EVBB's Almanac

Exploring Innovations in Vocational Education and Training

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EUROPEAN ASSOCIATION
OF INSTITUTES FOR
VOCATIONAL TRAINING

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Foreword

Welcome to the Call for Articles in the dynamic realm of Vocational Education and Training (VET). In our pursuit of academic excellence, we extend an invitation for the submission of original research articles that delve into the multifaceted dimensions of VET. Our commitment to elevating the discourse in this field is underscored by a meticulous set of criteria designed to ensure the highest standards of academic rigor and relevance. Emphasizing the paramount importance of the VET focus, originality, research quality, contribution to VET knowledge, clarity, and ethical considerations, we seek submissions that not only meet but exceed these benchmarks. Authors are encouraged to craft submissions that not only embrace an interdisciplinary approach but also offer an international perspective, promote collaboration and partnerships, and address inclusivity, diversity, and equity in VET. As we embark on this academic journey, a distinguished committee, comprising three EVBB members and two external experts, will meticulously evaluate each submission, selecting the top articles for publication in electronic format. The resulting almanac will serve as a beacon of knowledge, disseminated widely to VET providers, networks, and EU stakeholders through EVBB's website and social media platforms. We eagerly anticipate your high-quality contributions that will undoubtedly shape and advance the landscape of Vocational Education and Training.

Table of Contents

metaVET

metaVET

ARTIFICIAL INTELLIGENCE (AI) IN VET: IMPLICATIONS FOR INTERPERSONAL DYNAMICS AND NETIQUETTE

ABSTRACT

Artificial Intelligence (AI) stands as a transformative element in the realm of Vocational Education and Training (VET). While its integration promises enhanced personalized learning and industry alignment, there's an underexplored facet concerning its impact on interpersonal dynamics. This article delves into the potential repercussions of human-AI interactions on VET students' soft skills, attitudes, and expectations towards peers and future colleagues in the workforce. With AI's unwavering compliance potentially fostering behaviors without perceived consequences, there's a rising concern over the spillover effect on human-to-human interactions. It underscores the need for a holistic examination in VET, emphasizing the intertwined nature of education, technology, and human relations

Keywords: Artificial Intelligence (AI), Soft Skills in Education, Human-AI Interaction, Industry-Education Integration (IEI)

Written by: Alexandros Sainidis

Artificial Intelligence (AI), an emerging factor in the economy of knowledge and information, is a disruptive technological development, inspiring both opportunities and threats in Vocational Education and Training (VET). The 'vocation' in VET attracts scientific and public discussions focusing on the macro level of threats, while the 'education' and 'training' target more personal matters, including personalized learning (Bailey, 2023) and interpersonal dynamics. Despite these vital aspects, the VET community rarely addresses the effects of human-AI interaction (Lee 2020), and a conversation about the spillover effect on human-to-human interaction (Traeger et al., 2020) is practically nonexistent. Could it be that an unmonitored AI is detrimental to VET students' and learners' soft skills and attitudes towards their peers and future coworkers in the labor market?

Individuals may express themselves insultingly or inappropriately towards objects, technology (faulty hardware, buggy software, unreliable networks, etc.) and inevitably AI. There is a wide array of reasons why AI falls into this category. Firstly, as AI is becoming mainstream thanks to the engine of commerce, it operates, by default, based on the same rules as digital services, prioritizing a positive User Experience (Kore, 2022, p. 289). It responds to demands with no complaints, and if verbally attacked, AI will typically not respond in an offensive way, reinforcing the learner's view that there are no consequences for such behavior. To further elaborate on this point, AI offers a sense of availability and speed

of response, which could potentially be transferred as an expectation towards the help coworkers can offer. Just as humans, AI may also err. Artificial Intelligence may follow an invalid thought process, an inefficient methodology or present outdated data and sometimes false or non-existent data. AI may also be linked to a system of penalty, falsely registering punishable actions, which learners have not actually committed (Gurley, 2021). Moreover, algorithmic bias (Castro e Silva and Silander, 2022) can become a source of frustration unless precautionary measures are implemented, based on the principles of diversity (Shiohira, 2021). All of the above, in combination with users' personal and cultural traits, as well as environmental factors, may forge inappropriate behavior towards other individuals or groups publicly, privately, in person or over the web.

Naturally, the following question comes up. Why is this matter not examined in the broader context of education and is limited to Vocational Education and Training? While all forms of education are linked to the labor market, VET places a greater emphasis on skills and direct connection to specific sectors, meaning that it has a high degree of Industry-Education Integration (IEI). The term IEI refers to a collaboration between educational

institutions and industries aimed at enhancing talent development quality and fostering innovation, leading to optimized structures and superior growth (Chen and Zhang, 2022). To add to that, VET institutions can display more flexibility than other types of educational actors, mirroring the rapid response of cooperating companies and industrial representatives to the demands and conditions of their respective markets. Taking this into account, AI tools in VET can be used for teaching and learning, while at the same time, the study of AI is vital for the development of future skills in workplaces (Attwell et al., 2020).

The above conditions create an axis of IEI and market-driven Innovation, meaning that there are potentially more chances for

VET students and learners to familiarize themselves with digital environments (Web3 and Metaverse), where more AI is involved in otherwise human networks. Depending on the platform settings, it may even be impossible to distinguish humans from AI visually, especially if it is oriented towards relative anonymity. In another scenario, in the future users may employ multiple avatars of theirs, through the utilization of AI (Momtaz, 2022). In such a futuristic case, would an insult towards an AI avatar 'clone' not constitute an 'asynchronous' insult aimed at the end user? Consequently, not only is the possibility of behaving inappropriately towards natural persons increased but also the boundaries between AI as a tool and AI as a reflection of one's self are becoming much more unclear.

Considering all educational, industrial, and technological parameters, it is suggested that VET institutions conduct comprehensive research, making use of both spontaneous settings, such as classrooms and clearly defined experiments. At the same time, this will raise awareness regarding potential issues and shortcomings, which can be communicated to other interconnected stakeholders, potentially reducing points of friction. Finally, the above considerations can act as the foundation for advancing the digital competence of netiquette, the value of each is often overlooked and misunderstood."

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VET AND FINANCIAL LITERACY THROUGH A "SERIOUS GAME"

The Contribution Of The Erasmus+ "Angle" Project On Financial Education

ABSTRACT

Financial literacy offers significant advantages to students and individuals of working age. However, acquiring the necessary skills is far from straightforward and can be costly. This paper introduces the prototype of a financial education accelerator through a serious game, developed as part of the Erasmus+ Angle project, which was awarded the **"best practice" status.** The game was primarily tested with secondary school students in both general and technical programs, and the initial results are encouraging

Keywords: Financial Literacy, VET Students, Erasmus+ Angle Project, Serious Games, Table-top Game, Quantitative Assessment

Written by: Daniel Fano

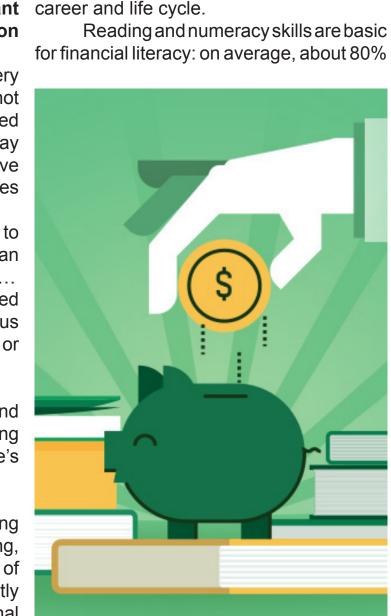## 1. Financial literacy, an important dimension for VET students' education and future work careers

Financial literacy corresponds to very basic abilities that are certainly useful, if not necessary, for persons who are enrolled in VET schools, both for their day-to-day life and for the professions they will have further in life. Financial literacy implies basic abilities, such as:

- Being able to calculate unit prices to compare alternative offerings on an online platform, in a supermarket, …
- Understanding when a fixed commission is more advantageous than a percentage commission, or vice versa,
- Grasping the effects of inflation,
- Understanding interest rates and compounding, when accessing consumer credit or investing one's savings…
- etc.

Financial literacy allows avoiding many traps originating from mis-selling, inability to assess the outcome of investment decisions, fads. It can greatly help in designing a successful professional career and life cycle.

Reading and numeracy skills are basic for financial literacy: on average, about 80%

of the variation in financial performance is associated with mathematics and reading[3]. Reading and numeracy indicators show that VET students tend to underperform students aged 15 years or more enrolled in general educational tracks[4]. Though this is not surprising, as youngsters choosing technical or vocational training have a higher propensity for practical activities with respect to more general cultural ones, the implications of insufficient financial literacy may nonetheless be more relevant for VET students: not only while they are at school, but especially after graduation, as they will probably become active citizens well before the general education students.

The high dispersion in abilities to grasp financial issues both within countries and across countries has become part of the policy agendas. Focusing on the extremes of the distribution of the OECD sample, 15% of students are below level 2 (insufficient performance), while only 10% reach level 5 (top performance)5. It is, therefore, key to address these gaps.

The issue of financial literacy is being addressed in various ways by international6, national[7], educational institutions[8], as well as academic research9. The Erasmus+ Angle Project that was completed on August 31, 2023[10] proposes an original table-top game aimed at accelerating the development of financial literacy through the active involvement of youth and, more generally, individuals in any stage of their life-cycle. Though the main target-group of Angle was students entering university, the project was designed to embrace a broader audience, including students from the whole set of secondary and tertiary education paths and Neets.

