

Welcome to 6th JoLii 2021 Conference -
Education and Sustainable Development Goals!
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Sino-Finnish
Joint Learning Innovation Institute
中芬联合学习创新研究院

6th JoLii Conference Abstracts

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[Sino-Finnish Education Research Centre](#)

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Note: The structure of the proceedings corresponds to [the Conference program structure](#), where each session has a corresponding code (e.g. 1A, 1B, etc.)

Session 1A (Panel) Reforms and practices in Chinese and Finnish education (HE & VET)

Panel chaired by Yuzhuo Cai and the panelists are Gaoming Zheng, Bing Zuo, Jiao Cheng and Wendan Qian with a focus on discussions of reforms concerning higher education and vocational education in Finland. After a short introduction (5 minutes) by the panel chair, each main panelist (including the panel chair) will give a 10-minute talk about a thematic reform in Finnish higher education. Then the chair will coordinate discussions among the panelists for around 30 minutes. The remaining time will be used for responding to the questions and comments from the audience.

The topics are:

Yuzhuo Cai: Finnish education reforms: What lessons can we learn?

Jiao Cheng: Environmental Education for Sustainable Development in Finland

Gaoming Zheng: Finnish doctoral education development

Bing Zuo: An analysis of the background and characteristics and results on the merging of Universities in Finland in the process of higher education internationalization

Wenqan Qian: Quality and sustainability of career education in Finnish education system

Session 1B - Global and comparative perspectives on education and sustainability

Education and Sustainability: Trends and Preferences from Top ranked Countries

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The nexus between education and sustainable development is proven theme among practitioner and academician. Top ranked countries with higher SDGs ranking seems to have a unique education system and these systems reflects well articulated policy. The objective of this study is to find out the trends and preferences by analyzing the education policy and act of 3 countries ranking on top of SDGs Sustainable Development Report 2021, which are Finland, Sweden, Denmark. This will be a cross sectional study where secondary source of data will be collected using qualitative method, from policy paper, state document and Act. Then the data will be analyzed and compare to find out the common trends and preferences of these 3 countries education policy. The expected findings will show some unique policy approach which may prove milestone for other countries to follow. And by taking the suggested recommendation countries may improve their education system and achieve SDGs sooner.

Keywords: Education, sustainable development, Education policy, trends, preferences, SDGs.

Internationally Comparable Indicators on Education for Sustainable Development: Identifying Challenges in Higher Education

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- **Purpose:** As more higher education institutions strive to embed sustainable development principles in their teaching, it becomes increasingly important to identify indicators that can measure institutional contribution in a meaningful and internationally comparable manner. In a quest to develop such indicators

for U-Multirank - a multi-dimensional transparency and ranking tool – we identified Education for Sustainable Development (ESD) as a promising reference framework. Education for Sustainable Development, recognised in the 2030 agenda for Sustainable Development (SDG 4.7), moves beyond sustainability-centred learning content and considers pedagogy, learning environment and outcomes. Building on ESD dimensions, the paper discusses ESD indicator relevance, validity and feasibility, identifying challenges and potential solutions.

- **Study design/methodology/approach:** The exploratory research was undertaken in three phases. First, a literature review was conducted, reviewing academic literature, recent policy trends and existing indicators in higher education ranking tools (e.g., THE Impact Ranking, UI Green Metric). Second, we organised stakeholder consultations (focus groups, n=13) discussing indicator relevance, validity and feasibility with international experts, practitioners, and student representatives. In the final phase, a feasibility survey was carried out amongst institutions participating in U-Multirank (n=247) to identify indicators for which data is already available or is planned in the near future.
- **Findings:** Stakeholders consider ESD indicators to be of high relevance yet identify issues with ESD indicator validity, feasibility, and comparability. The specific challenges and potential solutions are discussed in the paper. The survey results amongst participating institutions in U-Multirank indicate that data on ESD-related courses are already collected by more than 40% of institutions. Another 40% intend to collect this data within the next three years. Hence, this creates a window of opportunity to discuss the appropriate operationalisation of ESD indicators in the coming years.
- **Originality/value:** While previous studies have explored sustainability indicators in the higher education sector, including education-related indicators, this is one of the pioneering articles discussing the development of internationally comparable ESD indicators in the higher education sector, looking at indicator relevance, validity and feasibility.
- **Practical implications:** The insights from this article are of value to institutional leaders and practitioners seeking to develop relevant, valid, feasible and internationally comparable indicators rooted in ESD principles.

Equity and quality of education as paths to sustainable development.

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Purpose:

The aim of the presentation is to analyze how equity and quality of education are key factors for sustainable development in a global world. The analysis will use the concept of educational ecosystem as a lens how macro, meso and micro levels of the educational system should be connected, and have also connections with global perspectives and challenges. The macro level includes national systems of curriculum, evaluation and teacher education. The meso level covers institutional factors, such as institutional culture and leadership issues, and micro level personal level features and experiences. How these elements can be connected to big challenges in the global world needs much dialogue between educational stakeholders and other societal actors. Societies have their social-cultural history and contexts, and educational transformations are often slow and often based on a silo-thinking. The

presentation also analyzes how new technology with intelligent tools and environments can overcome some of difficulties and what are limits of technology without human decision-making and responsibilities.

Design/methodology/approach

The presentation will analyze using literature sources how (1) educational ecosystems can promote sustainable development locally or globally by connecting equity and quality, (2) what are risks of inequalities and low quality of education to sustainable development, and (3) and what a role can intelligent digital tools and environments in education play in the future for sustainable development.

Findings or expected outcomes

The presentation will provide a model how high-quality education, equity, technology and sustainability can be connected through interconnectedness, information sharing and diversity.

Practical/social implications

The model can be applied in national policy-making, in education policy and teacher education

Keywords (3-5): Educational ecosystem, equity, quality of education, sustainability

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Education for Sustainable Development: A Study on Tertiary Level Education in Bangladesh

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Sustainable development essentially requires an ecological balance that has been already destroyed and threatening the existence of all the living beings on the planet. Inconsiderate and unplanned human encroachment into nature driven by human need, greed, and ignorance are the root causes of the ecological imbalance. Industrialization, which is also considered as the indicator of development, coupled with relentless consumerism generated by capitalism is playing a vital role in natural degradation. For sustainable development, the current perception of development as well as human behavior regarding the human-nature relationship should be changed. Since education is most importantly responsible for shaping and directing human behavior, both technical and judgemental, sustainable development firstly demands a favorable education system for human beings. Education should provide scientific and normative know-how to the students so that they can understand and maintain proper relationships with nature. The paper evaluates the tertiary level education in Bangladesh to assess the compatibility of education with the attainment of sustainable development. The study will use a qualitative approach with a content analysis method. Data and information available in the secondary resources will be used to analyze and explore the development dimensions of education in Bangladesh.

Keywords: Sustainable Development Goals; Education; Nature; Holistic Knowledge

Session 1C – Sino-Finnish cooperation

Global Innovation Network for Teaching and Learning – new initiative for enhancing Sino-Finnish cooperation in education

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Purpose

Global Innovation Network for Teaching and Learning (GINTL) is an initiative launched by the Finnish Ministry of Education and Culture in year 2021 (University of Helsinki, n.d.). The purpose of GINTL is to nurture collaboration among Finnish higher education institutions (HEIs) and their global partners, particularly in the areas of teaching, learning and teacher education. GINTL aims to foster partnerships for co-creating research-based solutions to global education challenges,

which are often linked to the United Nations Sustainable Development Goal 4 – Quality education. GINTL China Network that focuses on collaboration with partners in China, is coordinated by the University of Helsinki and has 14 Finnish HEIs as its members. This presentation gives an overview of GINTL China Network, its intended activities, and the opportunities it provides for expanding existing collaboration between Finnish and Chinese HEIs, as well as launching new partnerships.

Design/methodology/approach

The authors are members of the GINTL Coordination Team at the University of Helsinki. The presentation will be based on the discussions and planning that have been conducted among GINTL China Network's Finnish member institutions and Chinese partners during Autumn 2021.

Findings or expected outcomes

An expected outcome of the presentation is increased awareness concerning the newly launched GINTL initiative among the JOLII Conference participants, many of whom are potential actors in GINTL China Network. We also expect that the presentation will encourage participants to reflect how to align GINTL China Network and JOLII activities to create synergy for Sino-Finnish cooperation.

Practical/social implications

The Finnish Ministry of Education and Culture has launched a program (2017–2025) that introduces a range of policies for promoting internationalization in Finnish higher education and research (Ministry of Education and Culture, n.d.). GINTL China Network is one key initiative within this framework. At the end of May 2021 Chinese and Finnish Ministries of Education held a high-level education policy dialogue. In the meeting both sides emphasized their willingness to further enhance Sino-Finnish collaboration in education sector (Ministry of Education of the People's Republic of China, 2021).

Keywords:

Higher Education Institutions (HEIs), Sino-Finnish, Collaboration, Network

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Finnish teacher trainers' and Chinese teacher trainees' ethical motivation for participating in in-service teacher training programmes exported from Finland to China

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Purpose:

Informed by the Sustainable Development Goal 4 (Quality Education) and 17 (Partnerships for the Goals) (see United Nations, n.d.), this presentation is based on one sub-study belonging to an ongoing doctoral research project entitled *The Implementation of Exporting Finnish Teacher Education to China: Finnish Teacher Trainers' and Chinese Teacher Trainees' Participation Experiences of In-Service Teacher Training Programmes*. This doctoral research project aims to advance Sino-Finnish cooperation in in-service teacher training, to encourage more Sino-Finnish dialogues, and to deepen understandings of how Finland's education export is being implemented. Because of short history, previous research remains scant and fragmented in education export in Finland (Juusola & Nokkala, 2019). By combining the concept of *ethical internationalism* (see e.g. EIHE, n.d.; Kantor, 1918) with Maslow's theory of *hierarchy of needs* (see e.g. Maslow, 1943; Maslow & Lowry, 1998), the former addresses potential ethical issues concerning power relations in international relations and strives for equity and justice, and the latter categorizes diverse human motivation into levels of needs. This presentation will discuss about ethical motivation of Finnish teacher trainers' and Chinese teacher trainees' for participating in in-service teacher training programmes exported from Finland to China, as well as how to improve future implementation practices by addressing ethical imperatives in transnational education (see e.g. Pashby & Andreotti, 2016). Research questions of this paper are: 1. What are the motivations behind Chinese teacher trainees' and Finnish teacher trainers' participation in in-service teacher training programmes? 2. Through the lens of the theoretical framework, how ethical are their motivations?

Methodology:

This is a qualitative study, and the data were gathered by employing online questionnaires and nine semi-structured interviews. To be in touch with eligible interviewees, purposive sampling strategy was used, and totally four Finnish teacher trainers (n=4) and five Chinese teacher trainees (n=5) were interviewed online. All interview were 47 minutes long in average, and the interviews were analyzed by following conventional content analysis (Hsieh & Shannon, 2005). The purpose for interviewing two different groups of participants is to draw a more complete picture of the target phenomenon (ethical motivation) through dialogically

triangulating two groups of interviewees' perspectives.

Findings:

The preliminary findings show that both Finnish teacher trainers and Chinese teacher trainees decided to be part of the training programmes because of curiosity of and high expectations for benefiting from cross-national/cross-cultural experiences as professional development/learning. The interconnectedness between China and Finland, especially amidst education export, was mentioned by the Finnish teacher trainers, whereas Chinese teacher trainees were motivated to improve teaching and learning. In general, strong professional ethics has been found in both groups of participants. All the interviews were ended with expressed expectations for more communications between Finland and China and for furthering Sino-Finnish cooperation in the future. However, the underlying market-driven logics of internationalization processes behind education export challenged ethical praxes and long-term cooperation—the market-making and profit-seeking motives by some Finnish participants vs. cost-efficient considerations by some Chinese organizers; misinformation and misinterpretations may generate biases or even prejudices towards international Others. To mitigate these tensions, ethical principles are proposed and recommended for participants, stakeholders and practitioners in future implementations.

Practical/social implications:

To advance Sino-Finnish cooperation in in-service teacher training, especially by emphasizing the principle of *quality education for all*, this study is concluded with a set of proposed ethical principles for future negotiation and implementation processes. These principles are *wellbeing and caredness, readiness and obligation, interrelatedness and engagement, respect and achievement, cognitive transformation, cross-national attraction, integrity for quality experience for all, universal benevolence*.

Keywords: ethical motivation, in-service teacher training, education export, Finland, China

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Aims for sustainability in Finnish and Chinese national curricula and science textbooks at the primary level

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Track number: 4 Global and comparative perspectives on education and SDGs

Purpose:

This research compares how the idea of “sustainability” is described in the National Curricula in Finland and China as well as how the aims of sustainability have been implemented in the selected chapters in Finnish and Chinese science textbooks (Grade 3—Grade 6) from the well-known publishers.

Design/methodology/approach:

The study compares the national standards (curricula) in Finland (published in 2014) and China (published in 2019) as well as selected textbooks (Grade 3 to Grade 6) by deductive content analysis. Topics related to energy, recycle or sustainability, environmental issues and biodiversity (ecology) are selected. The text is analyzed into categories of knowledge, competencies, attitudes and contexts corresponding to the idea of sustainability.

Currently, the research is in the stage of pilot analysis and revising the analysis framework.

Findings or expected outcomes:

Here are the expected outcomes based on the pilot analysis.

Both curricula in Finland and China present the aims of developing students’ environmental awareness and action, yet they use different phrases. The textbooks are written following the ideas shown in the national curricula. The Chinese textbooks emphasized more on historical aspects of environmental awareness, yet, the Finnish textbooks centred on scientific content knowledge aspects and daily activities. Comparing to the Chinese textbooks, the Finnish textbooks have fewer tasks for students to inquire about their surroundings.

Practical/social implications:

The study recommends “sustainability” should be systematically integrated into the textbooks, well designed with purposes of knowledge, competencies, attitudes and contexts. Contexts (learning contexts) is one of the most important aspects for the development of students’ attitudes and actions to promote the global goals of sustainability. This is based on the pilot analysis as well as the values held by the author.

Keywords (3-5): sustainability, Finland, China, science education

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The evolution of research, development and innovation in Finnish universities of applied sciences: an institutionalist perspective

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According to the Finnish legislation, Universities of Applied Sciences (UAS) have equal but different roles in supporting societal development. To maintain such legal status, UAS have to strengthen their sustainability by diversifying organizational functions. For instance, UAS have established research, development and innovation (RDI) functions to secure their legitimacy as key players in the Finnish knowledge economy. How does the RDI function have evolved in Finnish UAS? and what factors have influenced its evolution? Few studies touching upon these topics, particularly by making organizational analysis of the evolution of RDI function in Finnish UAS. This Paper intends to bridge the research gap by answering the two questions mentioned above from the perspective of institutionalism. Through investigating two Finnish UAS as case studies, this paper finds that the evolution of RDI function in Finnish UAS is driven by three institutional forces, namely regulative, normative and cognitive ones. The evolution can be divided into three stages: Stage I (exploring), Stage II (responding) and Stage III (restructuring). The institutional factors play different roles in the three stages. The regulative pressures play a conditional role, settings the tone of RDI; the normative influences are dominant in determining the style of the RDI; the cognitive dimension is concerned with the overall image of the RDI in the general public. The paper also reveals that due to different institutional environments, two case institutions adopt different organizational structures at each stage.

Key Words

Institutionalism, research & development, innovation, evolution, Finland, universities of applied sciences

Session 1 D - Higher Education and sustainability

Regional Sustainable Development Using a Quadruple Helix Approach in Japan

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This study aimed to analyze the interaction process among stakeholders (university, corporation, government, and society) and explain the roles of each stakeholder in achieving knowledge sharing. Using a quadruple helix (QH) framework, the processes of knowledge sharing among the four helices of these stakeholders were examined. A single case study approach was employed through the implementation and analysis of a sustainable development goals (SDGs) project held in Central Japan. The study used communication records, transcripts of interaction, and minutes of meetings with stakeholders during the planning, intervention, and reflection stages of the project. Qualitative content analysis was employed to analyze the data. During the initial interactions among stakeholders, the study discovered a science–practice gap due to differences in knowledge of theory and practice. The project facilitated interchanges of knowledge among stakeholders in the respective helices, which addressed this gap. Further, the study clarified the roles of stakeholders as bridging academics, resource-providing industry, observant government, and boundary-spanning society in a collaborative project for sustainability. This explains the balanced QH model that is relevant for sustainability.

