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D11

Validation Framework

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Document Description:	This document details the validation framework for the four Urban Living Labs (ULLs) planned under PS-U-GO. It includes criteria, indicators, and procedures for measuring the progress, activities, learning outcomes, research results, and overall impact of the ULLs. The main purpose of the validation process is to assess to what extent the learning outcomes have been met. The assessment procedures outlined in this document will be implemented and coordinated by BTU, a project partner responsible for WP4 'Validation of Learning Outcomes.' All partners are required to adhere to and apply the validation framework throughout the development and implementation of their ULLs. They are asked to integrate assessment procedures consistently and provide ongoing reports on the performance of their ULLs.

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1.0	31.07.2024	*Bram Dewolfs, Christine Mandy, Christina Panayi, Emilia Pardi, Stefania Ragozino, Tomislav Augustinčić*
2.0	13.09.2024	*Nadia Charalambous*

EXECUTIVE SUMMARY

Recognition and validation of learning outcomes is a core element of PS-U-GO for all related learning activities and mobilities. This document outlines a validation framework designed to accompany the implementation of the four Urban Living Labs (ULLs) within PS-U-GO. Such a framework offers a structured approach to verify the accomplishments of ULL processes and learning outcomes, facilitate knowledge transfer, and enable continuous learning in an iterative process, thereby enhancing the efficacy, impact, and scalability of urban innovations.

The present document provides the guidelines for setting the learning outcomes of the project's activities and validation matrices for the whole programme and its elements. It is a 'working document' updated at regular intervals whenever a new activity is organised and the related matrix completed and embedded within this document. While the validation of learning outcomes takes place at the end of each activity and the achievement of outcomes is monitored, the full validation of the whole programme and evaluation of its process is to be completed by the end of the project. Subsequently, the present document will be updated, approved and disseminated publicly.

Each ULL is inherently open and flexible, with objectives and outcomes that must be negotiated and agreed upon by the core group and participants. Therefore, the proposed validation framework emphasizes self-reflection and descriptive analysis over quantifiable metrics, aiming to deliver a thick description of the ULLs' evolution. It defines the project's learning outcomes and links them to learning activities for assessment using John Biggs' constructive alignment (Biggs and Tang 2011). It delineates criteria, indicators, and procedures to ensure that the learning outcomes are consistent across activities with similar characteristics, simple to understand, and verifiable in the field. Given ULLs' inherent flexibility and open-ended nature, the framework prioritizes qualitative assessment, advocating for iterative processes of learning, action, and reflection, where participants critically assess their experiences and outcomes throughout the project (feedback loops). Consequently, it is not feasible to apply a universal quantifiable system of validation. Instead, the validation framework should offer a clear matrix of criteria and indicators that can be adapted to different contexts and contents.

The framework ensures that the learning objectives are met for the specific participating group while supporting the scaling-up of innovations and continuous improvement of educational practices. Additionally, it provides criteria for courses at higher education institutions to facilitate the integration of ULLs into academic curricula, thereby fostering ULLs as a robust and adaptive learning environment.

Two main strategies for evaluation are employed, self-assessment and review. These strategies work in tandem to ensure that ULLs can effectively adapt, scale, and sustain their initiatives. Self-assessment is primarily for ULL core team (and participants) to critically reflect on their activities to periodically review and reassess their progress (part of iterative feedback loops). The review provides external validation and accountability from an external perspective (event-based, series of events, or impermanent participation connected to particular project or peer review).

1. INTRODUCTION

Defining Validation Framework

The validation framework forms the basis for WP4 'Validation of Learning Outcomes', establishing a cross-disciplinary foundation for verifying the learning outcomes, including situated learning, as well as participatory activities embedded in ULLs. This is an important aspect of formalizing the learning process based on participatory methodologies within the institutional framework of the participating higher education institutions (UCY and BTU). The primary goal of such a framework is the assessment of the quality and effectiveness of students' engagement in ULLs and their demonstration of knowledge acquisition throughout the open-end learning process. This document describes the criteria and procedures for validating the educational impact, progress, and learning outcomes of the ULLs, with a particular focus on situated learning. Due to an open-end nature of the learning process, a particular emphasis is put on a comprehensive documentation and detailed feedback at all stages, with the reflection on the achievement of partially self-defined learning goals being one of key dimensions of ULLs.

BTU leads the validation of learning outcomes, and all partners are asked to implement the validation framework throughout the development and execution of their ULLs. Validation of the learning outcomes includes self-assessment in each of the four ULLs and formal validation procedures in the two HEIs, based on the criteria and methodology outlined in this document. Partners are asked to integrate assessment procedures consistently, implement validation methods according to this framework's methodology, and provide ongoing performance reports as part of qualitative research and reflection on the learning process.

This validation framework is built upon Activity 2.1. "Project's ULLs methodologies" and D5 "Project's ULLs methodologies", which outlines procedures for achieving specific goals with adaptable methods and tools for various contexts in the four cities' ULLs. It is complemented by Activity 2.2 "Development of the pedagogical framework" and D6 "Situated learning in ULLs", which details an educational framework for situated learning in ULLs, and specifies expected learning outcomes, skills, competencies, knowledge, values, attitudes, and transferable soft skills for participating youth.

Learning activities at the four ULLs will be validated to assess the effectiveness of innovative learning methods and environments in achieving the project's educational goals. The goal of this validation framework is to establish the transferability and replicability of the learning experience, particularly focusing on developing

participatory skills in architecture and planning education. It concerns three key aspects:

- Defining the learning outcomes and linking them to specific learning activities;
- Specifying criteria for transparent and effective validation of ULL's learning outcomes (self-assessment);
- Establishing formal assessment criteria and assessment methods for validating learning outcomes of the training courses (either part of or integrated in ULLs) at the participating higher education institutions (UCY and BTU)

Given that ULLs are exploratory learning processes characterized by flexible methodologies and non-linear goals, with objectives and outcomes that must be negotiated and agreed upon by the core group and participants, it is impractical to assess them using solely quantifiable or quantitative indicators (Evans and Karvonen 2014). ULLs focus on fostering self-organization, collective learning, and embedded action, and their primary outcomes lie in the learning process itself, which is prioritized over tangible outputs (Marvin et al. 2018). To address this complexity, this validation framework advocates for a descriptive analytical approach grounded in self-reflection, integral to the iterative process of implementing ULLs (Evans and Karvonen 2014). This approach involves continuous cycles of learning, action and reflection, where participants and researchers critically assess their experiences and learning outcomes throughout the project. Participants are generally informed about the meaning of ULLs at the outset, take an active role in collectively setting the learning objectives, and are encouraged to define their own expectations and goals (cf. Scholl and Kemp 2016).