2. Angle, Erasmus+: An original approach to developing financial literacy.

2.1 Angle, a serious game and much more

The original inspiration of the Angle project is in a "constructionist" concept of learning based on the research of Jean Piaget and his student Seymour Papert. As stated by Edith Ackermann, "If we believe, as Piaget and Papert do, that knowledge is actively constructed …in interaction with one's world, then we are tempted to offer opportunities to engage in hands-on explorations that fuel the constructive process"[11]. The implication is that teaching is an indirect process. The learner is not "an empty glass to be filled with encoded information and concepts to be memorized";

ANGLE

learning is rather the discovery of new territories and paradigms and/or the often-painful questioning of old or received views, to build and acquire new and more realistic and effective ones.

"Serious Games," if consistently designed, can indeed represent valid indirect paths to learning, though certainly not the only ones. Conceptually, serious games can be distinguished from outright educational games in that they are designed to be more entertaining. In fact, the word "edutainment" refers to games that are both fun and can educate players[12].

Angle is a board-game ("table-top"). An objection we received when submitting the project in 2019-2020 was: why not an online game? The first reply was on the defensive: an Erasmus+ budget does not allow producing an online "state of the art"

game. Then came COVID-19 and the big acceleration in online activities. We did manage to have many facet-to-face game experiments, with all the precautions and limitations implied by COVID-19. With hindsight, we can affirm that the table-top game is not a second best with respect to an online game but a perfect complement to a possible future one. As we have all learned from the COVID-19 period webinars and conference calls, online is very precious but has its limitations, especially as concerns real-time multiple interactions, informality in interpersonal relationships, flexibility in managing timeslots, moments of "lateral thinking" during breaks. All such aspects have represented a big plus in co-creating and playing the game.

2.2 Designing the serious game, within the complementary project dimensions.

The design of Angle took about two and a half years out of the three of the project duration. It was decided to base the economic and conceptual foundations on five educational booklets[13]. In parallel, the board-game was designed. In the game, the players are offered at the start different roles reflecting the "lottery of life" at birth in rich, affluent, poor families… Each player

engages in several lifelong paths. After a first compulsory education path she/he can (or must) choose between study, leisure, or work paths. Risk and uncertainty cards may influence the course of life[14]. Points are accumulated prevalently by answering multiple-choice questions. The formulation of the latter required a long process that benefited from the co-creation spirit of the project with the students, academics, and experts. Finally, around 120 question-cards have been created, with the question on the front side and an answer with a short explanation on the back.

The students have also produced videos, another form of active involvement complementary to the game[15]. The materials have also allowed building a facility for online contests using the game questions as a basis and the explanations as a form preliminary of guidance[16].

The lessons of the Angle construction are in line with those of other serious games. Design is key. "A main finding [when considering serious games] is that deploying a new game is a complex and time-consuming activity that requires the development of an ad-hoc plan, specifying goals (educational and in-game) and context of use. Also, feedback from the students must be carefully considered, to tune the game in terms of contents, difficulty levels, pace, and in addition, the fine-tuning requires long-term evaluation and iterative changes"[17].

3. Evaluating the game

3.1 A first quantitative assessment

Within the Angle project, the University of Paris Dauphine has developed a methodology for testing the game effectiveness. It is still developing a tests program: it plans to carry out, in the 2023-2024 academic year, around 500 observations involving seventeen high school classes.

These will follow the methodology used in experiments already administered during the game construction period in two high schools of general and technological education[18]: Lycée Julie-Victoire Daublé (Argenteuil) and Lycée de Cormeilles-en-Parisis. Such experiments have been based on an initial questionnaire aiming at identifying the background of the students, to isolate possible socio-demographic factors. The test of the null hypothesis on whether the game does improve the ability of the participants to address financial literacy issues has been carried out on different groups and on different sets of questions, to control game impacts before and after the game. The initial results have been highly encouraging, both as concerns the practical feasibility of the methodology

and as concerns the potential positive effects of the game as a learning tool.

This is in line with the literature. There is indeed some evidence that "serious games" can improve learning. For example, Lankveld, Strong and Stege conclude that "serious games can be more effective in learning processes than written texts, but that they do not necessarily motivate students better than a textbook."[19].

3.2 The time and human resources requisites of experimental, quantitative assessments

The area of experimental economics, to which the above-mentioned Angle game assessments belong, is still developing. One experiment alone does not provide an answer. Broad databases, besides fault-proof design, and consistent control are required to assess specific projects or programs. As Nobel Prize winner Esther Duflo explains, the technique of "randomized control trials (RCT)"[20] works on the accumulation of experimental results. Evidence cannot be based on case studies, but only on randomly selected large enough samples. Moreover, while it is important to assess whether a policy or an instrument is effective or not, one should also answer more specific questions about what could improve effectiveness.

In general, rather than "thumbs up" or "thumbs down" conclusions, one should look at specific design aspects and possible further developments and improvements. For example, Esther Duflo shows how an innovative education program, TARL, Teaching at the Right Level" has been evaluated with a "proof of concept" randomized control trial that worked on the relative dimensions of the experiment group and the control group. Finally, Esther Duflo highlights that implementing controlled innovation implies the participation of many actors driven by common objectives, what she calls a "movement".

3.3 Concurrent quantitative and qualitative assessments for the shorter term?

With all these caveats about the need for continued and extended experimental trials, projects such as Angle that have a definite timeframe do need, at the closure, a first quantitative assessment, as done by the Paris Dauphine partner. When we have the short-term objective of evaluating the quality of an experimental project such as Angle, we should, thus, be fully aware of the limitations of randomized experiments carried out on small samples.

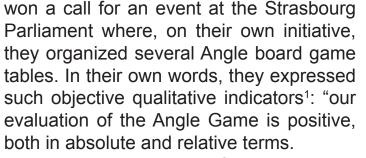How can this challenge between the need for assessing a specific project and

the broader requisites of randomized trials be addressed?

We may ask ourselves whether, for the sake of a first evaluation, the first quantitative results could not be usefully complemented by qualitative indicators. In fact, there are examples of combinations of concurrent quantitative and qualitative evaluations as a means an to address evaluation statements in a context that allows questioning ("falsifiability").[21]

Can third party qualitative assessment be used as a reinforcing evaluation tool? A working hypothesis is that such qualitative evaluations could/should be taken into consideration on the condition they come from independent parties and are grounded on objective standards rather than subjective feelings.

The students of Collegio Carlo Alberto, the coordinating partner of Angle,

won a call for an event at the Strasbourg Parliament where, on their own initiative, they organized several Angle board game tables. In their own words, they expressed such objective qualitative indicators[1]: "our evaluation of the Angle Game is positive, both in absolute and relative terms.

- *Absolute* because of its entertaining quality: the 120 participants in Strasbourg, as the ones involved in the previous rounds, asked to continue playing well beyond the programmed ending-time and asked if and how the game could be downloaded.
- *Relative* to other financial literacy teaching initiatives: with the game, better than, say, through a PowerPoint presentation explaining inflation, concepts can be processed and developed by the students themselves (consistently with the Latin etymology of educate, "e-ducere", "bring out", "make explicit") through collaboration and co-construction of the answers.

4. Conclusions and prospects

The Angle Erasmus+ project has successfully focused on students of the secondary schools, both general and technical, and of beginning tertiary education.

Consistently with RCT (Random control trials) methodology, there is great scope for further verifications, improvements, adaptations.

There is also scope for further development of the financial education themes addressed by the game through the creation of new and specific stacks of multiple-choice question cards. In fact, the mechanics of the game, based on roles, life-cycle events and multiple-choice questions can be tailored to different publics and different age groups.

Finally, Angle can be inspirational for games with other learning objectives besides financial literacy.

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COMPETENCES OF SMART CITY PLANNERS: THE ALPHA AND THE OMEGA

Written by: Hans Rüdiger Kaufmann, Mohammad Fateh Ali Khan Panni, Dolores Sanchez-Bengoa, & Henning Tirrel

ABSTRACT

Revisiting previous research in the course of the DevOps project 'DevOps Competences for Smart Cities' (Kaufmann et al., 2020), this paper aims to focus on the interrelationship between Smart City domain priorities, collaboration, and competences, considered to be a paramount foundation for urban management. After a discussion of the literature on this triptych, a conceptual framework is synthesized. The hypothesized conditional importance of competences is analyzed and confirmed by additional descriptive and explanatory quantitative research on the DevOps data, with smart city planners having applied partial least square analysis.

Keywords: Collaboration, Planning, Competences, Smart City, DevOps

1. Introduction

Smart cities (SC) can be considered as the holy grail of modern urban management. The body of knowledge on smart cities in relation to the domain of urban management is growing from different perspectives. Currently, planning, organization, and administration of transformational value-increasing processes of cities and towns have led to the development of innovative paradigms entailing, for example, participatory, collaborative, and decentralized decision-making, activating the city stakeholders, specifically its citizens (Malek, Lim, and Yigitcanlar, 2021; Gafoor and Al-Wehab, 2020), facilitated by modern digital data and ICT technologies (Semyachkov and Popov, 2020). A nexus for urban management unfolds embracing three factors regarded as paramount for urban management: newly required smart city competencies, planning priorities (domains), and collaboration (e.g., Allam, 2019; Appio et al., 2019; Lytras and Serban, 2020; Raspotnik et al., 2020; Kaufmann et al., 2020).

