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praxiSDG & Next Practices for Sustain|Ability: Exploring Experiential Patterns for Transformative Learning through Service

Abstract

What helps to understand transformative learning in sustain|ability contexts? Experiences may explain how transform|ability fuels sustain|ability in transfer contexts. The adopted research design explores patterns of documented transformational learning in competency-driven and sustainability-induced opportunities. Sustain|ability results from the ability to transform by creating *next practices* of learning and doing/acting/performing. *praxiSDG* promotes transform|ability as process designed for initiating and motivating change, and by sparking off transformational potential through involving empowering, action-driven competencies. *praxiSDG* as a living lab activates hands-on transformational competencies by and in sustainability-related campus-community partnerships. To this, *Sustainable Development Goals* (SDGs) provide guidance for practical experiences and didactic reflection regarding learners' transform|ability in third-mission contexts. How does transformational service learning succeed in sustain|ability? That is at the core of the corresponding research based on qualitative, theoretically grounded portfolio analysis and principles of teaching and learning. The following conceptions – next practices of learning and doing, transformational competencies, campus-community partnerships, patterns of sustainability, and third mission – are framing the research agenda for transform|ability through sustain|ability. This sheds light on two related questions, namely, first, what patterns from experience help understanding how transformative learning can succeed in a sustainability context and, secondly, what research design can be used to investigate this.

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Next practices for sustain|ability

Sustain|ability results from someone's ability to transform through creating next practices of future-needs' learning and doing/acting/performing (FITZGERALD, 2021). praxiSDG – a combination of *praxis*, i. e. in the philosophical sense *a way of doing sth.* or *the use of sth. in a practical way* (HORNBY & WEHMEIER, 2009), and the acronym of the *Sustainable Development Goals – SDGs* of the *United Nations 2030 Agenda* (UNITED NATIONS, 2015; MALLOW, TOMAN & LAND, 2020, pp. 11 et seqq.) – is a *service-learning* module intending to attract participants with a strong sustainability agenda across disciplines and study semesters (GERNER & MAUS, 2023). Designed, commissioned and customized for different higher-education institutions (GERNER, 2022), *praxiSDG* engages participants in a proactive, self-determined and experiential way. It happens through projects that live up to partner-organizations' needs and expectations in a predefined scope (LEVESQUE-BRISTOL, KNAPP & FISHER, 2010, pp. 211 et seqq.). Hence, *praxiSDG* is understood as a *next practice* (WALS, 2010, p. 35; BARTH, BURANDT, FISCHER & RIECKMANN, 2011) of learning and doing; it aims at enabling participants to strengthen and unfold their ability to transform as a basis for sustain|ability action.

What makes *praxiSDG* a unique learning experience? *praxiSDG* is a one-semester – usually three to four months – service-learning course open to students of all disciplines and study semesters (see Fig. 1). Willingness to actively engage in an innovative study format and interest in becoming part of a self-effective sustainability challenge are the few *prerequisites* for participation. Participants may opt freely for this course; they join disregarding academic disciplines or study semesters. Registration takes place on a *first-come, first-serve* basis. Thanks to a blended-learning set-up consisting of both in-person and online sessions, it is open to students of several universities within a region. The module is roughly divided into three phases: the kick-off phase, closely accompanied and facilitated by the teaching tandem (1),

the project phase, which is supported by individually-tailored consultation sessions and e-tutoring (2), and the reflection phase, in which the results of the project phase are presented and reflected in an academically sound framework, again with close methodological support of the teaching tandem (3):

1. Upon meeting the first time, students are presented with a *buffet of project ideas* provided by partner institutions coming from the non-profit/civil-society sector such as environmental initiatives at universities, communal actors, climate awareness initiatives etc. The buffet of ideas may be complemented by sustainability-related project ideas added by students themselves. Depending on their intrinsic motivation and academic background, the participants then pick their favorite projects and form teams of about three to four students. As a next step, the teams come together with their project partners and discuss individual tasks for each team member. As one of the first milestones, the students develop an individual project question that captures the agreed *service* for the partner organization and will lead the students through the project. The question has to fulfil the four dimensions of being manageable, sustainability-driven, specific, and globally-relevant. Under the sustainability dimension, one particular SDG – and if applicable, a corresponding sub-goal/target – is selected and serves as a thematic focus during the project phase.

2. Once the project question is set, the participants begin their service at the partner organization, i.e. a 60-hour workload commitment in the course of about eight to ten weeks, working on the project question. From the very beginning of the module and throughout the project phase, students are encouraged to closely keep track of their work, including their discussions in the respective teams, exchange with the partner organization, progress and set-backs in the project implementation, and their personal experiences and learnings. In doing so, they collect so-called *pieces of evidence* and note them down by using wikis, working journals or learning logs.

3 Towards the end of the project phase, students start preparing their project presentation to be presented at the final session of the course. In addition, they prepare an e-portfolio with the aim of organizing, systematizing and evaluating the knowledge gained. Submitted e-portfolios are both product- and process-oriented. In this way, both products and processes are documented and reflected upon, which help to illustrate efforts, results and desired progress in