Keywords: Quadruple Helix Model, Stakeholder, Knowledge Sharing, Sustainability, Sustainable Development Goals, Content Analysis

Cultivating innovative talents through the research-teaching-study nexus in Chinese higher education: A gear system and a tree model

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Purpose:

This study contributes to the understanding of the cultivation of innovative talents through the research-teaching-study (R-T-S) nexus in Chinese higher education (HE), adding empirical evidence on the practical characteristics of R-T-S nexus to the global HE community.

Since Humboldtian idea of the ‘unity of research and teaching’ in higher education (HE) in 1910s (Humboldt, 1970, cited in Clark, 1994b, p. 11), international attention has been paid to the integration of research and teaching to strengthen students’ learning in HE (Jenkins & Healey, 2010). Burton Clark (Clark, 1994a, 1994b, 1997) brought a ‘study’ component to the ‘front and centre’ in the unity of research and teaching in modern universities, forming a ‘research-teaching-study nexus’ (R-T-S nexus) (Clark, 1994b, p. 11).

Chinese HE has been regarded by the state as both a driver for innovation and a realm to be innovated (Schulte, 2018), where the innovative talents are regarded as the prime resource. Chinese HE has experienced various reforms to enhance its strategic role in China’s national innovation system (NIS). This is expected to be achieved through, on the one hand, the cultivation of innovative talents, especially in research universities by integrating research and teaching to enhance students’ learning and innovative abilities. It is possible that the promotion of R-T-S nexus and the cultivation of innovative talents are interrelated rationales in China’s national policies, especially regarding university innovation and NIS. However, little has been done to dismantle such potential interrelations.

University of Chinese Academy of Sciences (UCAS) is affiliated with Chinese Academy of Sciences (CAS), the highest-profile research institute in sciences in China. As 'an innovative university adopting the model of R-T-S nexus', UCAS aims to cultivate the talents pool and the pioneers in future technology for CAS, facing the nation's vital strategic needs (UCAS profile, UCAS website). However, there is a dearth to explore how this innovative university cultivate innovative talents through R-T-S nexus for English readers.

This article will answer the research questions:

- (1) What are the rationales in terms of R-T-S nexus, the cultivation of the innovative talents, HE innovation and NIS in Chinese national policies?
- (2) How does UCAS cultivate innovative talents through R-T-S nexus?

Design:

This article extensively analyses Chinese national policy documents regarding country development, talents cultivation and HE (National level). Also, this article aims to study the case of UCAS, presenting the dynamics in a particular setting (Yin, 1994). Since UCAS is affiliated with CAS, this article will also analyse the relevant documents of CAS to figure out its rationale, development and management of UCAS and R-T-S nexus (institutional level). Furthermore, the documents of UCAS regarding the university strategy, students' cultivation (institutional level) with a specific discipline example (discipline-based departmental level), the School of Future Technology (SFT), will be analysed. This article retrieved the national policy documents via the online platform of National Library of China. All the documents of CAS and UCAS were downloaded from official websites. The files analysed are issued from 1990s till 2021.

Findings:

This study found that, firstly, cultivating innovative talents through R-T-S nexus as one way to promote HE innovation has form a highly interrelated a gear system in China. Such a gear system serves the aim of nation building, especially regarding NIS, where innovative talents, sciences and technology (S&T) innovation and basic research innovation are vital components. Secondly, a tree model in UCAS regarding undergraduate and master education is illustrated). The extent and high-level research- and teaching- related physical and human resources from CAS function as the supporting trunk of this 'tree' of talents cultivation, supporting the two 'branches' of undergraduate and master education. The 'nutrition for the growth of this tree' comes from the integration and circulation of CAS-affiliated resources. In this tree model, students can design their own personal academic roadmap with individualised tutor assistance. Based on undergraduate and master trainings, students are expected to conduct innovative research at doctoral level independently.

Social implications:

By the presentation of the gear system in Chinese national policies regarding the interrelated rationales in cultivation of innovative talents through R-T-S nexus in terms of HE innovation, facilitating NIS building, further contributing to nation building, this article empirically contributes to the global understanding of Chinese national discourse in HE in terms of the cultivation of innovative talents through R-T-S nexus. Such understanding is of significance since the influence of Chinese HE is increasing on the global stage (Marginson, 2018).

In a world society, it is important for researchers worldwide to communicate with each other about the uniqueness and variations of their national contexts as one academic community, this article argues. Thus, the case of UCAS in this article, exemplified by the tree model, empirically adds to the global, national and local communications and understandings on the practical characteristics of cultivating talents through R-T-S nexus in HE.

Keywords: the research-teaching-study nexus; innovative talents; higher education innovation; national innovative system

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Skatescape in the making: developing sustainable urban pedagogies through transdisciplinary education

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This paper introduces transdisciplinary collaboration between Tampere University, a skateboarding high school, and the Hiedanranta urban district developed as a real-life laboratory of sustainable urban development. We explore the pedagogical dimensions of the collaboration by drawing from the theoretical perspective of 'positive recognition' and conceiving the Hiedanranta skatescape as a 'boundary object'. The paper suggests urban environments as boundary objects that enable productive collaboration between various actors when informed by pedagogies of positive recognition. The proposed value of this approach lies in binding together multistakeholder governance and transdisciplinary learning, including capacity to encourage novel forms of sustainable agency.

Keywords:

education for sustainable development; multistakeholder governance; skateboarding; positive recognition; boundary object

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How they walk the talk? Sustainability education in Finnish business schools

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Purpose:

To study *How Finnish business schools currently embed sustainability in their curricula and how the schools' (non)engagement with sustainability in the past explains the present situation?*

Design/methodology/approach:

Qualitative content analysis of interview data and study guide material.

Findings or expected outcomes:

Great variance of sustainability embeddedness exists, but two main approaches for sustainability integration identified: authenticity and prestige seeking. Sustainability specialization studies build competence on

competence and results in authenticity. Focus on accreditations (prestige) and organizational quality control create room for sustainability integration. However, while prestige seeking is enabling horizontal sustainability integration when the competence in the field of sustainability is limited, the educational content as the outcome could be also short-sighted.

Practical/social implications:

Importance of context sensitivity in the integration of sustainability education. The future focus should be in the pedagogy and competence of sustainability educators.

Keywords:

Sustainability integration, business school, management education, Finland, authenticity

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Session 2 A (Workshop) - Responsibility of universities in promoting adult and vocational education for environmental sustainability

Link to Workshop description: [Responsibility of universities in promoting adult and vocational education for environmental sustainability: cross-cultural collaboration towards planetary solutions](#)

Session 2 B - Early childhood/Primary education and sustainability

Solution-focused Kids’Skill Method creating a skillful mindset in a supportive learning community for children’s sustainable growth and development

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Children all over the world may experience various problems or challenges during their growth. The most common challenges are social-emotional problems or behavioral problems. Solution focused Kids'Skill method supports the children to learn needed skills to overcome their challenges. Learning skills is nature part of human's development in everyday life. Kids'Skill method turns problems to learning opportunities with a skillful mindset to achieve the desired changes. This method engages children in learning new skills focusing on children's strengths and successes, and creates a supportive learning environment which also builds positive relationships in the children's social group. The research method used in this study is qualitative research of case study. In this article, we investigate how the solution focused Kids'Skill method helps children to achieve desired changes, and how it creates the skillful mindset with skillful thinking and skillful learning. The conclusion of this study is that the Kids'Skill method can support the child to achieve the desired changes with skillful thinking by turning a problem to a learning skill and skillful learning with strong motivations in a friendly supportive learning atmosphere. The study also show that the children gradually develop a skillful mindset of skills thinking and skills learning whenever they face challenges which creates a sustainable approach in children's growth and development.

Key words: Solution focused approach, Kids'Skill method, Skillful mindset, Supportive learning environment, Sustainable growth and development

[ECTEC children's visual expressions and storytelling from the nature – ECEC outdoor pedagogy in Rauma campus Teaching garden](#)

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Early childhood education also has a history of garden-based pedagogy in day-care centres according to the doctrines of Friedrich Fröbel (Helenius, 2012). Furthermore, a teaching garden for the first kindergarten and kindergarten teacher training was located on the grounds of the Ebeneser house in Sörnäinen, Helsinki (Meretniemi, 2015). Today, the only functioning teaching garden associated with university-level teacher education is in located in University of Turku, Rauma campus. Also the only university level teacher training day care centre is located in Rauma campus. Early Childhood and Teacher Education Centre (ECTEC) Rauman pikkunorssi is an Early Childhood Education and Care centre that started in January 2021. Rauman pikkunorssi provides research-based early childhood education and pre-primary education for 105 children. Rauman Pikkunorssi promotes the arts, nature, outdoor and place-based pedagogy, which contributes to build children's environmental competence.

The basic idea behind the concept of learning in early childhood education is that children learn, grow and develop in dynamic interaction and activities with people and the local environment. Early childhood pedagogy begins with the child's interests and employing the notion that learning takes place everywhere, because the child is an active doer that explores and observes the world using multiple senses, like an artist. (National Core Curriculum for Early Childhood Education and Care 2018.)

Child-oriented early childhood education has been studied a lot in Finland. Pedagogy, which focuses on the child and empowerment of the child, enables consideration of the child as an individual and lays the foundation for reinforcing self-efficacy, learning through play and the feeling of belonging to a community (Virkki 2015; Kangas 2016; Kinos et al. 2016; Turja & Vuorisalo 2017).

According to Cantell (2003, 2004), the leaves on Palmer's Tree Model, which represent the content areas of environmental education, form equal, independent learning entities on the one hand and interact with one another on the other hand. Learning in the environment involves action and experiential learning. At the same time, children learn experiential knowledge, which guides them along the path to sustainable values. Essential to the activities is to observe children's actions in their peer group where participation and social skills as well as care for plants, nature and friends develop side by side. Guided learning in the teaching garden develops children's readiness and skills related to environmental education and sustainable development and, simultaneously, renders them feelings of success while pottering around in the dirt and among the plants, watching in wonder and caring for the plants as they grow. Consideration is given to the objectives and theoretical grounds related to environmental pedagogy and the empowering pedagogy utilized in arts and crafts education at Turku University's Department of Teacher Education in Rauma (Aerila & Keskitalo 2018; Aerila, Keskitalo & Urmson 2016; Niinistö & Granö 2018; Keskitalo, Aerila & Rönkkö 2017).

The aim of this presentation is to research, which kind observations children of ECTEC make during their activities in Rauma campus teaching garden and how they express their thoughts about nature through their visual expressions and stories. The research material includes children's drawings and stories about the nature and gardening. The themes of environmental education and sustainable development according to the foundations of the early childhood education curriculum are reflected. The approach is qualitative and the data is analysed by descriptive thematic analysis. The results shows that children explore the nature with wonder and careful attention. Many observations involve imagination and play. As conclusion can be seen that the natural garden environment supports children's multisensory and diverse growth and wellbeing. Outdoor pedagogy in garden can be integrated with play, excursions, imaginary pedagogy and basic knowledge of the nature.

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What characterizes effective mindset intervention in enhancing learning?

A systematic literature review

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In recent years, increasing attention has been paid to intervention designs to enhance individuals' performance via priming growth mindset. However, none of the existing research has systematically explored the characteristics of growth-message transformation in effective mindset intervention. The current study provided a systematic literature review of empirical studies of mindset interventions from the perspective of teaching and learning. The results indicated three pedagogical characteristics that successful mindset interventions are reliant on: (1) Interaction of person, context, and theory to generate the message; (2) Iterative processes to ensure the message delivered; and (3) the way of persuasive yet stealthy to facilitate message internalised. Additionally, both theoretical and practical implications, limitations and future directions were discussed.

Keywords: Mindset intervention, interaction, iterative process, persuasive, stealthy

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Trust Culture of Education and the Development of Teacher Education in China

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Trust culture of education is a unique educational culture in which the educational subject has a sense of identity or a positive cognitive orientation towards people and things in the educational field. It can make the trust subject have a psychological tendency that can be depended on the trust object, and thus constitutes a social relationship. As one of the hidden resources and social culture of education, it can simplify the complexity of the education system and maintain the credibility of education. The mature education trust culture in Finland supports the sustainable development of teachers' education system through the maintenance of teachers' professional autonomy and the attraction of students for teacher education programs. Nowadays, the lack of education trust culture of China in the teacher education system is often manifested in the form of teachers' self-identity crisis, declining trust of teachers' expert system and deficiency of general trust in the education system, which is not conducive to improving the quality of China's teacher education system, but also hinders the construction of a powerful country in teacher education. In order to promote the high-quality development of teacher education, by analyzing the value exerting mechanism of education trust culture, learning experience from Finland and combining actual conditions of China, it is founded that its significance and urgency to shape the trust culture of education with "Chinese characteristics" from four aspects as follow: To shape the shared values of education, focus on effectiveness of institution security, maintain teachers' professional autonomy and construct an environment for sustainable development.

Keywords: trust culture of education; teacher trust; Finnish education; teacher education development

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Session 2C – Digitalisation in education and sustainability

SDGs, a Pandemic & Digitalizing Education in Developing Countries: A Case of Pakistan
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Purpose: Purpose of this research was to present a case study on how the current pandemic has created the potential to change the course of education for a school located in a remote village of Pakistan. Globally Pakistan has the second highest number of out-of-school children and with the onset of the pandemic the numbers are soaring. The current study aimed to explore, analyze and synthesize how a small village school coped with the circumstances and managed to increase the number of students while working without basic facilities and infrastructure.

Methodology: A qualitative research design was used for the current study. In person interviews were conducted from the management, teachers and students. The case-study was further built-up through field notes and researcher’s direct observation.

Findings: Findings of the study described how the school’s management and staff were playing their part in implementing the SDGs within their limited capacity. Findings also highlighted problems faced by the students and offer solutions to address these challenges through digitizing education.

Practical implications: The current case study aims to highlight the challenges faced by developing countries in execution of the SDGs and how digitizing the educational process can give better opportunities and enhance accessibility for the key players involved.

Keywords: SDGs, digitalizing education, education in developing countries, education and pandemic

Effects of Collaborative Digital Gameplay on Students’ Three Dimensions of Engagement in Mathematics

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In primary education, digital games have been discussed and used as a supplemental tool to support learning and teaching in the classroom (Callaghan, Long, van Es, Reich, & Rutherford, 2018; Kangas, Koskinen & Krokfors, 2016). In this study, it attempts to provide an in-depth understanding of the influence of collaborative digital gameplay on students’ three-dimensional engagement in mathematics. A face-to-face classroom is designed to explore the effects of collaborative digital gameplay on students’ engagement in mathematics. Unlike previous studies, which focused on overall engagement (Cornelisz & van Klaveren, 2018), this study considers the three-dimensional engagement– behavioural, emotional, and cognitive, because these three dimensions are supplementary to each other and have varying impacts on students’ learning activities. The research questions are examined in the study include: 1) How does students’ engagement in mathematics manifest in collaborative digital gameplay? and 2) What factors impact students’ three-dimensional engagement in a collaborative digital gameplay classroom? The research is a mixed-method study (Johnson & Christensen, 2020) that combines qualitative components with the quantitative research method. The quantitative data is obtained through a pre- (N = 45) and post-test (N = 43) survey about mathematical engagement, and the qualitative data consists of the photo-elicitation interviews (N = 6). The quantitative results showed that collaborative digital gameplay did not elicit a significant increase in students’ engagement in mathematics from pre-test to post-test. Moreover, the qualitative results of analyzing the measurement of three-dimensional engagement showed that four factors— learning achievement, teacher support, peer collaboration, and task characteristics—were associated with students’ engagement in a collaborative digital gameplay classroom. The findings suggest that the classroom context played an important role in three-dimensional engagement, which can efficiently improve students’ conceptual understanding and arithmetic skills in mathematics. This study serves as a foundation for future research, which should further identify the factors that could significantly affect three-dimensional engagement in the mathematics classrooms. Moreover, the future research might explore and develop various forms of classroom context using digital games and collaboration in other subject areas to improve students’ three-dimensional engagement and satisfy different types of students demands and needs.

