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D2.3: The Definition of Teachers' Role in TVET: Actions to Include in the Implementation of WP3 and WP4

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Helwan University (HU), Egypt	Beneficiary	Leader WP2 Teachers' and trainers' new role and competencies in work-based learning TVET
IHK Projektgesellschaft mbH (IHKPG), Germany	Beneficiary	Leader WP4 Technical specialist competence of teachers through work-based learning in TVET
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List of Acronyms

ATS	Applied Technology Schools
CEDEFOP	European Centre for the Development of Vocational Training
ECVET	European credit system for vocational education and training
EDF	Education Development Fund
EQF	European Qualifications Framework
ETF	European Training Foundation
EU	European Union
GOE	Government of Egypt
HR	Human Resources
ICT	Information and communications technology
ILO	International Labor Organization
ISCED	International standard classification of education
KELA	Kansaneläkelaitos, Social Insurance Institution of Finland
LLL	Lifelong learning
LO	Learning outcome
MENA	Middle East and North Africa
MoE	Ministry of Education
MoETE	Ministry of Education and Technical Education
MoH	Ministry of Housing
MoHE	Ministry of Higher Education
MoHP	Ministry of Health and Population
MoM	Ministry of Manpower
MoTI	Ministry of Trade and Industry
NESP	National Environmental Science Program
PAT	Professional Academy for Teachers
TELMA	Preparatory education and training for work and independent living
TVET	Technical and vocational education and training
TVETA	Technical Vocational Education for Teachers' Academy
UK	United Kingdom
UN	United Nations
UNEVOC	International Centre for Technical and Vocational Education and Training

USA	United States of America
VALMA	Preparatory education and training for VET
VET	Vocational education and training
WBL	Work-Based Learning

Background

The ACTIVE-ATS (Advanced Competencies of Teachers to Improve Vocational Education in Applied Technology Schools) project is an EU funded project via the ERASMUS+ program. Its objective is to strengthen TVET teachers' and trainers' capacity to work in competence-based TVET, which is implemented in cooperation with the world of work. The project will enhance the teachers' and trainers' competencies in pedagogy, student-centered approach and technical specialist work-based learning. This is done by a) clarifying the teachers' and trainers' roles in the new learning culture (WP2), b) piloting a pedagogical enhancement programme (WP3) and c) implementing new kind of collaboration between schools and companies to support technical specialist competence of teachers through work-based learning in TVET (WP4). The actions will support both the pedagogical and technical competencies of teachers.

The project will be piloted in cooperation with Applied Technology Schools (ATS). The ATS private sector partners will be involved in the activities in several work packages. ATS is the Flagship Brand of Schools by the Ministry of Education and Technical Education (MoETE), which is the biggest TVET provider in Egypt and partner in the project. 5 out of 27 ATS are associate partners in the project. 50 teachers and trainers will take part in the pilot activities of the projects. There are altogether 1300 students and 175 staff in these five schools. ATS has a competence-based curriculum and implements work-based learning for TVET learners. ATS are included in Egypt's educational TVET strategy and identified to have potential in other African countries. The commitment of MoETE and ATS enables the grounds for genuine medium and long-term impacts on the project's outputs.

Based on the activities in the project, the partners will prepare guidelines for in-service teachers' and trainers' competence development and implementation of work-based TVET for both authority- and school-level use. Guidelines will include the aspects to carry out the engagement of the private sector to promote the relevance of technical and vocational education.

The current study comes within Work Package 2 (WP2) which is identifying teachers' and trainers' new roles and competencies in work-based learning TVET through the definition of teachers' role in TVET to identify guidelines for the teachers' capacity building based on a few international models. Hence, to define the role and competencies of the TVET teachers and trainers to support the TVET students learning in new learning environments. Moreover, the results are utilized immediately at the action level in WP3 and WP4 according to the nature of PAR methodology to guide the development of training programs needed.