the learning process. Hence, the learning process can be analysed in a methodologically sound way, taking the learning itself as the point of reflection. This may promote and continuously improve learning competence. The result will be a learning journey, documenting both progress and setbacks. The respective positive and negative emotions can be reflected in a mood record as part of the e-portfolio.
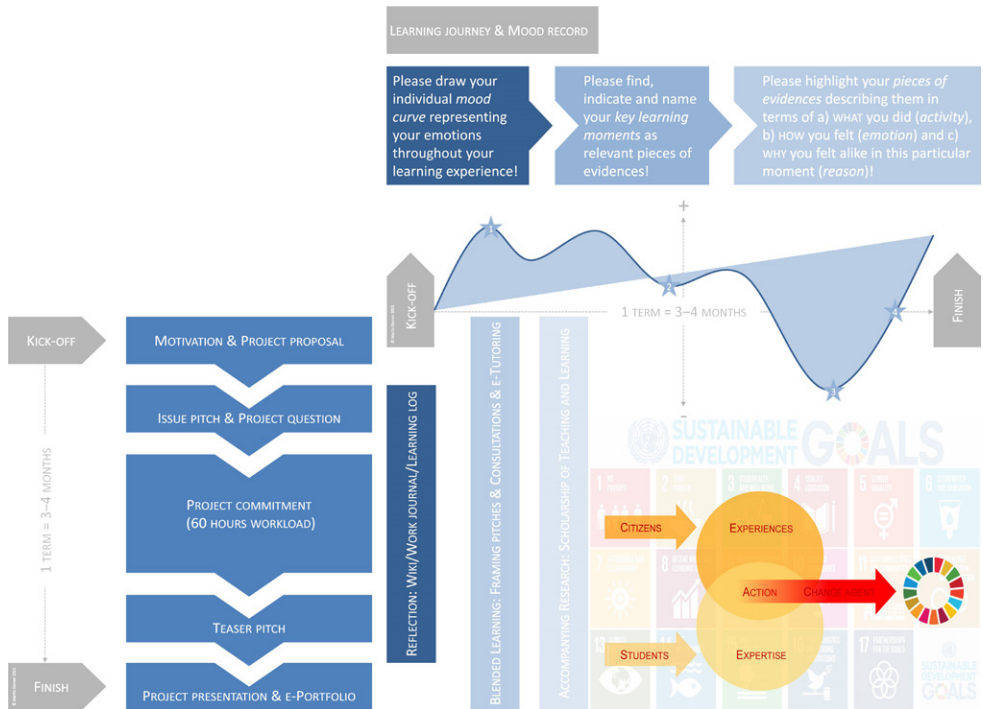

Fig. 1:   *praxiSDG* at a glance (figure provided by the authors)

"Learners are not sponges soaking up the words of wisdom poured over them by their teachers. Nor are they blank paper on which (educators) can write his pro-

foundest thoughts. The more involved the student becomes, the more likely he is to learn" (GOETZ, 1960, p. 9). As a result, *praxiSDG* activates knowledge, skills and intuition of participants in a target-oriented way of committing themselves to efforts for sustainability of institutions or corporations in the non-profit/civil-society sector (*community-based learning*). In doing so, participants learn to act as *change agents* in programme design, strategy or operative activities within their preferred partner organization (*service learning*). Participants select a particular SDG in order to develop knowledge about one particular aspect of sustainability. Through acting and reflecting they may turn into agents of transformation and change. In addition, participants work on individual project questions that have been designed based on the respective needs of the partner organizations. They are intended to facilitate self-determined, sustainability-related action. Consequently, participants not only learn about the significance of volunteerism, but also how to evaluate and reflect its opportunities and risks vis-à-vis their individual study contexts. With the presented course set-up, *praxiSDG* brings together already existing values, abilities and expertise of the participants with knowledge and facts about sustainability, especially the SDGs. This merges action and learning, i.e. *active learning* – learning through action (FINKELSTEIN & WINER, 2021, p. 328; BYRNE, 2016). By strongly focusing on the SDGs, the acquired transform|abilities may lead to a strong sustain|ability competencies of students (BARTLETT et al., 2020). Another major asset of *praxiSDG* represents the transformative element extending beyond the *ivory tower of the university* and takes effect within a civil-society context. As such, a transfer of knowledge and expertise takes place (*third mission*), reinforcing the transformative potential of *praxiSDG*.

praxiSDG …

– provides theoretical-conceptual background in the areas of volunteerism and civic engagement, e.g. rural-urban commons, co-creation, common public interest, service learning and sustainability-related terminology, e.g. SDGs;

– enables insights into different opportunities for sustainability-oriented commitment in institutionally structured, non-profit fields of activity; and

– facilitates a specifically contextualized commitment determined by the need of the partner organization.

