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Analyzing vocational excellence: a research-based model

Abstract

Excellence is at the heart of developing the quality and image of vocational education and training. In the context of TVET, excellence is understood in a variety of ways. A tangible VET excellence model which helps to unfold the complexity of the concept is needed to support practitioners and policymakers, as well as to facilitate the meaningful dissemination of good practices.

Based on previous research and our consultancy work within the Finnish TVET ecosystem, and as a technical partner to the European Training Foundation, we have developed a model for analyzing excellence. Our model includes horizontal layers (infrastructure, human resources, pedagogical landscape, systems and processes and stakeholder collaboration) laced with vertical "megatrend" dimensions of excellence: innovation, greening and digitalization. While horizontal layers can typically be developed on a stand-alone basis, the verticals tend to impact all the horizontal layers.

The verticals have an impact on all the horizontal layers. In order to reach the required level of excellence, we must consider how these verticals impact our operations on every horizontal layer. When using this model, achieving excellence becomes an ongoing holistic process for TVET providers at different stages of the excellence spectrum and ties into overall quality assurance.

Keywords: TVET, vocational excellence, TVET ecosystems

1 Introduction

The incorporation of strategies for achieving vocational excellence plays a significant role in policy objectives for Technical Vocational Education and Training (TVET). In particular, the European Skills Agenda (European Commission 2020) and the Council Recommendation on VET (Council of the European Union 2020a) name vocational excellence as the catalyst for reforms in the TVET domain. However, within this general direction, the concept of vocational excellence has not been defined in a unified manner. At the same time, research and development related to VET excellence nationally and internationally is accumulating. This results in a need for a research-based tangible framework which would support the TVET community in reflecting and controlling their respective professional efforts on their journey to vocational excellence. For this purpose, in section 3 we present a VET excellence model covering and unpacking the dimensions of excellence, based on a literature review in section 2. In section 3 we also outline how this model can be used by different stakeholders. Section 4 contains a summary and future steps to be taken.

2 The international discussion on excellence in TVET

In preparation for the development of our model, we reviewed the literature regarding vocational excellence. Numerous perceived notions of vocational excellence exist, reflecting different vocational education models and approaches to its advancement. We started the review with the materials published by the European Training Foundation (ETF) and the ETF Network of Excellence (ENE). These materials were chosen as a starting point due to the wide geographical spread of ETF partner countries and our involvement in the latest ETF studies. Focusing on the priority areas of excellence, identified in ETF reports and studies, we widened the search for relevant reports and articles in TVET-focused journals and international organizations' databases. Finally, we looked into the Finnish TVET ecosystem and explored how it is tied to vocational excellence. Through the literature analysis, we built a structural basis for vocational excellence dimensions and their interrelations and developed the VET excellence model presented in section 3.

2.1 Vocational Excellence: Priority areas

'Excellence in learning is the goal of all education and training systems' (European Training Foundation [ETF] 2020a, 2). Aiming to support vocational excellence, the ETF has identified the following priority areas of excellence: *education-business cooperation*, *autonomy and institutional developments*, *going green*, *pedagogy and professional development*, *lifelong learning*, *entrepreneurial dimensions of vocation excellence*, *industry 4.0/5,0 and digitalization*, *career development*, *excellence in social inclusion and equity*, and *smart specialization* (ETF 2023b). Further, we reflect on these priority areas and their discussion in recent literature.

One of the priority areas is *education-business cooperation*. This area involves the promotion of work-based learning and public-private partnerships (PPPs) and is tightly linked to autonomy. PPPs have the potential to restructure TVET systems, their internal processes, enhance their relevance in the workplace, and improve the overall image of TVET. A consensus currently exists regarding the crucial role of PPPs, and the debate is focused on determining the most effective methods for implementing such partnerships. Recent studies on PPPs and autonomy by ETF (2023a) highlight how the concept of PPP and its implementation differ greatly from one country to another. However, despite vastly different contexts, many countries face similar difficulties. The solutions depend on the context. Processes of identifying the most appropriate tools and procedures and effective transfer/dissemination mechanisms should be developed.