Hence, the current study is starting by identifying the main features of the competence-based approach in TVET based on international models, studies, and reports primarily in Finland and Germany. Then, an analysis of the TVET education in Egypt including prominent challenges that face this sector. In addition, an overview of the new model of Advanced Technology Schools is presented, which is the current project's direct context and is enjoying national support to improve the quality of the TVET sector graduates in Egypt in response to the Egypt vision and strategy 2030.

Chapter 1:Competence-Based Approach in TVET: Theoretical Background.

Introduction:

Since the latter half of the 20th century and the beginning of the 21st century, a competency-based approach to vocational education and training (VET) has been developing and expanding all over the world. One of the primary reasons is that social and economic changes (such as the growth of knowledge in the age of information society, the effects of globalisation on economic systems and associated labour markets, technological changes throughout the world; the diversity of qualifications and convergence of occupations, professions; the threat of economic crisis and unemployment; and, finally, demographic developments) have led to changes in how the concept of "qualification" is understood. The definition of qualification, which is a document (certificate, diploma, etc.) recognising that a person has attained and exhibited learning to a given standard (EQF recommendation, 2008), is necessary in order to clarify what standard means in the context of the changing economic conditions. It was vital to make the descriptions of qualifications explicit and similar across nations, and this need still stands today. Another reason is that it helps bridge the gap between the education and working worlds, which is essential for the successful application of the LLL concept. The vast majority of nations throughout the world have turned to a competency-based approach as the way to modernise their certification and vocational education and training (VET) systems. It is founded on the principles of active learning and places an emphasis on the dynamic role that social connections and the circumstances in which learning takes place play in the process of education. On the foundation of the competency-based approach, a number of new terminology and ideas have been developed. To start, there is a focus on one's level of competence and their learning results. According to the findings of the many studies and publications, two alternative methods are at odds with one another. They were linked to the comprehension of the results of the VET as outputs and outcomes. "The capacity of an individual to implement what he or she has learned in a'real life' professional context is the outcome of learning," whereas "output" may be defined as the consequences of learning1 in an educational context.

Meaning of competencies:

There are many different ways to define competences; the following are three of the most common ones used anywhere in the world:

It is possible to describe it as the capability of using one's knowledge, skills, and personal, social, and/or methodological talents in work or study settings, as well as in one's professional and personal growth. (European Centre for the development of Vocational Training, 2014)

It might alternatively be described as the capacity to appropriately apply learning results within a specified context, such as school, job, personal growth, or professional advancement. (Publications office of the European Union, n.d.)

The International Labour Organisation (ILO) Competency standards are a collection of benchmarks that specify the skills, knowledge, and traits that individuals need to possess in order to successfully carry out a job position. In order to guarantee that they adequately

address the requirements of the working environment, they are formulated after extensive discussion and input from the relevant industries.

Based on the three definitions that came before, we may draw the conclusion that competencies are not the same as skills, despite the fact that they are quite similar. A combination of observable qualities and abilities that, when combined, facilitate and promote the effective fulfilment of one's work responsibilities is referred to as competence. To make the business world run more smoothly, one acquires skills relevant to the business world.

The first method involves describing the competencies (and having a knowledge of what they mean) in terms of the learning objectives. It consists of two different directions (or ways, ways): the British and the American. Both of them have ties to the realm of labour and, in a sense, may be said to have been born and raised inside it. The strategy used in the UK is known as the "functional" approach. The national vocational qualifications system in the United Kingdom is founded on national occupational standards (which, by the way, were once referred to as standards of competency). This method has a primary emphasis on the results; competencies identify functions and responsibilities, as well as the needs of the workplace that are necessary for an employment. In accordance with the functions, the respective competencies have been included into the units. Knowledge is defined by such a competency-based standard as "what the learner will know and understand," while skills and behaviours are defined as "what the learner will be able to do." This strategy is utilised in a great number of nations, including Cyprus, Malta, and Australia, to name a few. The "behaviourist" approach that is used in the United States might be thought of as being comparable to the "UK approach." However, it places an emphasis on the role that a person's behaviour in the workplace has in determining how well work gets done. The talents of a person are reflected in their competencies. Regardless of the circumstances and circumstances, they express what it is that he or she is capable of doing (but may not really do). When seen from a European perspective, such a vision makes evaluation procedures more challenging in terms of the qualification. This strategy is utilised more frequently in the United States of America as well as in various countries located on the American continent.