SDG	Project	Description	Partner	Period
12	analysing implementing and revitalizing potential of corporate partnerships for sustainable development	local sustainable consumption and production – drivers – survey – transnationals	Lokale Agenda Dresden e.V.	summer 2021
12	analysing implementing and revitalizing potential of corporate partnerships for sustainable development	local sustainable consumption and production – reporting – survey – global standards	Lokale Agenda Dresden e.V.	summer 2021
12	analysing implementing and revitalizing potential of corporate partnerships for sustainable development	local sustainable consumption and production – strategy review – survey – international cooperation	Lokale Agenda Dresden e.V.	summer 2021
15	exploring transfer options for biodiversity-related means of communication	on-campus biodiversity habitats – catalogue – strategy design – global monitoring initiative	Sustainable Campus	TU Dresden	summer 2021
13	exploring transfer options for biodiversity-related means of communication	on-campus biodiversity habitats – inventory – mapping – global monitoring initiative	Sustainable Campus	TU Dresden	summer 2021
11	engaging multiple stakeholders for inclusive community building	community feedback on green infrastructure – guidelines – feedback analysis – global transfer options	Chemnitz grünt	winter 2021
4	engaging multiple stakeholders for inclusive community building	access and inclusive participation to green infrastructure – concept – feedback analysis – global transfer options	Chemnitz grünt	winter 2021
4	engaging multiple stakeholders for inclusive community building	green spaces for children – learning alternatives – feedback analysis – global transfer options	Chemnitz grünt	winter 2021
10	engaging multiple stakeholders for inclusive community building	access and inclusive participation to green infrastructure for visually challenged – pilot project – project design – global transfer options	Chemnitz grünt	winter 2021
15	promoting strategies of improving the living habitat of insects	disseminating information of insects in urban ecosystem – communication strategy – strategy design – global sustainable urban ecosystem	Chemnitz grünt	winter 2021
15	promoting strategies of improving the living habitat of insects	species' monitoring for insects in urban ecosystems – case study – literature review – global sustainable urban ecosystem	Chemnitz grünt	winter 2021
11	inspiring community involvement and stakeholders for managing and monitoring edible-cities' processes	community participation for edible-cities – case study – concept design – global network	edible cities	Stadtgärten e.V.	winter 2021
11	inspiring community involvement and stakeholders for managing and monitoring edible-cities' processes	stakeholder management of edible cities – case study – stakeholder mapping – global network	edible cities	Stadtgärten e.V.	winter 2021
11	assessing the role of community gardens for contributing to society and nature in urban contexts	potential of community gardens – assessment – strategy design – global transfer knowledge	UFER Projekt	Alte Gärtnerei	winter 2021
2	assessing the role of community gardens for contributing to society and nature in urban contexts	sustainable nutrition and lifestyle through community gardens – assessment – critical review – global transfer knowledge	UFER Projekt	Alte Gärtnerei	winter 2021
13	fostering a climate-neutral university through CO_2-calculator design	system-limits analysis of carbon-neutral universities – guidelines – literature review – international prototype	Wilderness International	summer 2021
13	fostering a climate-neutral university through CO_2-calculator design	comparison of carbon-footprint approaches – guidelines – concept design – international prototype	Wilderness International	summer 2021
13	involving multiple stakeholders in climate-friendly Green Box Concerts	sustainable brand and stakeholder manageme		
16	increasing national and global visibility and reach for academic initiatives of scholars at risk	social-media-campaign assistance – guidelines		
10	increasing national and global visibility and reach for academic initiatives of scholars at risk	social-impact-placement strategy for web cont		
1	assessing strengths, weaknesses and opportunities of an urban and peri-urban agriculture organization	environmental vulnerability-impact assessmen		
2	assessing strengths, weaknesses and opportunities of an urban and peri-urban agriculture organization	biodiversity monitoring – guidelines – data ana		
13	assessing strengths, weaknesses and opportunities of an urban and peri-urban agriculture organization	climate-awareness-raising campaign – GHG-ca		
4	promoting educational programmes for sustainable food consumption	food-waste-awareness-raising campaign – wor		
12	promoting educational programmes for sustainable food consumption	food-waste-awareness-raising campaign – wor		
7	making the UN Sustainability Strategy practically relevant for staff members	energy-use efficiency – information sheet – field visit – global transfer options	UNU-FLORES	winter 2022
5	making the UN Sustainability Strategy practically relevant for staff members	gender-related disparities – awareness sheet – interviews – global transfer options	UNU-FLORES	winter 2022
12	making the UN Sustainability Strategy practically relevant for staff members	waste management – fact sheet – field survey – global transfer options	UNU-FLORES	winter 2022
13	making the UN Sustainability Strategy practically relevant for staff members	travel emission – guidelines – pathways analysis – global transfer options	UNU-FLORES	winter 2022

Fig. 2: *praxiSDG*: SDG-related service-learning projects (figure provided by the authors)

Furthermore, *praxiSDG* fosters …

– analysing individual, discipline-specific and professional strategies of engagement;

– reflecting of experiences in a structured and systematically-guided way;

– preparing professional presentations of one's genuine service-learning experiences; and

– practicing project-based, interdisciplinary team work with heterogeneous needs and prerequisites (see Fig. 2).

Interestingly enough, *praxiSDG* has been evolving from a *niche innovation* off the radar screen into a *socio-technical regime* that provides windows of opportunities for these *next practices* (see Fig. 3). That transition pathway of transformational development is viable. It starts as *niche innovation*, leading to transforming *socio-technical regime* and ending as *socio-technical landscape*. As a result, progress triggered endogenously as small-scale evolution in niches clearly outweighs socio-technical regimes in terms of visionary design potential and consistency. Whereas regime changes largely depend on *revolutionary windows of opportunity*, mainly exogenous, novelties are results of *nuclei* of networking functions through learning from scratch. Following this rationale, transforming whole *socio-technical landscapes* may be the result of gradual evolution of approved practice or exogenously-induced shift of paradigms, either due to external shocks or positive *leap-frogging* techniques or technologies. The framing objective is contributing to a research agenda while trying to elucidate experiential patterns for transformational learning that evolve from scratch in co-creative and co-constructive networks, and provide *niche solutions* to scale up. The *nucleus* for enabling multi-dimensional, visionary and liaising learning processes for both participants and facilitators is *autonomy* (KENYON & HASE, 2013, pp. 11 et seqq.). Such self-determined learning evolves literally through *learning by doing*, including reiterated trial-and-error loops. Thus, considering *praxiSDG* in a paradigmatic way enables realizing transformational potentials for learning sustainability in an experiential way (GERNER, 2022, p. 104, 110–111). Transformational learning correlates with experiential learning (HEALEY, 2006; HEALEY & JENKINS, 2009; HUBER, 2013). In this vein, the *Big Five* in/of experiential learning comprise …

1. a well-introduced subject matter and/or formulated research question,

2. adequately stated and applied research methods,

3. substantial research results,

4. documented and consistent reflection, and

5. novel scientific insights.