However, recent studies have pointed to still existing gaps for this triptych to unfold smoothly. Lytras and Serban (2020), for example, recently pointed to existing shortcomings on competences and capacities of public administration personnel to promote new e-governance services and systems in smart cities. Related to priorities, Agbali et al. (2017) and Charalabidis et al. (2020) recommend future research to improve on their proposed frameworks. With regard to competences, a comprehensive typology of competences has been created, piloted, and trained in MOOCs courses by the DevOps project comprising transversal competences,

general IT competences, IT specific competences, and idiosyncratic Smart city-related competences (Kaufmann et al., 2020). The paper proposes a synthesized conceptualization of the essential triptych of competencies, collaboration, and domain priorities and hypothesizes that closing the competence gap should be prioritized in comparison to 'collaboration and priorities' and should be regarded as conditional for urban management.

1.1 Specific Objectives of the Study:

Reviewing the literature on the interrelationship between SC competencies, priorities, and collaboration.

To derive explanations of the nature of the relationship between the three factors by expanding on previous findings of the DevOps project (Kaufmann et al., 2020) through additional descriptive and explanatory analysis.

To develop a hypothesized framework on the triptych to suggest avenues for future research.

2. Literature Review

This section is going to discuss a selection of frameworks on SC and urban management regarded as relevant in the context of this study.

2.1 The meaning of "smart"

In the urban planning context, smartness is treated as a normative claim and an ideological dimension, and being smart entails strategic directions. Governments and public agencies are embracing the notion of smartness to distinguish their strategic policies for targeting sustainable development, sound economic growth, and a better quality of life for their citizens (Center on Governance, 2003). The label 'smart city', however, is a fuzzy concept and is used in ways that are not always consistent. There is neither a single template for framing a smart city nor a one-size-fits-all definition of a smart city (Albino et al., 2015).

Pointing to higher levels of

authenticity between claims and reality, Hollands (2008) recognized a smart city as an "urban labeling" phenomenon and calls a smart city to back up its emphasis on the many aspects hidden behind self-declaratory attributions to this label.

Nam and Pardo (2012) review the meaning of the term 'smart' in the smart city context. In marketing terminology, smartness is regarded as centered on a user perspective due to the need for appeal to a broader base of community members. The association with the term 'Smart' with being user-friendly seems to be more appropriate than the term 'intelligent' (Albino et al., 2015), which is connoted with having a quick mind and being responsive to feedback. This interpretation implies
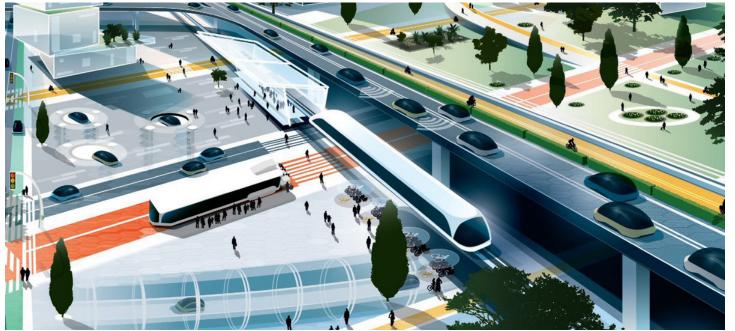
that 'smartness' is realized only when the system adapts itself to the user and citizen needs.

2.2 Smart City Models and Frameworks on priorities, collaboration and competences

Many models on smart cities' development have not revolved around the nexus between the three issues of priorities, collaboration, and competences regarded central by the authors of this paper. Their relevance has already been established in numerous studies albeit not in an integrated manner. Cukusic et al. (2019) discussed the challenges and priorities for developing smart city initiatives. This study implies a focus on collaboration (engagement and community) as well as on priorities on specific smart city domains such as economy, housing, energy, waste, water, mobility, security, and health care. The main contribution of the paper is to expose the most challenging strategic factors (priorities) in the national context of a country i.e. Croatia.

Charalabidis et al. (2020) contributed to filling the knowledge gap on the level of the convergence and divergence between municipalities and citizens on smart city action priorities. Furthermore, the authors developed a novel methodology where a

detailed taxonomy of possible smart city actions (priorities) has been developed based on previous literature.

In the same vein, Agbali et al. (2017) proposed a framework consisting of domain priority issues for smart and healthy city development which includes smart infrastructure (measured by the availability of smart grid/robust energy, secured and innovative transport system, availability of sustainable health care facilities), smart institutions (measured by an innovative and proactive security system, tourist potential, entrepreneurship), or smart people (measured by social awareness, quality education, increased productivity).

However, while this comprehensive study focused on priority issues it did not address competencies and collaboration issues in more depth.

In addition, Allam (2019), via focus group discussions, explored some priority issues for smart urban regeneration. Interestingly, comparing smart cities with an organism and its life-generating reactions, the author's smart city metabolism includes a social infrastructure cluster (namely sustainability and livability), business support (including public and government funds where most of its funds are spent for administrative resources to generate revenues for the retention of the business),

collaboration (between public and private sectors namely for encouraging business; better managing public assets and disaster management), smart infrastructure (including parking, IT connectivity and big data or any other data management system for urban planning), culture (including the need to encourage artists to perform in public places, cultural landmarks, culture as a branding tool and the potential of cultural digital goods), governance (highlighting health care, law enforcement, targeting inclusive policies and security). In this study, collaboration has been mentioned as an integral factor without expanding on the nexus between more detailed priorities, collaboration, and competences required. The study also mentioned the need for a more comprehensive and detailed model.

Interrelating domain priorities, smart government, and characteristics of e-government with innovative factors such as market flexibility, government efficiency, and the legal system as well as institutional and structural factors to achieve improved economic performance, a comprehensive model is provided by Lytras and Serban (2020). According to the authors of the study, "the main contribution of this study is two-fold: From one side it provides an integrated study with an emphasis on the impact on social science and economics
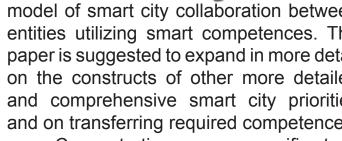
research to future smart cities research and on the other side it brings forward several soft factors for the adoption of smart city services in the context of government transformation and provision of ubiquitous e-services to citizens" (p.65313). While market flexibility, government efficiency, the legal system, and the characteristics of e-government imply certain competences, detailed instrumental competences are suggested to be added. Economic convergence implies collaboration without explicitly mentioning the term.

Focusing their study on one particular competence, Garg, Mittal, and Sharma (2017) extensively discussed e-training and depicted a framework by means of different antecedents like knowledge, skills, development, learning,

workshop, coaching, and teaching. The authors aimed to reveal the influence of e-training on building smart citizens (by means of educating them through training), and eventually smart governance and smart business enterprise. According to the authors, "this research brief mainly concentrates on administration, people and knowledge creation for developing organization's e-training platform helping in building smart cities with digital enterprise (smart business), administration (governance), and people or smart citizens. The paper tries to put forward the concept and designing of e-learning platform to provide instant training and education for shaping the new generation citizen" (p. 24). Thus, it can be noted that this paper has tried to 'marry' smart city competences and specific smart city priorities albeit limited to e-training.

Raspotnik, Gronning, and Herrmann (2020) measured the effectiveness of three different arctic cities in three countries (United States, Norway, and Finland) in terms of smart city priorities which are smart people, smart energy, smart environment, smart mobility, and smart governance. The main contribution of the paper is to develop a metrics for smart city development. To do this the authors have first surveyed smart city literature and develop smartness metrics based on smart city priorities which the authors named "smart framework". Thus, the paper has also only focused on a single dimension of the suggested nexus in terms of smart city priorities.

Umar (2018) proposed an extensive research framework on smart collaboration. According to the authors, "the paper contributes to presenting an alternative perspective that is based on smart collaborating hubs and a smart global village to serve smaller communities. As can be observed these hubs provide inexpensive and highly specialized services in health, education, public safety, public welfare, and other vital sectors for the underserved populations across the globe" (p.1). This paper is a bright example of an extensive

model of smart city collaboration between entities utilizing smart competences. The paper is suggested to expand in more detail on the constructs of other more detailed and comprehensive smart city priorities and on transferring required competences.

Concentrating on a specific type of collaboration, Canels et al. (2017) call for public-private collaborations for transforming urban mobility. In their study they suggest this collaboration for new mobility services based on four categories: shared mobility, product innovation, consumer experience, and data-driven decision making. Further priorities and requested competences are suggested to be researched in the future as well.