Germany is responsible for the development of a second strategy that is essentially distinct from the first. It examines the learner's capabilities via the lens of their accomplishments. There are no national occupational standards in Germany. The methodology is predicated on the idea of action competence, also known as Handlungskompetenz, which is defined as subject-centered and incorporates implicit knowledge and abilities. The position of the learner within the framework of a Beruf (profession) and within society is an essential consideration for this strategy. "Handlungskompetenz" covers four dimensions: occupational competence (Fachkompetenz), personal competence (Personalkompetenz - qualities of a person), methodological competence (Methodenkompetenz) and social competence (Sozialkompetenz). There are two components to the educational standard, often known as "Regulation on profession." The first component, which is based in the classroom and includes outputs as learning objectives, and the second part, which is based in the workplace and contains the primary activities, tasks, and knowledge areas indicated in the Berufsbild (professional profile), are both included. A checklist is utilised to make certain that the experience and education gained on the job are likewise covered in the classroom setting. Countries such as Denmark, Switzerland, and Austria, which all have vocational education

and training (VET) systems that are quite comparable to the German system, are adopting similar techniques. The varying historical and socio-economic foundations of the nations, as well as the various aims assigned to vocational and technical education (VET) in general and to credentials in particular, are obviously the reasons for the different methods that are taken. Nevertheless, standards targeting learning outcomes or learning outputs are now being implemented as competency-based standards. When such standards (or analogous papers) from other nations are compared to one another, it is clear that there are, in addition to differences, commonalities. In addition, a consensus over the meaning of the term "competency" is attainable. This concept can be defined as the "ability to use knowledge, skills, and personal, social and/or methodological abilities in work or study situations and in professional and personal development" or as the "ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development)". Competence is not limited to cognitive components (including the use of theory, concepts, or tacit information); it also incorporates functional characteristics (including technical abilities), as well as interpersonal traits (such as social or organisational skills), and ethical principles. Competence is not confined to cognitive elements (using the use of theory, concepts, or implicit knowledge). In this report, we are going to continue to adhere to this concept. (European Centre for the development of Vocational Training, 2014)

In standards of competency and competency-based credentials, the following are the requirements for knowledge, skills, and performance in the workplace:

- The degree of qualification is directly related to the requirements for knowledge, skills, and performance in the job. Since the turn of the 21st century, a variety of international organisations and associations, in addition to individual nations, have begun to construct qualifications frameworks as instruments for matching and standardising qualifications. A credentials framework is a tool for establishing and categorising qualifications (for example, on a national or sectoral level) in accordance with a set of descriptors that are relevant to specific levels of learning outcomes (LO). The competence, also known as the unit of the standard, is made up of a collection of knowledge, abilities, and performance in the workplace. When it comes to the requirements for knowledge, skills, and performance in the workplace, we are based on the ILO point of view that competence standards are produced primarily as evaluation tools. This is something that we believe to be true. They explain the abilities, knowledge, and traits someone need to possess in order to successfully carry out a certain job position. (Updated guidelines for development of Regional Model Competency Standards, 2016)