To this end, the following considerations are intended to outline a framing design for continuing research on experiential patterns found in *next practices* for transformational, sustainability-related learning.
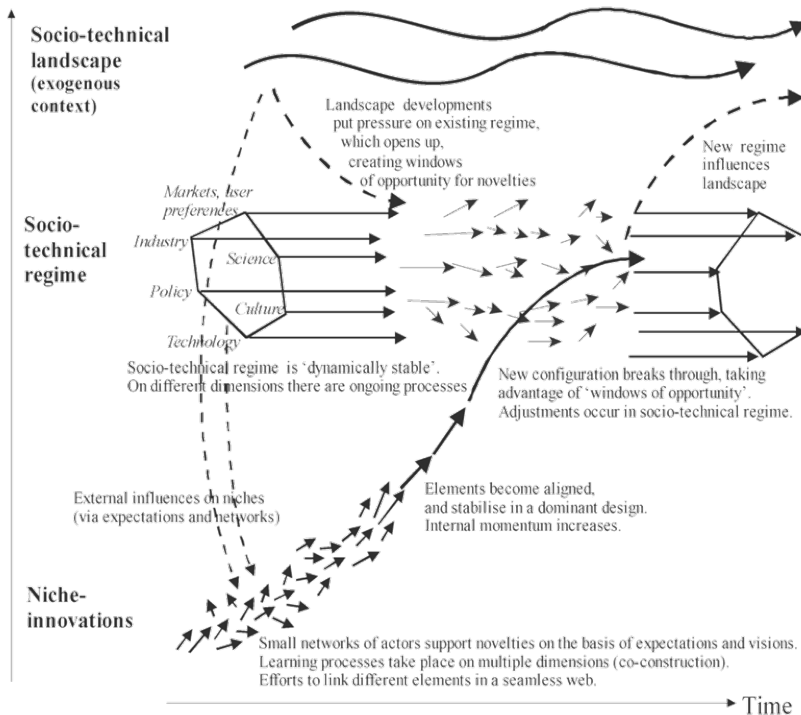

Fig. 3:   Transition pathways of *next practices* (GEELS & SCHOT, 2007, p. 401)

praxiSDG promotes options for tentative observations and suggestions for pragmatic action (BADLEY, 2001, p. 170). As part of an open-ended research project, the sustain|ability impact and transform|ability potential of *praxiSDG* is constantly monitored and evaluated. As progressively-evolving learning assignment, it merges formative design elements of self-conducted reflection and research with professional evolution. This is due to advanced on-the-job training of the facilitating tandem, thus, contributing to practices of both *Scholarship of Teaching and Learning* (SoTL) and *Scholarship of Academic Development* (SoAD), simultaneously (BOWEN, 2010, pp. 9–10).

Key competencies for trans-form|ability

Transform|ability is about initiating and motivating change by involving empowering and action-driven competencies. Motivation results from purpose. Challenging the *why* is quintessential for normative concepts (REY et al., 2019, p. 4 et seq.). That particularly applies to learning for sustainability since facts and values form a cognitive-emotional alliance. In consequence, the *why* in education for sustainable development is to be recognized and highlighted as broad scope in order to turn conventional development paradigms into transformational ones. Considering this aspect sufficiently, including to explain "the from where, to where, and why of social transformation requires a critical examination at the paradigmatic level, (such as) the epistemic sets of values and ideas which fundamentally influence purpose, curriculum design, pedagogy, and all other aspects of education" (STERLING, 2021, p. 4).

Purpose-driven, self-determined and collaborative learning is key to transformational action (REY & MONTANER, 2019, p. 101). *Transform|ability* is about initiating change towards "a sustainable and desirable future emerging from new values, a revised model of development and the active engagement of civil society" (RASKIN, 2002, p. 16). Resulting *next practices* of empowering future generations are to be impact-related, action-oriented and accessible in inter-/trans-disciplinary ways. The ability to transform – initiating and motivating change – involves certain *action competences for the individual and societal dimensions of transformation* (UNESCO World Conference on Education for Sustainable Development, 2021, p. 2). What these competencies consist of has been systemized through a comprehensive frame-

work (see Fig. 4) of key competencies in sustainability (WIEK, WITHYCOMBE & REDMAN, 2011, pp. 207–211; WIEK et al., 2015; BRUNDIERS et al., 2021, pp. 16 et seqq.; BARTH, 2016, p. 328). Partly updated, adjusted and rephrased they include:

– *systems-thinking competency* as the ability to collectively analyse complex systems across different domains – including the *quadruple line* of sustainability dimensions of society, environment, economy and culture – and across different scales/levels – from local via regional to global;

– *anticipatory/futures-thinking competency* as the ability to collectively analyse, evaluate, craft/design and communicate imaginative visions of the future aiming at positive notions of sustainability issues and empowering, facilitating or enabling frameworks;

– *normative/values-thinking competency* as the ability to collectively map, specify, apply, reconcile, and negotiate sustainability values, principles, goals and targets, providing the *intrapersonal competency* of inner dialoguing for negotiating moral concepts;

– *strategic-thinking competency* as the ability to collectively design and implement interventions, transitions, and transformative governance strategies toward sustainability; and

– *interpersonal/collaborative competency* as the ability to motivate, enable, and facilitate collaborative and participatory sustainability research and integrated problem solving.

Which empowering and action-driven competencies can be attributed to key competencies for sustainability? Certainly, the ability to motivate others addresses the *interpersonal/collaborative competency* (BARTH, 2016, p. 329); it corresponds to the *handprint* concept of contributing to sustainable development in a positive way (KÜHNEN et al., 2019, p. 66). Pursuing a normative paradigm without *preaching* but *practicing* instead (GERNER, 2020, p. 154; MULDER, 2010, pp. 82–83), problem-based notions are re-interpreted as action-driven, focusing on problem-solving rather than problem-based (PETERSON, 1997; CONNOR-GREENE, 2016, p. 193; GUO, YAO, WANG, YAN & ZONG, 2016, p. 17).
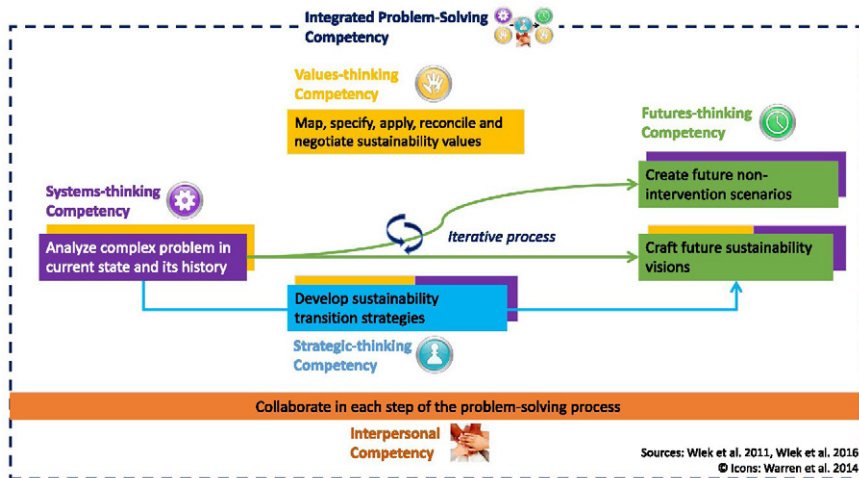
Fig. 4:   Key competencies in sustainability (BRUNDIERS et al., 2021, p. 15)