This participatory approach ensures that the diverse perspectives and aspirations of all participants are considered, making the learning process more inclusive and responsive to different lived realities. Validation of learning outcomes within this framework forms the core element of the feedback loop, thus prioritizing the quality of documentation and reflection over the degree of achievement. This validation captures the nuanced ways in which learning and innovation occur, highlighting both individual and collective successes and challenges alike. Moreover, the descriptive analytical approach allows for the identification and understanding of opportunity gaps, offering insights into areas where resources, support, or strategies may need adjustment (Steen and van Bueren 2017). This reflective practice not only enhances the immediate learning outcomes but also contributes to the transferability and scaling-up of knowledge gained from ULLs.

Focusing on the educational aspect of ULLs and their formal integration into the curricula at UCY and BTU, this validation framework utilizes John Biggs and Catherine Tang's (2011) constructive alignment along with Bloom's taxonomy (1956) to define a matrix of adaptable criteria and indicators (that could be) tailored to various contexts and contents. This approach ensures that appropriate learning activities, assessment methods, and criteria reflect the program's context, level, and scope, while also incorporating criteria related to ULLs' learning outcomes. The framework connects

these outcomes to specific learning activities for effective assessment, promoting both deep and surface learning where applicable.

Purpose and Scope

The validation framework serves a dual purpose. First, it plays a critical role in the iterative feedback loop within each ULL, ensuring their continuity. As participants frequently rotate and even core groups may not be permanent, it is essential to pass on knowledge from one group to another. This presents a challenge for ULL leaders, who must integrate both new and rotating members. Effective documentation and validation of processes are crucial for facilitating this knowledge transfer and seamlessly integrating new members, including potential future leaders, into the ULLs. Second, the framework serves as a validation system that empowers students to take on leadership roles. It enables them to establish their own ULLs and collaboratively set and negotiate their learning objectives. This aspect is crucial for encouraging students to remain engaged with "their" ULLs beyond the formal course requirements. It also ensures that academic standards are upheld and critically reflected upon, making the experience valuable even after the formal outputs have been completed.

Considering these core functions, the validation framework is designed to achieve the following key aims:

- To assess and validate the learning outcomes of the two training courses (ULLs) in each participating Higher Education Institution (HEI)—UCY and BTU—based on the developed framework.
- To reflect on and systematise a cross-disciplinary foundation for the proposed situated learning framework within all ULLs.
- To formalise the learning process into a structured method for practicing participatory skills.

Conceptually, the validation framework is structured as a matrix of adaptable criteria and indicators that can be applied across different contexts and content areas. It provides a flexible system that allows various target groups to participate in ULLs, attributing ECTS credits for individual learning components or combinations thereof, in accordance with the institutional regulations of the participating HEIs. This approach enables learners both within and beyond the core ULL groups to complete learning tasks that align with their individual needs, following the EU guidelines for the validation of formal, non-formal, and informal learning. When ECTS accreditation is not possible, PS-U-GO will provide participants with certificates of completion of the activities – the validation matrix detailing the learning outcomes, competences, learning environment and workload will be provided to participants upon request.

2. FOUNDATIONS OF THE VALIDATION FRAMEWORK FOR ULLS

Institutional Context

Validation processes ensure that formal educational outcomes are recognized through accredited certification mechanisms. The primary objective of the validation framework in this project is to empower individuals with relevant expertise, skills, and social competencies, even if these do not meet conventional requirements. Additionally, it provides the opportunity for course exemptions or the customization of educational curricula to meet individual needs, as the main prerequisite for formalizing the open-end nature of ULLs.

The assessment of learning outcomes and skills has been an area of scholarly focus for several decades. Research has traditionally relied on advancements in educational psychology and sociology to understand educational outcomes. However, recent trends have seen the integration of economic approaches and sophisticated statistical models (UNESCO 2024: 5). The study of learning outcomes and skills is essential for making informed educational decisions, such as optimizing educational budget allocations, identifying effective teaching strategies within specific contexts, and evaluating the role of schooling in promoting equitable quality education and lifelong learning opportunities (ibid.). The specific objectives and scope of measurement necessitate tailored methods for data collection and analysis (ibid.).

Since 2004, the European Union has actively promoted a focus on learning outcomes within its policy framework for education, training, and employment, as illustrated by the European Qualification Frameworks [EQF] (EC 2018). The EQF enhances the transparency and comparability of qualifications across member states, allowing educational authorities and providers to determine the level and content of learning that individuals have acquired. For individuals, the EQF serves as a crucial indicator of personal achievement (CEDEFOP n.d.).

The adoption of a learning outcomes-based approach significantly improves the clarity and comparability of qualifications, both nationally and internationally. This approach aligns educational and training provisions with labor market demands, thereby facilitating the recognition of learning acquired in various settings. Within the EQF context, knowledge encompasses a body of facts, principles, theories, and practices relevant to a particular field, categorized as either theoretical or factual. Skills refer to the ability to apply knowledge and know-how to complete tasks and solve problems, classified as cognitive (involving logical, intuitive, and creative thinking) or practical (involving manual skills and the use of methods, materials, tools, and instruments).

Competences are defined as the demonstrated ability to integrate knowledge, skills, and personal, social, and methodological capacities in various contexts, including professional and personal development (Erasmus+/ BRACKET 2021).