Keywords: Collaborative Digital Gameplay, Behavioural Engagement, Emotional Engagement, Cognitive Engagement, Mathematics, Primary Education

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Digital transformation of Education and Training – Effective policy for adapting to the post-Covid crisis and sustainability development – the case of Vietnam

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Currently, there are many controversial opinions about the picture of higher education and TVET in Vietnam. Academics and educational administrators are still busy debating on institutional autonomy, accountability with the school council mechanism, but have not found a way out for higher education to really adapt to the post-Covid crisis and sustainable development.

Digital transformation is an emerging trend on a global scale, especially in Vietnam since 2016, the Communist Party and Government attach great importance to digital transformation in education. In this context, the article would like to summarize the latest information on educational digital transformation through analyzing the different aspects between EDTECH and Technological/Digital Pedagogy, the relationship between higher education and job market to provide recommendations for effective policy adjustments for Vietnamese higher education to adapt to the post-Covid crisis and sustainability development.

The paper will exploit the following aspects in the abstract and the potential paper:

1. To clearly identify a research gap to be clarifying the meaning and definition of sustainable development; Education for sustainable development implies a quality of change in educational thinking and practice that is not simple to lecture in a single definition. Education for sustainable development is about the learning needed to maintain and improve our quality of life and the quality of life of generations to come. It is about equipping individuals, community's groups, businesses, and government to live and act sustainably; as well as giving them an understanding of the environmental, social and economic success

involved. It is about preparing for the world in which we will live in the near future of post-Covid pandemic era; and making sure that we are not found wanting.

2. To link the topic to SGDs (as well as Hong Kong China or Thailand and Vietnam, if possible) as the theme of the special issue. The scope of education for sustainable development in the paper may be has some major thrusts as follows:
 - 2.1 Promotion and Improvement of basic education.
 - 2.2 Reorienting existing education at all levels to address sustainable development.
 - 2.2 Development public awareness and understanding of sustainability.
 - 2.4 Training and skills development for the world of work.

In this way sustainable development depends upon the provision of specialized training programmes to ensure that all sectors of society have the skills necessary to perform their work in a sustainable manner. All sectors of the workforce can contribute to local, regional and national sustainability. Business and industry are thus key sites for ongoing vocational and professional training so that all sectors of the workforce have the knowledge and skills necessary to make decisions and perform their work in a sustainable manner.

3. To include methodological and analytical (theoretical) approaches to the research question.

In addition, the author would like to exchange trends in Digital Pedagogy in applying e-Learning (Online and Blended) order to overcome the crisis during the Covid-19 outbreak and prepare for Education and Training of Vietnam to transform and develop in post-covid era./.

Information Literacy, Online Knowledge Sharing Strategies, and the Innovation Performance of Postgraduates— the application of 3P model in a digital era

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Abstract:

The way of learning has changed in digital era. Participation in online knowledge community is important for the development of postgraduate, yet research is insufficient addressing how their participation impacts their learning outcomes. Adapted from Biggs's Presage-Process-Product (3P) learning

model theory, this study develops a framework to explore the effects of environment factors, postgraduates' digital literacy and knowledge sharing strategies on their innovation performance. The analysis of the data from a questionnaire survey of 501 Chinese postgraduates revealed that digital literacy has a positively predictive effect on postgraduates' innovation performance, and quality-oriented online knowledge sharing strategy is associated with better innovation performance. This study also found that the impact of postgraduates' digital literacy on their innovation performance is partially mediated by online learning strategies. Compared with quantity-oriented strategy, quality-oriented online knowledge sharing strategy is a more powerful mediator. The research results provide a reference for universities to make better use of online learning platform to improve graduate learning results and cultivate high-quality talents in the digital era.

Keywords:

Digital Society; Information Literacy; Online Knowledge Sharing; Innovation Performance; Talents Cultivation.

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Session 2 D – Higher Education and sustainability

Impact of Design Thinking and STEAM in understanding Sustainable Development – A Review

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Purpose – This paper aims to understand impact of STEAM and Design thinking on sustainable development (SD) and inclusion. Previous literature reviews have helped in broadening the perspective of understanding what

“arts” has to do in pursuit of SD and how integration of STEAM and design thinking impacts society(school), and the environment.

Methodology/approach – The paper provides a systematic literature review of peer-reviewed journal articles published between 2010 and 2020. Inductive content analysis was applied to identify major impact areas addressed in the literature to develop a conceptual framework detailing the relationship between STEAM, Design Thinking and their impacts on SD among k-12 learners.

Findings (Tentative) – The paper identifies six themes that are the impacts of Design thinking and STEAM on SD, like, positive attitude towards SD, cultural interaction, research uptake in schools, awareness around climate change (GHG emissions), creative thinking, and empathy towards the society and environment. The findings indicate a strong focus on case studies dealing with specific projects taken by school teachers to explain certain concepts (climate change, energy access, environmental degradation) and a lack of studies analysing impacts from a more holistic perspective.

Practical implications – This systematic literature review enables teachers and students on how design thinking and STEAM might shift perspectives about SD and also, it would help teachers design their activities (classroom lesson transactions) that may help students understanding their role in this society, and the environment. Thus, it provides a foundation to tackle these impacts to certain extent.

Social implications – The review highlights that the integration of Art and Design thinking has an inherent role to play to make societies more sustainable indirectly, as this would give teachers and policy makers a scope to embed the meaning of SD in their lessons and curriculum, thus giving children a new dimension to make sense of the wicked problems. Also, this would help children to be empathetic, creative and rational in finding the solutions for the real-life challenges.

Originality/value – This paper provides an overall understating of STEAM and Design Thinking on SD. The conceptual work can be useful for future research that attempts to analyze STEAM’s and Design Thinking’s impacts on SD from a holistic perspective. It also provides an opportunity for the teachers to bring the concept of SD through these models by integrating different disciplines.

Keywords: STEAM, Design Thinking, Inclusion, Review, Sustainable development

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Organizational Innovation, Challenges, and Strategies of China's Higher Engineering Education Reform Laboratory—A Case Study of the SDIM, SUSTech

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China has conducted a butch of policies, boosting the engineering education reform moved from "the Plan for Educating and Training Outstanding Engineers (PETOE)" to the policy about "Engineering Education Certification," currently towards the "New Engineering" strategy(Ministry of Education of the People's Republic of China, 2018). This trend has spawned China's higher engineering education reform laboratories at all levels and types (Li et al., 2020). They have gradually realized organizational innovation in the integrating and conflicts with the internal and external institutional and cultural environments (Zhu et al., 2021). During its process, environmental incompatibility, institutional conflicts, and the benefits gambling between stakeholders continue to be generated. Therefore, innovative strategies are also continuously iterated, gradually forming engineering education reform experience with Chinese characteristics. However, domestic research prefers to focus on the theoretical analysis of macro-policies and the scattered experience of micro-practice (Li & Shi, 2018). It lacks a comprehensive study about the advantages and disadvantages of the engineering education reform, especially its localization process under the institutional and cultural environment. To bridge the gap, this research attempts to interpret the organizational innovation of China's Engineering Education Reform Laboratory.

In order to be in the context of natural institutional culture, this study adopted a case study to understand its uniqueness and complexity (Yin, 2011). The analysis unit was a typical higher engineering education reform laboratory in China-the School of System Design and Intelligent Manufacturing (SDIM) at Southern University of Science and Technology (SUSTech). SUSTech is an experimental university of national higher education comprehensive reform, while SDIM, established at the end of 2018, is one of SUSTech's major platforms for in-depth engineering education reforms. As a "reform laboratory" in the "experimental field," the case experience of SDIM should be crucial, unique, and enlightening. As for the data collection, this research followed the rule of data triangulation, using the methods of semi-structured interviews, documents collection, and observations. The collected data were coded according to the analytic framework promoted by Cai (2016; 2017), which interpreting organizational innovation based on institutional theory (Levine, 1980). It involves three influential factors in the institutionalization of organizational innovation, namely, profitability (Julie, 2009; Yang &Sun, 2019), compatibility (Cai, 2017), and agency or institutional entrepreneurs(Zhu et al., 2021). Then, the following research questions were constructed: (1) Does the organizational innovation of China's National Engineering Education Reform Laboratory have external compatibility? (2) And internal compatibility? (3) How about its profitability? (4) How can institutional entrepreneurs adopt strategies to deal with the dilemmas?

When it comes to the findings, the study found that:(1) the organizational innovation of SDIM, SUSTech, has verified the external and internal compatibility, profitability, and sustainability of China's Engineering Education Reform Laboratory in the institutional and cultural environment. (2) In addition, the institutional entrepreneurs have adopted a series of countermeasures in accordance with local conditions, increasing the external and internal compatibility of organizational innovation in terms of curriculum design, textbook compilation, student selection, and new student evaluation methods, forming a lot of localized reform

experience. (3) However, the incompatibility, low profitability, and conflict of ideas caused by reforms require further strategies by the institutional entrepreneurs of the state, regional governments, and SUSTech. Primarily a unique evaluation mechanism should be set up to improve the profitability of the reform.

Concerning the implications, a new round of scientific and technological revolution and the approaching industrial revolution are triggered by the constantly emerging disruptive technologies, so that innovation-driven has become one of the critical national strategies worldwide. To catch up with the flow, both theoretical and practical engineering education models must be updated accordingly. This study has validated and perfected the institutionalization theory of organizational innovation in China's Engineering Education Reform Laboratory in terms of theoretical contributions. As for the practical implications, the opportunities, challenges, and tensions faced by China's engineering education reform have been decoded through this research, so as the relevant strategies.

Keywords: China's engineering education reform, organizational innovation, compatibility, profitability, the evaluation mechanism

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Creating Communities of Practice to Enhance Liberal Arts Education: Academics' Experiences of Teaching Development in A Chinese Research-Intensive University

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Purpose: Faculty members of universities teach not only as academic specialists but also as educators with crucial responsibilities to guide students toward the cultivation of intellect and character as responsible citizens (McCune 2019). While there is a large body of research on academics' professional development, literature has been relatively thin on their development as educators. This research is to explore how academics in a Chinese research-intensive university learn to become better educators through their participation of a national reform of liberal arts education.

Background: The liberal education curriculum usually consists of selective subjects in the humanities, arts, natural and social sciences, which are believed to associated with students' broad development of intellectual competencies such as critical thinking and problem solving, and qualities such as empathy, compassion and social responsibility (Boyle 2019). The reform is seen as a mix of policy borrowing from the Western tradition of liberal education which is developed by influential scholars like John Henry Newman and long practiced in American universities like Harvard and Yale, and efforts to revitalising China's own educational tradition of cultivating the "whole person" in Confucianism and Daoism (Zhang 2012). About 1/5 of faculty members in each Chinese university have been involved in developing and delivering the liberal education curriculum, who, according to existing research (Shen 2019), reported positive attitudes towards the idea of liberal arts education, and yet expressed confusions about its practice and their role as liberal arts teachers. Faculty development research shows that teaching-focused communities improve academic teaching (Hinrich et al 2015; Zou 2019). Strategies such as training projects and conferences around liberal arts education have been observed in China to provide opportunities for establishing such communities among faculty members. However, research remains scant on faculty members' perceptions and experiences of these community-based development initiatives around liberal arts education.

Design/methodology/approach: This qualitative study uses the social learning theory Community of Practice (CoP) to explore how faculty members in a Chinese research-intensive university perceive their experiences of community-based development for liberal education. Communities of Practice (CoPs) are popularly defined as groups of people who share a passion, a concern, or a set of problems about a topic, and who learn to develop their knowledge and competence in this area by interacting on an ongoing basis (Wenger 1998). CoP-based teaching development could be seen as a process of social learning where individuals learn from each to achieve personal development, and contribute to shared knowledge about better teaching (Green et al 2013). Wenger (1998) argues that the formation of CoPs and personal development are interweaving, and it is through three modes of practice that individuals contribute to the formation of a CoP and to their own personal development. (1) *Imagination* refers to individuals constructing an image of themselves becoming and being devoted to certain practices. It orients one's actions to explore possibilities for future development based on an examination about present situation. In the case of liberal education in this research, for example, imagination could involve faculty members' envisioning their becoming better educators and contributing to students' well-rounded development through liberal education. (2) *Alignment* means aligning a person's activities so that they are coordinated and directed towards the common goals made in imagination. In this research, alignment could involve faculty members' considering what and how to teach, how much time to put among other academic commitments, and what resources are available for teaching development. (3) *Engagement* refers to individuals engaging with the practice and other practitioners, building social networks and sharing knowledge. In this research, engagement could involve faculty members' developing and delivering liberal education courses, attending relevant training sessions and conferences, and discussing with colleagues about their experiences. The three modes are iterative, complementary and could be conflicting or counterbalance (Wenger 1998).

We use the three modes (*i.e.*, *imagination*, *alignment*, *engagement*) as conceptual tools to investigate

academics' experiences of CoP-based teaching development for liberal arts education. This study is developed around two research questions: (1) How do faculty members describe their experiences of CoP-based teaching development? (2) What are the key factors perceived by faculty members that influence their experiences, and that enhance or constrain their development?

To collect data, semi-structured interviews were conducted with 21 academics from a wide range of disciplinary departments and with different academic ranks at a Chinese research-intensive university. Documentation, observation and student interviews were also for the purpose of triangulation of data. Thematic analysis was adopted to identify different types of experience and development.

Findings or expected outcomes: This research aims to (1) describe how the three modes of practice are enacted by different faculty members, (2) summarise different types of CoP-based teaching development for liberal arts, and (3) reveal factors that influence faculty members' experiences and enhance or constrain their development.

Practical/social implications: By investigating faculty members' experiences of CoP-based development for liberal arts education in a Chinese research-intensive university, this research tries to extend existing discussions on whether and how CoPs could support faculty members' development as educators, and thus providing suggestions for universities about how to better support academics' development as educators who are crucial for cultivating responsible citizens.

Keywords : liberal arts education; teaching development; communities of practice; Chinese research-intensive university

Education in Brazil: Key challenges in implementing the UN's Agenda 2030 and the importance of developing future leaders

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Since the United Nations Member States adopted the 17 Sustainable Development Goals (SDGs) in 2015, progress achieved in certain regions is still below the expected rates and speed. Especially about the targets involving access to quality education and combating corruption in Brazil, researchers have identified education as a key solution for corruption. However, most studies do not focus on practical solutions, which should take into account not only the inversely proportional relationship between these factors but its mutual and intrinsic features.

In this context, despite the economic potential of Brazil in terms of natural resources and geographic location, among other aspects, the country suffers from a historic lack of good leaderships, reinforced by a colonial past and a neocolonial present. As a consequence, socioeconomic and structural problems besides systemic corruption, such as elitism in education and social stratification, represent substantial barriers for education development. This paper examines the main challenges on Brazilian education, especially in the context of the UN's Agenda 2030, aiming to promote the debate on emergency solutions in the national progress scene.

Regarding the methodology, this study pursues a novel approach to implement the SDGs from a perspective of international education development. First, this work maps the main socioeconomic challenges of Brazilian education through exploratory research of documents published by UNESCO, the Brazilian Institute

of Applied Economic Research (*Instituto de Pesquisa Econômica Aplicada – IPEA*), the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística – IBGE*), and the applicable Brazilian legislation, with a focus on Law No. 9,394/1996, which establishes the national guidelines and bases of Brazilian education. Second, a qualitative analysis of the topics delineated in the first step is drawn from the four main authors: Émilie Durkheim, Paulo Freire, Darcy Ribeiro, and Lélia Gonzalez. Third, this study also brings insights through a comparative analysis of Chinese policies aimed at the internationalization of education and the formation of leaders, by examining the works of Shuning Liu, Mingyuan Gu, Baocun Liu, and Qiang Liu.

In addition, the expected outcomes may demonstrate that the main challenges on education have been perpetuated by Brazilian authorities through the maintenance of structural corruption and inefficiency. In other words, the historic lack of good leadership is the crux of the socioeconomic issues in Brazil. After distinguishing the symptoms from the root of the problem, it is crucial to encourage the debate on the formation of future leaders. To that end, the first measure should be strategically building a collective mindset and class consciousness by stimulating critical thinking through a decolonial education for all.