Developing competencies for *transform|ability* takes place in formal, non-formal and informal settings of learning. In this vein, sustainability provides a medium, intermediary, kit or accelerator that intertwines those learning spaces (BARTH, 2016, pp. 331–332; GERNER, 2013, p. 14). Beyond that, education for sustainable development may be considered prototype for *transformative learning*. From a "constructivist (perspective), an orientation which holds that the way learners interpret and reinterpret their sense experience is central to making meaning and hence learning" (MEZIROW, 1994, p. 222) culminating in transformed meaning schemes (MEZIROW, 1991, p. 6).

When taking an analytic look at learning, it can be useful to consider key competencies in sustainability as guideline or benchmark, mainly for two reasons:

1. Evaluating, monitoring or assessing needs or impetus of qualifying specific transformation processes are articulated; and/or

2. Indicating a nexus between transformational competencies and experiential learning is intended (MEZIROW, 1978, pp. 107 et seqq.).

praxiSDG promotes *transform|ability* by providing a process design for initiating and motivating change, and by sparking off transformational potential through involving empowering, action-driven competencies.

Transformational action through partnerships

Service learning may foster transformational competencies; learning based on civic engagement may serve as driver of practical options for sustainability. Designated campus-community partnerships catalyse these transformations yielding promising and tangible results for both, civil-society partner organizations and applied learnings for participants. Capabilities, skills and commitment for transformational action can be acquired, applied and fostered through developing and sustaining campus-community partnerships for service-learning, so called *entrepreneurial ecosystems* for scholarship in action (LEE et al., 2018, pp. 33 et seqq.; FITZGERALD, ALLEN & ROBERTS, 2010; CORBETT, SIEGEL & KATZ, 2014; JACOBY, 2014; KINGMA, 2011). Conceptual varieties of campus-community partnerships train democratic practices of negotiating prerequisites for transformative change, including engaged scholarship, public scholarship, service learning, town-gown relations, university-community engagement, civic engagement and university-community partnerships (GERNER, 2013, p. 162; KEITH, 2015, pp. 131 et seqq.; MARKOVICH, GOLAN & SHALHOUB-KEVORKIAN, 2019; BOLAND, 2010, pp. 4 et seqq.), for instance. They share the principal notion of representing "collaborations between institutions of higher education and the communities in which they function or with whom they relate on a local, regional, or global level. Such partnerships have the goal of being mutually beneficial and often focus on the sharing of resources and knowledge white addressing public challenges" (HOWE, 2014, p. 1116).

Living labs may provide those training opportunities: physical places or framing contexts "where real-world sustainability challenges are formally addressed in stakeholder partnerships" (BRUNDIERS, WIEK & REDMAN, 2010; PURCELL, HENRIKSEN & SPENGLER, 2019, p. 1345; SCHNEIDEWIND et al., 2014, pp. 285 et seq.). Since learning is considered a holistic process that involves all senses for activation, achieving transformative sustainability learning is the result of involving head (*civic engagement*), hands (*enactment*) and heart (*enablement*)

simultaneously (SIPOS, BATTISTI & GRIMM, 2008, pp. 75 et seqq.; BLUM, 2021, pp. 354–355; KIELY, 2005, pp. 6 et seqq.). Thus, it goes beyond the mere consumption of information and knowledge and aims at evoking self-efficacy in action and through reflection. In a nutshell, "(t)he whole (wo)man must move at once" (SLOTERDIJK, 2009, p. 639).

Partnerships in sustainability contexts promote transformational practices, since they

– address an actual sustainability problem or challenge, ideally brought to a higher education institution by community, business, administration and/or campus partners;

– provide participants with the opportunity to apply concepts and methods learned in their classroom contexts to address real-world sustainability challenges;

– involve academic supervision and didactic guidance, as well as facilitated collaboration with community, business, administration and/or campus partners, in order to develop a scientifically sound and value-adding solution approach; and

– strive to produce a viable contribution to solutions, so that participants understand how they can have a positive impact on the world (BRUNDIERS et al., 2010, p. 312).

Hence, praxiSDG as a *living lab* may activate hands-on transformational competencies by and in sustainability-related campus-community partnerships.

Guidance for transform|ability through patterns of sustain|ability

Amongst the most critical challenges in transformational contexts is the dealing with complexity, frequently framed as *vuca world* (BODENHAUSEN & PEERY, 2009, p. 134; ARNOLD, 2022, pp. 43 et seqq.; DUCHEYNE, & ROGERS, 2017), which describes the synchronicity of …

– *volatility* for dynamically changing social context;

– *uncertainty* for lack of predictability as result of missing information;

– *complexity* for multiple potentially relevant dimensions; and

– *ambiguity* for multiple possible interpretations of available information.