- The outcomes of student learning are at the heart of such standards. LO, or learning outcomes, are assertions of what a learner knows, understands, and is able to accomplish at completion of a learning process. These statements are characterised in terms of knowledge, skills, and workplace performance. LO are also known as learning outcomes. This new phrase was selected since it brings about an entirely new sense and ushers in a new paradigm for education in general, including vocational and technical training. It transfers the attention from the suppliers of education and training to the users of these services. Individuals will have a better understanding of what is given in a certain course and how this relates to the offerings of other courses and programmes if it is explained what it is anticipated

that a learner would know, understand, or be able to accomplish after the learning process is complete. In addition to this, there is an attempt being made to improve the accountability and openness of credentials, both for the benefit of individual learners and of businesses. Learning outcomes may be able to help eliminate barriers and establish bridges in a world where occupations that last a lifetime have become the exception rather than the rule, and where shifting between work and learning has become a key component in the lives of the majority of people. (Updated guidelines for development of Regional Model Competency Standards, 2016)

- Statements of what a learner knows, understands, and is able to accomplish upon completion of a learning process, which is characterised in terms of knowledge, skills, and workplace performance are what might be referred to as learning outcomes, or LO for short. This new name was selected because it conveys a new meaning and ushers in a new educational paradigm, one that includes vocational and technical training. It transfers the attention from the suppliers of education and training to the users of these services. Individuals will have a better understanding of what is given in a certain course and how this relates to the offerings of other courses and programmes if it is explained what it is anticipated that a learner would know, understand, or be able to accomplish after the learning process is complete. In addition to this, there is an attempt being made to improve the accountability and openness of credentials, both for the benefit of individual students and of the whole educational system.
- employers. Learning outcomes may be able to help eliminate barriers and establish bridges in a world where occupations that last a lifetime have become the exception rather than the rule, and where shifting between work and learning has become a key component in the lives of the majority of people (Office for Official Publications of the European Communities., 2009)

Training to the requirements of competency-based qualifications

Learning that is based on competencies necessitates rethinking the traditional role of the educator or trainer (also known as an instructor or tutor). Self-organization on the part of the learner is required to at least partially replace or complement the learner's dependency on the instructor. It is necessary for a teacher to organise the condition ideal for education. However, he continues to be responsible for the process of education and training, even when some of the situational duty has been delegated to the students.

The instructor needs to be aware that the construction of the knowledge on the individual level is the process, in which she/he has the multifaced roles. According to Blinov, (Blinov, 2017) he will play a different function in the educational process. Teacher:

- encourages and enables learners to engage in the process of self-directed learning and improvement of their skills.
- fosters the development of the learning process and makes a contribution to the success of that process via the use of training questions and tasks;
- provides direction to students as they organise and carry out activities focused on practical application;

- suggests potential courses of action and probes the listener with inquiries on various alternatives;
- makes information sources accessible, organises them in a methodical manner, and keeps them up to date
- It provides guidance and direction throughout the discussion of the individual learner's findings by pointing out the evaluation criteria. (Blinov, 2017)

Use specific instructional strategies to maximise the transfer of knowledge and model the application of knowledge to relevant work-based situations in order to methodically increase comprehension and abilities.

- facilitates learning in the classroom through field trips to local businesses, talks given by professionals working in relevant fields, master courses, and interactive online instructional material;
- contains regular formative tests to test applicants' knowledge and comprehension of important subject throughout the course;
- It distinguishes learning via the use of the challenge so that candidates with lower levels of expertise are given more time to improve their knowledge and comprehension, while candidates with higher levels of expertise are given opportunities to delve deeper and more broadly into the subject matter. (Technical Qualifications. Teaching, Learning and Assessment., 2017, p. 13)

The instructor will implement the idea of coherent and right-timing assistance for the learners. Learners gain more active position. Motivation, meaningfulness, autonomy, and accountability are some of the most important aspects of their learning activities (in line with the learning objectives that were intended and the degree of qualifications attained). Focus on outcomes assessment approach (competency-based standards) gives more time for teaching staff to employ effective learning tools and techniques that allow learners to experiment and innovate with the information, skills, and understanding they have learned. This is because these tools and techniques allow learners to experiment and innovate with the knowledge, skills, and understanding they have gained. Learners may improve their ability to communicate and interact effectively with others by working with and learning from their peers, and teachers should encourage this. Students will benefit greatly from being able to reflect on their learning processes through the use of metacognitive activities, which are those that allow students to learn about their learning and think about their thinking. Students may be both supported and challenged via the use of technology-enhanced learning, which can also expand learning beyond the confines of the classroom. Learners might benefit from supported problem-based learning because it can encourage them to build on their existing knowledge and abilities while attempting to address work-related challenges and queries.

