

Editorial

The Value of Process and Pedagogy through the Sustainability Prism

The current volume of the journal reflects on diverse aspects of sustainable development in relation to changes in sustainable pedagogies and methodologies in organizing learning. Despite a growing focus and interest on sustainability, there are numerous attempts to redesign current practices and models in schools and university programs. Sustainability pedagogies have the potential to be transformative and meaningful by focusing on systems thinking, co-creating the content, and critically questioning dominant models and approaches, by practicing participatory and experiential *approaches that are grounded* in a particular *context*. This volume presents quite a wide scope of perspectives on sustainability from a wide range of geographical areas: South Africa, the Netherlands, Turkey, Austria, Switzerland, and Hungary. The authors offer diverse approaches of dealing with unsustainability in their contexts in reaching sustainability goals in their proposed area.

The authors of this volume outline elements of sustainability pedagogy and reflect on the best pedagogical practices for designing an engaging sustainability learning of mathematics, and they highlight these practices through a sustainability prism. A number of articles have a focus on entrepreneurship education. Among those articles are cases of good practice from Switzerland as one of the best ecosystems for entrepreneurship. The concept of entrepreneurship education is reflected also in the South African public education system, in conjunction with the discourse on the reform of the TVET system. That article includes the cases of good practice on how Dutch and Vietnamese universities on sustainability projects.

The paper by Bob Offei Manteaw foregrounds Education for Sustainable Development (ESD) as an emergent discourse to critically explore how education and learning have been framed in the discourse. Through Discourse Analysis and Critical Discourse Analysis, the paper uses a historical methodological approach to examine how the concept of sustainable development has evolved over time and how discourses of education and learning have emerged to shape what is now known as ESD. In doing so, the paper pays close attention to text – specific language in use – to understand how certain words and language have influenced the creation of the ESD discourse across time. In doing so, the paper carefully examines the coarseness of words and the power behind words. More importantly, the paper traces what is described as key discourse moments to understand how linguistic choices, power, and institutional structures have helped to create a role for education and learning in sustainable development.

The paper by Phan Anh Nguyen, Regina Bokel, and Andy van den Dobbelsteen focuses on Green Architecture for Sustainable Communities (GASC) 2019. That was an international event aiming at bringing architecture students from Dutch and Vietnamese universities together to work on sustainability projects. The main objective of the workshop was to help the students learn sustainable design skills and strategies and to apply them in real housing projects. The students were exposed to many activities, including site visits, an international conference, lectures by local architects, daily supervision from

international experts and a final presentation day. Results from a post-workshop questionnaire have shown that most activities were successful in transferring sustainable knowledge to the students. The results from the questionnaire and the workshop outcomes have shown the capabilities of the students to understand sustainable theory, to analyse design strategies in the specific cases and to apply that knowledge into the design proposals.

In their article Kerstin Schmidt-Hönig and Gerlinde Pröbstl discuss the idea about children in their development as optimistic, self-effective adults. They discuss that this is necessary to find out how children perceive their world and how they combine these perceptions with their cognitive knowledge. In a pilot study, mental maps were used to visualize the child's world view at the end of primary school. Accompanying questions were used to ascertain the children's knowledge of current global problems. The focus was on the students' thematic interests, which accompanied the discussions with the pupils. The Mental Maps show a combination of indirect, direct and emotional spatial perceptions. The awareness of the pupils regarding global challenges, oriented towards the Sustainable Development Goals, proves to be clearly pronounced in the impulse-based interviews. Thus, the pilot study allows the conclusion that already at the end of primary school, pupils develop an awareness of global challenges and the ability to act.

The article by Mária Hercz, Ferenc Pozsonyi, and Nikolett Takács, suggest that the learners are satisfied with their schooling and learning circumstances. Although they prefer constructive learning strategies and teacher-directed methods, the non-traditional work forms are rather unfamiliar for them. The programme affected their skills and competences in a positive way. An age-specific (socio)psychological dichotomy was detected; however, the framework of the UKids programme was able to handle it. Both challenge-based learning and the UKids programme turned out to be suitable for educating and developing children in a complex way, and they are able to trigger innovation in teacher-training.

Matthias Forcher-Mayr and Sabine Mahlkecht discuss the concept of entrepreneurship education in the South African public education system, in conjunction with the discourse on the reform of the TVET system. Regarding the challenge of youth unemployment, they highlight a dominant view shared by both discourses, which advocates for upskilling youth to acquire jobs in the formal economy. The authors criticize this perspective in view of structural challenges. Based on a local concept of practice, they present a critical approach to entrepreneurship education in general education and TVET that includes a perspective on individual capabilities, as well as on social, political and economic structures.