In complex surroundings, *purpose* tends to provide orientation in situations of organisational change, in particular (KOK & VAN DEN HEUVEL, 2019, p. 36, 93; LAIQ, 2021). Sustainability-related contexts do embody the very notion of purpose striving for normativity of changing lifestyles and business models (GERNER, 2020, pp. 156, 162). However, sustainability as concept is complex by itself (CORCORAN & WALS, 2004, pp. 5 et seqq.; LEVINTOVA & MUELLER, 2014, p. 14).

To this end, the *Sustainable Development Goals* (SDGs) provide a structuring framework for coming to terms with the complexity of sustain|ability. At the same time, the SDGs provide the compass for enabling service design for transform|ability in experiential learning environments (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020, 28, pp. 55 et seq.). In this *praxiSDG* case, service learning is the value-adding element of format design. Service learning can be defined as "form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development (through) reflection and reciprocity (as) key concepts of service learning" (HOWE, 2014, p. 1117; JACOBY, 1996).

Among multiple aspects emerging from various definitions (BUTIN, 2005; BUTIN, 2010; MIKELIĆ PRERADOVIĆ, 2020; MARQUETTE UNIVERSITY, 2018; STANTON, GILES, DWIGHT & CRUZ, 1999), addressing *inter alia* …

- transferorientationandthirdmission(HOFFMEISTER,KÜMMEL-SCHNUR & MÜHLEISEN, 2020; KANNING & RICHTER-HARM, 2018; MILLER & SCHRADER, 2020);

- levels of experiential learning (BEYERLIN, LINNARTZ & GOTZEN, 2021);

- conditions/criteria of success (Hochschulnetzwerk Bildung durch Verantwortung, 2019; REINDERS, 2016);

- higher/academic education (BUTIN, 2005; BUTIN, 2010; BACK-HAUS-MAUL & ROTH, 2013; HOFER & DERKAU, 2020; BARTSCH & GROTTKER, 2021; BRINGLE, RUIZ, BROWN & REEB, 2016; MADSEN & TURNBULL, 2006; SALAM, AWANG ISKANDAR, IBRAHIM & FAROOQ, 2019; SEIFERT, ZENTNER, NAGY & BALTES, 2012, pp. 51 et seqq.; WALSH, 2010; WILCZENSKI, & COOMEY, 2007);

- e-service learning (ALBANESI, CULCASI & ZUNSZAIN, 2020);

- international dimension (BACKHAUS-MAUL, EBERT, FREI, ROTH & SATTLER, 2015);

- management (KENWORTHY-U'REN & PETERSON, 2005; KOLENKO, PORTER & WHEATLEY, 1996), reflection (Center for Innovative Teaching and Learning; HATCHER, BRINGLE & MUTHIAH, 2004);

- communities and societal inclusion (COOPER, KOTVAL-K, KOTVAL & MULLIN, 2014; KUHNKE & YORK, 2014; REISAS & SANDMANN, 2017; TYRAN, 2017); and/or

- volunteering (DALMIDA et al., 2016; KENNY, SIMON, KILEY-BRA-BECK & LERNER, 2002; KNECHT & MARTINEZ, 2012);

Service learning appears particularly promising and applicable to changing contexts, namely transformational ones. Why? What are the reasons for this perception?

Relevance for SDG-driven service learning is fuelled by the paradigm *transforming from within* (BARTH, ADOMSSENT, FISCHER, RICHTER & RIECKMANN, 2014, pp. 6–7; MADER, SCOTT & ABDUL RAZAK, 2013, p. 269). That implies universities being increasingly regarded as engines and powerhouses of transfor-

mational sustainability toward delivering the sustainable development goals (PUR-CELL et al., 2019, p. 1345). Assuming the gently evolving insight *within* higher-education institutions to transform their students into global citizens (TYRAN, 2017, p. 162; KANNING & RICHTER-HARM, 2018, pp. 30–32) leads to establishing transformational sustainability nexus based upon the principles of *education for sustainable development* (ESD) (HELICKE, 2014, p. 295; SEAY, JEYARAJ, HIG-GINS, JOSHI & WILLETT, 2016, p. 20; PEARCE, 2009, p. 50; RIECKMANN, 2021, pp. 186 et seq.; SHOR, CATTANEO & CALTON, 2017, p. 159; WALL, 2019, pp. 2–3). Predominantly acknowledging *making meaning as a learning process* (MEZIROW, 2000, p. 3), this ESD-mandate might be honoured through SDG-related service learning as didactic-curricular approach for *from-within-learning assignment*. In doing so, themes, meanings and characteristics are summarized as transformative traits *within* service learning, i.e. contextual border crossing, dissonance, personalizing, processing, and connecting (KIELY, 2005, p. 8; MEZIROW, 2000, pp. 7 et seqq.).

Reflection matters in sustainability-related, service-learning contexts; the SDGs constitute the principal reference framework for determining on what to reflect (LEVESQUE-BRISTOL et al., 2010, p. 221). The rationale behind is to capture, restore and involve transformational evidence based on documented artefacts, called *pieces of evidence* (BRAMMER, 2011, p. 354; PEACOCK, MURRAY, SCOTT & KELLY, 2011, p. 35).

The SDGs provide a vision of education for sustainable development (CORCOR-AN, WEAKLAND & HOLLINGSHEAD, 2017, p. 140; MULÀ et al., 2017, p. 800; SENGUPTA, BLESSINGER & YAMIN, 2020). In service-learning, SDGs do play a vital part since they perform as patterns for making service-learning activities tangible and whole-institution approaches viable in campus-community partnerships (KOHL et al., 2021, p. 222; MCMILLIN & DYBALL, 2009, pp. 62–63). Thus, *SDGs provide guidance for practical experiences and didactic reflection regarding learners' transform|ability in third-mission contexts.*

Sustain|ability impact and transform|ability potential triggering research on learning through service

Transformational learning occurs when people change their ambition of learning to *understand and work* with the acquired concepts in practice, *vulgo* in the field of engagement (BATSON, 2011a, p. 112). The crucial question is how and why? As always in experiential contexts, the proof of the pudding is in the eating. "In order for an experience to be transformational, then, individuals need to be exposed to new information that is inconsistent with a pre-existing conceptualization and then undergo a process by which they work to change their beliefs and accommodate this experience. However, accommodating new information is not likely to be either a swift or a linear process" (SHOR et al., 2017, pp. 158 et seqq.). Therefore, a corresponding research design consisting of a qualitative, theoretically-grounded portfolio analysis embedded into the framework of *Scholarship of Teaching and Learning* (SoTL) fathoms how self-effective – in terms of purpose and impact – service learning can succeed along the SDGs and beyond cognitive adaptation of information.