Aims and Guidelines for setting the Validation Framework in ULLs

With the epistemology of relational space having become a universal point of reference in urban planning and design, a growing number of researchers, practitioners, institutional actors, activists as well as community groups has picked up on the challenge to develop approaches "that would be both sensitive to different realities and capable of building bridges between them" (Saukko 2003: 35). Urban Living Labs (ULLs) have been developed as locations of encounter and collaboration, where where stakeholder groups of quadruple helix join forces in an iterative process of the production of transdisciplinary knowledge to address needs and aspirations of increasingly diverse societies (Doucet and Janssens 2011). Uniting perspectives from academic and non-academic knowledge, theory, and practice, across disciplines and positions, ULLs involve researchers (academics, researchers, educators, professionals, or practitioners) and participants (social groups, communities, or individuals) in a concerted situated effort to jointly detect, articulate, discuss, negotiate, and address plural challenges in urban space. The normative goal of such collaborative work is to facilitate positive interactions across social and cultural boundaries, enable a multifaceted perception of reality close to everyday life, and empower participants who are concerned about or affected by an urban issue to "explore, examine, experiment, test and evaluate new ideas, scenarios, processes, systems, concepts and creative solutions in complex and everyday contexts" (JPI Urban Europe 2015: 59).

Due to their inherently time-limited funding and other constrained resources, ULLs frequently face a dilemma: balancing short-term objectives with long-term aspirations for meaningful urban transformation (von Wirth et al. 2019). This often results in challenges sustaining lasting impacts. Prioritizing the learning dimension can address these issues by fostering environments that prioritize continuous knowledge exchange and adaptation, thereby promoting more sustainable urban innovation and development. The prevailing agreement is that for ULLs to drive lasting transformative change, it is essential to consolidate, expand, and strategically process their results, with a strong emphasis on enhancing learning dimensions (Bulkeley et al. 2019; Evans and Karvonen 2014). This is why ULLs put learning as the central purpose and mechanism of engaging in dense materialities and imaginaries of urban space. Through the collaborative learning process, urban realities are reshaped not only in memory and perception but also in concrete action (Viderman, 2015). Central to this process are the links and ways in which results are transferred between the relatively transient structures of ULLs and permanent institutions (van Winden and van den Buuse 2017). These connections enable the incorporation of learning outcomes into

long-term urban planning and policy frameworks, ensuring that insights and innovations from ULLs become ingrained within these structures.

As situated learning processes ULLs are inherently open-ended in terms of outcomes. They revolve around developing approaches within a specific place together with the concerned groups and individuals, considering specific context-bound circumstances and relations. The goal is to establish a locally grounded collective practice and sustain similar future activities (cf. van Geenhuizen 2018). ULLs encourage the critical and conscious application of various methods from different disciplines, recognizing that these methods significantly influence perceptions of space. For instance, mapping as a visual tool can provide a comprehensive understanding of spatial phenomena but may also be misused to emphasize spatial fragmentation and segregation. The challenge lies in exploring, developing, and employing methods that foster action and interaction, harnessing the full range of potentials of the participating subjects. This iterative process of problem definition and problem-solving aims to shape a shared experience (cf. van Geenhuizen, 2018; Viderman, 2015).

A validation framework for ULLs is essential for systematically evaluating the actual effectiveness of ULLs, in particular as regards the assessment of learning outcomes. Seeing how PS-U-GO puts focus on youth with the goal of nurturing new forms of exchange beyond academia, ULLs are intended to function as experiential learning environments where youth, both as co-organizers and participants, are empowered to apply and expand their knowledge close to the city's everyday life. By activating a growing network of local stakeholders and developing low-threshold participatory activities, the participating youth and other urban dwellers alike engage in collective learning, sharing knowledge, collaboration, and experimentation to various urban themes. Participating youth thus learn about access to decision-making pertaining to their living environments. They gain insights into how decisions are made, who the key stakeholders are, and the factors that influence urban policies and developments. This experience allows them to understand their position as citizens and/or professionals and encourages them to assume a proactive role in shaping their urban environments.

Moreover, by engaging in participatory activities within ULLs, youth not only cultivate skills to advocate for their ideas and concerns, but also develop nuanced and differentiated views of the lived experiences of others (cf. Kesby et al. 2007, Viderman 2015). Owing to such an educational experience, youth will learn how to engage meaningfully in urban affairs by reflecting on their own discursive and material practices in fostering the social change. In this context the validation framework carries a strong pedagogical and ethical significance. It provides a structured pedagogical approach, part of the iterative process of ULLs, designed to rigorously evaluate the process, asses the outcomes, facilitate knowledge transfer, and enables continuous learning, thus enhancing the efficacy, impact, and scalability of urban innovations (cf. Vervoort et al. 2022). The validation framework thus ensures that the learning objectives are met for the specific participating group, while supporting the scaling-up of inventions and continuous improvement of educational practices.

Defining characteristics of ULLs

Conceptual framework and detailed overview of defining characteristics of ULLs are provided in D5 "Project's ULLs Methodologies", Section 2 "Conceptual Framework". This table, drawing largely on Voytenko et al. (2016)* and expanded by van Geenhuizen (2018)** and Vervoort et al. (2022)***, outlines the defining features of ULLs that are considered for the validation framework, assuring that the development and implementation of ULLs can achieve the intended educational and societal impacts.

