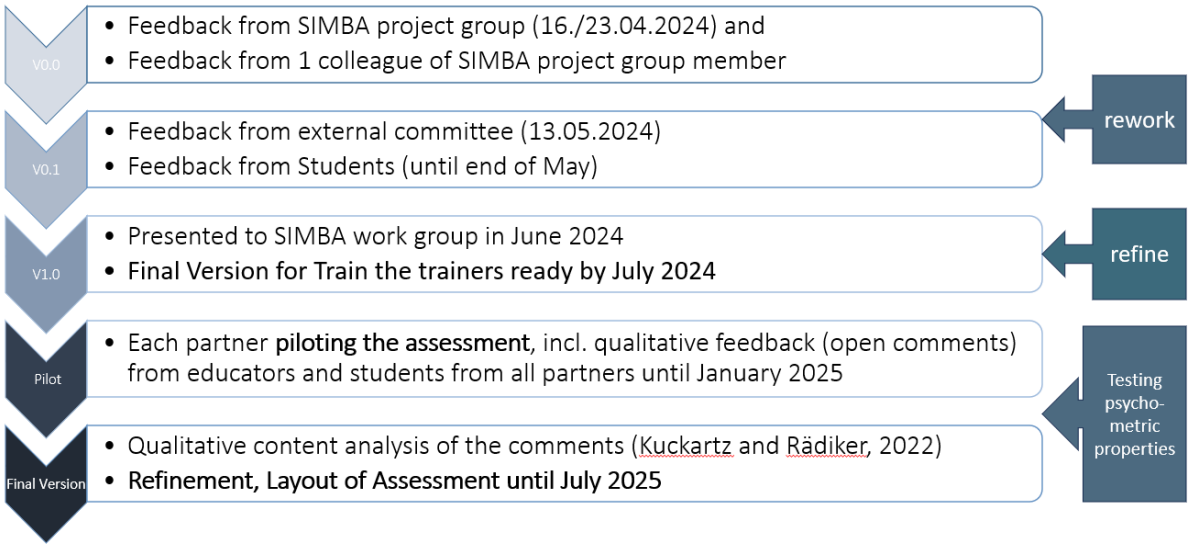

Figure 1 – The process of iterative development of the SimOT Compass.

V0.0 – Initial Development and First Feedback Loop (SIMBA group + colleague)
Based on the assessments presented in Zagreb, the first prototype (Version 0.0) was created, modelled on the Professionalism Physiotherapy Core Values Assessment (PPTCVA) and complemented with elements from the Framework of Competencies.
Initial feedback was gathered through a short online questionnaire distributed to SIMBA team members and an additional colleague from each partner university. Respondents found the prototype understandable but too long, and raised concerns about the suitability of the 5-point Likert scale.

V0.1 – External committee + student feedback
In response to this feedback, Version 0.1 was developed. This included identifiers for students and educators, alignment with the simulation flow, revised domains, and a clarified scale structure.
The updated version was presented to an external SIMBA committee in May 2024. The committee recommended shifting the purpose toward performance rating in specific scenarios, reversing the scoring scale, and adjusting timing and method of assessment (peer/educator ratings during SBL rather than self-assessment). Student feedback until the end of May stressed the need for simplification.

V1.0 – Presentation to SIMBA work group + refinement
Based on committee recommendations and subsequent discussions in the SIMBA work group (June 2024), substantial changes led to Version 1.0: introduction of a foundational safety-and-hygiene

category, adoption of a 4-point Likert scale, redesign into an A4 Excel sheet, and inclusion of a progress-tracking graph.
Version 1.0 for the Train-the-Trainers workshop was completed by July 2024.

Pilot Phase – Testing psychometric properties
During the pilot phase, the psychometric properties of the SimOT Compass were evaluated (see Report WP3 A5). An online survey was done to collect both quantitative data to assess validity and reliability, and open comments that provided insights into usability, design, and desired modifications of the pilot version. Initially, the comments from the open questions in the native languages were translated into English using DeepL (DeepL SE, 2024). The translated comments were analysed and then categorised using MaxQDA Analytics Pro (VERBI Software, 2018) using a deductive- inductive qualitative content analysis (Kuckartz & Rädiker, 2022), forming the basis for the development of the final version of the SimOT Compass.