Furthermore, the prior findings highlight the essential role of the private sector, the third sector, civil society, and even class entities, such as the Brazilian Bar Association, to pressure the public sector for structural changes, starting with the implementation of effective compliance and anti-corruption policies. As a simultaneous strategy, these sectors could encourage and/or invest in infrastructure projects aimed at providing wide access to open tools, such as the Internet, an ally to offer critical, anti-racist, and gender equality-based education.

In summary, fostering new generations to embrace the political debate, especially within the scope of human development and fundamental rights, is one of the main paces to create capable future leaders, who will seek to implement fair, transparent, and effective education policies. Finally, further studies and debates on how to prepare and give opportunities to next generations, without depending on current government decisions, should be encouraged.

Keywords: SDGs; UN’s Agenda 2030; Brazilian education development; Developing future leaders; Systemic corruption.

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Session 3 A (Panel) – Responsibility for Sustainable Development: A cross-curriculum study of Finnish, German and Ghanaian textbooks messages

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Panel format

The panel is organized as such:

- **Introduction** (ca. 15 minutes)
Overview of the panel by Vera G. Centeno

Presentation of the **project including research questions and conceptual framing** by Susanne Ress

Time for Q&A

- The **Finish case-study** by Vera G. Centeno and Santeri Sorsa
Presentation and time for Q&A (ca. 15 minutes)
- The **German case-study** by Evi Plötz
Presentation and time for Q&A (ca. 15 minutes)
- The **Ghanaian case-study** by Yaa Opabebe Ampofo
Presentation and time for Q&A (ca. 15 minutes)
- **Open discussion** guided by the chair and the project leader (ca. 30 minutes)
The discussion will be guided by questions and topics which cut-cross all three presentations and bring the results to practice. The aim is to reflect on the role of education for sustainable development and to suggest ways in which global challenges might be addressed within the context of school education.

As far as possible, the panelists will engage with the participants during the presentations by making questions, asking opinions, etc.; after each presentation there will be time for related questions. At the end, the floor will be opened to a broader discussion, which will be assisted by the chair and the project leader, as well as other panelists, according to participants' engagement and feedback.

In terms of time frame, the panel is planned to last around 90 minutes, but it can easily be adapted to fit other formats. We will be happy to accommodate any changes that the conference's organizers might find appropriate.

Brief presentation of main topics and discussions in the panel

In recent years there has been a growing interest in education to support youth around the world in learning about how to prevent, adapt to, and mitigate climate change and environmental degradation as part of a global education for sustainable development (ESD). Though often viewed as a comprehensive approach to development and environmental learning, many scholars, particularly in the field of environmental education and global citizenship education, doubt that ESD can foster the kinds of learning needed to alter the current climate trajectory that threatens human and non-human survival. Education is deeply implicated in producing the kinds of lifestyles that have caused climate change to begin with. So far very few studies have paid attention to the shape and scope of textbook-based messages about humans and the environment, and how these relate to the climate and environmental challenges faced in today's global society.

The panel introduces the GENE/EERA 2021 awarded project "Climate change and religiosity: An international, cross-curriculum comparison of school-based messages about human-earth relationships" to examine how human-earth relationships are portrayed in Finish, German, and Ghanaian 7th-9th grade textbooks from different disciplines. We discuss whether and in what ways textbook contents (what students are supposed to learn) address responsibility for education development.

The three presentations analyze each case-study according to the particularities of each context. In the Finnish case-study, we analyzed the common compulsory subject areas for grades 7–9 and identified the subject areas in which relevant learning content was explicitly mentioned: Biology, Geography, History, Chemistry, Physics, Ethics, Religion. In this presentation, we focus particularly on how individual and collective responsibilities for sustainable development are portrayed within the context of climate and environmental change. For the German case-study, we analyzed 7th and 8th grades basic education (Realschule) textbooks of ethics education, Protestant and Catholic religious education, biology, and geography. The presentation focuses on the representation of global ecological connections and responsibility for mitigating climate change. In Ghana, we collected multiple 8th grade, government and private textbooks on integrated science, social studies, religious and moral studies. The presentation focuses on how faith-based and secular worldviews shape youths' perceptions and responses to climate change and environmental degradation. The three presentations are followed by a broader discussion in relation to issues of social justice and planetary responsibility.

Keywords Curriculum analysis; Political Ecology; Finland; Germany; Ghana

Session 3 B – Research/PhD and sustainability

Transforming universities' innovation performance through transnational research collaboration: A panel research of 64 Chinese universities from 2008 to 2016

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Purpose

In recent decade, China has launched a series of policies to further internationalize Chinese universities. Among them, the “Double First-Class Universities” is particularly influential, and highlighted the importance of increasing transnational research collaboration activities. However, by far little is known about the actual impacts of the national initiatives on the universities' transnational research collaboration activities. In past studies, there is also a lack of research on the impacts of the involvement of transnational research collaboration on universities' innovation performance.

Hence, the purpose of this study was twofold: 1) to elaborate on the link between the involvement of transnational research collaboration and the innovation performance of universities; 2) to examine the relation between the “Double World-class Universities” policy and the impacts of the transnational research collaboration in Chinese universities.

Design/methodology/approach

In so doing, we collected and analyzed 576 panel data regarding the involvement of transnational

research collaboration and the innovation performance of 64 universities from 2008 to 2016.

Findings or expected outcomes

The study found a positive correlation between the involvement of the transnational research collaboration and the innovation performance of universities. We also found “Double First-Class” universities did outrank other universities in terms of innovation performance, which indicates a direct positive impacts of the national initiative. This indicates the national policy and financial support is rather crucial for promoting transnational research collaboration and its outcomes.

Practical/social implications

Finally, we call for more meso-level studies on the impacts of transnational research collaboration and also a more open international mindset from the policy-makers as to maintain the sustainable development of research and innovation globally.

Keywords: transnational research collaboration; international academic mobility; innovation performance; “Double First-Class” Policy; China.

Reforming Finnish doctoral education towards a sustainable knowledge society: Proposing a nexus analysis of university-level doctoral schools and faculties in the reform

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Purpose:

Doctoral school reform has been undergoing in Finland since 2011, which is changing the management of doctoral education in Finnish universities. Our previous on-desk research, which will be presented in the book titled with *Education reform worldwide: Finland*, find that many of the reform approaches remained at superficial level or only at university level, and were not fully implemented or engaged at faculty level. Further, other past studies on the structural reforms in Finnish doctoral education has been focusing at the national level and remain at descriptive level (Aittola, 2017; Kamula, Laine, & Kløve, 2013; Kivistö, Pekkola, & Siekkinen, 2017; Lavonen, 2013). There is a lack of research on the implementation of the reform at the faculty level, especially the possible conflicts of the actions by actors from the university level and faculty level which may hinder the reform from going ahead. Hence, we propose to explore the nexus (tensions) between the university-level doctoral schools and the faculties in Finnish universities. *The tentative research questions that guide our study:*

- (1) *How did doctoral researcher, supervisors, doctoral school managements perceive the nexus between the university-level doctoral school and the faculties?*
- (2) *How did they respond to their perceived tensions in the Finnish doctoral education reform?*

Design/methodology/approach:

Qualitative research approach: We already conducted a desk-research on doctoral education reform in Finland, and the documentary data mainly include university strategic documents, government policy documents, reports, news, statistics, etc. Next, we plan to answer the proposed research questions through a

two-case research design. We select Tampere University and University of Jyväskylä as our cases. Through the case study, we plan to interview the heads of doctoral schools and doctoral programs, doctoral supervisors and doctoral researchers in each case institution. Currently, we are at the preparation stage of data collection.

Nexus analysis: The context of our study, we treat doctoral education and its reform as a nexus, where different social actors meet: doctoral researchers, supervisors, faculty management, and the university. Additionally, this nexus involves different places (online and offline) and discourses, such as the one of new public management and internationalisation. Due to their strong connections, they should be examined together (Aarnikoivu, 2020; Scollon & Scollon, 2004).

Previous findings:

Our previous on-desk research finds that under the impacts of new public management, Finnish universities have become more engaged in the governance of doctoral education through doctoral schools. Nevertheless, despite the reform, there are still multiple challenges in Finnish doctoral education today, such as a lack of sustainable funding for doctoral research, possible discrimination against non-contracted doctoral candidates, and insufficient inclusive support for international candidates.

Implications and future study: The study also calls for more in-depth empirical research on the underlying reasons that may hinder the realization of reform, such as the power tensions between university-level doctoral schools and the faculty. Our future study will try to continue in this direction.

Keywords (3-5): doctoral education, structural reform, Finland, doctoral school, nexus analysis

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The study on influences of PhD students' research participation on the quality of PhD thesis

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Purpose: This paper aims to examine the influences of research participation on the PhD thesis quality.

Design/methodology/approach: Based on the survey data from the 2018 National Survey on the doctoral education quality and the anonymous review results of PhD theses, this study explored the influence of different types of research participation on PhD thesis quality.

Findings or expected outcomes: The results shows that (1) Doctoral students' perception of research participation is above average, and the coverage of scientific research participation is not wide enough.(2) The overall quality of doctoral thesis is good and above.(3) Different types of scientific research participation have different influences on the PhD thesis quality, and participation in academic conferences and academic exchanges have significant positive effects on PhD thesis quality while research courses have a significant negative influence. Participation in research project, group meeting and overseas exchange has no significant influence on the PhD thesis quality.

Practical/social implications: Some policy suggestions are put forward to optimize the PhD students research participation and improve the quality of PhD thesis: firstly, we encourage doctoral students to take part in research activities for academic training. Secondly, we advocate the publication of papers as a means of research training, especially encouraging the publication of high quality papers related to PhD theses. Thirdly, at the school level, we should make policies to fund and encourage PhD students to attend academic conferences to enhance academic exchanges with others. Meanwhile, the PhD courses should be optimized and updated to build a diversified research curriculum system

Keywords (3-5): Research participation; PhD students; thesis quality

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A Case Study of the PI-mode Research Management in Chinese Universities: From a Perspective of Organizational Decentralization

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Abstract

Purpose

The mode of Principal Investigator (PI) is a research management model based on the autonomy of individual researchers to orientate their research directions and allocate their research resources. It originates from American universities and has recently been introduced into a few higher education institutions in China. Since its inauguration, the Southern University of Science and Technology (SUSTech) has granted the PI eligibility to every teacher of the teaching and research track. PIs in SUSTech have rights in directing their future research and organizing their own research groups including laboratories, which differ significantly from most Chinese universities where junior faculties most often tie to senior professors. This study aims to investigate the challenges and opportunities of the indigenization of PI-mode in Chinese universities via the prism of organizational decentralization and the theory of higher education system coined by Burton R. Clark.

Design/methodology/approach

A case study on the SUSTech with the mixed methods has been employed. More specifically, documentation and semi-structured interviews with 19 informants were firstly used to testify the analytical framework based on organizational decentralization and higher education system. Then, according to the qualitative data analysis, a survey questionnaire was designed and distributed to all teachers of teaching and research track at SUSTech, and 148 valid questionnaires were retrieved.

Results and Findings

Results suggest that the empowering researchers through the implementation of PI-mode greatly promote the creativity and enthusiasm of junior teachers to conduct original and cutting-edge basic research. As an organizational innovation, however, the PI-mode of SUSTech is still inharmonic to the mechanisms of current national and regional research management in several aspects.

Implications

The existed literature on the indigenization of PI-mode in Chinese universities is largely lacking. This study creatively examines the operation of PI-mode in SUSTech from the perspective of organizational

decentralization in higher education system. With feedback from stakeholders, it summarizes the features of PI-mode in SUSTech that differ from the PI-mode in Western universities and research institutes. For enhancing the sustainability of the PI-mode in Chinese research universities, this study argues that the PI cluster mode might be a feasible solution to improve the competitiveness in large-scale research projects while preserving the autonomy of individual researcher.

Keywords: PI-mode research management, organizational decentralization, higher education system, Chinese universities

Session 3 C – Higher Education and sustainability

Comparing the approaches to authentic assessment in STEM in higher education between the UK, Australia, and China.

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Purpose: This research aims to compare the approaches to authentic assessment in STEM in higher education across three countries (the UK, Australia, and China).

Design/methodology/approach: This research examined six cases of authentic assessment in STEM from three countries (the UK, Australia, and China) in order to draw comparisons between them. There were three ways in which data was collected from the UK and Australia – namely, via documents, websites and academic papers – while data from China was gathered through interviews. Data analysis was then conducted through an evaluation of themes developed from the framework.

Findings or expected outcomes: The thematic analysis of secondary data and interviews shows that cases of authentic assessment in the UK and Australia perform better in maximising students' graduate skills, such as evaluative judgement, by incorporating self/peer assessment and diversifying assessment forms. Chinese HE institutions have fewer connections with the industry in the assessment field, while universities in those two countries work closely with industry partners to make assessment more authentic.

Practical/social implications: Chinese HE institutions can draw some expertise in setting authentic assessment to stimulate students' learning and various skills from others in those two countries.

Keywords: authentic assessment; employability; STEM; higher education; the UK, Australia, and China

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Conceptualising the Potential of Graduate Employability in Achieving SDG 8: The Nexus of Policy, University and Labor market

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Purpose

With the rise of neoliberal policies and the 5th industrial revolution, the world is witnessing a global phenomenon of unemployment and underemployment (Brown, Lauder, & Ashton, 2011; World Bank, 2013; Kabir, 2020). Both increased exponentially, paired up with the mass expansion of higher education with a promise of secured employment and quality of life (Lauder & Mayhew, 2020; Altbach, 2007). Global data shows that the universities and HEIs have significant responsibility on their shoulders to fulfil the expectations of students and the labour market at the same time (Tomlinson & Holmes, 2017). Nevertheless, decent and compatible jobs have not increased at the same rate as the number of graduates has increased. Moreover, employability has become part of the meaningful discourse within academia (Brown, Lauder, & Ashton, 2011). High-income countries, having faced the many stages of unemployment, LMICs are now confronting an increasing number of jobless graduates (McCowan, 2019; Walker & Fongwa, 2017). This paper discusses the case of Bangladesh, a South-Asian LMIC with a growing economy, which has undergone a 200% expansion rate of HEIs, a production of 300000 graduates per year and 39% graduates remaining unemployed every year (ADB, 2012; WB, 2019). Being a signatory of the UNs' SDGs, Bangladesh, like other LMICs, is liable to provide quality education and skills for decent employment (Khatun & Saadat, 2020). Reports emphasising the quality of HE, rethinking the disciplines, reforming pedagogy and assuring institutional quality in Bangladesh (Rahman, Farooq, & Selim, 2021). So, it is essential to look at how policies and strategies address the unemployment and underemployment issue from the part of HE.

LMICs like Bangladesh have been undertaking an approach of rapid expansion of the HE. However, empirical findings suggest that mass expansion without creating an alternative pathway of employment (e.g., TVET and entrepreneurship) can be detrimental to the national economy (BC, 2014; BBS, 2018). At the same time, the core purpose of HE is damaged when quality is not prioritised over quantity (Altbach,

2007; McCowan, 2019). Broadly, this paper will conceptualise employability to meet the relevant SDGs within the national policies, strategy papers and initiatives taken by the HEIs. Firstly, it will contribute to a critical academic discussion that questions the expansion policy of Bangladesh. Other countries whose economies are in the take-off mode will also profit from this. Secondly, this study will unveil the knowledge of how underemployment and unemployment refrain a country to ensure decent, sustainable and appropriate jobs for all. Thirdly, the paper will find how HEIs and the labour market can play active roles, together and separately, to employ HE for the public good. Finally, the study will contribute to catering and advocating data-driven solutions to fill in the policy gaps towards enhancing graduate employability.