ULL features
Everyday life embeddedness*
ULLs are locally embedded forms of exchange beyond academia situated close to the city's everyday life. Learning and action at ULLs revolve around developing approaches at the particular place to the actual geographical context together with the concerned groups.
Experimentation and evaluation*
With the focus on spatial and (broader) social transformations, ULLs develop low-threshold participatory activities to engage in collective learning using improvisation and experimentation for problem-definition and problem-solving. Using a mix of research and experimental participatory methods, together with students educational space is created that is close to everyday urban life.
Participation*
Participation points to collaborative work in an inclusive participatory environment, which assumes a dynamic interaction between researchers and participants. People who are concerned about or affected by an urban issue are encouraged to take a leading role in producing and using knowledge about it. The involvement of all Quadruple Helix needs to be accounted for.
Action**
ULLs direct participants' interest towards the production of knowledge which can inform concrete action through situated learning and a participant-empowerment perspective. This approach addresses specific user needs, problem perceptions, satisfaction levels, and potential solutions, thus fostering trust and integration among all involved partners. ENoLL (2019) more specifically connects ULLs to mechanisms which enable external actors to use ULLs as a point of departure for interacting within broader innovation systems (orchestration).
Management and (shared) ownership*
Shared ownership in urban living labs (ULLs) enhances the capabilities and openness of all involved partners. This inclusive strategy ensures that the perspectives of all participants are integrated into both decision-making and management processes, fostering cross-sector relationships, collective responsibility, and mutual trust. A leadership role is implied in ULLs for

effective coordination and management. However, achieving a delicate balance between steering and controlling is essential for the ULL's success.
Strategy***
ULL establishes and adapts its vision, mission, and partner network to meet the needs of the quadruple helix stakeholders (academia, industry, government, civil society/ public), while ensuring financial sustainability, managing its operations, considering the necessary technical and social infrastructure, and time resources, and fostering trust and collaboration within and beyond its operational boundaries.
Iteration**
ULLs develop as iterative processes in which researchers and participants alike develop activities in Urban Living Labs (ULLs) evolve through iterative processes where researchers and participants collaboratively develop activities in cycles that dialectically integrate learning, action, and evaluation (reflection). Evaluation is crucial for better aligning ULLs and their methods with user needs. During this phase, participants negotiate the meanings of collected information, redefine issues or situations based on new insights and knowledge, and then proceed to a new cycle.
Harmonisation and scaling-up***
ULLs prioritize the development of locally embedded social practices. They use existing methodological knowledge while critically examining its applicability to specific contexts, questioning the universal adoption of research and planning tools. Harmonization in methodology is maintained through the consistent validation framework ensuring effective transfer and replication of learning experiences, while facilitating the scalability of ULLs.

3. VALIDATION FRAMEWORK GUIDELINES

Elements of the validation framework

Validation activities are crucial in the overall evaluation of the project, laying the groundwork for future exploitation and replication of the project's methodology, tools, and techniques for both current and future professionals at the local and European level. Skill demonstration will be assessed through self-reporting by the students and formal academic validation of learning outcomes. If offered as part of the curriculum, there should be a clear description of outputs, as defined by the ECTS framework, to maximize the mobility of participating students.

The validation framework employs two main strategies:

- self-assessment: is primarily for ULL core team (and participants) to critically reflect on their activities, to periodically review and reassess their progress (part of iterative feedback loops);
- review: is primarily for participants on an event basis, series of events, or impermanent participation connected to particular project or peer review, to provide validation and accountability from a more transient perspective, also involving the representatives of TG PSUC.

For the effective validation of learning outcomes at ULLs within PS-U-GO, the validation framework consists of the following procedures:

1. Description of learning outcomes which are negotiated and defined upfront, including the agreement on the values, objectives and expected knowledge gains. This is to be defined by the core group at each ULL and supplemented by documentation of the implementation of ULLs at all stages, including the application of established methods, ethics rules, intellectual property guidelines, and engagement with all stakeholders (quadruple helix involvement);
2. Validation of each step of ULLs, including a descriptive format (such as protocol filling in what has been done in each step) to ensure that knowledge is effectively passed on to participants in the next stage. This is to validate that students (both ULL's core team and short-term participants) have achieved the intended learning outcomes and to confirm that the ULLs themselves have met their objectives. The focus here is on both content-related goals and the overall learning objectives, ensuring that all participants are on track to meet the defined outcomes. By reviewing individual (self-)assessments, a collective assessment helps confirm the strengths of current practices while also identifying opportunities for improvement. This process ensures that both successes and areas needing enhancement are recognized, allowing for targeted development;
3. Assessment of educational dimensions by participating students, assessing the formal aspects of courses, with the focus on development of soft skills and competencies, as well as the quality of new forms of exchange beyond the academic environment.

The validation framework is designed for two distinct learning formats, and therefore, two separate validation matrices are provided:

- *for training activities* (for participatory approaches to public space) - these will involve in-person training sessions in Brussels (Month 9) and Naples (Month 18), as well as online reflective experience exchanges, utilizing digital tools like Miro, Microsoft Teams, or Zoom. Targeted number of participants across all the training activities is 30 students across the 2 partner HEIs during the project, 20-30 students in the 2 out-of-academia partner's ULLs, and up to 300 students beyond the consortium's HEIs during and after the project through the exploitation activities and dissemination;

- *for the ULLs* (implemented in four cities: Cottbus, Naples, Nicosia, Palermo - Activity 3.2) - Each ULL will follow several phases: co-exploration of local issues, co-development of solutions, co-design and implementation, and co-evaluation of the outcomes, with the targeted participation of up to 40 stakeholders, including at least 10 in each ULL.

Finally, this framework underscores the importance of a participatory approach to validation. It highlights the need to align outcomes with goals that have been collectively negotiated and to continuously integrate user feedback throughout the design process. This approach assumes that the development of questions, analysis, and conclusions is collectively negotiated by the involved subjects.

General outcomes in the context of ULLs include gaining a deeper understanding of user preferences, enhancing the user quality of innovations, and accelerating the development and market introduction of new products. Additionally, a better grasp of the participatory processes and feedback mechanisms is often considered a key result of ULLs. Unintended outcomes may also occur, including the challenges to achieve desired results or the emergence of adverse effects. These can arise due to the unpredictable nature of influences and processes within the ULL, such as the erosion of trust, the creation of new boundaries and conflicts, or the termination of collaborations, which can lead to disruptions in relationships beyond the living lab. Such adverse effects are only sparsely documented in the literature (cf. Hakkarainen and Hyysalo, 2013).