Pedagogy and professional development present another priority area, involving the development of teaching and learning methodologies that are effective and engaging. This area concerns supporting the professional development of educators, trainers, and mentors, and providing them with the necessary skills and knowledge to deliver high-quality education and training programmes. This area also goes hand in hand with other priority areas such as digitalization, autonomy and education-business cooperation. Research shows that the level

of autonomy in basic pedagogical processes, such as choosing teachers, may vary (ETF 2023a). Recent research highlights the importance of the teacher's role (ETF 2023a) and reflects on the professional development in different settings (Tacconi et al. 2021; Tyler & Dymock 2019; Smith 2019; Ismail et al. 2018; Chinedu et al. 2018). This priority area also covers dual learning as a concept, the meaning of which varies significantly in different countries and contexts (ETF 2023a; ETF 2021; Schulte et al. 2020). Professional development in TVET is also closely linked to the education-business cooperation area, as teachers need to keep up with industry development and undergo regular industry training.

Industry 4.0/5.0 and digitalization is a crucial priority area, given the increasing digitalization of the economy. The need for development of skills and competencies essential to succeed in the digital economy were particularly stressed by the COVID-19 pandemic. According to the European Parliament resolution (Council of the European Union 2020b, 4), the 'COVID-19 crisis also presented an opportunity to launch a digital and technological revolution in VET which can break physical barriers and significantly increase its reach and impact on expected results'. The large amount of recent research is dedicated to different aspects of Industry 4.0/5.0 and digitalization, including, but not limited to, needs assessment (Ai et al. 2023; Ismail & Hassan 2019), e-learning (Ngqulu et al. 2019; Mystakidis et al. 2019), and digital capacities (Subrahmanyam & Elson-Rogers 2022). Digitalization has been reported in Cedefop's European skills forecast (Cedefop 2021) as one of the main megatrends shaping labour market development.

Another megatrend named in the same skills forecast and identified as a priority area by ETF is *going green*. Going green refers to supporting sustainable development goals and promoting the adoption of environmentally sustainable practices across TVET systems. According to the impact of the COVID19 pandemic on EU industries (de Vet et al. 2021, 8) the overall awareness of the benefits of the green transition has increased during the pandemic. There is an abundance of recent research following different aspects of greening in TVET, such as stakeholder partnerships to support greening (Pavlova 2018), green competencies (Cabral & Dhar 2021), pandemic case studies (Manyati & Mutsau 2021) and others. It is clear that greening transition is not a stand-alone process, but rather integrated in other aspects on different levels and in a variety of ways.

Smart specialization is another priority area, which involves innovations and ecosystems. Modern TVET can act as a driver of innovation in local ecosystems. There are numerous studies discussing the impact of TVET in enabling innovations (Hodge & Smith 2018; Osman & Kamis 2019; Rupietta & Backes-Gellner 2019; Lund & Karlsen 2020). As is the case with greening, this priority area is closely connected to other priority areas, for example, autonomy and education-business cooperation.

Excellence in *social inclusion and equity* is another priority area, which involves working to eliminate disparities in education and training outcomes and promoting equal opportunities for all individuals. Social inclusion is an integral part of the societal dimension of sustainable development. Recent studies discuss related existing policies and processes (Seitamaa &

Hakoköngäs 2022), and approaches supporting inclusion in TVET in different contexts (Shah et al. 2012; Sakamoto 2019), as well as views for the future (Tommasi et al. 2022). The ETF provides regular reports on inclusion policies and their implementation practices in TVET for different countries (for example, ETF 2020b).

As already stated, the priority area of *autonomy and institutional development* is tightly linked with all other areas. The purpose of autonomy is to foster a culture of transparency and communication between local, regional and national actors, while promoting accountability at the same time (Demas & Arcia 2015, 2). A culture of transparency and trust is the basis for cooperation between the stakeholders and is therefore a key element on the path to excellence. Recent studies by ETF (ETF 2021; ETF 2023a) explore the questions and challenges related to this area in different contexts and countries. These studies highlight the different levels of autonomy and its perceptions in different countries, and how it affects all the ongoing processes from the perspective of policymakers and practitioners. According to the research, when lacking autonomy, TVET providers are not able to be proactive in public private partnerships, which also hinders their ability to develop innovative pedagogical solutions and offer flexibility in learning paths to students.

The significance of *lifelong learning* has become increasingly recognized in discussions concerning TVET and is regarded as a crucial component of promoting sustainable development. However, according to the literature, there remains a considerable degree of ambiguity regarding the precise definition of lifelong learning and how it can be effectively implemented in practice (Kanwar et al. 2019). As a necessary part of sustainable development in a landscape of rapid technological advances and uncertain work environments, lifelong learning is tightly intertwined with other priority areas, for example digitalization, greening or career guidance. Recent research works discuss the concept of lifelong learning and its implementation in intersections with other priority areas, for example inclusion (Sakamoto 2019) and digitalization (Kanwar et al. 2019).