Design/methodology/approach

The ontological and epistemological contributions of the study will respectively follow a critical realist and a constructivist approach, with a critical interplay of objectivity and subjectivity. The study will explore the power relations and critique established assumptions to advocate gateways to eradicate unemployment and ensure equal opportunity (Crotty, 1998). We will majorly employ a systematic review design to conduct this study (Creswell, 2012; Cohen, Manion, & Morrison, 2018). It will employ a combination of methods: document analysis, secondary data analysis and case study of one university and employ the relevant findings of the previous two studies of the author. At first methodical literature review will be carried out on existing global and national literature on graduate employability, HEIs expansion policy, and SDG framework for local and global initiatives. Additionally, an initial search of relevant policy documents and white papers identified three major categories of documents that will be taken into consideration for review and analysis in this study, which is as follows:

- National policy papers and planning documents on education, youth and skill development (e.g., National Education Policy 2010 (MoE, 2010), National Youth Policy 2017, Strategic Plan for Higher Education in Bangladesh: 2018-2030 (UGC, 2018))
- Higher Education Project Reports in general and by case university respectively (e.g., HEQEP reports- 2016-2020) and relevant DG progress reports
- National Survey Reports on Higher Education, youth skill development and Labour Force Survey

Findings or expected outcomes

The findings of the proposed paper will reveal:

- Present status of graduate employability concerning the progress of SDG 8 based on the secondary data analysis (Labour force Survey, and World Bank HEQEP project documents)
- Five Years Trend and characteristics of GE in BD (2016-2020)
- the extent of policy response, readiness and challenges to achieve SDG 8 through HE and GE
- Analysis of the activities and initiatives of public universities regarding GE and institutional contribution to SDG 8 (Quality assurance activities/ Internship/ Graduate skill development initiatives)
- Present scenario, limitation and challenges of initiatives within university and labour market and collaboration between these two entities

Practical/social implications

Lack of research has been reported in the field of Graduate employability in Bangladesh, if not globally. Therefore, this paper will be a timely initiative to unveil the scope of GE within the broader development goal of Bangladesh of achieving SDG 8 by 2030. Secondly, it is expected that this paper will be an addition to the existing body of literature on higher education's role for SDG achievement from the context of an LCIM country. Thirdly, the discussion of this paper will give future direction for policy and empirical research initiatives, particularly on identifying diverse roles/initiatives that the university and labour

market can execute to ensure SDG 8 through GE.

Keywords: Graduate employability; employment; unemployment; underemployment; higher education

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The Integration of the SDGs in Business Schools' Organizational Practices: A Longitudinal Text Analysis of PRME Reports

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Purpose: The role of business schools in society has been under increasing scrutiny in recent years (Morsing and Rovira 2011; Rasche and Gilbert 2015). Business schools influence how companies deal with social and global challenges. Their norms and values affect the development of the leaders of tomorrow. The global financial crisis from 2008, coupled with high caliber corporate accounting scandals have increased attention to the social responsibility of business schools. They have been criticized for developing a narrow shareholder orientation while neglecting other stakeholders and the role of business in society (Miotto, Blanco-González, and Díez-Martín 2020; Morsing and Rovira 2011).

In response to these criticisms, a number of initiatives have emerged that are pressuring business schools to deliver responsible management education and research, and be more engaged with local stakeholders, including companies, non-governmental organizations, government and the broader society (Meyer and Sporn 2018). This pressure stems from the schools' institutional environments (DiMaggio and Powell 1983), and namely from coercive (government regulations and funding), mimetic (practices adopted by leading institutions) and normative forces (networks and associations that support social responsibility). A number of initiatives have also focused on the contribution of management education to the achievement of the sustainable development goals (SDGs), adopted in 2015 by all United Nations Members States to achieve a more sustainable future for all. Examples include the Principles for Responsible Management Education, the United Nations Global Compact and the Globally Responsible Leadership Initiative.

Many business schools have responded to these legitimacy concerns by adapting their curricula to include courses on ethics, corporate social responsibility and sustainability (Miotto et al. 2020; Morsing and Rovira 2011). While these efforts are undoubtedly important, institutions are called upon to

look beyond curricular changes and take a more holistic approach to their contribution to sustainable development (Miotto et al. 2020). As such, they are increasingly called upon to ‘practice what they preach’ (Sporn and Badelt 2011) and show responsiveness to society and the environment through their management, education, research and outreach functions.

Design/methodology/approach: This study draws on new institutional theory (DiMaggio and Powell 1983; Meyer and Rowan 1977; Powell 2007) to examine how business schools respond to external pressures for increased social responsibility and sustainability. More specifically, it aims to identify the extent to which business schools integrate the SDGs into their organizational practices and analyze the factors that influence their level of integration.

Higher education institutions, business schools including, increasingly publish reports to communicate their activities and achievements. They do so largely for accountability and transparency reasons. At the same time, reports also serve as so-called legitimation accounts, which are “linguistic devices employed whenever an action is subjected to valuative inquiry” (Scott and Lyman 1968:46). The communication used in such reports is not only important for institutions to gain legitimacy and trust, but is also fundamental to institutionalization processes (Meyer, Buber, and Aghamanoukjan 2013). Reports also serve as communication devices that link intended strategies to realized strategies by outlining organizational strategic objectives and the results obtained in response to these objectives.

This study uses computer-assisted content analysis (Krippendorff 2004; Mehl 2006; Neuendorf 2021; Roberts 2000) to examine the integration of the SDGs into the organizational practices of business schools by analyzing the social responsibility reports published by business and management schools that are part of the Principles for Responsible Management Education (PRME) initiative. PRME was founded in 2007 and is supported by the United Nations to advance social responsibility in business and management schools across the world. It promotes six principles devised to advance social responsibility across different areas of institutional functioning, and namely in the purpose, values, education, research, partnerships and dialogue with the public. PRME signatories comprise more than 800 institutions worldwide, who are asked to submit a Sharing Information on Progress (SIP) report, in which they document and communicate their efforts and achievements in implementing the six principles. The study takes a longitudinal perspective and examines the integration of the SDGs in business schools’ practices from 2015 (i.e. the year of their adoption) to 2021.

Findings or expected outcomes: Given their dependence on the external environment and the need to demonstrate their legitimacy, this study expects to observe an increase in the level of SDG integration into the organizational practices of business schools over time. At the same time, in line with previous research (Jorge, Peña, and Madueño 2019; Miotto et al. 2020), the study expects differences in levels of integration according to institutions’ geographical location, size, legal status, form of accreditation and membership in networks that support higher education engagement with sustainable development.

Practical/social implications: This study provides implications for research and practice. It contributes to research on university social responsibility and provides a research agenda to understand better the influential factors that drive institutions towards higher commitment to sustainable development. Furthermore, the study sheds light on the areas of sustainable development that business schools particularly engage with, and provides a global and comparative perspective that can facilitate learning and benchmarking across institutions and systems.

Keywords (3-5): sustainable development goals, business schools, social responsibility, social impact, PRME

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From an entrepreneurial university to a sustainable entrepreneurial university

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Both the transformation from innovation systems to innovation ecosystems and university reforms in such a context require a renewed understanding of the nature of universities and their roles in society. While the recent flourishing concepts about new models of universities suggest that the notion of an entrepreneurial university needs to be replaced by a more suitable concept to capture the unprecedented

changes in universities in the societal transformation, the features of a new model of university described by these concepts can hardly fit into a consistent framework. This paper responds to this research gap by integrating both conceptual and empirical literature about the transformations or reforms of universities, mainly in the European context. Our major research findings are as follows. First, we identified characteristics of an ideal-type university in innovation ecosystems, named a sustainable entrepreneurial university (SEU), in comparison with those of an entrepreneurial university. Second, we elaborated on three emerging roles of the SEU in innovation ecosystems. Third, we found that while a transition from entrepreneurial universities to SEUs can be seen in European university reforms, the paces of the transformations vary. At the end of the paper, we discuss the scholarly and policy implications of our research findings.

Keywords: sustainability, entrepreneurial university, innovation ecosystem, higher education, literature review

Session 3 D – Secondary school education and sustainability

How to Achieve Happy Learning: Emotional Design Matters*

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Abstract: With the reform and development of education, educators and researchers pay more attention to learners' emotions during learning as they contribute to learners' long-term development and are essential to achieving happy learning and sustainable development. In order to better realize learners' decent emotional state, educators and researchers put forward the concept of emotional design which refers to the using of a range of design features with the goal to ameliorate learners' emotional experience (Plass & Kaplan, 2016). Specifically, emotional design includes two ways: one involves information presentation style and the other is the emotional design of interactive features in multimedia learning environments (e.g., affective pedagogical agents, gamified learning design). Based on these, we conducted four studies to explore the impact of different emotional design methods on learners' learning. Study 1 examined the effect of information presentation style

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design and found that colorful and anthropomorphic learning material contributed to more positive emotions, less negative emotions and better learning performance. Study 2 and Study 3 focused on the affective pedagogical agent (PA), results showed that learners with a happy PA (smiling expression and enthusiastic voice) in Study 2 or learners with an empathetic PA (providing empathetic feedback) in Study 3 experienced more positive emotions and higher motivation than their counterpart, respectively. Study 4 conducted gamified design on learning materials and found that it was helpful to improve positive emotion and performance. These findings inspired us to pay attention to learners' emotions and conduct emotional design through changing information presentation style and optimizing interaction form, and therefore achieving happy learning.

Keywords: emotional design, sustainable development, happy learning

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Assessing and Tracking School Wellbeing through an Automated Scoring System: Schoolday Wellbeing Model

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Students' wellbeing is critical as it marks their positive development in school life and ensures their growth in the future. The assessment of wellbeing has often been static and lagged for the diagnostic/intervention purpose. In this research, we aim to introduce an automated scoring wellbeing system, Schoolday Wellbeing Model, that is featured as dynamic and real-time. During the COVID-19 pandemic, the call for such a system is imperatively needed as students' wellbeing has been largely dampened. The Schoolday model can collect wellbeing data at low cognitive cost, report wellbeing lively at multi-layer (e.g., individual-, class-, school-), and give immediate feedback. The model is constructed on the basis of the School Well-being Model (Konu

et al., 2002; Konu & Rimpela, 2002), School Demand-Resource Model (Salmela-Aro & Upadyaya, 2014), and OECD Social-Emotional Skill Model (Kankaraš & Suarez-Alvarez, 2019; OECD, 2021). In total, the model included four broad domains and 18 sub-domains: social-emotional skills (i.e., task performance skills, emotional skills, collaboration skills, open-mindedness, and social skills), learning (i.e., self-studying, study support, learning environment, learning material), social relationships (i.e., communication with teachers/peers, communication outside school, student services), and wellbeing (i.e., physical health, healthy diet, emotions, psychological wellbeing, academic wellbeing).

This presentation also aims to report the psychometric properties of the Schoolday wellbeing model by using the first stage data (N of students = 2551) that we have collected during March-May 2020 around the globe. We then further aim to examine the predictive role of social-emotional skills in wellbeing. Through the analyses (e.g., Confirmatory Factor Analyses [CFA]), we found that the model's all sub-domain has good reliability (Cronbach's alpha = .72 - .85, except one alpha = .69 for academic wellbeing) and structural validity (model fits such as TLI, CFI, and RMSEA are adequate). Our further analyses with linear mixed models showed that task performance skills (e.g., self-control, persistence) and emotion control skills (e.g., stress resistance, emotional control) were the most consistent skills to promote psychological wellbeing, academic wellbeing, and health-related outcomes. Those findings were consistent across the globe.

In sum, our findings suggested that the Schoolday model is a valid skill, learning, and wellbeing assessment model for school students. For students who are experiencing less wellbeing, it is possible to help them by building task performance skills and emotional control skills. Moreover, the model is run with the help of an Artificial Intelligence-based system. Through continuous data collecting, scoring and reporting, the school administrators can recognize the change of wellbeing and identify the problems if there is a decline in wellbeing. The system will also inform a tailored intervention suggestion to take prompt action. This thus can largely improve our efficiency to provide help for the wellbeing. The future development of the model will also be discussed in the presentation.

Keywords (3-5): School students' wellbeing; AI-driven wellbeing assessment; Socio-emotional Skills

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Reaching SDGs through education: Finnish basic school reform methodology for sustainable development and its integration in the curricula of Russian-speaking schools.

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Purpose

Finland and Finnish Education are globally known not only for Quality education (SDG 4) but also for successful integration of SDGs in the basic school curriculum. This takes place at the national level in the form of developing transversal competences such as "Participation and involvement, building the sustainable future", "Cultural understanding", etc and by the means of applying innovative learning approaches such as Phenomenon-based learning.

The aim of the paper is to analyse how Finnish expertise in the field of SDG development can be integrated in the education systems of Russian-speaking countries in the post-Soviet area including Russia. There will be considered different levels of integrating Finnish approaches starting from methodology and ending with system-specific and cross-cultural issues.

Design/methodology/approach

The paper will lean upon a number of literature sources dedicated to the new reform of Finnish basic education and key-methodology of Phenomenon-based learning and other tools developing transversal

competences. Also, it will base upon the survey and interview results with educators and school directors of Russian-speaking schools concerning integrating Finnish approaches to SDGs in their activities.

Findings or expected outcomes

The presentation will have a methodological and empirical perspective, i.e. it will come up with the two layouts- what can be integrated and how. In addition the presentation will share a number of practical cases which give valuable insights for developing innovative solutions to address global challenges at the level of basic schools in Russian-speaking countries and worldwide.

Practical/social implications

The presentation highlights can be applied for integrating SDG in education on the national level, on the level of a particular educational organisation and also on the level of teacher training.

Keywords (3-5):

Sustainable development goals, curriculum, transversal competencies, Phenomenon-based learning

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Enable 3A in Intelligent Tutoring Systems

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In this talk, we report some new R&D for an extension of classic Intelligent Tutoring Systems (ITS) to a 3A (Content-Aware, Context-Aware, Learner-Aware) enabled advanced learning environment. The technological advancements of cloud computing, AI, and Big Data today make it possible to build ITS more similar to real human tutors. Imagine an ITS that is not only able to understand what the learner said but also able to detect learners' emotion and react to it. Our team made the advanced technology of emotion-tracking fast and easy to use for any internet-based ITS. Any ITS can be enhanced by this feature by being 3A when interacting with the learner. The approach utilizes available sensors as audio, video, and inertial measurement unit (IMU) sensors that are available to most devices (especially mobile devices). Learning applications will be more efficient if they are enhanced with 3A. Several research and technical questions involved in making ITSs 3A enabled. In this talk, we will explain how we make emotion detection context-sensitive and individualized. Our approach only uses off-the-shelf technologies (such as Amazon Web Services, Microsoft Azure) to recognize generic emotion from the face images. This approach requires minimum coding and is cost-effective.

Session 4 A (Panel) Reforms and practices in Chinese and Finnish education: lessons for addressing global challenges in education development with respect to SDGs (Basic education)

The Panel is chaired by Baocun Liu and the panelists are Yuzhuo Cai, Min Li, Ying Li, and Yan Wang with a **focus of discussions on reforms of basic education in Finland**. After a short introduction (5 minutes) by the panel chair, each panelist will give a 10-minute talk about a thematic reform in Finnish higher education. Then the chair will coordinate discussions among the panelists (not exclusive to the main panelists) for around 30 minutes. The remaining time will be used for responding to the questions and comments from the audience.

The topics are:

Yuzhuo Cai: Finnish education reforms: What lessons can learn?

Min Li: The Shift in Finnish Teacher Education Behind "Phenomenon-based Learning"

Ying Li: Reforms of Early Education in Finland

Yan Wang: On the road to reform: STE(A)M education in Finland

Session 4 B – International cases

A Synopsis of Environmental Changes at University of Namibia, Hifikepunye Pohamba Campus

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Environments in which people live should be seen as social constructs and composite of interacting. Humans continuously interact with their natural environments in all the activities that they do. Such activities change the environment in various ways. These changes can affect the environment either positively or negatively. Environmental changes have been part of the University of Namibia (UNAM), Hifikepunye Pohamba (HP) Campus since its inception as Ongwediva College of Education (OCE). Through the years, many alterations to the environment have been initiated by various groups and departments for different reasons. This study intended to understand the underlying conceptual context within which these changes were brought about and benefited the campus at the time. This study adopted a qualitative approach using historical design to discover the actual reasons why some changes were effective and in place up to present, while others have been destroyed and forgotten over the years. Individual interviews were conducted with past and present lecturers from Ongwediva College and HP Campus. The findings of this study might enlighten us to propose the way forward in order to ensure environmental sustainability of any future endeavors. Recommendations from this study may ensure that any future venture into environmental projects and changes at the Campus is sustainably contextualized.