Pedagogical aims of ULLs

The guidelines for the validation framework are informed by Biggs and Tang's work (2011), developed for learning outcomes for the entire project (ULLs) and for training activities. Each hosting organization is tasked with developing a validation matrix tailored to every activity, project mobility, or small-scale initiatives (learning, teaching, participatory events). The validation matrix for the overall program provides a comprehensive and cumulative assessment for students engaging with multiple components, alongside additional outcomes for skills cultivated through ongoing participation.

The PS-U-GO pedagogic model emphasizes learning as the individual's capacity to engage in community practices, and achieve the anticipated learning outcomes, adhering to the principle of 'constructive alignment' as proposed by Biggs and Tang (2011). This approach ensures that educational objectives, teaching methods, and assessment strategies are consistently aligned, promoting a cohesive and effective learning experience. The 'constructive alignment' approach translates into outcomes-based teaching and learning, where the students clearly understand the learning outcomes that they are meant to achieve (see Figure 1).

Biggs and Tang (2011) explore the complexities of student learning, highlighting that the approach students take is not predetermined but is shaped by teaching methods,

assessment tasks, and the learning environment. They identify two primary learning approaches: deep and surface. A deep approach is marked by a genuine understanding of the material, critical thinking, and the practical application of knowledge. Conversely, a surface approach is typically motivated by a desire to meet course requirements with minimal effort, often resulting in rote memorization without true comprehension. According to the concept of constructive alignment, learning outcomes should clearly define what students should be able to do and their expected level of understanding after a topic has been taught. This framework suggests that teaching and learning activities should be designed to align with these outcomes. At the same time these activities should encourage students to co-create knowledge alongside teachers and involved professionals.

As indicated in D6 “Education in Living Labs Framework”, through ULLs students acquire a comprehensive set of skills and knowledge essential for addressing urban challenges in a holistic and integrated manner. The ULL's pedagogic model is intricately tied to innovating learning and teaching by fostering knowledge exchange and skills development through hands-on engagement with urban spaces close to everyday life. It explores and develops transdisciplinary practices that span academia, governance structures, and urban publics, integrating insights from various disciplines to develop comprehensive solutions. As elaborated in D6, Section 3 “Pedagogical Framework for ULLs”, ULLs co-create urban knowledge through diverse modes of exchange by developing and applying practical problem-solving skills. Students learn facilitation, negotiation, and conflict resolution skills essential for effective engagement with diverse stakeholders, including community members, government officials, industry experts, and academic researchers. ULLs develop students' critical thinking and analysis by using data-driven approaches to assess urban challenges and make informed decisions. They emphasise communication and presentation, teaching students to clearly express complex ideas through various media and engage diverse audiences. Students gain insights into urban pedagogy, understanding education's role in sustainable urbanization. Additionally, they acquire participatory facilitation skills, learning to organize and lead collaborative processes like workshops, focus groups and community meetings for effective stakeholder engagement.

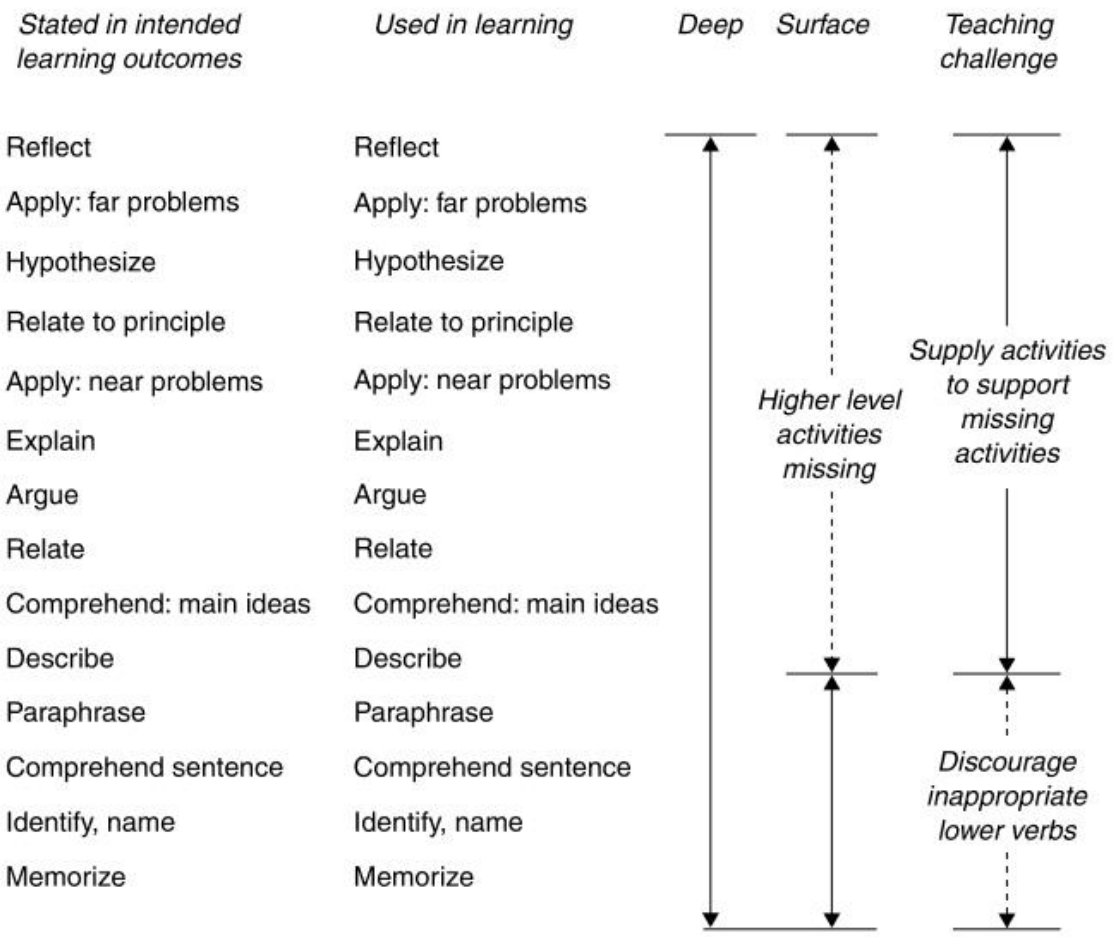

Figure 1. Desired and actual level of engagement approaches to learning and enhancing teaching, referring to cognitive level of learning activities (source: Biggs and Tang 2011: 29).