This overview of the priority areas makes it clear that they are interlinked. Moreover, the same dimension of excellence may unfold in different interpretations or forms of understanding when applied in different contexts and countries (ETF 2023a, 72). The way of interpreting the concept varies greatly between contexts and can be "disguised by the use of specific terminology, which may be lost in translation" (ETF 2021, 3). The significance assigned to various areas also varies among different countries and development organizations. Due to these circumstances, the list of priority areas, while showing the general direction towards excellence, cannot be operationalized to the extent required. All these facts emphasize the idea that excellence cannot be seen as a simple, linear concept, but rather as a multidimensional concept.

2.2   Finnish TVET ecosystem

In this subsection we will provide an overview of Finnish TVET context and discuss the targets of the national TVET quality framework, which serves as a foundation for achieving excellence in TVET. Continuous improvement towards excellence is one of the stated targets.

2.2.1   *Finnish TVET context*

In Finland, TVET is based on the principle of continuous learning which promotes the acquisition and renewal of knowledge, skills and competences for all learners, regardless of age. Finland combined initial and continuing vocational education and training acts in the TVET reform of 2018. The goal is to support individuals in their careers by offering training that is consistent with the needs of working life. Inclusion, lifelong learning and work-based learning are deeply embedded in the Finnish TVET context (Cedefop 2019).

Recognition and validation of prior learning and competence is at the heart of the system. TVET qualifications are competence-based and designed together with working life and key stakeholders. Unlike high-stakes or compulsory annual examinations, competence is evaluated continuously throughout the course of the programme in a sequence of skills demonstrations integrated as a component of work-based learning, a mandatory component of all TVET programmes.

Training providers are responsible for organizing TVET in a manner that corresponds to the requisites of the local ecosystem, while simultaneously acknowledging regional growth needs and employment opportunities. There is a current inclination towards multisector training providers, which offer diverse paths to a multitude of TVET qualifications. The state funds TVET providers, defines quality standards and collects data on student enrolment, grades, work-based learning and other key performance quality indicators.

We will discuss the national TVET quality framework and its targets in more detail. Additionally, we will show how the main targets relate to the priority areas identified by the ETF.

2.2.2   *The national TVET quality framework and vocational excellence*

The national quality framework in Finland serves as the foundation for achieving excellence in TVET, with a focus on continuous improvement and quality management. The Finnish National Agency for Education (EDUFI) provides guidance on the implementation of the EQAVET Framework, which is aligned with the national quality strategy for VET 2030. This strategy outlines five effectiveness targets, namely: *comprehensive quality management*; *customer orientation*; *continuous improvement towards excellence*; *decision-making, steering and leadership*; and *results, competences and result orientation*.

We discuss these five targets in more detail below.

Comprehensive quality management in TVET underscores the importance of expanding its scope beyond immediate boundaries and assessing the outcomes of its operations within a broader ecosystem, encompassing public and private sector partners. In practice, this entails that TVET is strongly intertwined with local, regional, national, and even international economic ecosystems. The quality or relevance of operations cannot be measured without contemplating the impact within the ecosystem. This target relates strongly to the ETF list of priorities: going green, Industry 4.0/5.0 and digitalization in particular. These are key drivers propelling TVET to keep pace with ecosystem level transformations. Tracer studies are mandatory in Finland and offer insights into the overall quality and effectiveness of TVET.

In the context of TVET, *customer orientation* pertains to addressing the requirements of both internal and external customers, including jobseeking individuals of all ages and abilities, and industry partners. Adopting an ecosystem approach, customers may possess varying profiles and needs. Small and medium enterprises (SMEs) partner up with TVET providers and may collaborate with students on various projects. Furthermore, joint development ventures with local universities and private enterprises are common. TVET providers must therefore cater to a diverse clientele and adjust their services accordingly. This target aligns with ETF priorities and is particular closely connected to such priorities as inclusivity, career guidance and lifelong learning.

The EDUFI stresses the need for TVET providers to develop their work proactively and systematically to meet the evolving requirements of the operating environment, with *continuous improvement towards excellence*. This target highlights the importance of not only keeping pace with sectoral changes, but also working to anticipate industry and local needs while integrating innovative approaches to TVET offerings. TVET providers must become the driving force behind change, whether related to technology, sustainability, pedagogy, or interaction with the private sector. Both internal and external processes must be developed, with tangible performance indicators established to measure improvement towards achieving excellence.