Ojasalo and Kauppinen (2016) conducted a significant study on collaboration in terms of open innovation platforms for smart cities. The study focused on collaborative innovation highlighting unforeseeable innovation potential, open data innovations, and sustainable solutions through long-term innovative partnerships. In the following, the authors, summarize the main contribution of the paper: "despite the rapid increase of public–private–people partnership (PPPP) programs at the global scale, the scientific knowledge of collaborative innovation in cities is scarce. All smart city initiatives emphasize collaborative innovation for better services and products to address the needs and problems of modern cities. Indeed, there is an evident need for both scientific and practical knowledge in this area. Based on an extensive empirical study of open innovation platforms in smart cities, this article seeks to address this knowledge gap by increasing the knowledge of opportunities and challenges of collaborative innovation between a city and external actors, including companies, third sector organizations, research institutions, and citizens" (p.49). The paper confirms the collaboration gap and focuses on competences in terms of innovation.
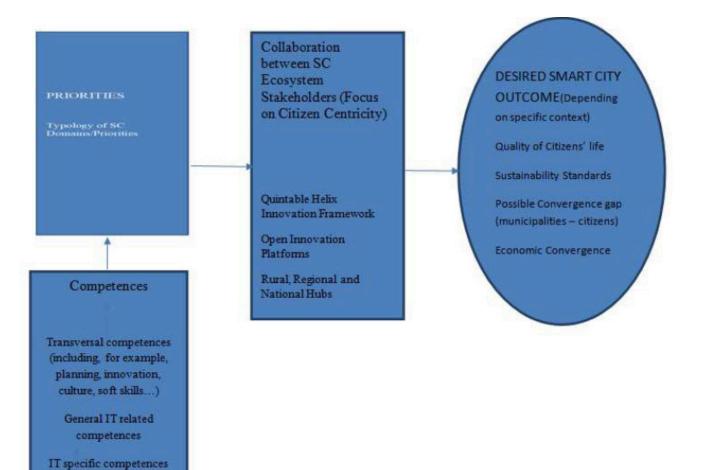
In general terms, Appio et al. (2019) developed a framework coming closest to

the main theme and call of this paper in terms of integrating priorities, collaboration, and competences. The driving factor is the envisioned increase in the citizens' quality of life (dividing social life into live/play and learn/work) achieved by a fundamental physical infrastructure and by collaborative and innovative SC ecosystems addressing

Figure 1: Proposed Integrated Framework. Source: developed from the authors based on Agbali et al. (2017) Allam (2019), Appio et al. (2019), Charalabidis et al. (2020),Cukusic et al. (2019),Garg, Mittal and Sharma (2017), Kaufmann et al. (2020), Lytras and Serban (2020), Ojasalo and Kauppinen (2016), Umar (2018).

Griffinger's (in Appio et al., 2019) six SC domain priorities. Competences are generally referred to within the domain of Smart people and its sub-component of human capital comprising skills and competences. The framework entails factors in line with Allam's (2019) SC priorities metabolism and is suggested to be used as a 'guiding model' for future qualitative or quantitative research.

Summarizing, from the prior recent literature, it is concluded that there is almost no study that has developed a detailed model to establish the nexus between the three integral smart city elements serving as a basis to train SC administrators and related stakeholders. Revisiting our previous paper (Kaufmann et al., 2020), this study is attempting to fill this gap in the literature by proposing a synthesized integrated framework (figure 1) suggested to be the quintessential triptych of urban management, also aiming to inspire further conceptual developments.

3. Methodology

With regard to priorities, collaboration, and competences, the DevOps project – based on extensive secondary research, initial descriptive quantitative research, and a consecutive validating qualitative empirical phase (Kaufmann et al., 2020)

– revealed a comprehensive typology of competences differentiated for three different levels of smart city administrators: Smart City Planners, IT Managers/CDOs, and IT Officers. This study additionally pointed to interrelationships with the other elements of the suggested nexus: priorities and collaboration. In the progress of the DevOps project, the competence typology served as a basis for the design of innovative MOOCs courses on DevOps competences for Smart City administrators and other SC-ecosystem stakeholders. The MOOCs courses were piloted and implemented in the partner countries of the project members. For more information on the MOOCs courses, please, go to the following website: https://all-digital. org/smart-devops-specialisation-courses-under-way/

This paper adds additional explanatory findings – based on the previous study - having applied partial least square analysis to investigate the nature of the relationships on the tripartite.

3.1 Data generation & sampling

From the received 63 questionnaires of smart city planners across the DevOps partner countries (Kaufmann et al., 2020), the non-probability sample needed to be reduced to 60 due to three questionnaires

not being usable because of missing data. Notwithstanding considerable efforts undertaken by the researchers, the sample size could not be increased for several reasons. Therefore, later stages of the project shifted the emphasis on validating the quantitative research by qualitative research.

3.2 Descriptive statistics

Focusing first on IT/IoT competences, the analysis uncovered the top three ones which are needed from the perspective of smart city planners: Teamwork (36 participants mentioned this aspect), urban innovation (32), and user experience (28), while the top three for chief digital officers/ internal IT officers – perceived from SC planners - are big data management (36), system operation skills such as database and network administration, coding as well as software architecture (32).

However, the highest perceived training demands are expected to be in IoT specific knowledge (31), DevOps (integrating software development and operations, 28), and machine learning as well as deep learning (27). Moreover, there is a will to cooperate with external partners for the acquisition of the following top three competences: mobile development (35), IT/cybersecurity as well as artificial intelligence (32 for both competences). On average, 20.4 participants perceive a training demand (M = 21.0, SD = 5.0) for a specific competence while cooperation with external partners is preferred from 25.8 participants on average (M = 25.0, SD = 4.2). Interestingly, the competences in which training is mostly needed do not overlap with those competences which are chosen for cooperation. Therefore, we conclude that these competences are rated as very important, so that these should be trained and be existent in-house instead of relying on external competences. Appendix 1 provides an overview of all results.

The participants were also asked to rate in which transversal/generic competences they perceive a need for training or cooperation. Appendix 2 summarizes these results. The overall conclusion is that in all dimensions the competences with the highest needs for training among smart city planners differ from those where external experience (e.g., consultants, IT experts) is often mentioned to be required. So, if there is a high need in training, smart city planners with regard to a certain compete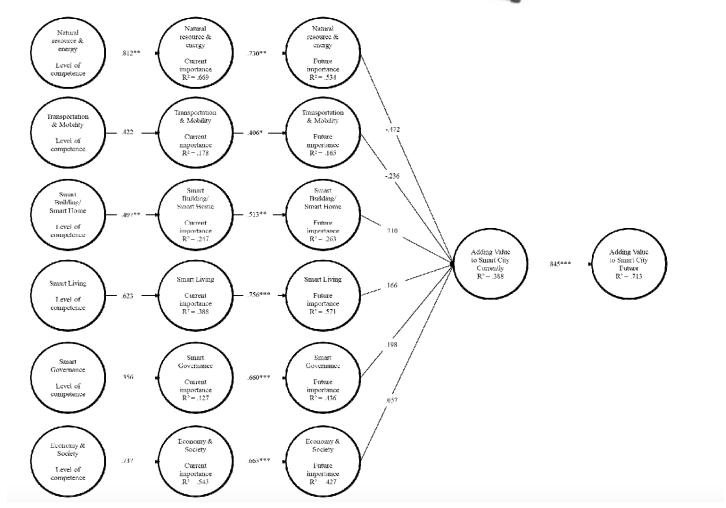nce (e.g., technical skills to switch from operational to strategic tasks, 34), then external cooperation is selected less frequently (here: 22). In this regard, we again conclude that smart city planners do need trainings in certain competences to generate own additional human capital.

However, external knowledge is also required, especially in those competences in which fewer demands for training have been identified. On average, 24.2 participants (M = 25.0, SD = 4.2) perceive a need for training for smart city planners, and on average, 21.9 participants (M = 22.0, SD = 4.1) perceive a need for training for chief digital officers/IT officers, while on average, 17.4 participants (M = 17.0, SD = 4.0) perceive a need for external knowledge. Beyond our analysis on highlighting the importance of trainings, we also provide insights on the preferences of the sample on how employees should be trained. As to the preferred option of knowledge transfer, 28 respondents intend to train employees via consultants and 27 via online and distance learning (i.e., massive open online courses (MOOCs)). Moreover, under- and/or postgraduate courses as well as professional training/ vocational courses at a university, courses from professional training providers or software-producing companies are chosen from 11 to 16 participants, while only six participants prefer another kind of training (appendix 3).

3.3 Results of Partial Least Squares Structural Equation Modelling Analysis

PLS-SEM (partial least squares structural equation modeling) was used for analyzing the generated data, as it enables researchers to predict and to make use of small sample sizes (Hair et al., 2017a; Hair et al., 2017b).

Moreover, PLS-SEM is being used widely across business research (Sarstedt, 2019). In this research project, it was the overall aim to understand relationships, instead of achieving the best fit between data and a model, as it would be in covariance-based Structured Equation Modeling (CB-SEM) (Hair et al., 2017a). The SmartPLS version 3.2.8 was applied in this data analysis (Ringle et al., 2015), which is the most extensive software (Henseler, 2017).

Regarding the sample size, we followed the rule of ten, so that a minimum sample size for this analysis of 60 questionnaires (normally distributed data is not required when applying PLS-SEM) was necessary (Hair et al., 2017a). Since all the constructs are formative measures, we tested the collinearity issues using the variance inflation factor (VIF), which should be below 5 (Hair et al., 2017a).

In order to assess the structural model, goodness-of-fit indexes should not be used in PLS-SEM (Henseler and Sarstedt, 2013), but the VIF was used

Figure 2: Relationships between level of competence and current and future importance of domain priorities. Note: * < .05, ** < .01, *** < .001.

again (Hair et al., 2017; Sarstedt et al., 2017) and led to results between 1.000 and 1.617, so no issues of multicollinearity have to be reported in the structural model. In addition, the R² values have been analyzed for the endogenous variables as they are a mean for in-sample prediction/ predictive accuracy (Sarstedt and Cheah, 2019; Hair et al., 2017a; Hair et al., 2017b). R² values for endogenous latent variables within the structural model are described as substantial (0.67), moderate (0.33), and weak (0.19) (Henseler et al., 2009; Chin, 1998). Moreover, we analyzed the f², meaning the effect size, to identify if an effect is meaningful (Hair et al., 2017a) by following Cohen's (1988) differentiation between small, medium, or large effects (0.02, 0.15, 0.35).