The same content of the first two columns highlights that the alignment between what students are intended to learn and the learning activities that help achieve those intended outcomes is essential for promoting deeper learning. The learning activities should directly mirror the cognitive processes required by the intended learning outcomes. By aligning intended outcomes with learning activities, educators create opportunities for students to actively use higher-level cognitive processes like reflection, hypothesis formulation, and problem-solving—fostering deep learning rather than surface learning. The teaching challenge column reflects potential misalignment, where lower-level activities (such as memorization) dominate, and higher-level cognitive tasks may be missing. The graphic reinforces the idea that teaching activities should closely match the intended learning outcomes, because when these two are aligned, students are more likely to engage in meaningful learning.

Transferability and Learning Mobilities

PS-U-GO will implement a flexible validation system for the ULLs, allowing for integration within existing academic courses in Nicosia and Cottbus. This will involve attributing ECTS credits for learning and/or issuing ad-hoc certifications according to

the institutional regulations of the hosting higher education institutions. This will also formally incorporate the ULLs' methods into the educational framework of situated learning. Such methods include defining the learning environment, learning outcomes and objectives, activities, assessment tasks, and deliverables. Assessment and formal validation processes will ensure that knowledge co-creation from other work packages is effectively applied in specific academic contexts. This approach will confirm the methodology's success in training students in the intended skills and competencies.

Transparency in the validation of higher education programs is governed by the European Credit Transfer and Accumulation System (ECTS). This system facilitates mobility during and after a study program across institutions, recognizing qualifications based on learning outcomes and workload. Applied within the Bologna Process, ECTS allows for flexibility in course planning and evaluation processes for both individuals and higher education institutions. The primary objective of ECTS is to accommodate various learning styles, typically accumulating 60 ECTS credits per full academic year (EC n.d.).

Based on this validation system, learning outcomes for ULLs can be applied flexibly, allowing for qualifications to be transferable and recognized by institutions adhering to the ECTS framework. It is crucial that these learning outcomes, expressed in ECTS credits, align with the host university's system. For instance, in Germany, 1 ECTS credit equates to 30 hours of workload, though this figure varies across European countries. If a student’s participation in ULL might aim to achieve 6 ECTS, this would require from the student to engage in approximately 180 hours of work. To ensure transparency, it is essential that learning outcomes are articulated clearly, cohesively, and effectively. The total workload per semester typically includes lecture attendance, preparation and review time, in-class activities, self-study, examination efforts, exam preparation, and the completion of academic papers.

The management and allocation of the designated workload hours across various components are at the discretion of the host institution. PS-U-GO specifies the goals and anticipated outcomes as follows:

1. A set of clear and comprehensible objectives, including anticipated results, a continual consideration of the learning environment, and an emphasis on deep approach to learning;
2. A list of the documentation required to ensure proper set-up of procedures for sending and receiving organisations’ staff and learners (training events);
3. Three forms of outcomes:
   - A tangible output, such as a toolkit, methodology, strategy document, installation, application, website, etc. (including documentation),
   - A participatory event to share knowledge and/or promote the output,
   - Soft skills and competencies, along with advanced participatory skills;
4. Consensus on the scope, forms, and degree of completion of the anticipated outcomes;

5. A methodology for obtaining feedback from the activities beyond the tasks included for the creation of outputs related to training events (students' diaries and/ or written reflection about experiences, including insights into how their expectations were met, what knowledge has been gained from the training events, and overall impressions).
6. The set-up of a monitoring team dedicated to ensuring the implementation of the quality measures set out in the quality assurance plan in relation to the training events and ULLs and the submission of all relevant documents;
7. Consistent application of the validation criteria for all the activities, detailing the system and requirements for ECTS accreditation to learners completing required activities and for validation through ad-hoc measures developed for the project.

Participation certificate will be awarded to those students who attend a significant part of the designated activity (at least 70%), and considerably contribute to the group work required to submit each activity's deliverable. Validation will take place through selected tutors' assessment based on the submitted deliverable (assessment activities) defined in the validation matrix (see section 4).

Quality requirements

Quality requirements should be followed to ensure learning's best practices and adequate learning mobilities in participants' selection.

Requirements for students' selection

Those quality requirements will be assessed for each candidate during the selection process following the enrolment criteria for the courses offered at the participating HEIs.

Requirements for lecturers' selection (which also applies for facilitators' selection in ULLs)

1. Knowledge in the discipline or subject matter (Understanding of urban topics, sustainability, and stakeholder dynamics - quadruple helix model)

2. Familiarity with participatory and non-formal education methods

3. Communication skills, in particular cultural awareness and sensitivity to diverse communication styles

4. Attitude (empathy, patience, and open-mindedness) and flexibility to adapt to changing group dynamics

5. Skills and experience with appropriate pedagogies and technologies

6. Engagement to improve teaching and learning

7. Professional interactions with students inside and outside the classroom

8. (for lecturers) Ability to examine student's performance

9. (for facilitators) Strong facilitation skills, including active listening and open-ended questioning, conflict resolution and mediation skills, clear communication and multilingual abilities (if possible)

10. (for facilitators) Organizational skills for time management and coordinating activities.

Requirements for learning environment's selection

1. Accessibility and Inclusivity: The environment should be accessible to all students, including those with disabilities, and cater to diverse learning needs.

2. Safety and Comfort: Ensuring the environment is safe, secure, and comfortable, with proper lighting, ventilation, and ergonomic considerations.