The effectiveness of *decision-making* in TVET relies on the use of evidence-based practices, which necessitate the acquisition and utilization of data by providers to inform decision-making and development processes. Organizational performance is intrinsically linked to leadership and evidence-based decision-making. Finnish TVET organizations have a decentralized structure, with decision-making being swift and efficient due to the low hierarchical nature of these institutions. Steering documents from EDUFI are not top-down in nature, but rather a result of a collaborative dialogue with providers. The decision-making target links closely to the ETF priority area of autonomy and the entrepreneurial aspect of lifelong learning.

For *results, competences and result orientation* TVET providers are expected to establish clear objectives, closely monitor performance, and adopt corrective measures when required. The pursuit of excellence is viewed as a shared objective among all TVET providers. While the providers are responsible for setting their own performance indicators and determining the

associated monitoring mechanisms, a range of transparent EDUFI databases also gather data on their achievements. It is ensured that the most recent data is consistently accessible at a national level and this open and comprehensive system of data collection has rendered school inspections obsolete. Following the 2018 reform, data plays a crucial role in the financing of TVET programmes, incentivizing providers to achieve excellence whilst also serving as a positive driving force for progress.

3   VET Excellence model

One of the core objectives of TVET providers is to promote employability and facilitate career development. However, with an increasing number of industries experiencing disruptions, VET providers are faced with significant challenges. The impact of change and disruption go beyond borders, affecting industries on a global scale. To achieve excellence in this context, innovative solutions are required, necessitating the collaboration of policymakers and practitioners, the establishment of public-private partnerships, and participation in international sectoral networks. However, the ambiguity of VET excellence and its underlying concepts, as well as the absence of an operable model for vocational excellence, hinder the necessary processes. As discussed previously, there are no unanimous standards, and stakeholders' perceptions of different aspects of excellence vary vastly. This also results in a divergence of best practices (Pirzada & Gulzar 2023; ETF 2023a; Joo 2018) and complicates the process of their dissemination. Indeed, to implement the best transfer efficiently, the initial information and context should be investigated in order to develop the most effective mechanisms of transfer in and between contexts. Therefore, there is a clear need for a multidimensional common yardstick, an operable VET excellence model which would integrate different elements and perspectives in a holistic approach to measure excellence in different contexts, enhance the understanding of best practices and support the dissemination process between different contexts.

In this study we present the developed VET Excellence model that is built upon the research and approaches to excellence that were discussed in sections 1 and 2. We followed the idea of a multidimensional concept of excellence that would integrate the main ideas and directions and stress their interrelated nature. This model aims to support key stakeholders in comprehending the building blocks contributing to vocational excellence achievement, as well as the interrelationships and novel elements to ensure ongoing excellence. The model also responds to the challenges mentioned above and provides a comprehensive framework supporting the process of achieving excellence as an ongoing holistic process for TVET providers at different stages of the excellence spectrum.

3.1   VET Excellence model: Description

The proposed VET excellence model builds on the "traditional" building blocks of VET excellence (horizontals) with greening, digitalization, and innovation (verticals) as presented in Figure 1. We discuss the horizontals and verticals below.

Figure 1:   VET excellence model

Horizontals

Achieving vocational excellence requires a comprehensive approach that addresses multiple dimensions of organizational performance. The five horizontal building blocks that underpin VET excellence are:

− *Infrastructure*: adequate and fit for purpose physical learning environments, including tools and equipment fostering teaching and learning.
− *Human resources*: high-quality management, competent support and teaching staff in sufficient numbers, with lifelong learning opportunities for staff to ensure future competence.
− *Pedagogical landscape*: versatile methodology and modalities for learning, promoting high quality professional practice and mindset, tailored to the needs of the diverse learners within VET.
− *Systems and processes*: sufficient autonomy for decision-making, collecting, analyzing and reporting of operational data, forming the basis for data-driven quality assurance, management and leadership, and feeding into a proactive vision for developing the organization.
− *Stakeholder relations*: versatile public-public and public-private partnerships with a range of activities; curriculum development, work-based learning, up/reskilling initiatives with the private sector, regional activities including anticipation, working with guidance counsellors in secondary education, research initiatives with higher education, VET policy development, public and or private agreements and activities ensuring adequate funding.