Figure 2 visualizes that one-third of the relationships between the level of competence and current importance are significant and positive, while two-thirds are not significant but also positive. This indicates that an increase of competences leads to a higher current importance of every subdomain, presumably because the participants can either assess the relevance as they are competent enough to do so, or because they consider it important as they are competent in this field.

Moreover, all relationships between current and future importance of each subdomain are significant and positive. The explained variance in the constructs applying for future importance differs from a weak R^2 = .165 (transportation & mobility, which also has the lowest p-value) and moderate R^2 = .571 (smart living). In general, as all of these relationships are significant and positive, indicating that a higher current importance of each subdomain of smart cities leads to a high importance of smart city subdomains in the future. In addition, the relationship between adding value to smart cities in current and in the future is also positive and significant (β = .845, p < .001) and .713 of the variance is explained (substantial). The findings based on the positive and significant relationships between the subdomains current and future importance, as well as the positive and significant relationship between adding value to smart cities in current and in the future, underline the authors' understanding that the existence and relevance of smart cities, including their subdomains, are not only a short-term trend but an important aspect for the cities' future. Therefore, the competence level of each subdomain should be as high as possible among the relevant groups of people (here: smart city planners).

The results of the PLS-SEM provide two significant relationships. If companies are integrating more DevOps competences into their internal team, the cooperation with external DevOps teams is more likely (β = .851, p < .001). This also explains .725 of the variance of the target construct, which is classified as substantial (cf. Henseler et al., 2009; Chin, 1998). This relationship indicates that a certain degree of DevOps competences is necessary as a starting point, leading to an inclusion of external competences through co-operation. Moreover, the relationship between cooperation with external DevOps

teams and adding value to smart cities in the future is also positive and significant (β = .872, p < .1), but explaining the variance of the endogenous construct (R² = .209) weakly. This relationship highlights that the adding value increases, in times companies co-operate with external DevOps teams. This indicates that working together with different teams raises the adding value. The other relationships are not significant, but their path-coefficient indicates the strength and direction of each depicted relationship.

4. Conclusions

Related to the 'triptych model' (nexus between competences-priorities-collaboration), the research confirms the existence and training of competences to be conditional for priority setting and requested collaboration with external partners. Suggestions for future research refer to considerably increasing the sample size and replicating the quantitative research by detailed operationalization and investigating possibly existing moderating or mediating effects of the variables in the synthesized framework (figure 1). With emphasizing competences and its relationship to priorities and collaboration, the DevOps project put a good foundation for more detailed conceptual work. The findings reflect that smart city planners perceive and do need trainings in certain competences to generate own additional and sustainable human capital. Competences regarded as most important should be trained and existing in-house instead of outsourcing these competences externally. An increase of competences leads to a higher current and future importance of every priority subdomain. On the other hand, if SC administrations are integrating ever more DevOps competences into their internal team, the cooperation with external DevOps teams is more likely leading to a perceived adding value increase.

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metaVET

ACKNOWLEDGEMENT

Competence	Smart City Planner	Chief Digital Officer/Internal IT Officer	Co-operation with External IT experts, consulting service provider, Universities	Training demand
Teamwork	36	26	22	29
Urban innovation	32	21	22	26
User experience	28	20	21	29
Agility approaches	23	22	24	24
Business analysis & intelligence	23	19	22	21
Quality assurance	22	19	29	21
System operation skills such as database and network administration	29	32	24	21
Coding	20	32	20	15
IT and cyber security	19	29	32	23
Platform developer	19	20	31	17
IoT specific knowledge	19	18	29	31
Networks	19	30	28	19
IT product design, product discovery and management	19	1?	26	1?
Big data management	19	36	25	23
Artificial intelligence	18	12	32	23
Continuous integration	18	29	31	0
Vertical system integration	18	26	25	23
Business transformation	18	21	23	23
Simulation	18	20	18	1?
Data science and advanced data analytics	17	26	22	25
Testing	1?	26	19	19
Website management	16	21	29	15
Device management support	16	2?	24	22
Spatial data infrastructure	15	22	27	22
Additive manufacturing and 3D print	15	14	2?	21
DevOps (integrating software development and operations)	15	20	19	28
Mobile development	14	1?	35	20
Software architecture	14	32	29	17
Machine learning and deep learning	14	14	26	2?
Augmented reality	14	15	25	22
Cloud computing	13	26	31	21
Microservices	13	19	25	17
Continuous delivery	13	22	20	14
Hardware interfacing	12	18	29	20
Automation	12	18	2?	29
Multi agent systems	9	12	30	22
Autonomous robots	9	14	25	1?
Average	*17.7*	*21.9*	*25.8*	*20.4*
Mean	*18.0*	*21.0*	*25.0*	*21.0*
Standard deviation	*5.5*	*6.0*	*4.2*	*5.0*

Appendix 1: Which IT/IoT related competences do you require in your SC planning role (Smart City Planner); which competences do you see required for Chief Digital Officers and internal IT Officers, and as to which competences do you prefer to co-operate with external partners? Where do you perceive training demand?

	Competence			
General technical competences	Technical skills to switch from operational to strategic tasks	34	15	..
	Broad and deep process understanding due to higher process complexity	31	26	19
	Creativity	28	16	21
	Technical skills to evaluate and apply the integration between geo-spatial tech and traditional IC tech & engineering processes	24	34	19
	Media skills (i.e. smart media, i.e. smart glasses)	21	25	19
	Rudimentary understanding of technology (data analytics, the ability to leverage and communicate that know-how)	20	22	22
	IT, Media or IoT-specific skill	17	27	20
	Familiarity with ICT hybrid media literacy	17	22	26
	IoT architect or an IoT security specialist	17	27	24
	IoT supportive skill	15	27	26
	Understanding IT security	14	31	23
	Combination of existing skills that are augmented to some degree with IoT expertise	13	27	25
Methodological competences	Design thinking	28	20	17
	Efficiency orientation	26	26	18
	Conflict solving	25	21	19
	Research skills and continuous learning	25	20	26
	Entrepreneurial thinking (corporate entrepreneurship; social entrepreneurship)	24	19	22
	Problem solving	24	22	16
	Decision making	24	21	16
	Analytical skills	24	22	17
	To be able to co-operate in ad-hoc fashion (to take individual or socially constructed ideas into action)	22	19	19
Social competences	Create relationships	30	28	15
	Ability to merge different skills	30	22	14
	Being co-operative	29	22	14
	Resilience	29	24	19
	Ability to work in a team	28	28	17
	Social skill	28	21	12
	Intercultural skills	27	17	20
	Diversity Management	27	13	14
	Ability to transfer knowledge (explicit and tacit)	26	20	17
	Language skills	25	24	27
	Networking skills	25	28	17
	Ability to be compromising	25	22	16
	Action-related competencies	24	16	12
	Communication skills (including virtual communication skills)	24	23	16
	Past professional experiences	23	22	17

trategic vision	28	21
pen-mind behaviours	27	24
roject and process management	27	19
ompliance	26	25
eadership skills (every employee becoming a leader)	25	24
lexibility	25	25
mbiguity tolerance	25	12
patial thinking	25	17
motional intelligence	25	23
bility to work under pressure	24	24
he ability to mediate conflicts	24	21
lotivation to learn	23	24
ttitudes, communication	23	21
eflective	22	18
eadership capacity	22	21
mpathy	21	20
utput oriented	21	18
utonomous	19	24
egal aspects of public procurement	23	20
ontractual issues involved in public-private partnerships	21	18
egal notions regarding big data/open data management	20	22
ata security	19	23
erritorial planning	31	18
lanagement of urban facilities	27	20
rban innovation	26	16
ngaging citizens	24	17
	24.2	21.9
	25.0	22.0
ion	4.2	4.1

Appendix 2: In which of the following transversal/generic competences do you perceive training or co-operation needs?

Appendix 3: Intention to train staff

A NEW PEDAGOGICAL CONCEPT FOR SUSTAINABLE TEACHING

What do univerisities have to learn from vocational education and training?

Written by: Manuel Au-Young-Oliveira and Klaus Kuehnel

ABSTRACT

This article presents an innovative approach for higher education, drawing lessons from vocational education and training (VET). It emphasizes creating a sustainable learning environment, challenging traditional methods by prioritizing haptic experiences, and fostering long-term knowledge retention. Key areas include critical thinking, utilizing Structured Literature Research (SLR) for self-expression, confronting tradition with individualism, and emphasizing passion and life goals like "grit." The article stresses the importance of adapting to change, preparing students for impactful contributions to their fields. With students often skipping lectures, viewing time as potentially wasted, a different approach is essential for effective engagement and knowledge transfer.