Key words: Environmental changes, sustainability, conceptual context

Education for Sustainable Development: Evidence from Indian Scenario

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Education equips present as well as future generation with skills, value, knowledge and attitude so that the challenges of local to global scale concerning our today and tomorrow can be dealt sustainably. The onus of imparting such an education lies on every country irrespective of nature of the economy. However, the degree of responsibility corresponds to the size of economy and population a country. Because of being the second most populous country and the sixth largest economy, India also shoulders a significant part of the global shared responsibility of achieving sustainable development. Accordingly, through the policy and programmes, the Indian government has made attempt to reach its citizens with the help of formal and informal educational institutions. However, due to alarming situation, there is a need to assess not the policy recommendations alone but also how far they have been implemented on ground.

Keeping the aforesaid in the backdrop, the proposed study aims to critically assess the government's attempt through examining policy recommendations translated into curricular and extra-curricular education imparted in formal educational institutions alone. Followed by the evaluation of recommendations on ground will follow the first stage to know whether with their body and soul are at their place or not when they reach to formal educational institutions, irrespective of their levels. Based on the nature of objectives, sequentially exploratory research design of the mixed method research will be followed. With the help of content analysis, the broad areas of sustainable development have been covered or missed, if any, at the school and college level will be investigated. Herein, the Berlin Declaration on Sustainable Development (2021) will be the reference. In the following stage, select number of schools and colleges located in the national capital of Delhi will be the site of investigation to identify gap between the policy recommendations and ground implementation, if there is any. Secondary data collected from the websites and reports of School education department and higher education institutions along with the primary data collected from the stakeholders of those institutions will be taken into consideration for drawing conclusions.

Results of the study will help to evaluate the status of education for sustainable development both at policy level and implementation level. It will help in identifying gap, if there is any, on both the contexts.

Higher Education, learning regimes and social inclusion: experiences from global south

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Purpose:

This paper proposes to understand the contradictory effects of access to higher education to the dynamics of social inclusion. While most of the literature poses great expectations on policies expanding access to higher education as a tool to promote a more egalitarian world, the results of these policies usually fall short from this brilliant perspective (Adair, 2001; Balbachevsky et al., 2019; Hallinger & Lee, 2011; Raines & McAdams, 2006). Our argument for understanding this contradiction starts from clearly distinguishing the double role education play in all societies. First, it controls access to social and cultural capital. In doing so, education clearly is part of the institutional sets in charge of reproducing the elites. Second, as part of what we called a country's regime of learning (Balbachevsky, 2020), education helps to develop skills and

competences among people. It is in this latter function that education plays a strategic role for social inclusion, as it helps people to arm with socially recognized skills and competences that will assist them to fight for good jobs.

However, to understand how higher education operates in the last role role, it is necessary to consider also its interplay with vocational education and the labour market. As argued in the paper, A policy design solely focused on preparing young people for access to higher education condemns all youths excluded from the pipeline that leads to the university to face the labor market in disadvantage. Without a broader and certified profile of skills or abilities, this youth will have a very limited professional trajectory and few resources to fight against the commodification of her work capacity. Nevertheless, the social value of vocational certificates varies from country to country. Notably, in many societies in the global south, they tend to carry a stigma that made this alternative a less social valuable one.

The paper explores the social dynamics and its impacts to social inclusion produced in four different combinations of patterns of access to higher education and vocational education and focuses on the institutional dynamics and complementarities that shapes the hierarchical learning regime, which, the paper argues, describes the experience of many countries in the global south.

Design/methodology/approach:

The paper adopts the conceptual framework developed by the historical institutionalism, with a special attention to the concept of institutional complementarities, understood as a mutually supportive system of rules and values that provides external constraints and reinforcement for the way institutions operate (Thelen, 2004). From a methodological perspective, the paper resumes findings coming from a case study adopting the process-tracing methodology (Bennett and Checkel, 2015). The paper explores the Brazilian experience as a case of hierarchical capitalism (Schneider, 2009, 2013) but with a perspective that provides bridges for understanding some general dynamics of other cases in the global south that may face the same ceiling constraints in their paths to building a more developed and equal societies.

Practical/social implications:

It is the aim of the paper to explore alternatives for understanding some ingrained patterns of institutional dynamics present in many countries in the global south that contributes to prevent these countries to fully reap on the positive effects of enlarging access to education in general (and higher education in particular) to the dynamics of social inclusion and equality

Keywords (3-5):

Learning Regimes, social inclusion, hierarchical capitalism, Brazil, global south

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Sustainable university governance from a gender equality perspective : A systematic literature review on female academic leadership in Bangladesh, China and Finland

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Purpose

The importance of gender equality for sustainable development of universities has never been over-emphasized. Although gender equality in academic leadership is of significance for maintaining gender-free decision making and management in universities, globally inequality in academic leadership remains a prevailing phenomenon. Even in Nordic countries which have been ranking highly in gender equality in the world, substantial gender imbalance was found in academia, especially in university top management and leadership positions (Pinheiro, Geschwind, Hansen, & Pekkola, 2015).

Difficulties to improve the imbalanced situation reveals our insufficient knowledge on the issue of female academic leadership. Past studies tend to approach the issue by revealing the underrepresentation of females in academic leadership in Western Europe, North America and Oceania (Chesterman, Ross-Smith, & Peters, 2003; Howe-Walsh & Turnbull, 2016; Wu, Bhulani, Jalal, Ding, & Khosa, 2019). By far our knowledge on the said issue in the non-western regions in the world, for instance in the Nordic and Asian countries, is rather limited. There is also a lack of comparative studies to enhance our overall understanding of the female academic leadership at the global scale.

Hence, the purpose of our study is to review recent research on female academic leadership from an international comparative perspective from 2000 to 2021, focusing on Bangladesh, China and Finland. The study raises the research questions as follows: 1) How has the issues of female academic leadership been studied in the context of Bangladesh, China and Finland? 2) As to achieve a sustainable development of university governance, what are the major challenges from a gender equality perspective? For the purposes of this article by “academic leadership” we refer to positions and posts and their holders in higher education institutions who lead and manage the core academic functions of research and teaching and/or lead and manage the academics carrying out these activities (Kohtamäki, 2019). This proposal to the Jolii Conference is based on authors’ manuscript draft which is under process *Gender inequality in academic leadership: Bangladesh, China and Finland* (Kohtamäki, Jinia and Zhang).

Design/methodology/approach

A systematic review has been conducted on 53-academic articles on female academic leadership in Bangladesh, China and Finland, spanning from 2000 to 2021 in order to address the main research question. In addition, the review results has also been compared to find out the universal concerns regarding female academic leadership as well as the differences due to contextual sensitiveness.

Striking findings

First, our study found that gender bias is a prevailing status across the three said country. Male-dominated structure and culture of higher education is the major obstacle for female academic pursuing leadership position, thus calling both for a structural and cultural reform of university governance.

Second, the comparative study shows that past studies only consider this issue from academics’ advancing in academic titles’ ladders, neglecting the female academic leaders in the management positions of universities.

Third, the forms of underrepresentation of females in academic leadership differs in different contexts. In the context of China and Bangladesh, female academics were found to refuse, explicitly

or implicitly, the female academic leadership, which may be related to the long-standing influence of the traditional culture and societal stereotype of genders in the Asia societies. On the other hand, the Nordic Welfare system, the more established legislation system in Finland, which emphasizes on equality, has brought higher awareness of gender equality. However, hidden discrimination against female still exists in Finnish academia, only in a more subtle way.

Finally, gender-related academic leadership studies haven't formed sound research traditions in our country examples yet, which call for more research attentions in the future. We also call for more future study on challenges that female academic leaders encounter in their positions.

Practical/social implications

The study will advance our understanding of the current status of female academic leadership and research on such topic in non-English speaking countries. In so doing, it will also enhance the awareness of the gender inequality phenomenon in university governance. Only with the awareness as the first step, it is possible for us to overcome the unequal situation and develop a sustainable, equal and fair higher education system.

Keywords: gender inequality, female academic leadership, Finland, Bangladesh, China

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Session 4 C – Higher Education and sustainability

The entrepreneurial turn of universities and the public welfare of higher education

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The changes in the organizational environment promote the university being entrepreneurial. This article aims to explore this transformation of university and the challenges it poses to the public welfare of higher education. First of all, the writer elaborated the connotation of higher education public welfare from the attribute of quasi-public product of university, and then teased out the concrete organizational changes in the environment, summarized the characteristics of entrepreneurial university and also discussed the transformation of entrepreneurial universities in the Public welfare dimension of higher education. Studies have shown that development goal of the entrepreneurial universities appears assimilation, weakening the role in promoting development of people; and there is a tendency to place too much emphasis on applied research neglecting the social long-term development; the diversification of interest subject weakens its function of social criticism.

Key words: entrepreneurial university; public welfare; organization environment; higher education

The impact of overseas training programmes on Chinese university leadership in higher education: from an institutional entrepreneurship perspective

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Purpose

In 2012, the Chinese Ministry of Education (MOE) launched a national-level initiative of *Overseas Training Programmes for Chinese Higher Education Institution Leaders in the Central and Western Regions of China*. This initiative was a part of the national education strategy *Revitalization Plan for Higher Education in the Central and Western regions (2012-2020)*. Despite the large investment in the overseas training programmes, little is known about its actual outcomes, especially whether it could sustainably contribute to the development of the selected universities. Hence, the purpose of this research is to study the impacts of overseas training programmes. More specifically, we aim to find out whether the training makes a difference in university leaders' capabilities to tackle the challenges at the institutional level and make changes in their universities while following the global trends and national strategies.

Hence, we raise and try to answer the research question:

How has overseas training programmes changed the Chinese university leaders' perceptions and behaviors

in the aspect of university leadership?

Design/methodology/approach

In order to answer the research question, we conducted a qualitative study. The data consist of the interviews and learning reports of 18 university leaders from Shanxi Province, China who had participated in the overseas training programmes.

We employ the theory of institutional entrepreneurship, firstly introduced by Paul DiMaggio (1988), to generate understanding of the impact of overseas training programmes on university leaders' perceptions and their actions of developing their universities leadership. The institutional entrepreneurship perspective is proved to be a useful theoretical lens to understand the embedded agencies of actors inside institutional environment as well as the institutional changes initiated by them (Lawrence, Suddaby, & Leca, 2010).

Findings or expected outcomes

Our preliminary data analysis indicates that the overseas training programmes did have positive impacts on the Chinese university leaders' perceptions of university governance and management. overseas training programmes offered a learning experience and made leaders reflect on new models and methods of leadership. It helped them to notice the needs for reform in their situated institutions. However, not all the changes in their perceptions led to either changes in their leadership action or changes in the institution. Reasons for this included the lack of financial support, other actors' support in the institutions, and a proper social position to motivate others to join in the change process. However, the analysis of the data must be continued to summarize the findings further.

Practical/social implications

The preliminary findings indicate that overseas training programmes can be a useful tool to realize the needs for institutional changes to implement national policies. In this case, the policy to be implemented was the transformation of 600 local universities to universities of applied sciences in China. Despite an influential training programme, university leaders cannot implement such institutional changes without a sufficient financial and non-financial (policy, social status) support. The findings are to suggest that a more holistic support system with both financial and non-financial support from multi-level governments appear to be needed to support the implementation of the transformation by the selected university leaders.

Keywords (3-5): university leadership, overseas training programmes, China, changes, institutional entrepreneurship

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Higher Education Living Labs: A Systematic Literature Review

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Track number: 3 - Transformations in learning, education and educational institutions for sustainable development

Purpose: Originally introduced as an open innovation approach, Living Labs have emerged as an interface for higher education institutions (HEIs) to collaborate with societal partners in a variety of research, educational and community-based projects to address sustainability challenges (Purcell et al., 2019). Living Labs provide HEIs a platform to frame sustainability related problems with non-academic stakeholders, and support strategic decision-making via co-creation of solutions (Evans et al., 2015). Furthermore, Living Labs impact the way the HEIs' primary activities are managed, including the methods used in the organisation of education, research, engagement and campus operations (Waheed, 2017).

Despite the promise of the Living Labs, tackling sustainability for the HEIs is not a "problem-free package" (Chankseliani & McCowan, 2021). Living Labs are considered as "anchors" for the universities to embed sustainability in their core missions and thus realising a holistic approach to third mission activities (Trencher et al., 2014; Vargas et al., 2019). However, this requires HEIs to embrace transformative engagement models that thread third mission in the education and research activities, as well as in its governance structures (Trencher et al., 2013). Given their loosely coupled nature (Weick, 1976) and hosting of "academic tribes" (Trowler, 2001) of diverse practices, norms, and behaviours (Kezar, 2005) orchestrating a holistic engagement in HEIs is complex, and thus has often been criticised for being "idealised" (Reponen, 1999).

Academic literature is scarce on the opportunities and challenges faced by HEIs to include Living Labs in their strategies. Thus, the primary aim of this systematic literature review is to summarize the existing knowledge on how the HEIs shape and manage Living Lab initiatives, align them with their core missions, while at the same time contributing to their societal engagement mission. In our review, we attempted to answer the following questions: (i) How are Living Labs interpreted and adopted in the higher education context? (ii) How are the HEI core missions (education, research, third mission) integrated with Living Lab initiatives and what outcomes and impacts are generated? (iii) What are the factors that influence the impact of HEI based Living Labs?

Design/methodology/approach: We employed a systematic literature review (SLR) based on in-depth qualitative analysis, with focus on descriptive and thematic analysis of the data. We analysed a wide collection of journal articles, conference papers and book chapters, published between 2007 and 2020, capturing 93 HEI based Living Lab experiences from across the world. In conducting our analysis, we utilised MAXQDA qualitative data analysis software package.

Findings: Our findings reveal that Living Labs are transforming from bottom-up, and often fringe activities of HEIs into strategic initiatives to direct their societal outreach - as well as their education and research - more towards sustainability challenges. This requires HEIs to work on facilitating organisational change as well as intensifying relationships with a diverse set of stakeholders. Our analysis resulted in five clusters of constraints and facilitators that influence the impact of HEI Living Labs: exogenous factors; organisational factors; resources and capacities; planning and implementation, and individual and group factors. We suggest that Living Labs support HEIs in their move beyond economic development oriented "entrepreneurial" third mission and towards the public good oriented "civic university" model (Hazelkorn, 2016), in which engagement is embedded across the whole institution. Sustainability of temporary Living

Lab initiatives remains a question, as majority of projects rely on external funding. Simultaneously, sustainability discussions move towards institutionalisation of experiences. Living Labs are perceived as preceding steps into the embedding of the approach in the HEIs in the long run (Juujärvi and Pessa, 2013) while building interdisciplinary capacities, propagating values of sustainability and behaviour among students (Zen, 2017), and activating local networks (von Wirth et al., 2019).

Practical/social implications: To integrate Living Labs in their missions, HEIs need to work on capacity building and the provision of theoretical and practical training on inter- and transdisciplinary research methodologies. Incentive structures need to be reformulated, for the Living Lab and co-creation methodologies gaining acceptance among the academics. So far, little is known about the assessment and impact of LL initiatives undertaken by the HEIs. Our literature review also points to the need for further research on the (hybrid) governance approaches to Living Labs, in particular the roles and responsibilities of academics involved in managing Living Lab initiatives.

Keywords: Higher education institutions, Living Labs, open innovation, organisational change, sustainability, third mission

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Session 4 D – Secondary school education and sustainability

Attitude of Secondary School Students towards Vocational Education in Tanzania

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Vocational Education Training (VET) in Tanzania is designed to prepare, upgrade and retain artisans for country's sustainable development. In spite of government efforts in supporting vocational educational training, it seems there is a low awareness and desirability on vocational education and training among secondary school students and public at large. This paper intended to determine the attitudes and perception of secondary school students toward Vocational Education and Training to enhance sustainable development in Tanzania particularly in Iringa region. In this study, 100 students were randomly selected from five secondary schools. Meanwhile, purposive sampling was used for key informants to select the sample size of five respondents. Data were analyzed through thematic analysis for qualitative data meanwhile quantitative data were processed through Statistical Package for Social Sciences (SPSS) whereby frequency and percentage were obtained.