The paper by Tamer Kutluca, Ali Tum, and Ali Ihsan Mut focuses the learning process, which is enriched by using various teaching methods in the context of mathematical reasoning from the perspectives of seventh grade students and their mathematics teacher. In order to have an in-depth study, a qualitative research approach was preferred. Qualitative data was collected by using a semi-structured interview form developed for both the teacher and the students. As a result of this research, it was determined that this learning environment increased students' participation in the lessons, provided effective and permanent learning and encouraged the use of mathematical reasoning skills. In addition, it was found that the learning environment in which various learning ways were utilized provided sufficient knowledge of concept and method to the students, and improved their mathematical reasoning skills.

The article by Anita Summer focuses on one of the 17 UN Sustainable Development Goals (SDGs) as reflected in teaching mathematics. Undoubtedly, mathematics plays a key role in mastering future challenges: mathematical competences and problem-solving skills can help to find the right answers to current and future challenges. The text deals with “A Sustainable Way of Teaching Basic Mathematics”, because many children and teenagers experience mathematics as a source of anxiety that is difficult to understand. The literature-based research text explores the question: How should a sustainable mathematical primary education be implemented and which concrete pedagogical initiatives need to be taken? The text points out why some children develop problems with mathematics already at the beginning of their school careers and shows, how competent teaching can counteract difficulties and misunderstandings in mathematical learning.

The article by Susan Müller, Georg Berger, and Eveline Gutzwiller-Helfenfinger presents the case of Switzerland as one of the best ecosystems for entrepreneurship. However, in vocational colleges a systematic integration of the topic is currently missing. The initiative “Entrepreneurial Thinking and Acting in Swiss Vocational Colleges – Economic, Social and Ethical Dimensions” addresses this blind spot. The vision of the initiative is to ensure that all 75,000 young people entering vocational colleges each year are given the opportunity to acquire entrepreneurial skills enabling them to play an active role in positively shaping the economy and society of the future. In the article, the focus is on three key aspects: (1) the pedagogical approach of the program *myidea.ch* that allows students to develop and pitch their own business ideas; (2) the continuous evaluation; and (3) the parallel bottom-up and top-down approach chosen to integrate the program nationwide in the vocational education system.

In their paper Nihat Kotluk and Serhat Kocakaya examine teachers’ culturally relevant/sustaining education self-efficacy perceptions in Turkey. They developed a Culturally Relevant/Sustaining Education Self-Efficacy Scale. They obtained the data from 1302 teachers. Data analysis proceeded in three steps: First, they analyzed factor analysis. Second, they conducted a descriptive analysis of the items on the CRESE Scale. Finally, they compared teachers’ perceptions. The scale consists of a single factor and teachers’ scores on the CRESE Scale were highly reliable. The findings revealed that teachers were less efficacious in their ability to revise the teaching-learning materials in terms of cultural diversity, give culturally relevant examples, reflect the students’ cultural values in the classroom, and increase in schools parents/families’ participation in Turkey. Also, teachers’ self-efficacy perceptions differ significantly according to some variables. They discussed the implications for these findings for both further research and future teacher preparation.

The final paper by Emin Tamer Yenen and Mustafa Kemal Yöntem deals with the professional development needs of teachers working in different subject domains. The professional development needs of the teachers are placed in four main themes: instructional development, scientific field development, personal development, and organizational development and 14 sub-dimensions related to these themes.

The editorial team of the Journal express gratitude to all the authors for their contribution to emerging sustainability discourse by creating regenerative, interconnected, and thriving communities of learning for better ways of dealing with current issues of our day. It is noticeable that each research project yields vital new information. This

allows educators to upgrade existing curriculum and educational practices for professional purposes, resulting in opportunities to insert refreshed classroom pedagogies and practices to flourish in similar situations in diverse cultural milieux.

It is also important to recognise that one particular aim of research is to establish ways that such new information will ease the path towards sustainability and security, rather than investing in isolated pilot programmes. Judicious use of various forms of qualitative research methodologies emerge in the papers in this volume, and these can be used to enhance national consultations and conferences.

Careful analysis of the research appearing in this current issue will prompt further authentic research projects allowing incorporation of findings to influence the teaching-learning processes in the current educational climate we face. The blending, or otherwise, of virtual classrooms and orthodox learning modes necessarily are a sudden inclusion in the delivery of curriculum content. Results of monitored multi-dimensional curriculum delivery need collation and collaboration in this new covid-19 world. Educational personnel are well equipped to begin such a programme, focussed on the Sustainability Goals, familiar to our practice right now. Confidence in the future therefore can emerge as we lift our standards yet again in the service of education of the future generations.

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