Keywords: Critical Thinking, Teaching Resources, Education Policy, VET, Higher Education, Collaboration
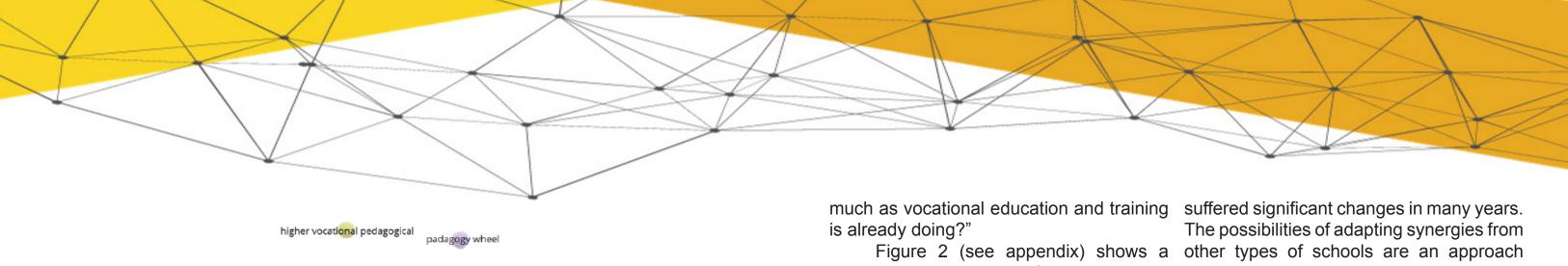
In the dynamic landscape of today's educational world, the need to continuously rethink and adapt teaching methods is paramount. With this in mind, this article presents an innovative approach to transforming higher education teaching. Our aim is to create a learning environment that is both tactile and sustainable to enrich and deepen the learning process. The traditional structure of advanced education, often characterized by passive knowledge transfer, is increasingly reaching its limits when it comes to actively engaging students in the learning process and providing them with lasting, real-world skills. In light of these challenges, our concept proposes a paradigm shift away from a purely theoretical, lecture-focused model to one that emphasizes haptic experiences and sustainability.

By integrating haptic learning methods that include tactile experiences and hands-on activities, our approach aims to make learning more tangible and interactive. This not only promotes a deeper understanding of complex concepts but also strengthens students' motor skills and creativity. At the same time, we attach great importance to sustainability, both in terms of the materials and resources used and in terms of long-term knowledge retention and application. Our concept is designed to provide a comprehensive, application-oriented learning experience that prepares students for the challenges and opportunities of an ever-changing world. By combining haptic learning with sustainable practices, we strive to revolutionize not only how knowledge is delivered but also how it is absorbed and applied by students. Ultimately, our goal is to foster a new generation of learners who are both theoretically adept and practically empowered to make a positive contribution in their respective fields and beyond.

As the SCOPUS overview shows (figure 1 – see appendix), articles on vocational education and training focus on competence development and on basic skills and communication skills, rather than purely on diploma attainment. What is a diploma worth in the age of artificial intelligence (AI)?

The authors are both university lecturers and are seeking to learn from and incorporate more methods used by vocational education and training
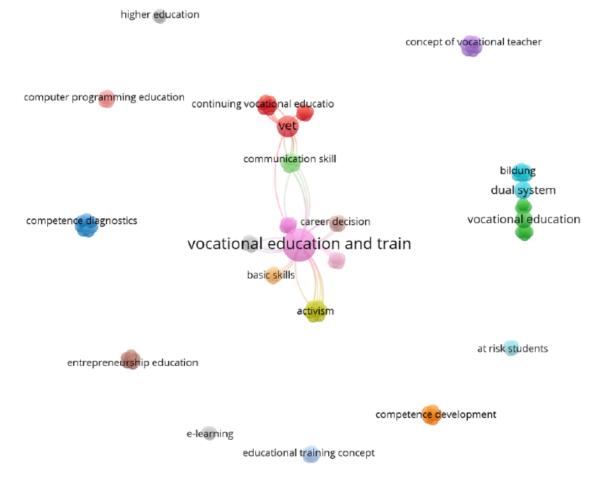
Figure 1: VOSviewer for SCOPUS search - "vocational education and training" AND pedagoical AND concept.

institutions. The research question focuses on evaluating and improving contemporary teaching methods in university education and is articulated as: "How can innovative, tactile, and sustainable teaching approaches, including haptic learning methods, structured literature research, and a focus on critical thinking and individualism, transform the traditional lecture-based model of university education to better engage students and prepare them for real-world challenges and opportunities,

much as vocational education and training is already doing?"

Figure 2 (see appendix) shows a similar search done on Scopus but with the search terms university and AND pedagogical AND concept.

In higher education, many teaching methods are very isolated to the respective educational institution, without having suffered significant changes in many years. The possibilities of adapting synergies from other types of schools are an approach that has not yet been addressed in many articles.

Our research question encompasses various aspects, including the integration of haptic learning, the importance of structured literature research, encouraging critical

Figure 2: VOSviewer for SCOPUS search - university AND pedagoical AND concept.

thinking and independence, confronting traditional norms, nurturing passion and life goals, and addressing the pressures and expectations faced by students.
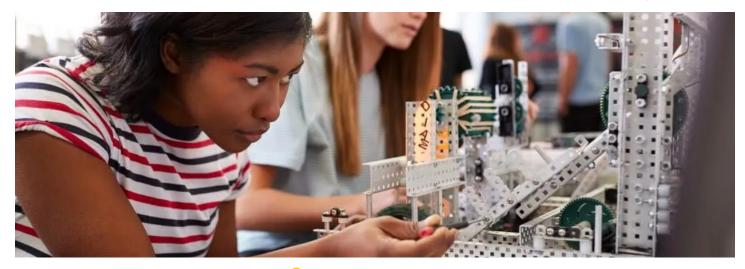
As the SCOPUS overview shows (figure 2 – see appendix), many articles on higher education focus purely on teaching and research. The articles on pedagogy are also very isolated. This needs to change.

The structured literature research has shown that there is an absolute vacuum in the university environment. If, in addition to the already integrated internships, active learning is now placed at the center of improved teaching at universities, methods such as flipped classroom and collaboration become visible (figure 3 – see appendix). However, the terms "case study" and "engagement" are also skills that are still not instrumentalized enough in lectures. Diversity and the instrument of the

curriculum have not yet come into focus, although the tools of artificial intelligence, like all areas of society, will have a massive impact on everyday university life.

Our aim is to bring to higher education in the university setting what vocational education and training has already achieved and more: 1) Independence and critical thinking; 2) Importance of SLR Structured Literature Research; 3) Confronting authority and tradition; 4) Importance of passion, life goals, and "grit".

Therefore, the choice of the best method depends on the learning objectives, the topic of the learning unit, the resources of the educational institution, and the individual needs of the learners. Often a combination of these methods is used to get a more comprehensive picture of learning outcomes. The article presents an innovative approach to improving university

education that focuses on creating a tactile and sustainable learning environment – much as what already exists in vocational education and training. By challenging traditional lecture methods and emphasizing haptic experiences and long-term knowledge retention, the approach aims to promote critical thinking and strengthen students' independence and individuality. The importance of Structured Literature Research (SLR) for personal development and emotional fulfillment is emphasized, as is the influence of passion and life goals, particularly the concept of "grit," on academic and professional success. The authors emphasize the need to adapt to an ever-changing world and prepare students to make positive contributions in their respective fields. In doing so, it suggests innovative teaching methods such as the NASA-TLX (Task Load Index) to monitor learning and adapt instruction to students' needs. Overall, the authors offer valuable insights into the importance of adaptive and student-centered teaching approaches in today's educational landscape.

According to Amarante & Fernandes (2023, online article): "Academia–industry collaboration has been around for some time, but there has been a shift in both the education and workforce settings to work closely together, coordinating initiatives

across all sectors, namely higher education (HE), vocational education and training (VET), and industry, in an attempt to mutually drive innovation [...] [while] aiming to bridge the existing gap between the teaching–learning arena and the business world." Many advantages and benefits were designed for both HE and VET initiatives and systems. Given the technological turbulence and social unrest, a new era needs to dawn. We have so much to learn from different teaching and learning systems that more such collaborations should exist. For now, the promise: we in HE will learn from VET; as it is no longer simply "publish or perish"; but perhaps, more importantly: "transfer knowledge more effectively or have empty classrooms." The need to engage has never been greater. Our prime time is competing with social media, artificial intelligence, among other all-encompassing technologies. "It is no longer the inputs (useful knowledge) but rather the outputs (holistic vocational activities structured into areas of learning) that are defined." (Gessler, 2017, p.695). We need to ensure that knowledge is getting across to students in HE - for HE systems to remain relevant. Otherwise, VET will have won as regards HE university degrees and the value that is perceived by those participating.

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Written by: Manuel Au-Young-Oliveira

A PASSION FOR EDUCATION AND VET: SEARCHING FOR STUDENTS WITH ENTHUSIASM AND ENGAGEMENT

ABSTRACT
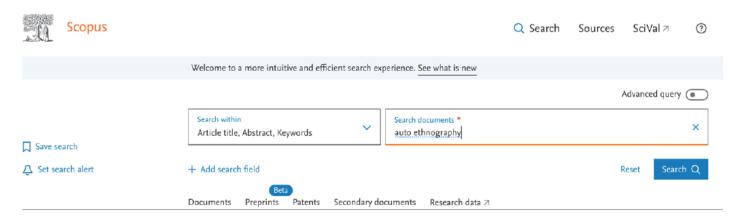
This study explores the crucial elements of passion, enthusiasm, and engagement in students, emphasizing their significance in the classroom. While teachers should be prepared as educators, students also play a vital role by demonstrating a deep interest in the learning process through these qualities. The ideal motivation, intrinsic rather than extrinsic, should be shared by both teachers and learners. Using autoethnography and Intuitive Field Research, the author provides insights into effective Vocational Education and Training (VET), introducing the PPT process—comprising preparation, being polemic, and utilizing technology. Drawing from experiences in the internationally funded TourX project, the author reflects on the enduring value of VET, emphasizing its relevance amid rapid technological advancements.