Scholarship of Teaching and Learning (SoTL) can roughly be described as "systematic reflection on teaching and learning made public" (MCKINNEY). It "is a kind of going meta in which faculty frame and systematically investigate questions related to student learning – the conditions under which it occurs, what it looks like, how to deepen it and so forth – and do so with an eye not only to improve their own classrooms but to advancing practice beyond it" (HUTCHINGS & SHULMAN, 1999). Originating from *targeted observation*, moving to *reflective teaching*, and shifting from *scholarly teaching* (see Fig. 5), *SoTL* follows a couple of principles (FELTEN, 2013, pp. 122 et seqq.), such as …

- focused on student learning;

- grounded in context (both in literature and in a teaching-learning context);

- conducted using sound methodology;

- conducted in partnership with students (ethics approval, at a minimum); and

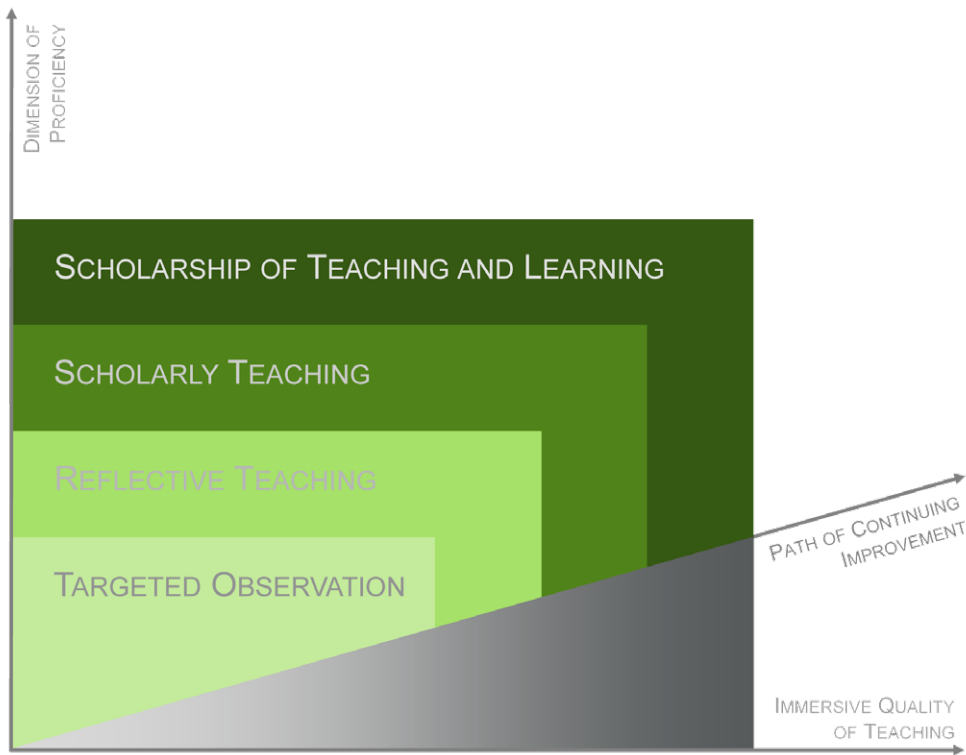- disseminated to contribute to both knowledge and practice.

Fig. 5:   Contextualizing *Scholarship of Teaching and Learning* (SoTL) (figure provided by the authors)

Advancing *SoTL* in the context of third mission and service learning is for quality enhancement in first place (OPENO et al., 2017; HUBER, 2014; HUBER, 2011a; HUBER, 2011b; BOYER, 1990). Following a paradigm of incremental improvements, portfolio analyses are appropriate ways of tracing progress through formative assessments (PITTS & RUGGIRELLO, 2012; BANTA, 2003; AVERY, 2016; BHATTACHARYA & HARTNETT, 2007). Portfolios can make a meaningful difference in compiling integrated knowledge (EYNON, GAMBINO & TÖRÖK,

2014; PEET et al., 2011; CABAU & CHAUDHURI, 2017, xiii; CABAU, 2017). As *living portal* (NGUYEN, 2013, p. 135), they may serve as a record of one's progress throughout the year, for instance, a repository for one's work, and a mirror of reflecting students' *situated* learning. Particularly digital ones – namely *e-portfolios* – do provide added value as collections of digital resources (BATSON, 2011a, p. 110; BRAMMER, 2011, p. 354; ARMENT, WETZEL & REED, 2013, pp. 150 et seqq.). They compile evidence of formative progress and achievements drawn from formal, non-formal and informal learning activities. Hence, they provide access to

a) resources of self-directed or self-determined learning (HASE, 2013),

b) resources of reflective practice, such as review and reflection, and

c) resources of personal development planning.