Chapter 2: Competence-Based Approach: International Perspectives:

Introduction:

Given the importance of studying international perspectives that is to support the development of a model that relies on best practices and to avoid waste of time and resources trying to re-invent the wheel, this chapter is going to address the international core skills frameworks and the analysis of the impact of the global drivers of transformative changes to the future of work. In this regard, ILO's and UN's perspectives on competences were addressed. In addition, the report is going to highlight the teaching competencies in vocational education in Germany and Finland.

1- ILO's Perspective on Competencies:

The main categories of the core skills according to the international framework lies in the following comprehensive list according to the International Labour Organisation (ILO): (Global framework on Core Skills for Life and Work in the 21st Century, 2021)

The main categories of the core skills according to the international framework may be found in the following complete list according to the International Labour Organisation (ILO):

Problem-solving

- Resilience
- Inspiration derived from accomplishments
- Control
- Teamwork
- Initiative
- Confidence
- Ethics

Mastering the art of Learning

- Communication
- Teamwork
- Problem-solving

The use of one's native language in communication

- Conversation in a language other than English
- Capability in mathematical endeavours
- Capabilities fundamental in scientific research and technological development
- Digital competence
- Learning to learn how to learn
- Capabilities in social and civic engagement
- An enterprising spirit and a strong sense of initiative
- Expression of one's culture as well as cultural awareness
- Social
- Communication
- Cognitive/problem-solving
- Learning
- Individual moral and behavioural standards
- Learning
- Employability
- the promotion of individual agency

- Participation in civic life
- Capabilities relating to the body and the hands
- Basic cognitive skills
- Higher cognitive skills
- Social and emotional development abilities
- Competence in technological matters
- Capabilities relating to the body and the hands
- Basic cognitive skills
- Higher cognitive skills
- Social and emotional development abilities
- Competence in technological matters

The ILO Core skills for life and work in the 21st Century

The growing complexity of job tasks, in conjunction with the growing need for employees with strong core abilities and the willingness to learn and adapt throughout their professional careers, will result in a rise in the demand for workers with strong core skills and the motivation to learn and adapt throughout their professional careers.In the pursuit of its original goal that labour peace is important to development, the International Labour Organisation (ILO) is committed to promoting social justice as well as internationally recognised human and labour rights.Conventions of the International Labour Organisation encompass a broad spectrum of social and labour concerns, including fundamental human rights, minimum wages, industrial relations, employment policy, social dialogue, social security, and a variety of other topics. Maintaining professionalism in the workplace, receiving and responding to workplace communication, effectively communicating with team members and customers, applying workplace safety practices and procedures, working sustainably and effectively, managing personal finances, and addressing workplace harassment are the core competencies

ILO global framework for core skills

Social and emotional skills

- Communication
- Collaboration and teamwork
- Conflict resolution and negotiation
- Emotional intelligence

Basic skills for green jobs

- Environmental awareness
- Waste reduction and waste management
- Energy and water efficiency

Cognitive and metacognitive skills

- Foundational literacies Analytical and critical thinking
- Creative and innovative thinking

- Strategic thinking
- Problem-solving and decision-making
- Self-reflection and learning to learn
- Collect, organize and analyze information
- Planning and organizing
- Career management

Basic digital skills

- Use basic hardware
- Use basic software
- Operate safely in an online environment

This new ILO Global Framework on Core competencies for life and work in the 21st Century gives the most comprehensive model, but the government, social partners, and education and training providers should still adjust or adopt it to a specific national situation through the process of social dialogue. Because the development of fundamental abilities takes place in a wide variety of situations and employs a wide variety of methods, there is no one framework that can adequately satisfy the varying demands of many countries.