Keywords: Autoethnography, Intuitive Field Research, VET, Passion, Enthusiasm, Engagement, Intrinsic Motivation

1. Introduction and Methodology

This is an autoethnographic and Intuitive Field Research (IFR) study. Autoethnography combines autobiography (about one's own experience) and ethnography (a study of culture) (Ellis et al., 2011). Autoethnography is becoming increasingly popular, and a search on the Scopus database using the term autoethnography (searching in the title, abstract, and keywords, on 16-11-2023) revealed 5,202 documents (Figure 1). IFR, on the other hand, is a new award-winning methodology that involves using one's intuition to convey one's experience. In this case, one has to rely on glimpses of the literature to stimulate thought processes (Au-Yong-Oliveira et al., 2023). The research question of this study is: How to stimulate passion, enthusiasm, and engagement in the VET classroom? Research gap: Elffers et al. (2012) argue "that despite the vast amount of research on student engagement, attention did not extend to the vocational sector until recently" (Niittylahti et al., 2023, p.373).**2.**

2. Discussion

I have always had a passion for education. I started my career with VET

Figure 1: A search on the Scopus database using the term autoethnography (searching in the title, abstract and keywords, on 16-11-2023).
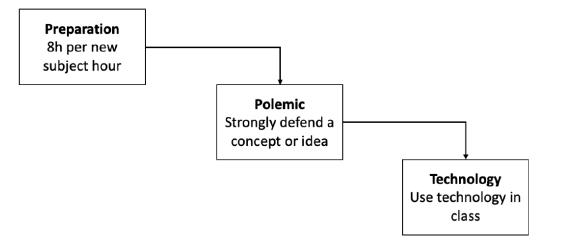
Figure 2: Definition: "VET usually comprises both theoretical learning in a vocational institution and studying at workplaces" (Niittylahti et al., 2023, p.376). Research question: How to stimulate passion, enthusiasm and engagement in the VET classroom? The PPT model – A solution to gain attention in VET classrooms and achieve maximum results and knowledge transfer.

when I was quite young – in my twenties, and after my MBA, which I did in the UK. It was a wonderful time, and I am thankful for the opportunity to have worked with a small but growing VET institution during that period, in Portugal. The mission was to teach mainly young graduates practical knowledge, which they could use right away, the next day even. Interesting themes were focused on, such as leadership, conflict management, project management, and more far-reaching themes such as how to deal with uncertainty in business environments.

The main exercise is always one of preparation – to be the most knowledgeable person on the subject in the classroom. For that, I use the metric of eight hours per hour lectured or taught, in preparation. If I am to lecture for two hours on a new subject, that means sixteen hours of preparation... Additionally, trying to bring students closer to the theme is always good. One way of doing this is discussing themes that are in the news, or which are polemic (e.g., involving the strong defense of a particular stance or belief). Furthermore, involving smartphones (technology) and their usage to solve problems in class (e.g., Google searches) is normally very welcome, too. The acronym PPT describe the preparation, polemic, and technologically-based VET approach I have put into practice over the years (please see figure 2).

One can tell when students are paying attention and learning. It is very rewarding to make that connection with learners – who really understand our message and what we are trying to communicate. Therefore, communication skills are essential – establishing empathy – and deciding on a clear message to communicate – ideally, beforehand. However well I prepare, I never really know how the education experience will go. It will depend on many other outside factors and variables – such as the previous experience of the learning group, their interests, and their disposition on the day.

I am very intuitive in the way I teach and try to ascertain what may catch the attention of my students and be useful to them, for their futures. What I say is hence, to a degree, unpredictable. There

Figure 3: A search on the Scopus database on 16-11-2023 using the terms "passion" AND "education" AND "VET" (searching in the title, abstract and keywords, on 16-11-2023).

Keyword	Nº of matches	Evidence - example
Engagement	97	"Student engagement is supported by interest and enthusiasm for the curriculum, strong connectedness to other students, and suitable ways to learn and study" (Niittylahti et al., 2023, p.372)
Enthusiasm	5	"There are these field assignments, they're just the kind of stuff I know, a lot of work and entrepreneurship-related stuff. I want to become an entrepreneur someday, so this place feels right. ([interviewee] Oliver, year 1)" (Niittylahti et al., 2023, 380)
Passion	3	"One of the key findings of this study is that not all adolescents have a strong passion for their field of study." (Niittylahti et al., 2023, p.385)

´**Table 1:** Doing a thematic analysis on the text in Niittylahti et al. (2023), regarding the words "engagement" and "enthusiasm" and "passion".

are certain dangers in this, as I may say the wrong thing, though all lecturers are nowadays careful about what they say, and we are aware that certain things are indeed "off limits".

Using the keywords "passion" AND "education" AND "VET", in a search on the Scopus database, on 16-11-2023, revealed two documents, as shown in figure 3. The journals where the two articles were published are specific to Vocational Education and Training. The most recent article (Niittylahti et al., 2023) is a longitudinal study, which tends to be rare as it requires a focus over time. The second article is on Korea and the VET sector there, focusing on the current and future perspectives in view of a globalized world (Nahm, 2017).

Doing a thematic analysis on the text in Niittylahti et al. (2023), regarding the words "passion", "enthusiasm", and "engagement", which is the end-result I seek in my students, reveals what we see in Table 1. After all, teachers seek these three elements in their students, or "star" students at least: a passion for the subject, enthusiasm for class and for the education environment, and engagement, above all engagement – which shows that we are being successful in our endeavor to transfer knowledge.

3. Conclusion

Successful VET masters the art of communication (e.g., using PPT, as mentioned above) and is able to motivate students to engage. Intrinsic student motivation is best and involves "a person's internal desire to do something" (Amabile, 1998, p.79). To achieve the desired learning outcome, teachers must be intrinsically motivated too. Especially, as being knowledgeable involves reading - on top of an ideally rich prior job experience / life - and having the mindset of one with intercultural ability. VET is especially difficult in a fast-moving and highly technological world. The research question changes perhaps every month, certainly every quarter, for VET providers: What do I need to teach for my students to remain relevant? This is also the mission behind the international project TourX of which I am proud to be a part.

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THE PROGRESSIVE VET – GENDER-BASED VIOLENCE (GBV) ADDRESSIVE VET

ABSTRACT

This article delves into the prevalent issue of gender-based violence (GBV) within VET institutions, outlining the extensive nature of the problem at both the European and Slovak levels. It sheds light on one of the potential solutions identified through the participation of the Newport Group in the END GBV in VET– "Full service to increase capacity and awareness for disrupting gender-based violence in the VET sphere" project by CERV, alongside other partners. The primary focus lies on findings at the Slovak national level during the exploration of the national system and policy solutions regarding GBV, along with proposed pathways for resolution obtained through desk research and interviews.

Keywords: Gender-Based Violence (GBV), Vocational Education and Training, VET Policy, Slovakia, EU

Written by: Daryna Mulchenko

Slovakia's institutional framework for gender equality appears relatively weak, mirrored in its broader legal system and non-ratification of the Istanbul Convention. The primary focus within the legal system centers on addressing interpersonal and domestic violence. Consequently, initiatives on gender equality and combating gender-based violence are primarily driven and implemented by bodies such as the Ministry of Social Affairs and the Institute for Research of Labour and Family. However, at the policy level, Slovakia is actively executing the National Strategy for Equality between Women and Men and Equal Opportunities (2021-2027), the National Action Plan for the Prevention and Elimination of Violence against Women (2022-2027), and has issued guidelines like the "What to do with sexual harassment" directive for high schools, led by the Institute for Research of Labour and Family.

The lack of a developed framework addressing GBV in VET is a widespread issue across numerous EU countries. Primarily, Sweden (82.2), the Netherlands (77.9), Denmark (77.8), and Spain (76.4), among others, exhibited a relatively high gender index in 2023, though there is always room for improvement. At the same time, Slovakia had 59.2, ahead only of Greece (58.0), the Czech Republic (57.9), Hungary (57.3), and Romania (56.1). Notably underdeveloped is the VET sector in formulating successful policies surrounding GBV.

Slovakia's policies addressing GBV primarily concentrate on intimate partner violence, domestic violence, and occasionally extend to cases of sexual violence beyond partnerships. Consequently, instances of GBV within VET and university settings are largely unrecognized as issues. Past reported

cases have often been treated in isolation, lacking broader institutional responses or the impetus for policy framework development.

Important statistics were provided by research of the Institute for Labour and Family Research (Inštitút pre výskum práce a rodiny). It implemented a survey among university students in 2019 – 2020 on the issue of gender and sexual harassment. The findings provided that there is a significant experience with these types of gender-based violence among this target group. Namely, 76% of people experienced gender harassment, 46% unwanted sexual attention, and 3% experienced sexual coercion.

Institutional responses to gender-based violence remain scarce, with few specifically tailored policies governing these matters in educational settings. Currently, secondary schools, universities, and VET institutions typically lack comprehensive regulations addressing gender-based violence. While some universities have their codes of conduct referencing the Antidiscrimination Act of 2004 or broader guidelines on sexual harassment, specific structures dedicated to handling gender-based violence across the entire education sector are notably absent.