These components are critical for creating an operating environment which will boost VET excellence for all, building on learning environments, supporting high-quality teaching and learning possibilities, effective decision-making, quality assurance, and partnerships with stakeholders to ensure adequate financing. Considering all learners, we suggest that equity and inclusion are deeply rooted in the system building blocks. In the transparent bottom-up and top-down TVET ecosystem, policy development is an ongoing dialogue between policy makers and practitioners, all playing together as one team of excellence. This implies that the horizontals are all relevant in achieving excellence, however based on the effect that global megatrends have on industries, we can argue that excellence in one or more of the horizontal building blocks is no longer enough.

Verticals

Though focusing on the horizontals is a vital first step towards achieving or maintaining excellence, it is not sufficient in the long run. The dynamic and rapidly changing global landscape demands that TVET organizations move beyond the horizontal building blocks and consider the impact of vertical dimensions. Vertical dimensions must be embedded in the roadmap for VET excellence for policymakers and practitioners.

Following the ideas discussed in the introduction, we included three megatrends - innovation, digitalization and greening - as verticals in the model. Our model suggests that these megatrends are to be considered not in isolation, but as trends permeating all horizontal blocks. This perspective takes us from isolated cases and solutions towards the holistic approach in pursuit of excellence, where all of the elements are intertwined.

Achieving excellence within this model is a more complex process and requires achieving excellence in verticals through multiple actions. For example, achieving excellence in greening would require a range of interventions that address environmental sustainability on different levels: improving the energy efficiency of the campus, implementing recycling programmes, providing professional development and capacity building to staff, integrating green practices into quality indicators, introducing new courses on green professional practices for students, updating qualifications, and engaging in collaborative greening initiatives with industry partners. In a similar way, digitalization and innovation have far-reaching implications for the various horizontal layers that support VET excellence. The model also implies that TVET providers need sufficient autonomy to make complex decisions and develop new strategies for excellence on an agile basis. The future of excellence is developed in ecosystems with multiple public and private sector partners, forming local, national and international value chains.

3.2   VET Excellence model: ideas for practical implementation

The developed model presents a valuable tool for a diverse range of stakeholders seeking to gain insights into vocational excellence development. It provides an opportunity for stakeholders to reflect on the linkages between horizontal and vertical dimensions and

analyze the current status quo. In addition, the model facilitates reflection on Key Performance Indicators (KPIs) and their coverage of horizontals and verticals, providing stakeholders with a better understanding of how these dimensions contribute to organizational performance. Furthermore, stakeholders can utilize the model to define and reflect on the primary development areas, identifying opportunities for improvement and growth. The model can also assist in benchmarking efforts and forging partnerships aimed at improving horizontal and vertical dimensions. For TVET providers who are at similar stages of the excellence spectrum, the best and most effective practices can be identified. The mechanisms of best practice dissemination can be further explored: depending on TVET providers' position on their journey towards excellence - on the model - some mechanisms to transfer and disseminate best practices might be more effective. The identification of the most effective mechanisms of transferring best practices is of interest for future research.

Additionally, the topics of most recent research studies can be placed within this model, usually at the intersection of verticals and horizontals. For example, the focus of study of AI et al. (2023) is at the intersection of digitalization and the pedagogical landscape, however the study findings also show the need for improvements at digitalization's intersection with infrastructure and stakeholder collaboration. Therefore, this model might be used by researchers for placing their research within the excellence framework and identifying research gaps in a structured manner.

Finally, policymakers can utilize the model for national level analysis, gaining insights into how horizontal and vertical dimensions are interconnected and how they can be optimised for improved outcomes. Overall, the developed model has the potential to inform decision-making across a range of domains, enhancing organizational performance, contributing to broader societal goals, and advancing vocational excellence.

4   Conclusion

The development of a model for VET excellence provides a framework that can guide practitioners and policymakers in their journey towards vocational excellence. The VET excellence model offers a comprehensive approach that integrates traditional building blocks with new dimensions of greening, digitalization, and innovation. By recognizing the importance of ongoing change and innovation, and by embracing megatrends as permeating concepts throughout all the building blocks, the VET excellence model reflects the demands of the modern world of work. Achieving excellence in TVET requires a commitment to continuous improvement, as well as collaboration and partnership between stakeholders across the public, private, and international sectors. By leveraging the insights and guidance provided by the VET Excellence model, stakeholders can update their agenda to ensure the development of a skilled and adaptable workforce.

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