Final Version – Qualitative analysis and refinement
A total of 87 open comments were analysed, forming the basis for final adjustments. These categories were discussed within the WP3 team and translated into a final list of requirements between February and May 2025.
The final version was completed by the end of July 2025 and presented to the project team. A translation strategy was then established for the finalised document, which was presented in English. Parallel to the translation of the SimOT Compass template, a manual for using the SimOT Compass was developed. This was finalized by September 2025. It was discussed within the WP3 team. Following comments and discussions at a live SIMBA project team meeting in September 2025, the manual was finalised in English and translated into the languages of all partner universities by November 2025.

Results

The initial prototype, labelled **Version 0.0**, was developed based on the Professionalism Physiotherapy Core Values Assessment (PPTCVA), in agreement with the SIMBA project team. The PPTCVA is a self-assessment tool for physical therapists that aims to evaluate professionalism by measuring development in the core values of physical therapy. These values include accountability, altruism, compassion/caring, excellence, integrity, professional duty and social responsibility. This tool plays a crucial role in gauging the level of professionalism within physical therapy practices, and has proven effective in tracking the development of professional skills, particularly following clinical education. The SIMBA project team agreed that an assessment tool used in SB in Occupational Therapy (OT) should be modelled on the PPTCVA, but should also incorporate elements from the 'Framework of Competencies'. While the original 5-point rating scale from the PPTCVA was retained, the main categories of the assessment were modified to align with the domains and subdomains specified in the Framework of Competencies.

To collect comprehensive feedback, a brief online questionnaire was distributed to SIMBA team members and at least one additional colleague from each partner university who was not directly involved in the SIMBA project. This approach was intended to gather insights from an 'outsider' perspective. The feedback received indicated that, although the assessment was generally easy to understand, it was considered too long and overwhelming. Respondents suggested that the assessment should be simplified to make it easier to complete and to make it more user-friendly in a range of scenarios. Concerns were also raised about the suitability of the 5-point Likert scale, with recommendations for different descriptors, as frequency might not be an effective indicator of proficiency.

In response to this initial feedback, the research team revised the assessment tool to create **Version V0.1**. This included integrating identifiers for students and educators and realigning the assessment with the stages of the simulation flow. This enabled the assessment to rate students during the preparatory

phase as well as during the SBL scenario itself. The domains were extensively revised to provide a comprehensive version, and an overall rating combining these domains was delegated to be implemented in the debriefing phase rather than the assessment form itself. It is important to note that this overall rating cannot part of the formal assessment due to variations in grading practices among partner universities. The scaling system was adjusted to include one "fail" score, with all other scores indicating different levels of "pass", and this was clarified further with the addition of percentage values.

The updated **Version V0.1** was presented to an external SIMBA project committee, which provided specific feedback. The committee suggested changing the purpose of the assessment from tracking students' learning progress to rating their performance in specific scenarios. This change aims to enable comparable tracking of growth across different scenarios. The committee also recommended reversing the scoring scale so that a score of 5 indicates the best performance. The committee also suggested adjusting the timing and method of the assessment's application, proposing that ratings be provided by peers or educators during the SBL experience and subsequent debriefing. This contrasts with the literature, which suggested self-assessment both before and after the SBL experience. This adaptation aims to provide more immediate and contextually relevant feedback.

Following thorough discussions with the SIMBA project team, several significant changes were agreed upon to improve the assessment tool and create **Version V1.0**. A new general category focused on safety and hygiene was introduced, establishing a foundational criterion for further ratings. It was decided that if this foundational category is not passed, no other competencies should be rated, emphasising the importance of basic safety and hygiene in clinical settings. The assessment format was adjusted to a 4-point Likert scale to simplify the grading system. The hygiene category was specifically designated as the fifth score, equating to a non-passing grade if not adequately met. The remaining scores range from 1 to 4, with 4 representing the highest level of performance.

Furthermore, the assessment format was revised to an A4 Excel spreadsheet focusing solely on the SBL scenario, to better assess performance during these specific clinical simulations. This adjustment to the format aims to streamline the assessment process and make it more manageable for both students and educators. Additionally, a graph was introduced to track students’ progress in SBL throughout a three-year study programme, providing a visual representation of their development and areas needing improvement.

The resulting **pilot version** was examined for its psychometric properties. Qualitative comments were forwarded to the development team and subsequently analyzed in a qualitative review. In total there were 87 responses as open comments in a primarily quantitative orientated online questionnaire, which aims to collect data for the measuring of the psychometric properties of the SimOT Compass. The qualitative content analysis revealed 4 mayor categories which will presented in detail below:

Feedback on Scenario Design and SimOT Scenario (n=20): This feedback has been crucial for Work Package 4 (WP4), which focuses on the enhancement of these elements. The insights gathered have been forwarded to WP4 in April 2025 for further action and integration into the ongoing development processes.