3. Supportive Atmosphere: A positive and supportive atmosphere that fosters engagement, collaboration, and respect among students and educators.

4. Cultural and Social Considerations: Sensitivity to the cultural and social backgrounds of students, creating an environment that respects and acknowledges diversity.

Methodology for obtaining feedback

The Project Coordinator, or the relevant Work Package Lead, will interact with participants to obtain feedback during and after the course of activities. This inquiry will go through either online platforms (questionnaires) or informal conversations, not easily quantifiable through evaluation, but that should facilitate informal student feedback.

Monitoring team

A monitoring team composed of partners involved in the project is responsible for ensuring the correct procedures of the training activities and activities related to the four ULLs, and the submission of all relevant documents:

Christine Mady, representative of TG PSUC
Matej Nikšič, representative of TG PSUC

A shared folder and a monitoring table will be created in SharePoint for the four ULLs and the three training events, to track the validation process, including all relevant steps and assessment methods. Each partner implementing an ULL, along with SFIUS for the training events, should fill out the table. BTU and the monitoring team can then review and check the progress on a three-monthly basis.

4. VALIDATION MATRIX

Validation Methods

Throughout the implementation of ULLs and training activities, the following indicators are used in the assessment procedures:

Quantitative Indicators:

- Level of Attendance at Course Activities: Measurement of student attendance and participation rates in training events and ULLs.
  - *Measurement*: Tracked manually through attendance sheets, digital attendance logs, or facilitator observation.
  - *Assessment Activity*: Facilitators will monitor and record student attendance during each session, ensuring accurate participation data across both online and in-person activities.
- Demonstration of Acquired or Enhanced Skills (Self-Reported).
  - *Measurement*: Measured using pre- and post-course self-assessment questionnaires, or diaries, or written reflections, or Likert scales (1-5), where students rate their own skill acquisition.
  - *Assessment Activity*: Participants complete self-assessment at different stages of the ULLs, or training events, which are then analyzed to determine perceived skill improvement. A target of at least 70% of participants should report skills as 'substantially achieved' or 'fully achieved' on a scale of 1-5.
- Formal Academic Validation of Learning Outcomes
  - *Measurement*: Evaluated through formal course assessments (e.g., exams, project submissions, or ULL portfolios).
  - *Assessment Activity*: The delivered materials will be assessed by external evaluators against predefined academic criteria, with a target of at least 95% of participants passing and receiving accreditation.

Qualitative Indicators:

- Level of Students' Participation and Engagement
  - *Measurement*: Observed through facilitator feedback, class observations, and peer evaluations.
  - *Assessment Activity*: Facilitators assess student engagement based on the quality and depth of their contributions to class discussions, group work, and involvement in participatory activities. Additional peer assessments may complement this data.
- Efficacy Findings from Self-Assessment and Formal Validation
  - *Measurement*: Combined analysis of self-assessment results and formal academic evaluations.
  - *Assessment Activity*: A detailed review of self-reported learning progress (questionnaires or reflective journals) and academic outcomes (e.g., grades, project performance) is conducted to measure the overall effectiveness of the course.
- Participants' Satisfaction and Perception of Course Effectiveness

    - *Measurement*: Collected through end-of-course surveys, interviews, or focus group discussions.
    - *Assessment Activity*: Post-course surveys and interviews will gather qualitative feedback from participants on their satisfaction and perceived value of the course in terms of skill development and learning outcomes.
- Increased Confidence in Applying Acquired Skills
    - *Measurement*: Assessed through facilitator/educator observation and student reports.
    - *Assessment Activity*: Facilitators observe and document students' confidence in applying skills during practical sessions, and public presentations or events, where students demonstrate their knowledge to peers or external stakeholders.
- Communication skills
    - *Measurement*: Evaluated through public presentations, pop-up installations, or other community events where students articulate their ideas and project outcomes.
    - *Assessment Activity*: Facilitators and external evaluators assess students' communication skills during public presentations or roundtable events, providing feedback on clarity, persuasiveness, and audience engagement.

Validation Matrix for the whole programme

ULLs complete process		
	Activity Type	Diverse and cumulative programme activities. Students following a set of activities will be accredited for the cumulative learning outcomes in duration of an academic term or academic year or longer. E.g. ULL core team, preparation and carrying out an event / series of events
Characterization	Title / Description	A combination of programme activities connected to design, organisation, implementation, management, governance, evaluation, and documentation of an ULL.
	Field of Study	Urban studies: students from the partner HEIs in the fields of architecture, urban studies, urban planning, sociology, social work, human geography, public administration, built environment and related fields.
	Main Focus	Experience in ULL operations (all), inclusion of different topics and subjects of participation in innovation system mechanisms (all),
	Level of Programme	Bachelor, Master, Postgraduate
	Learning Environment	Face-to-face (synchronous in physical presence) Online (synchronous in virtual presence; asynchronous individually)
	Learning Activities	Diverse and comprehensive blended-learning activities, involving participants from the quadruple helix.
Learning outcomes	Expected Learning Outcomes	Comprehend and explain operations, resources and infrastructures of transdisciplinary research and action, with the focus on ULLs, as detailed in concrete activities, through long-term learning experience, including roles and responsibilities of stakeholders, innovation processes and partnerships, access and availability of infrastructures, internal and external communication, impact and value creation. Depending on the stage/ period of involvement in ULLs the following are expected learning outcomes: – ‘Learning-by-design’ approaches – Advanced participatory skills – Performing transversal skills through continuous engagement – Applying technical competences of transdisciplinary research and action, across participatory environments – Methods of ethnographic and visual anthropology research – Documentation using various media (text, visuals and audio-visual methods) – Online and offline archive research for investigating the territory's history and future projections – Articulating matters of concern and formulating problematics/hypotheses – Communication formats - pop-up installations, roundtables, and workshops