During the research, it became clear that the introduction of new rules, regulations, and restrictions doesn't always yield the desired outcomes, whether they are well-crafted and effective or not. This is because there still exists a significant gap in what is termed as "silent GBV" – instances of violence in any form that have gone unreported or undocumented. In such cases, the most effective tool, in our perspective, to address GBV surprisingly emerges as education, training, and raising awareness at all levels.

Addressing the root causes of the problem and preventing GBV rather than merely devising new punitive measures for perpetrators is imperative. The logic behind this approach is straightforward: it is crucial to equip teachers with knowledge about handling, providing assistance, and preventing GBV; raising parental awareness by imparting knowledge on what signs to observe, how to communicate, and what steps to take; and importantly, informing students about GBV. Overall, education emerges as a powerful tool in preventing GBV by instilling a culture of awareness and understanding from an early age.

The research was conducted by the Newport Group as per the END GBV in VET project's work plan, financed by CERV under the European Commission, where EVBB took the lead. Each partner conducted research at the national level, identifying areas within policies and frameworks requiring improvement concerning gender-based violence. Subsequently, EVBB compiled an overarching report summarizing the collective insights from participating countries across Europe. As research showed, we are on the right way, but there are still a lot of things to improve!

VOCATIONAL EDUCATION AND TRAINING – PURPOSE AND POLICY, PRESENT AND FUTURE

Written by: Manuel Au-Yong-Oliveira and José Magano

ABSTRACT

What is Vocational Education and Training (VET)? Herein, we define the concept and discuss the much-needed purpose of VET in society at large. In short, VET is about relevant education—education that is applicable in the very short term to solve pressing labor problems in the market. VET may also have a longer-term perspective, filling essential higher-level professional gaps in the market. However, VET still suffers from a problem related to context. Different countries and cultures have different VET systems, and it is not always easy to reconcile political interests in this respect. Hence, much remains to be done regarding VET, in the European Union (EU) and outside it as well. Cooperation and knowledge sharing are necessary for an even brighter future for VET.

Keywords: Policy Transfer, VET, Stakeholder Engagment, Local Specifities

1. Introduction - On Vocational Education and Training

Vocational Education and Training (VET) is an educational approach that provides individuals with the practical skills and knowledge needed to succeed in specific businesses, industries, or occupations. It may be seen as the "development and application of knowledge and skills for middle-level occupations needed by society from time to time" (Moodie, 2002, p. 260). VET offers a hands-on learning experience that equips students with the technical proficiency and competencies required to perform effectively in their chosen profession, preparing them for a wide range of careers, from traditional skilled trades like plumbing and carpentry to emerging fields like information technology and healthcare. VET programs often involve classroom and on-the-job training, as well as internships, offering participants a way to get in touch with the "real world" and acquire practical expertise, thus becoming job-ready after program completion.

In many countries, VET plays a crucial role in addressing skills shortages, fostering economic growth, and promoting workforce development. Employers often collaborate with VET institutions to ensure the training aligns with industry demands, providing a skilled and capable workforce. In fact, VET programs can be customized to suit individual learning styles and career goals, making education more accessible and tailored to workforce needs. VETs can bridge the gap between education and the workforce, preparing and empowering trainees to thrive in different sectors and jobs.

2. The Complexity Of Knowledge Transferring Policies

Despite the development of VET

Figure 1: Keywords in the future of VET.

programs and the attention paid by the EU in promoting them, an issue that remains and deserves attention is the transfer of VET policies from one context to another—for instance, from one country to another, often a complex and challenging process. In the words of Barabasch et al. (2021, p. 341), "In the European Union, knowledge transfer as a key element of policy transfer is at the core of European VET policy and reflected in numerous policy measures, such as the research and mobility programs (e.g., Erasmus+ or the EU's cohesion and good governance policy). Though not all these policies and initiatives address (vocational and adult) education, they clearly point at the relevance of policy transfer."

This complexity stems from diverse factors, including differences in educational systems, cultural contexts, economic circumstances, and the specific demands of the labor market. In fact, different countries have diverse educational systems, structures, and approaches to vocational education, making it challenging to transfer VET policies straight from one country to another. For example, how credits are awarded, qualifications are recognized, or the age at which students join vocational programs can range significantly. Also,

cultural and socioeconomic aspects play a significant part in shaping education and workforce development; what works in one cultural context may not be effective in another, and handling these differences is essential for successful policy transfer. Moreover, local labor market dynamics and industry-specific demands need consideration to ensure that VET programs are relevant. Some countries may focus and concentrate on decreasing youth unemployment, while others aim to address skills shortages in specific industries. Adapting policies aligning with local goals and priorities is essential for success in policy transfer.

The availability of funding and resources for VET programs can vary widely. Transferring policies that depend on specific funding mechanisms or incentives may need adjustments to accommodate differences in financial resources and organizational capacities. Furthermore, each country has its governance system, that is, a legal and regulatory framework governing education and training (Barabasch, 2010). Transferring VET policies may implicate navigating intricate legal requirements, accreditation processes, and compliance standards, which can also differ significantly from one context to another.

Designing and adopting adequate transfer policies is paramount; however, to be effective, issues such as teacher training, infrastructure development, curricula development, and assessment mechanisms can pose challenges when

Figure 2: Based on the Scopus database search using "Vocational education and training" AND job, on 18-11-2023 (413 documents found).
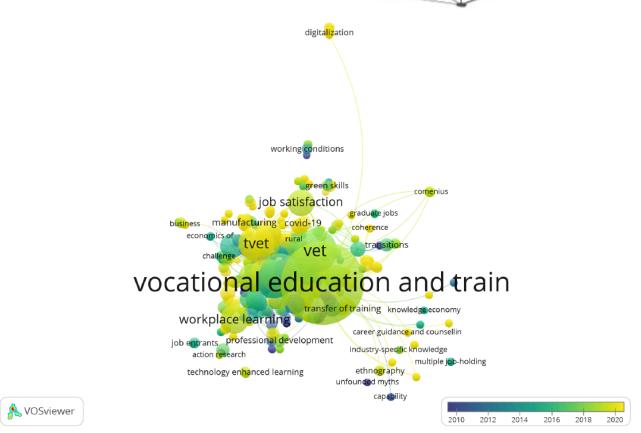
Figure 3: VOSviewer platform representation, following on from the above Scopus search - co-occurrence of author keywords, full counting, 1206 keywords in total; note how digitalization is a recent trend; and note how workplace learning and job satisfaction are equally important.

implementing those transferring policies. Moreover, estimating and monitoring the impacts of transferred VET policies are crucial for continuous improvement. Nevertheless, discrepancies in evaluation methods and data collection systems can add to the complexity of assessing the effectiveness of transferred policies.

VET policy transfer is not a one-time event but an ongoing process. Adapting and refining policies to fit the new context may take time. Flexibility and the willingness to adjust based on feedback and experience are critical. Policymakers and stakeholders involved in transferring VET policies should be conscious of such complexities and work collaboratively to adapt policies effectively to satisfy the specific needs and conditions of the target context.

3. How can local specificities be better understood and recognized in policy decisions in VET nationally and globally?

This question, already posed by Barabasch et al. (2021), acknowledges that understanding and recognizing local specificities in VET policy decisions, both at the national and global levels, is essential to ensure that VET programs are responsive to the unique needs and contexts of different regions and communities.

When addressing integrating local specificities and diversity into VET policies, the first aspect to consider is engaging stakeholders, including local VET providers, employers, community representatives, government agencies, industry partners, educators, and students in the policymaking process. Their input and viewpoints can provide helpful insights into different communities' specific needs and challenges. As the composition and influence of these stakeholders can differ, it is essential to build consensus and support when transferring VET policies. To some extent, that goal could be facilitated by organizing regional forums where policymakers directly engage with local communities and VET stakeholders. Such an approach could also strengthen VET

governance structures, comprising local advisory councils, the authority to oversee VET policies and programs in different fields, and even to allocate resources based on local priorities. This may involve directing funding toward targeted initiatives, infrastructure development, or support for underserved communities.

Also, designing VET policies with built-in flexibility to accommodate regional variations is paramount: one size does not fit all, and so there is a need for customizing curricula and program structures to meet local requirements (Barabasch et al., 2021). Tailoring VET policies could be supported by a data-driven approach - investing in research and data collection to identify better local labor market trends, industry growth, and the demand for emerging skills, allowing for evidence-based decision-making.

Another concern is the creation of professional development opportunities for VET teachers and trainers. The effective involvement of these professionals implies empowering them to adapt curricula and training methods and thus connect with the reality of their communities. To successfully compete globally, one needs to make significant improvements in maximizing the effectiveness of vocational education and training instruction based on specific

design of curricula (Mouzakitis, 2010). They must also be prepared to assess and value students' prior learning and work experiences within the local contexts, thus contributing to granting them credit for knowledge and competencies obtained outside formal education (Weigel et al. 2007).

Promoting the exchange of best practices and lessons learned in adapting VET policies to local contexts is necessary. This endeavor calls for cooperation with other countries and organizations to share knowledge and expertise and adopt policies, practices, and ideas. To that end, policy transfer can be driven by various motives and goals, including donor aid to promote development, state capacity-building to enhance governance, company capacity-building to meet workforce needs, and trainer capacity-building to improve the quality of education and training (Li & Pilz, 2023). Each of these motivations aims to contribute to the improvement and effectiveness of VET systems, national or global.

Figure 1 shares some key words regarding the future of VET. Figure 2 results from a Scopus search, and figure 3 is a VOSviewer representation following the above Scopus search (co-occurrence of author keywords).

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