2- UN's Perspective on Competencies:

Core competencies are the abilities, characteristics, and behaviours that are regarded as being crucial for all staff members of the Organisation, whatever their function or degree of responsibility within the organisation. The abilities, characteristics, and ways of behaving that are thought to be necessary for staff members who have management or supervisory duties are referred to as managerial competencies. (UN, 2010, pp. 6-8)

The following are UN Competencies:

- Communication
- Teamwork
- Planning and Organization
- Accountability
- Client Orientation
- Creativity
- Technological Awareness
- Commitment to Continuous Learning

Managerial Competencies include

- Leadership
- Vision
- Empowering Others
- Building Trust
- Managing Performance
- Judgment/Decision-Making

3- The teaching competencies in vocational education in Finland

The setting of the technical and vocational education and training (TVET) system in Finland is extremely significant to the teaching competences in vocational education in Finland. The vocational teacher education curriculum in Finland consists of a total of sixty credits and covers fundamental studies in education, teaching practise, vocational pedagogical studies, and elective pedagogical studies. One of the most impressive requirements is that prospective vocational instructors often have a master's degree as well as at least three years of professional experience in the subject area in which they wish to instruct. Universities and universities of applied sciences in Finland are the two types of educational institutions that offer the training necessary to become a vocational teacher. According to the curriculum for vocational teacher education, in order to become a competent vocational teacher, one to two years of study that can take a variety of formats is required. The majority of students who are studying to become teachers also have jobs in the field. Student instructors who gain employment at a vocational institute have the opportunity to gain knowledge via their job there. (Salonen, 2019, pp. 250, 251)

According to a study conducted by Annukka Tapani and Arto O. Salonen on identifying teachers' competencies in Finnish vocational education, the following teaching competencies were highlighted in the Finnish VET system:

Table 1: Summary of the findings of the teaching competencies in vocational education in

Sub-category (skills)	Generic category (competencies)	Main category (scholarship)
– teaching skills – regeneration of pedagogical skills, using innovative teaching methods and trying new ways of teaching – being familiar with the curricula and qualifications – transforming skills: teacher-counsellor, teacher-guide – understanding the diverse life worlds of students – educational skills – recognising individual learning opportunities – facilitating skills – expert in a trade or vocation (subject matter knowledge) – innovative, entrepreneurial, creative teacher	Pedagogical competency	Scholarship in teaching and learning
– nurturing skills – supporting individual learning pathways (study personalisation) – supporting learners' initiatives and self-efficacy – identification and recognition of competencies – study counsellor, teacher guide – knowledge about the educational system as a whole	Guidance and counselling competency	
– positive attitude towards learning opportunities – empathy skills – dialogue skills – coaching skills		

– creating and ensuring a positive learning atmosphere – skills to support the students' self-esteem – digital teaching skills – creating a sense of belonging	Interaction competency	
– management – taking care of student well-being – skills to adopt new roles – self-reflection – ability to multitask – ability to cope with fragmented work	Competency in pedagogical leadership	Scholarship in authentic learning and development
– cooperation skills (will and attitude to ensure cooperation) – multi-professional networking – multi-sectoral networking – enabling authentic learning – helping stakeholders with guidance and documentation – organisational regeneration – greater participation in social practices – taking care of partnerships – shared expertise (e.g. team teaching, pair teaching) – bridge building skills – consulting skills	Partnership competency	
– marketing skills – economical understanding – knowledge about competent employees – understanding of quality – reflection and resilience skills – attitudinal skills for mental development – developing learning environments – developing working life – transforming society	Innovator competency	
– documenting the students' learning process – sharing assessment knowledge in authentic learning environments – willingness to help working life partners with assessment	Assessment competency	Scholarship in evaluation and monitoring

Source: Annukka Tapani and Arto O. Salonen, Identifying teachers' competencies in Finnish vocational education

4- The teaching competencies in vocational education in Germany:

Learning field established understanding of teaching and learning the competences in VET schools provide professional and general competences, develop vocational flexibility for dealing with the changing requirements in the work environment and in society, attract learners to advanced and continuing VET, and nurture the capability and willingness to act responsibly in private and public life learning field. It was helpful in making the transition from education based on subjects to education centred on activities and challenges in the

workplace.