General Feedback on Assessment (n=27): Out of the 27 respondents, 16 responses were negative, highlighting issues primarily related to the layout and the operational questions of the tool. Users expressed concerns about the tool not being perceived as meaningful, noting that the debriefing phase held more significance. However, there were also 7 positive responses that appreciated certain aspects of the assessment, though specifics were not detailed in the feedback.

Suggestions for Improvement(n=26):

- Description of Domains: 4 respondents suggested enhancing the clarity and detail of the domain descriptions
- Space per Domain: 5 respondents recommended increasing the space allocated for each domain to allow for more comprehensive feedback
- Format of Assessment: 5 respondents advocated for a change from the existing Excel and landscape format, suggesting that a different format might enhance usability
- Language and Spelling: Issues with language and spelling were noted by 4 respondents, indicating a need for thorough proofreading and localization.
- Prefillment of Assessment: 6 respondents suggested that prefilling certain parts of the assessment could streamline the process.
- Simplification: 2 respondents felt that the assessment tool could be simplified to enhance user-friendliness.

Requirement for a Manual (n=10): In summary, respondents highlighted, that a manual would ideally provide comprehensive guidance on how to effectively use the SimOT Compass, addressing many of the usage-related concerns highlighted in the feedback.

Based on all the feedback and discussions, the **final version** of the SimOT Compass was created with A4 landscape formatting, aligned with the SIMBA house style. It featured expanded space for each domain and full domain headings to enhance clarity. The placement of scenario descriptions and framework references at the beginning of the document was adjusted to improve orientation. An additional comment page offering structured notetaking linked to specific domains was also integrated. To support consistent and meaningful application of the assessment, the final version included a concise educator manual, as well as attachments such as a peer-assessment sheet and a progress-tracking graph. A one-page summary for educators was also added to provide quick references and guidelines. In terms of content: there were just small changes. for Example: If a student does not pass the 'Safety and hygiene" category. They will receive feedback on each domain and the whole performance is rated as a whole as 'Not passed'. This was agreed upon to give the students a deeper insight why and where they failed and what was good to encourage further competency development despite the negative scoring.

This comprehensive form aims to enhance its effectiveness and applicability in assessing and tracking student performance in simulation-based learning scenarios within the SIMBA project framework. It was also agreed that the final version is now suitable for standalone use or in line with the SIMBA scenarios.

Discussion

The iterative development of the SimOT Compass demonstrates the complexity of translating competency frameworks into assessment tools that are both educationally meaningful and usable in real simulation contexts. One of the most significant challenges encountered was balancing comprehensiveness with usability. While early prototypes ensured that a broad spectrum of competencies was captured, they were perceived as too complex and difficult to implement within the time and cognitive constraints of simulation environments. This tension reflects a widely recognized challenge across health professions education: assessments risk becoming either excessively burdensome or insufficiently informative if not precisely aligned to the learning context.

The re-structuring toward a simplified four-point scale and the introduction of a mandatory safety-and-hygiene threshold represent an important conceptual clarification. Safety, professionalism, and basics of communication are widely understood as non-negotiable competencies in clinical settings; thus, positioning safety as a gatekeeping domain aligns the assessment with authentic expectations of clinical

practice. This also positions the SimOT Compass as an instrument that supports the transition toward clinical readiness, fulfilling the broader goal of bridging higher education and real-world practice.

Another key insight gained through the development process concerns the role of debriefing and reflective dialogue in SBL. Feedback from pilot participants repeatedly emphasized that debriefing is perceived as more meaningful than scoring itself. This underscores that the value of the assessment lies not only in summative judgment but in structuring learning conversations. The addition of free-comment spaces, peer-assessment options, and educator guidance was therefore essential to embedding the tool within reflective learning cycles. Rather than replacing reflection, the SimOT Compass is positioned to scaffold it.

The pilot testing phase also highlighted variability in user familiarity with assessment tools and with simulation pedagogy more broadly. The request for a concise manual indicates that introducing a new assessment tool requires explicit instruction and shared conceptual grounding. This aligns with the broader SIMBA program structure in which Work Package 4 develops the educator manual for simulation implementation; therefore, the interdependency between WP3 and WP4 is both logical and necessary.