Participants frequently encounter challenges in developing individual e-portfolios, since they require degrees of freedom and foster creativity. However, "creativity, furthermore, is a concept that is not well understood by the students. Supports that nurture understanding of creativity and 'how to be creative' (are to) be developed for future students" (O'KEEFFE & ROISIN, 2013, pp. 2–3, 5–6, 7; BATSON, 2011b). This applies to project-based sustain|ability learning, in particular (MULLINS, MILLER & BRESCIA, 2009, p. 2; KOKOTSAKI, MENZIES & WIGGINS, 2016, p. 269). Outcomes and competencies of creative learning processes are adequately addressed by asynchronous e-assessment (HABRON, 2015, p. 124; EYLER, GILES, STENSON & GRAY, 2001, pp. 83, 86; GELMON, 2018; LEVESQUE-BRISTOL et al., 2010, p. 210; NÄHRLICH & SCHRÖTEN, 2013, pp. 16 et seqq.).

Nudging transformation through learning, either gradual-iterative or disruptive, is to be planned or anticipated. Potentially, e-portfolios can be regarded as *boosters* of transformative learning; from some didactic-pedagogic, technological and institutional points of view they appear disruptive, since they challenge and bypass existing systems of assessing performance based on learning objectives (KANE, 2016, p. 50). Alternative ways of complementing assessment are supported from students' perspectives instead (CIESIELKIEWICZ, 2019, p. 661). Why? Considering *adaptive expertise,* the gold standard of unlocking perspectives vis-à-vis transformational competencies (WALL, 2019, p. 3; ARMENT et al., 2013, pp. 149–150), corresponding, i.e. *constructively aligned* (BIGGS, 2014, pp. 8 et seqq.; SMITH, 2008,

p. 635; TYLER & HLEBOWITSH, 1949/2013, pp. 63 et seqq.; ROSSNAGEL, LO BAIDO & FITZALLEN, 2021, pp. 2 et seqq.), modes of documentation and assessment are to be prioritized. Taking the service-learning context, e-portfolios are diverse; they are touching upon cognitive, emotional and behavioural aspects from a highly reflective angle. And, e-portfolios are more than qualitative research diaries (Universität zu Köln, 2017), since they document both processes and outcomes at a time (SYMON, 2004, pp. 99–100; GIVEN, 2008). Thus, they combine formative assessment with documented personal developmental. To be clear, "e-portfolios are (certainly not) the panacea for all diseases", in fact, they serve as an evaluation, monitoring and feedback tool for students' *learning journeys* of how to select, collect, reflect, write and respond to learnings experiences made (ABULOUM, 2020, pp. 708–710; YANG, NGAI & HUNG, 2015). They serve "to engage in a learning process where comprehension is led by transformative experiences rather than the consumption of pre-packaged knowledge" (MATTEUCCI, & AUBKE, 2018, p. 11).

Interpreting e-portfolios follows *SoTL* principles through applying grounded theory as methodological framework. In doing so, systematically sampled and analysed e-portfolios are to "suddenly become more digestible, user-friendly, and theoretically grounded" (WALLS, 2016, p. 45). Put differently, the corpus composed of single e-portfolios obtains abstract meta-quality of theory-involving meaning (see Fig. 6).

In the case of *praxiSDG, exploring how transformational service learning for sustain|ability succeeds is at the core of the corresponding research based on qualitative, theoretically grounded portfolio analysis and principles of teaching and learning.* Thus, it is purposefully considered through adopting an inquiry-focused, context-grounded, methodologically-sound, partnership-involving and publishing-affiliated approach of research that is in line with the *Big Five* of experiential learning. The results of this unfolding research, based on the *praxiSDG* case and grounded in qualitative portfolio analysis, are intended to be used in an iterative process for constantly updating and developing *praxiSDG* further. In addition, insights for successful transformational service learning overall are expected.
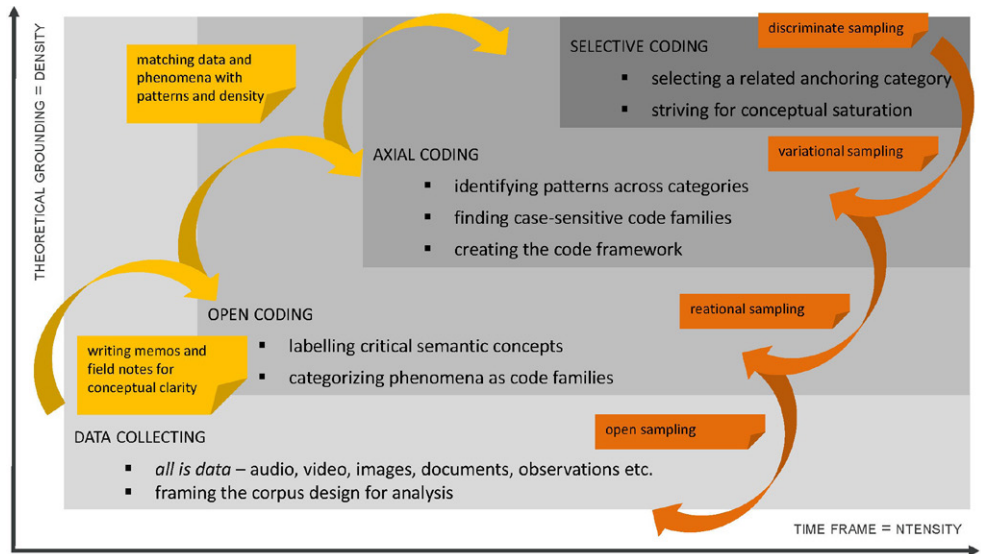
Fig. 6: Analytic procedures in grounded theory inspired by (CHO & LEE, 2014, p. 9 (figure provided by the authors)

Conclusion

To conclude, the presented conceptions designed as research agenda may help to better understand and foster transform|ability through sustain|ability. It does so by framing next practices of learning and doing with transformational competencies. This research agenda is applied to explore the service-learning format *praxiSDG*, which links existing or emerging campus-community partnerships with patterns of sustainability and with third mission, with the intention to examine how transformative learning can succeed in or even through sustainability contexts.

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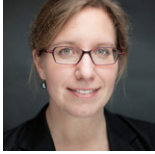
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