The findings indicate that many students believe that VET graduates are likely to find or secure job earlier than university graduates. Also, generally secondary school students perceive vocational educational training as for all students regardless of their academic performance and low family economic status. Moreover, it was revealed there is no specific strategy for guiding students on their relevant career. The findings conclude that VET is very crucial for Tanzanian's sustainable development as it is marking a lower-middle income country.

The Role of digitalisation in education for sustainable development

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The purpose of the study is to explore the role of digitalization in education for sustainable development. While digital technologies and digitized data have been used by developed countries to improve the quality and increase access to education for sustainable development many African countries face the challenges in

education. Digitalization is the fastest evolving sectors of our world with the potential to transform government and business in Africa.

The greatest challenges in Namibia and Africa at large that hinders sustainable development are environmental and development issues the countries face. This challenges are not limited to food security, water security, poverty, natural disasters, migration, deforestation, drought, diseases, land degradation, climate change, and poor education. Hughes and Johnston (2005) recognized that sustainable development is now as much about social equality for current generations as about efficient resource use-and conservation of natural resources for future use.

The questions the study aims to answer are the following (1) what is the state of digitalization in education in Namibia? (2) Is there any significant relationship between digitalization and sustainable educational development?

The authors have conducted a systematic review of the existing literature, by identifying and synthesizing the existing body of knowledge.

The author have conducted a systematic review of the existing literature, by distinguishing and blending the existing body of knowledge. Digitalization has become part of education system in the whole world but the education for sustainable development is still remains a main concern. The results indicated that education should modify their educational policy to a new digital educational model in order to achieve their goals. Hence, a need is to focus on the use of digital solutions in education in order to achieve education for sustainable development. The study can serve as the basis for further study on the construction of digital educational solutions along with automation and artificial intelligence and make contribution to innovation literature and beyond.

Keywords: Sustainable Development, Digitalization, Development challenges, Education.

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Chinese immigrant parents' opinions and experiences related to their involvement in children's early English language learning in Finland

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The aim of the study is to investigate Chinese immigrant parents' opinions and experiences related to their involvement in children's early English language education in Finland. In this study, early English language education refers to the English language education children received at the age of 7-13 years old. Since 2020, the time to start the first foreign language education for pupils in Finland was brought forward from Grade 3 to Grade 1 (Finnish National Agency for Education, 2020). Besides, it has been confirmed in many studies that parental involvement can significantly contribute to children's success in foreign language learning (Butler, 2015; Forey, Besser and Sampson, 2016; Griva and Chouvarda, 2012). Meanwhile, immigrant parents are a special group who face unique challenges in their involvement in children's education (Antony-Newman, 2019). It is worth noting that Chinese immigrants ranked the sixth biggest immigrant group in Finland in 2020 (Finnish Immigration Service, 2020). However, limited studies have explored the immigrant parents' involvement in their children's early English language education in Finland, especially for Chinese immigrant parents.

In this study, I firstly investigated Chinese immigrant parents' opinions on the appropriate age for their children to start English learning in Finland. Then, I focused on their experiences in the involvement in children's English language learning, including their ways of involvement at home and school contexts. After that, I explored challenges they faced in parental involvement, especially the challenges they encountered related to their special status as immigrant parents. Qualitative approach and semi-structured interview were employed in the research process. Ten Chinese immigrant parents whose children have been studying English for at least a year in Finnish public primary school were interviewed online. All interviews were audio-recorded and transcribed. Content analysis approach was utilized for data analysis.

The findings revealed immigrant Chinese parents' opinions and experiences about their involvement in children's English language learning were greatly affected by the social and language contexts they lived in. Firstly, most of Chinese immigrant parents hoped their children to start early English language learning following Finnish primary school curriculum, which is starting English language learning from Grade 1. The reasons include their trust in language education in Finnish primary schools and the massive English exposure their children already had in daily life before entering primary schools. Some parents also believed that Chinese and Finnish language learning is more important than English language learning for their children due to their status as Chinese immigrants living in Finland. Secondly, these parents understood the importance of parental involvement and employed various ways to get involved in children's early English language learning. However, their attitudes and methods were influenced by children's current English language levels and children's interests in English learning. Thirdly, these parents encountered unique challenges in their parental involvement regarding their special status as immigrant parents, such as facing "language barriers" (Antony-Newman, 2019, p.8) in home school collaboration and having different expectations with English teachers for children's learning achievements. Lastly, according to the challenges they faced, participated parents provided some wishes and suggestions for teachers in Finnish primary schools and Finnish education administrators, such as improving homeroom teachers English speaking skills and communicating directly with children's English subject teachers. Overall, the immigrant Chinese parents held positive attitudes towards their children's early English language

education in Finland and participated in children's English language learning actively.

I hope the findings can provide Finnish educators a comprehensive revelation of Chinese immigrant parents' involvement in children's early English language education in Finland. Meanwhile, I wish Chinese immigrant parents in Finland can learn from each other's experiences for participating in children's education. In the end of the thesis, practical recommendations generated from the findings and parents' suggestions were given for homeroom teachers and English subject teachers in Finnish primary schools, Finnish education administrators, and Chinese immigrant parents to foster home school collaboration and to conduct more efficient parental involvement. In addition, this small-scale research may hopefully inspire other researchers to further dig into immigrant parents' involvement in children's education in Finland, especially regarding English language education.

Keywords: parental involvement, immigrant parents, early foreign language education, early English language learning, primary-school level

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The most significant changes to learning: A comparison of students and teachers' perspectives

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Unemployment has been a regional and global problem facing graduates who would have contributed to sustainable development. Among other factors, teaching philosophy is considered to be among the key factors which can hinder or promote significant learning. Learning is considered to be significant if it results into sustainable change in learner's lives in terms of skills and attitudes. Graduates need relevant skills and competences to enable them to solve their own and societal problems. Literature have indicated that transformations in learning is among the key factor for such skills. In response to graduate's unemployment, some universities in East Africa have been implementing TESCEA¹ project in which teachers have been trained on transformative learning and course redesign since the year 2018 to date. Transformative learning is regarded as an innovative approach which enhances significant learning among students. There are variations in perspectives between teachers and students with regard to the most significant changes to learning. These different perspectives result from deployment of transformative learning approach.

In this paper, the most significant changes to learning perspectives are compared between teachers and students across the four universities in East Africa. The study was guided by two key objectives. To examine if there were any demographic differences among students and teachers on perception of changes in significant learning before and after the baseline. To determine any significant differences on the notion of significant learning attribute among teachers and students. A sample of 138 students, and 174 teachers were selected following their participation in the transformative learning and course redesign trainings. A quantitative survey approach was used. Data analysis involved a comparison of teachers and student's perspectives before and after the transformative learning. The comparison was made using single in difference regression estimates for the outcome variables before and after the training programme. The findings revealed that, students showed differences in understanding of significant learning before and after the training. In all estimated regression outcome variables, the impact of training programme on learning ranges between 39.9% and 16.3% before and after training programme.

Students who worked with teaching staff on activities other than coursework showed highest learning impact. While, all estimated impact of training programme on outcome variables are 90% statistically significant, the estimates have negative coefficients for almost all estimated outcome variables. However, the negative coefficients are attributed by the fact that the baseline study constituted more than 70% of sample for all

¹ TESCEA project is a three-and-a-half year project, supported by the FCDO-funded Strategic Partnerships for Higher Education Innovation and Reform (SPHEIR) programme, it started in 2018 and will complete in September 2021

respondents. The estimated impact of training programme on gender indicated that female students are 16.8% less likely asks questions in taught sessions as compared to male. Similarly, female students are 3.8% less likely to discuss academic performance and/or feedback with teaching staff as compared to male students. Female students are 4.9% less likely to work with teaching staff on activities other than coursework as compared to their counterpart males. These estimates for the gender difference in learning are statistically significant. Also, training programme has highest impact on teacher's perception on critical thinking teaching methodology. Teachers are 49% less likely to agree that critical thinking is an important teaching method in certain subjects for the baseline study as compared to the follow-up study. The estimate of an impact increased up 56.6% when the female and male sample were estimated separately. The estimate was statistically significant which implies that training has an impact on female teachers as compared to the male. Moreover, the comparison analysis for students learning outcomes and teaching methods as well as the understanding of the critical thinking indicated that the training has the highest impact on teachers as compared to students whereby the impact of training was found to be 10% more for teachers as compared to students. Hence, this study concludes that there is gender, age and university-based differences on the notion of significant learning among students and teachers. These differences call for higher education institutions to enhance the gender responsive pedagogies which are relevant for different courses. Continuous training on transformative learning and development of community of practices within institutions, across regions and globally are still essential for them to continue trying new approaches and share experiences.

Key words

Learning
Sustainability
Learning outcomes
Transformative learning
Graduate employability

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Session 5 A (Panel) – Reforms and practices in Chinese and Finnish education: Inclusive and Equitable Quality Education

The panel is chaired by Jun Teng and panellists are Baocun Liu, Yu Huang, Ruichang Ding, and Yiyun Hu. It aims to share Chinese experiences to ensure Inclusive and Equitable Quality Education from different perspectives, such as “education medium and long-term plan mechanism”, “education partnership assistant project”, “teaching researches system” and “supervisor and graduate students seminar”, so that the international community can better understand the current Chinese education development.

Topics:

Yu Huang: Chinese Education Medium and Long-term Plan Mechanism and Development Effectiveness

Ruichang Ding: Education Partnership Assistance Project to Promote the Balanced Development in China

Yiyun Hu: Teaching Researches System and Quality Assurance in Chinese Schools

Baocun Liu: Supervisor and Graduate Student Seminar and Quality Assurance in Chinese Universities

Session 5 B (Panel) – Impact on Higher Education Transformation and Leadership Development: Overseas Training Programmes for Chinese Higher Education Institution Leaders

Panel chair, affiliation, email address

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Yu Sun, Post-doctoral fellowship, Faculty of Education, East China Normal University, moonartemis@163.com

Discussant: Meiying Jing, Deputy Director, International cooperation and training office, National Academy of Education Administration, myjing@naea.edu.cn

Panel format (how the panel is organized and how participants are engaged)

The panel consists of two editors and two chapter authors who composed the book *Overseas Training Programmes for Chinese Higher Education Institution Leaders in the Central and Western Regions of China*. One discussant is invited to join the panel. This session welcomes participants who are interested in the topics of continuing professional development training for senior educational leaders, higher education development in central and western regions of China, and the impact and implications of overseas training.

This panel session has three parts.

Part 1 introduces the background of the research project and its importance on Chinese higher education development and SDG achievement.

Part 2 entails four presentations on overseas training provided in four countries.

Part 3 probes into the lessons learned from international benchmarking and overseas training. The discussant will have an in-depth conversation with the project members and other participants will be given the opportunity to raise questions and comments on the project.

Brief presentation of main topics and discussions in the panel (max. 500 words)

The aim of this panel is to facilitate mutual reflections, debate and dialogue, and to explore the impact of *Overseas Training Programmes for Chinese Higher Education Institution Leaders in the Central and Western Regions of China*, and how the OTPs contribute to sustainable development goals (SDGs)

The panel will present some research outputs of the project *Impact of Overseas Training Programmes for Chinese Higher Education Institution Leaders in the Central and Western Regions of China*. Those outputs are part of the book titled *Impact on Higher Education Transformation and Leadership Development: Overseas Training Programmes for Chinese Higher Education Institution Leaders*, which will be published by Springer.

The panel session consists of three parts:

Part 1: 10 minutes

Xin Xing introduces the background of the research project and its importance on Chinese higher education development and SDG achievement.

Part 2: 40 minutes (10 minutes/presentation)

1. Ge Wei explores the leadership development of Chinese HEI leaders through attending the OTPs in Canada, the U.K., and the U.S.

2. Yu Sun examines Chinese HEI leaders' perceptions of tenure in American HEIs.

3. Xin Xing explores the perceptions of Chinese HEI leaders' understanding of Australian and Chinese higher education systems after attending the OTPs in Australia.

4. Meng Tian presents the key lessons learned from of the overseas residential training from 2012 to 2018.

Part 3: Panel discussions, questions and answers, 40 minutes (30 minutes panel discussion and 10 minutes Q&A from the audience)

Meiyong Jing leads the discussion to: (1) probe into the lessons learned from OTPs and recommendations for future programmes; (2) how OTPs contribute to SDGs.

Keywords (3-5)

Overseas training programmes, Chinese higher education institution leaders, impacts, continuing professional development (CPD)

Session 5 C – International cases

Rethinking education and sustainability in the post-COVID world: Challenges and opportunities in implementing remote and online learning, lessons from Southern Africa

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Track 3: Transformations in learning, education and educational institutions for sustainable development

The purpose of this paper will be to review the impact of the COVID-19 pandemic on education and learning systems in selected countries in southern Africa. The global lockdown measures effected since March 2020 had an impact on education following closures of schools and other learning institutions. In the higher education sector, vocational training colleges and universities had to change their mode of education delivery from traditional face to face modes to remote and online education. Two of the lessons learnt from the impact of COVID-19 on education systems have been, first, the extent of ill-preparedness for online technology-based education and the attrition of children and other categories of learners from learning institutions. In respect to southern Africa, the pandemic also exacerbated existing challenges of unemployment, inequality and poverty. Second, the pandemic highlighted the impact of unequal access to education for women and girls and the challenge of gender-based violence and safety for all especially girls. Human security has been severely tested during prolonged lockdowns with young girls subjected to sexual violence and unwanted pregnancies. The pandemic has reversed some of the gains of the MDGs and threatens progress towards the SDGs.

This paper will focus on how some Universities in southern Africa responded to the transition to remote and online education with specific reference to Education and the Human and Social Sciences. One of the key findings from recent research has been the increase in inequality in respect to access to education opportunities for all learners especially those in the tertiary education sector. One of the first indicators of this was the digital divide which resulted from lack of access to devices (computers and other hardware) and data (Wi-Fi connectivity and mobile telephony) for learners. Learners in better resourced institutions were able to gain rapid access and onboarding to online learning platforms. Learners from poorer communities and especially rural settings were disadvantaged in terms of access. Further, learners in TVET learning institutions were more or less excluded from online education opportunities. The prolonged impact of the pandemic has resulted with the loss of significant amounts of learning time with adverse impact on quality of education and knowledge gain and preparedness for the world of work. Specifically, the loss of internship and learnership opportunities was especially challenging over the last two years. Further, loss of livelihoods for families including loss of jobs has resulted with more learners being unable to afford education where fees are a requirement for access. To compound this, the loss of family members to Covid-19 has exacerbated the negative impact of the pandemic on learners and the learning ecosystem. How to attract and retain learners back into the education system in the future will be a challenge.

Despite the challenges highlighted above, a few opportunities have emerged over the last few months of living during the pandemic. One of these has been the mobilisation of multi-stakeholder support for learners within the education system. Private sector firms such as mobile phone service providers offered reduced rates for data and internet access. Further, governments also provided subsidised devices for learners. Learners devised new ways of learning through online commons whilst some publishing houses facilitated access to their resources for free or on subsidised terms. Academics and learners were provided new opportunities for capacity development in technology-based education including access to free or subsidised global online education hitherto not available. Curriculum design and development initiatives are increasingly more open to diversity in respect to ways of learning and ways of knowing. This is particularly important in education systems where indigenous and traditional education have been overlooked in respect to their value addition to formal education systems. The paper will draw examples from Botswana, Namibia and South Africa to illustrate the main points being raised. Specifically, it will draw on education in the fields of TVET, Peace & Security Studies,

Social Studies and the broader Humanities to highlight how rethinking education and technology will benefit the transformation of education in southern Africa. It will conclude by highlighting the significant opportunities for transforming education systems in Africa as a continent with a youthful population. It will be argued that research is urgently needed to provide evidence-based policy shifts in education to ensure the future of education can be more inclusive and democratised. Further, with global uncertainty in skills for the future, it will call for a review of the nature of skills and training fields which have been traditionally privileged in education. This will be an imperative if sustainability and a more pandemic and disaster resilient southern Africa is to be realised. Finally, attaining the SDGs and the African Union's Agenda 2063 will need greater global engagement in respect to funding research and development in education to enable future sustainability.