Finally, the iterative nature of the development process itself—characterized by cycles of drafting, trialing, feedback, and refinement—reflects best practices in educational design. The SimOT Compass was shaped not only by theoretical frameworks but also by the lived experiences and professional judgment of students and educators. This co-constructed development enhances the tool's ecological validity and increases the likelihood of adoption and consistent use across international educational contexts.

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Annexes

Annex 1

Figure 2: Version 0.0. PPTCVA adapted with SIMBA Framework and Guidelines

Figure 3: Version 0.1 scenario flow – rating scale

Figure 4: Version 0.1 performance by domain

Figure 5: Version 1.0 (pilot version)

Figure 6: Version 1.0 (pilot version) – scenario graph

Figure 7: Version 1.0 (pilot version) – debriefing

Figure 8: Version 1.0 (pilot version) – performance by domain

Annex 2

SimOT Compass - final version

Annex 1

PPTCVA adapted with SIMBA Framework and Guidelines

* for each indicator, check which best represents the frequency with which you demonstrate the behaviour:
1= never, **2**= rarely, **3**= occationally, **4**=frequently, **5**= always

Domain	Definition	Subdomai	Definition Subdomain	quotient in this (Sub-) Domain	Feedback for this (sub) Domain
Domain A	Knowledge and attitudes supporting occupational therapy competence	A1	Occupational therapists possess knowledge **about occupation and humans as occupational beings**		
		A2	Occupational therapists possess knowledge **about occupational therapy:**		
		A3-1	*Occupational therapists possess knowledge **about research and development** in occupational therapy and occupational science:*		
		A3-2	*Occupational therapists possess **skills to advance knowledge through research** and development in occupational therapy and science.*		
		A4	*Occupational therapists possess **attitudes** about [person, environment and occupation and the healthsystem and working actors in the system]*		
		A5	*Occupational therapists possess **general medical and professional knowledge***		
Domain B	Managing and conducting the occupational therapy process	B1	*Occupational therapists demonstrate **competencies in professional reasoning** during the occupational therapy process.*		
		B2-1	*Occupational therapists **assess occupational participation in all areas of human occupation** (e.g. personal care, daily living, work/study/school, play, leisure and rest).*		
		B2-2	*Occupational therapists **jointly set goals and intervention plans with the client***		
		B2-3	*Occupational therapists demonstrate **competencies for implementing, monitoring, evaluating, adjusting, and concluding occupational therapy intervention***		
		B3	*Occupational therapists demonstrate competencies in **conducting ethical and safe practice***		
		B4	*Occupational therapists demonstrate competencies in **conducting culturally sensitive practice***		
Domain C	Developing and maintaining professional relationships and partnerships	C1	*Occupational therapists demonstrate competencies in **engaging in effective professional communication***		
		C2-1	*Occupational therapists establish and maintain **relationships and partnerships with clients***		
		C2-2	*Occupational therapists establish and maintain **relationships and partnerships with colleagues***		
		C2-3	***stakeholders***		
Domain D	Professional autonomy and continuous professional development	D1	*Occupational therapists demonstrate competencies in **professional autonomy and accountability***		
		D2	*Occupational therapists demonstrate competencies in the **management of oneself and one's practice, service, and workplace***		
		D3	*Occupational therapists demonstrate competencies in **continuous professional development (CPD)***		
Domain E	Promoting and advocating for the advancement of the profession and social change	E1	*Occupational therapists demonstrate competencies in **promoting the profession of occupational therapy***		
		E2	*Occupational therapists demonstrate competencies in **providing training, mentorship, and education to others***		
		E3	*Occupational therapists demonstrate competencies in advancing and advocating for social change through occupation and inclusive practices*		
Domain F	General professional skills and competencies	F1	*Occupational therapists demonstrate general professional competencies important for fulfilling responsibilities*		
			Occupational therapists demonstrate competencies for understanding and working within the local and national		

Figure 2 Version 0.0 PPTCVA adapted with SIMBA Framework and Guidelines

SIMBA- Assessment

used during SBL scenario by educator/peer

* for each indicator, check which best represents the performance of the student:
1= excellent(>91%), 2= very good(90-81%), 3= good (80-71%), 4= satisfactory(70-66%), 5= unsatisfactory (<65%)
more explicit description in assessment, in the manual and train the trainer course (what does the score really mean?)
Finland if just pass/fail- 80% needed to pass usually

Name of student:		Date of SBL:	
Name of evaluator:			