	Generic Competences	Commitment to deep learning: follow and interact with the research project continuously on multiple platforms/components. The following transversal skills apply to different project activities: 1. Creative thinking 2. Problem-solving, strategic, and critical thinking skills 3. Collaborative actions including exchanging knowledge, improving mutual capabilities, and overcoming challenges 4. Teamwork 5. Co-evaluation - reflecting on the process, tools, and outputs used 6. Articulating and accepting constructive criticism 7. Work with feedback loops 8. Evaluation of data, information and digital content 9. Use of qualitative methods of inquiry 10. Addressing an audience 11. Demonstrating curiosity and adapting to change 12. Dealing with uncertainty 13. Coping with pressure 14. Financial skills.
	Subject-Specific Competences	As applicable in each activity.
Evaluation	Assessment Activities	Activities such as filling out self-assessment questionnaires or self-evaluation check-lists, writing reflective texts, group feedback sessions with facilitators and other participants and making revisions, preparing ULL portfolio, public event presentations, etc.
	Accreditation	Cumulative participation certificate, ECTS for students of the two participating HEIs

Validation Matrix for training activities

ULLs Intensive Training Events		
	Activity Type	3 days in person for the training events 1 and 2, online for the training event 3
Characterization	Title / Description	Participatory approaches for public spaces
	Field of Study	Urban studies: students from the partner HEIs in the fields of architecture, urban studies, urban planning, sociology, social work, human geography, public administration, built environment and related fields.
	Main Focus	(1) Theories, models, tools and practices pertaining to participatory and collaborative approaches for the regeneration of public spaces (Brussels - M9, Naples - M18)

		(2) Reflection on experiences from partic ipatory and collaborative approaches for public spaces – Online format of exchange among students
	Level of Programme	Bachelor, Master, Postgraduate
	Learning Environment	(1) Face-to-face (synchronous in physical presence) (2) Online (synchronous in virtual presence; asynchronous individually)
	Learning Activities	Lectures, Live tutorial, Group exercises, Practical exercises in research field or using digital platforms, Group research work, Testing research methods, exchange of experiences through a collaborative online platform
Learning outcomes	Expected Learning Outcomes	1. Identify Issues and Problematic Phenomena: Recognize and analyze relevant issues within the case study. 2. Reflect on Case Study Issues: Evaluate and consider the implications of identified issues in specific contexts. 3. Hypothesize Relationships: Formulate hypotheses about the relationship between design elements and their effects. 4. Apply Methods of Analysis: Utilize various analytical methods to study phenomena. 5. Relate Analysis to Theoretical Principles: Connect reflections and analyses to theoretical frameworks. 6. Explain Analytical Processes: Clearly articulate the methods and reasoning for analyses. 7. Argue the Validity of Findings: Present and defend the validity of research findings and conclusions. 8. Develop Critical Reflection: Engage in critical thinking based on acquired knowledge and insights. 9. Understand Innovation Management: Identify key characteristics of innovation management. 10. Understand Design Thinking: Comprehend design thinking processes for idea development. 11. Appreciate Entrepreneurial Problem-Solving: Recognize the types of problems that can lead to entrepreneurial solutions. 12. Insight into Documentation Methods: Acquire tools such as diagramming, video, storyboards, and data visualization for proposal development and documentation.
	Generic Competences	1. Collaborate with peers from diverse backgrounds and cultures 2. Organise work and produce outputs timely 3. Interact and actively intervene in the discussion 4. Interact with professionals
	Subject-Specific Competences	– Overview over participatory approaches to public space – Overview over ethnographic and visual methods of researching public space – Selecting and performing methods to deal with matters of concern in public space – Methods of creating transdisciplinary environments and communication tools for engaging in transdisciplinary work – Familiarity with a variety of socio-spatial mapping techniques – Developing on-site research skills and the documentation and visual depiction of findings

		– Strengthening competences in thinking along, active participation, engagement and cooperation – evolving the ability to reflect, document and disseminate test projects and complex ideas
Evaluation	Assessment Activities	To be defined by training workshop organisers ahead of the event
	Accreditation	Participation certificate

Documentation

The ULLs core teams should ensure a proper setup of documentation procedures to be able to send and receive organisations' staff and learners. To monitor the course design, staff can apply the following documentation criteria to the ULL.

Documentation criteria
– List of ULL participants. – Monitoring of communication channels within the instructor team and within the course. – Collection of students' documentation – Overview of milestones and key activities – Summary of ULL validation procedures

As part of the documentation, students are expected to outline their ULL project phases in an open format or the format agreed on with the core team and educators. This documentation is mandatory to validate the collective and individual effort throughout the ULL. Below a proposition for toolkit components for the documentation of student participation is provided. The components of the documentation should correlate to the particular project phases; inputs, planning, implementation and outcome(s), expected impact and evaluation.

Documentation Toolkit
Students are expected to document (their participation in) ULLs in an effective, creative and visually appealing manner to aid the dissemination of the ULL knowledge and to be able to present outcomes and impacts externally. Proposed documentation methods are the formulation of texts suitable for submission to an edited journal, mind maps, charts and the presentation of permitted photographs and videos, creative audio-visual documentation forms such as film-making are encouraged.
Phase 1: ULL Inputs (overlapping with training activities)
Theoretical outlining of ULL context and geographical and social embeddedness, based on on-site research Theoretical outlining of ULL context, based on empirical research Mapping of ULL stakeholders Conceptualization of theoretical and methodological inputs at ULL Presentation of on-site research methods towards Phase 2
Phase 2: ULL Planning (partly overlapping with training activities)
Collective formulation of project details (based on collected knowledge from Phase 1) Presentation of ULL members and group dynamics Presentation of institutional frameworks and stakeholders' roles in the ULL project Timeline for the ULL project
Phase 3: ULL Implementation and Outcome(s)

Plan of the ULL project implementation in steps (from preparation to execution)
Documentation of project participants and their feedback loops
Phase 4: Expected Impact and Evaluation (documented individually)
Outlining the expected impact and sustainability of the ULL project
Reflection on individual effort and learning curve during the ULL project
Reflection on group effort and learning curve during the ULL project
Reflection on ULL methodologies and implementation

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