Keywords: COVID-19 pandemic, Remote and online learning, indigenous knowledge, TVET

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An Evaluation of Academic Performance in Grade 12 STEM Subjects in Namibian Secondary Schools: A Hierarchical Regression Model

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Track number: 3 Transformations in learning, education and educational institutions for sustainable development

Purpose

The aim of this study is to examine, the relationships between academic achievement and demographic variables and socio-economic variables on one hand and examine to what extent students' factors, teacher's factors and school factors affect the students' academic performance in STEM subjects in secondary schools in Namibia on the other hand.

Design/methodology/approach

Using a hierarchically built data of 24746 students nested in 190 schools, a series of two-level multilevel regression model was used to determine predictor of academic performance.

Findings or expected outcomes

There was significant variation in academic performance in STEM subjects among schools. The study established that, classroom infrastructure, availability of libraries, age of learner, sex of learner, teacher qualification, computer room ($p < 0.05$) were significantly associated with academic performance.

Practical/social implications

There is a need for improved coordination and management schools to ensure that learners are equipped with the necessary resources: large numbers of students in classroom, learning facilities and stimulate the

students' enthusiasm in working hard and ensure qualified teachers are employed.

Keywords: Academic Performance, STEM subjects, Hierarchical Regression, Namibia

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Promoting Sustainable Development Goal 4 Through ICT Integration into the Geography Advanced Subsidiary Curriculum in Namibia

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Purpose: Education for Sustainable Development (ESD) is viewed as a powerful vehicle for the realization of Sustainable Development Goals (SDGs) in Namibia. The introduction of universal primary and secondary education in Namibia is in accordance with the Sustainable Development Goals (SDGs), particularly SDG 4 (lipinge & Julius, 2016). According to the United Nations (2019) Goal 4 acknowledges the role of education in the social, economic and political spheres of all and ensures inclusive and equitable quality education and promote lifelong learning opportunities for all. Technological innovation is said to play a critical role in supporting the successful implementation of the SDG 4. Hence, the integration of sustainable development issues in the teaching of Geography is geared towards achieving of SDG 4. There is however, no evidence in Namibia on how ICT integration in the teaching of Geography Advanced Subsidiary (AS) Curriculum promotes SDG 4. In this paper, we therefore aim to explore how ICT integration promotes SDG 4 in the teaching of Geography (AS) curriculum.

Methodology: We will use qualitative approach, following multiple case study design. Semi-structured interviews and focused group discussions will be conducted with Geography teachers to explore how ICT integration promote SDG 4 in the teaching of Geography (AS) curriculum. The inductive approach will be used in analyzing the data. Emerging issues will be categorized into themes and later triangulated.

Findings and expected outcomes: The findings and recommendations of the paper have potential to inform and share the lived experiences of Geography teachers on the contribution of ICT integration to the attainment of SDG 4.

Practical and social implications: First, the social implication of this paper is that it can propose new changes which may strengthen the realization of SDG 4 in the Geography AS curriculum. Second, the paper will outline the role of school subjects in achieving the SDG 4. Third, the paper will bring out the practical implications of technological innovation in promoting SDG 4 in the teaching and learning processes in Namibia.

Key words: ICT integration, Sustainable Development Goals, quality education, advanced subsidiary

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A Comparative Study of the Impacts of Human Capital and Physical Capital on Different Stages of Economic Growth: From the Quantity and Quality Perspectives

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Purpose: The comparison of the contribution of human capital and physical capital to economic growth has long been a core issue in the field of economics and education. The main objective of this study was to compare the output elasticities of human and physical capital for economies at different stages by measuring the economic development with the traditional GDP and green GDP. The traditional GDP measured the quantity of economic growth, and the green GDP, in this paper, was employed to represent the quality dimension of economic development.

Design/methodology/approach: The study used the panel data of 143 countries and regions during the period from 1990 to 2014. By introducing human capital into the Solow model, this paper investigated the contributions of human capital and physical capital to both the quantity and quality of economic growth. In particular, considering the unbalanced distribution of economic growth among countries and regions, the paper employed the quantile regression model to grasp a deeper understanding of the heterogeneous roles of physical and human capital in different stages of economic development.

Findings or expected outcomes: Results showed that 1) The estimation of the ordinary panel regression model showed that the elasticities of output with respect to human capital were greater compared with physical capital, while green GDP was significantly more sensitive to changes in human capital than the traditional GDP. 2) The estimation of the quantile regression model evidenced not only the significance but also the stability of human capital. As national economic levels grew, countries became less dependent on physical capital, yet human capital maintained its outstanding role at different stages of economic development, particularly for the building of more sustainable economies.

Practical/social implications: The findings indicated that economic growth is more sensitive to changes in human capital than to changes in physical capital concerning both the quantity and quality dimensions. The more developed economies are less responsive to changes in physical capital, while the impacts of human capital maintain to be prominent. In particular, the sustainability of economic development relies highly on the accumulation of human capital.

Keywords (3-5): physical capital; human capital; green economy; Solow model

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Session 5 D – Other related topics

Descriptive and Thematic Analysis of Students' Perceptions of YouTube in Education

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Purpose: The integration of YouTube in education has made learning innovative in the 21st century. The present study using descriptive and thematic analysis is conducted to analyze students' perceptions about the usage of YouTube for learning, their corresponding usage patterns, and associated factors motivating them to use YouTube.

Design/methodology/approach: An online google survey is disseminated to undergraduate and master's degree students and out of 80 students in total, 76 responded.

Findings or expected outcomes: Unavailability of desktop and laptop computers caused a major decline in the use of YouTube in education. Most students used YouTube for various academic activities except for video sharing. Most students found YouTube a beneficial source for improving educational activities. The findings in the last four questions confirmed that most of the students will integrate YouTube in their future learning activities.

Practical/social implications: The findings can contribute to improving the use of YouTube to benefit from other online video source platforms.

Keywords (3-5): academic performance; perceptions about Youtube; virtual platform; Youtube.

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Philosophical Discourse of Value in Implementation of the Principles of Sustainable Development: Ukrainian Case

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The goal of the study is to substantiate the meaning of the phenomenon of value as the cause and purpose of the Sustainable Development's strategy.

The research methodology consists in a philosophical-categorical analysis of values, an attempt to typologize them and interpret education as a instrument of value's formation and influence for sustainable development of particular countries and the humanity in whole.

Findings or expected outcomes. The philosophical problem of values has a long and meaningful history of formation and development. Many different options for determining the value should be systematized into four main categories: global, motivational, unifying and emotional. The general context, the common space of accumulation of value is education. Education is the field where various individual, egocentric interests and aspirations are transformed into common goals and priorities of coexistence and development. Such a transformation is realized through compromise, dialogue and interaction in various aspects of social life. Therefore, value can reasonably be considered as a prerequisite for responsibility: to oneself, to loved ones, to the community and to the planet as a whole. Implementation of the Sustainable Development's strategy involves a change of value priorities, transformation of cultural patterns and algorithms of life. So, education is a tool for management and informed decision-making.

Practical/social implications. According to renowned values researcher Ronald F. Inglehart (2018), the progress of democratic values is possible in societies where the demand for freedom outweighs the institutional supply. We see these issues in Ukraine in recent years. According to opinion polls, there is a transformation of value models from the stereotype of survival to the algorithm of self-realization in Ukraine now (Hrytsak Y., 2015). Therefore, education reform is needed in Ukraine, as traditional models of monologue influence are ineffective. The inertia of education is not the last reason of the spread of "Russian's world" values in the south and east of our country.

The emergence and evolution of values in the educational environment reveals the mechanisms of their internalization by individuals and the socialization of personalized meanings. Recognized by society epistemological, ethical and aesthetic regulations in the educational process undergo the procedure of identification and verification, comprehension and testing in life situations. Accordingly, value-based education involves not just the education of students, but also the development of creativity and critical thinking.

The reason for debating the content of values to be enshrined and transmitted by education is rightly called the erroneous desire to separate objective facts from subjective assessments (Halliday J., 1996). Technocratic instrumentalism is ambiguously correlated with liberal and democratic values. Any practice, professional or domestic, is the embodiment of such patterns and priorities created and replicated by the community. Professional activity is not carried out separately and independently of sustainable life strategies. Accordingly,

value-based education is a complex and systemic phenomenon, rather than a local manifestation of the corrective effect on students.

Key words: value, culture, Sustainable Development, education, society.

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Coordinated or Discordant: Integration of ESD and Local Formal Kindergarten Curriculum

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Purpose

To construct sustainably developing societies has been always paid attention to in China for a long time, covering varies fields such as people's livelihood, economic development, cultural undertakings. There have been many policies and regulations come out to standardise all trades and professions. In the field of education, SDGs have been naturally become the important goals of curriculum, especially on the field of environmental sustainability (BMEC, 2007; MOE, 2003). Many practice projects have been in succession, which being mainly from primary education to secondary education.

The same situation of ESD has been in the pre-school education. The education for environmental sustainable development has always been the focus of the ESD practices in Chinese kindergartens (Zhou, Liu, Han, & Wang, 2016). However, there are three domains of ESD including environment, economics, and society-culture, according to the framework proposed in the international cooperative project organized by OMEP (OMEP, 2010). Thus, the practices of pre-school education for economic and social-cultural sustainable development has been the weaknesses.

Moreover, the goals and the contents of ESD have not been explicated in the current curriculum of pre-school education even though the curriculum is formal in one of the most-rapidly-developing cities in China. In addition, the kindergarten teachers generally are not familiar to the learning objectives and ways of education for both economic and social-cultural sustainable development. So that it is not easy for kindergarten teachers to implement ESD of complete contents even they know SDGs.

This was an ESD practice in one kindergarten for children aged 3-6 in the downtown area in Shanghai, which started to do action research on ESD from 2010. The teachers took part in the OMEP international cooperative project on ESD, the purpose of which was to strengthen awareness of and implement ESD in ECE. This paper

would be introduced on the practices and the achievements of ESD in all the three domains by the teachers of this kindergarten.

It was intended to share and reflect on experiences concerning ESD courses covered three domains of environment, economics, and society-culture at a Kindergarten in Shanghai, China. The courses have been aimed to explore how ESD could be intergrated and implemented in the framework of the current formal curriculum and to provide useful examples of educational activities and experiences. It was hoped that the paper could work a little bit on promoting ESD as an important part of the formal kindergarten curriculum along with the deepening of curriculum reform so that it could help early child prepare for the future life.

Design/methodology/approach

This was an action research, divided into three periods. There were four steps, referring to planning, action, observation, and reflection of each period. Specifically, the teachers put forward the problems in ESD practices before they designed ESD activities. Subsequently, in order to solve the problems, a series of ESD activities of different types were designed aiming at the ESD goals. When these activities were carried out, the teachers observed the children's behaviors and tried to understand their ideas on sustainable development. After implementing the activities, the teachers rethought the effect of the activities, adjusted the activity plans, and summarized the unsolved problems. Furthermore, the new other questions were raised and the ESD practices were stepped into the next period.

The practice was mainly in the environmental domain based on the advantage of curriculum in Hongqiao Kindergarten during the first period to enrich the traditional environmental protection education. The practice was implemented in all three domains of ESD, including environmental, economic, and social-cultural, during the second period. To cope with the challenges faced by early child education (ECE) because of the rapid social and economic development impacting on daily life, the innovative practice was carried out during the third period.

Findings or expected outcomes

The main contents and the outcomes of ESD practices in Hongqiao Kindergarten were stated by three periods. The traditional environmental protection education had been enriched and the preliminary objective and content system of environmental domain had been constructed when the first period was finished. To the second period, ESD practice objectives and contents in all domains had been constructed. And some methods of integration of ESD and current curriculum had been formed.

The action research has been now under the third period. The purpose of this period was to design and implement more activities of ESD in the effective way, especially in the economic domain, and to integrate the objectives and contents of ESD formed in the previous two periods into the current kindergarten curriculum, so that some useful experiences can be summed up and spread to other kindergartens to implement ESD practices.

Practical/social implications

Firstly, the national policy documents regarding ESD in ECE should be formulated. Secondly, the implementation of ESD should be adjusted according to the local conditions, specifically, including daily social and economic life, the national policy, the current local curriculum, and so on.

Thirdly, the publicity of sustainable development of all-round domains should be strengthened to attract the public attention, which would create good atmosphere for implementing ESD in kindergarten and in children's life. Fourthly, more research and practice of ESD in ECE should be carried out. In order to develop the better ESD implementation, both the teaching materials and the teacher training are essential.

Keywords (3-5)

Education for sustainable development (ESD) practices, integration, kindergarten curriculum

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Education and Sustainable Development Goals: Legal Challenges and Prospects for Tanzanian Teenage Mothers

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Purpose

To transform the world, Sustainable Development Goals (SDGs) have been promulgated by United Nations' member State including Tanzania. Education is among the goals that is vital towards achieving other SDGs. As such, States are required to put in place effective laws and institutions for recognition and promotion of education. SDG number 4 calls upon each member State to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by the year 2030. To achieve this, States are obliged to ensure that by the year 2030 all girls and boys have opportunities to complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes. However, the Tanzanian Constitution of 1977 recognizes the universal right to education under article 11 that falls within the sections which are not enforceable. Article 11 stipulates one of the Fundamental Objectives and Directive Principles of State Policy that one cannot demand or question in a court of law.² It follows that in Tanzania education is a right which is provided at the government's pleasure.

Besides, the legal position in Tanzania is to the effect that a girl child who becomes pregnant at primary or secondary level of her education, loses her right to education completely. That is to say, she will never in her life get a chance to be educated through normal national education systems. Thus, a large number of girls who have been impregnated during the course of their studies have been denied right to continue with education after delivery and are left with no other option than becoming teenage mothers. The term teenage mothers as used in this paper connotes girl children between the age of 13 and 18 years and who had assumed mothers' roles whether married or not married. They are girl children who have given birth to babies and became mothers. This paper explores legal challenges and opportunities that may be used by teenage mothers in

² See article 7, Constitution of the United Republic of Tanzania, 1977.

Tanzania to utilize education as a tool for achieving SDGs in the same manners as their counterparts in the globe.

Design/methodology/approach

The author examines Tanzanian policies, laws, strategies and institutions relevant in the education sector with a view to seeing how better they may be utilized to enhance girl child's right to education so as to benefit from SDGs as contemplated. The paper will be arranged into six parts namely, introduction, right to education for teenage mothers in Tanzania, education as a tool for achieving SDGs, legal challenges in achieving right to education by teenage mothers in Tanzania, prospects of achieving SDGs by Tanzanian teenage mothers, conclusion and recommendations.

Findings or expected outcomes

The Law of the Child Act of Tanzania defines a child as any person who is below the age of eighteen (18) years.³ Surprisingly, the Law of Marriage Act permits a girl child to get married after attaining the age of fifteen (15) years or fourteen (14) years with consent of parents, guardians or the court.⁴ Constitutionality of this provision was challenged in the courts of law and the outcome will be discussed into details in the main paper.

Practical/social implications

Having inefficient legal framework for the protection of the girl child's right to education in Tanzania has left impregnated school girls with no remedy, be it social, legal or political. For example, in the case of *Republic v. Ndimi Mgeta*,⁵ the High Court of Tanzania acquitted the accused person who was facing charges of impregnating a school girl of 17 years. The Judge ruled that the law creating the offence (Education Act) covers only girls between the age of 7 and 13 years. Having such position of the law, it is predictable that impregnated school girls will remain by-standers while other groups of the population enjoy the world that is being transformed through SDGs.

Keywords:

Education, SDGs, Teenage Mothers.

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Constitution of United Republic of Tanzania, 1977.

Education Act, 1985.

Education Policy, 2014.

Law of Marriage Act, 1971.

Law of the Child Act, 2009.

Sustainable Development Goals

The 2030 Agenda for Sustainable Development, 2015.

³ S. 4 (1), Law of the Child Act, [Cap. 13 R.E. 2019].

⁴ S. 13, Law of Marriage Act, [Cap. 29, R.E. 2019].

⁵ [1983] TLR 64.