SBL Flow	Domain	Definition	specific, observable behaviour related to the Domain	quotient in this (Sub-) Domain	Feedback for this (sub) Domain
01 Preparatory Phase	Domain A	Knowledge and attitudes supporting occupational therapy competence			
01 Preparatory Phase	Domain B	Managing and conducting the occupational therapy process			
01 Preparatory Phase	Domain C	Developing and maintaining professional relationships and partnerships			
01 Preparatory Phase	Domain D	Professional autonomy and continuous professional development			
01 Preparatory Phase	Domain E	Promoting and advocating for the advancement of the profession and social change			
01 Preparatory Phase	Domain F	General professional skills and competencies			
03 SBL Scenario	Domain A	Knowledge and attitudes supporting occupational therapy competence			
03 SBL Scenario	Domain B	Managing and conducting the occupational therapy process			
03 SBL Scenario	Domain C	Developing and maintaining professional relationships and partnerships			
03 SBL Scenario	Domain D	Professional autonomy and continuous professional development			
03 SBL Scenario	Domain E	Promoting and advocating for the advancement of the profession and social change			
03 SBL Scenario	Domain F	General professional skills and competencies			

please choose
1
2
3
4
5
not applicable

Figure 3 Version 0.1 scenario flow - rating scale

SIMBA- Assessment

used during debriefing by peer/ educator/ student

1= excellent(>91%), 2= very good(90-81%), 3= good (80-71%), 4= satisfactory(70-66%), 5= unsatisfactory (<65%)
more explicit description in assessment, in the manual and train the trainer course (what does the score really mean?)
Finland if just pass/fail- 80% needed to pass usually

Name of student:			Date of SBL:
Name of evaluator:			

Domain	Definition	quotient in this (Sub-) Domain	Feedback for further development of the competences of each domain
Domain A	Knowledge and attitudes supporting occupational therapy competence		
Domain B	Managing and conducting the occupational therapy process		
Domain C	Developing and maintaining professional relationships and partnerships		
Domain D	Professional autonomy and continuous professional development		
Domain E	Promoting and advocating for the advancement of the profession and social change		
Domain F	General professional skills and competencies		

Figure 4 Version 0.1 performance by domain

SIMBA- Assessment - SBL Scenario

used during SBL scenario by educator/peer

* for each indicator, check which best represents the performance of the student:
4= excellent performance, 3= good performance, 2= sufficient performance, 1= not yet sufficient performance

Date of SBL:	
Name of student:	
Name of evaluator:	

Definition	Specific, observable behaviour related to the Domain according to the scenario (including learning outcomes; please prefill)	Given?	Feedback for this (sub) Domain
Meeting the physical, psychological and emotional safety needs of the client and maintaining appropriate standards of hygiene.			

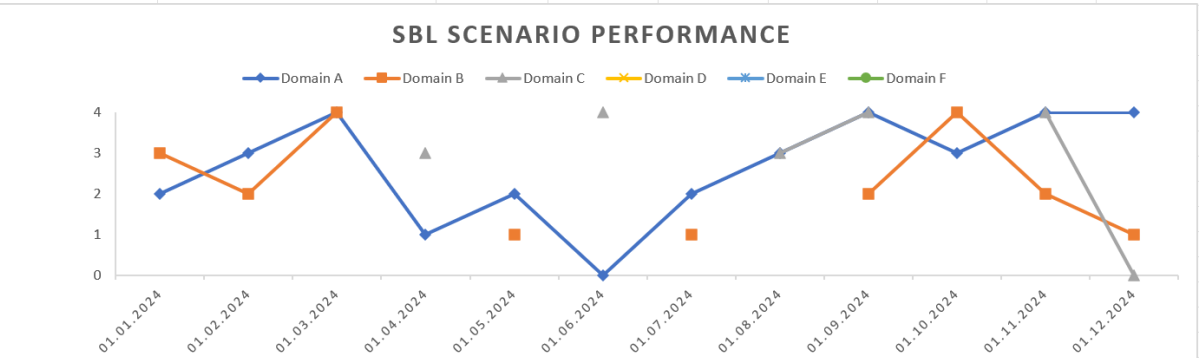
Domains of Comeptence (Framework)	specific, observable behaviour related to the Domain according to the scenario (including learning outcomes; please prefill)	rating*	Feedback for this (sub) Domain
Domain A			
Domain B			
Domain C			
Domain D			
Domain E			
Domain F			

Figure 5 Version 1.0 (pilot version)

SIMBA- Assessment - Overview

students performance over the course of their study

name of student:	0
date:	0



	01.01.2024	02.02.2024	03.03.2024	04.04.2024	05.05.2024	06.06.2024	07.07.2024	08.08.2024	09.09.2024	10.10.2024	11.11.2024	12.12.2024
Domain A	2	3	4	1	2	0	2	3	4	3	4	4
Domain B	3	2	4		1		1		2	4	2	1
Domain C				3		4		3	4		4	0
Domain D												
Domain E												
Domain F												

Figure 6 Version 1.0 (pilot version) - scenario graph

SIMBA- Assessment

used during SBL scenario by educator/peer

* for each indicator, check which best represents the performance of the student:
4= excellent performance, 3= good performance, 2= sufficient performance, 1= not yet sufficient performance

Name of student:		**Date of SBL:**	
Name of evaluator:			

SBL Flow	Domains of Competence according to	Definition	specific, observable behaviour related to the Domain according to the scenario (including learning outcomes; please prefill)	rating*	Feedback for this (sub) Domain
Debriefing	Domain A	Knowledge and attitudes supporting occupational therapy competence			
Debriefing	Domain B	Managing and conducting the occupational therapy process			
Debriefing	Domain C	Developing and maintaining professional relationships and partnerships			
Debriefing	Domain D	Professional autonomy and continuous professional development			
Debriefing	Domain E	Promoting and advocating for the advancement of the profession and social change			
Debriefing	Domain F	General professional skills and competencies			

Figure 7 Version 1.0 (pilot version) – debriefing

SIMBA- Assessment - Summary

used during debriefing by peer/ educator/ student

* for each indicator, check which best represents the performance of the student:

1= excellent performance, **2**= good performance, **3**= sufficient performance, **4**= not yet sufficient performance

more explicit description in assessment, in the manual and train the trainer course (what does the score really mean?)

Name of student:		**Date of SBL:**	
Name of evaluator:			

Domain	Definition	quotient in this (Sub-) Domain	Feedback for further development of the competences of each domain
GENERAL	Safe practice in regards to sanitary and health for the client	0	
Domain A	Knowledge and attitudes supporting occupational therapy competence	0	
Domain B	Managing and conducting the occupational therapy process	0	
Domain C	Developing and maintaining professional relationships and partnerships	0	
Domain D	Professional autonomy and continuous professional development	0	
Domain E	Promoting and advocating for the advancement of the profession and social change	0	
Domain F	General professional skills and competencies	0	

Figure 8 Version 1.0 (pilot version) - performance by domain

Annex 2

SimOT Compass - final version

Date of SBL:			
Name of student:			
Name of evaluator:			
1. Information about the scenario			
2. Safety needs of the participant and hygiene			
Definition	Specific, observable behaviour related according to the scenario (please prefill according to "scenario flow" in template)	Given?	Feedback for meeting
Meeting the physical, psychological and emotional safety needs of the client and maintaining appropriate standards of hygiene.		☐ YES ☐ NO	
3. Performance during the Simulation			

*For each indicator, check which best represents the performance of the student:
4= excellent performance, **3**= good performance, **2**= sufficient performance, **1**= not yet sufficient performance

Domains of Competence *(SIMBA-book-final.pdf, p.18 ff)*	Specific, observable behaviour related to the domain according to the scenario (including learning outcomes; please prefill)	Rating*	Feedback for this domain
Domain A: Knowledge and attitudes supporting occupational therapy competence - knowledge and attitudes possessed by the novice occupational therapy practitioner that support competent practice			
Domain B: Managing and conducting the occupational therapy process - general and specific competencies of the novice occupational therapy practitioner for organizing and conducting the occupational therapy process			
Domain C: Developing and maintaining professional relationships and partnerships - establishing and maintaining relationships with clients, colleagues and other partners involved in the OT process			

3. Performance during the Simulation

*For each indicator, check which best represents the performance of the student:
4= excellent performance, **3**= good performance, **2**= sufficient performance, **1**= not yet sufficient performance

Domains of Competence *(SIMBA-book-final.pdf, p.18 ff)*	Specific, observable behaviour related to the domain according to the scenario (including learning outcomes; please prefill)	Rating*	Feedback for this domain
Domain D: Professional autonomy and continuous professional development - competencies possessed by occupational therapists as autonomous and accountable professionals			
Domain E: Promoting and advocating for the advancement of the profession and social change - competencies for engaging in activities related to promoting and advancing the profession and advocating for greater social change			
Domain F: General professional skills and competencies - general professional skills and competencies considered essential for effective occupational therapy practice			
Room for notes during scenario			

Observations during the scenario	Connected Domain/Topic