The development of vocational action competence is the primary objective of vocational education and training (VET) schools. It is described as "the willingness and the ability," according to the framework curriculum, the capacity of an individual to behave in a manner that is rational in addition to being personally and socially responsible in situations that are occupational, social, and private respectively. The competency encompasses both professional and personal aspects as well as social aspects. Professional competence may be defined as the willingness and capacity to solve tasks and issues in a way that is goal-oriented, accurate, systematic, and autonomous while utilising specialised knowledge and abilities, as well as the ability to evaluate the results of these efforts.

Self-competence, which has replaced human competence, is the willingness and capability to clarify, think through, and assess the development opportunities, demands, and limitations in family, professional, and public life. It also refers to the ability to develop one's own talents and to form and continually develop plans for one's own life. Self-competence replaces human competence. It involves characteristics such as autonomy, the capacity to take constructive criticism, self-assurance, dependability, and a feeling of responsibility and obligation. Developing reasoned value judgements and a self-determined commitment to values is also a part of this process.

The term "social competence" refers to the willingness and capacity to maintain and cultivate social connections, to take in and make sense of both support and conflict, and to debate and make oneself understood by others in a manner that is sensible and responsible. Social competence also includes the ability to assume responsibility for one's actions. In addition to this, the cultivation of social responsibility and solidarity is a part of this. Methodological, communicative, and learning capabilities are subcategories that fall under the umbrella of professional, self-, and social competences, respectively. Methodological competence is defined as the willingness and capacity to take a goal-oriented and planned approach to working on projects and issues (for example, while planning work). Methodological competence also refers to the ability to do so.

A person's level of communication competence may be measured by their desire and ability to comprehend and handle various communicative circumstances. This involves being conscious of one's own perspectives and needs in addition to those of one's communication partner, as well as comprehending and representing both sets of perspectives and requirements. Learning competence is the willingness and capacity to understand and evaluate knowledge regarding facts and circumstances both independently and together with others, and to organise this information into conceptual frameworks. Learning competence also includes the ability to organise this information in a meaningful way. The capacity to build learning approaches and learning strategies both within the occupation and outside of

the occupational sector, as well as the capability to employ them for lifelong learning, are all included in the definition of learning competency. (Hensen & Hippach-Schneider, 2016)

In order to be able to present all of the competences and training content, teachers and trainers are required to go through particular initial education as well as ongoing education and training (for more information, read the article from ReferNet Deutschland on Teachers and Trainers). The Chambers, also known as the Competent Bodies, are in charge of organising and directing exams. In order to accomplish this goal, the Chambers are required to establish examination committees for each occupation. These committees must have a minimum of three members: one representative each from employers and employees, as well as a vocational educator. The Chamber is the entity that is responsible for issuing the examination certificate. Individual training regulations, which are applicable all throughout the country and set a common standard, are the ones who are responsible for laying out the format of examinations. A final test will include four or five different subject areas that are pertinent to the vocation. The performance of students in general topics like languages and mathematics are evaluated using the structure of school reports. Exams may utilise a variety of approaches based on the occupation, and their length may shift significantly, especially when it comes to the performance of practical activities. The entire duration of all examination areas in which examination assignments are to be done in the form of a work sample and/or work task should not be less than one hour and should not exceed seven hours (this does not include the time spent preparing for and processing the results of the examination). It is common practise to provide a time period of two hours for the evaluation of written work, whereas oral examinations often endure for a duration of thirty minutes.. (Hensen & Hippach-Schneider, 2016)

Figure 1 Elements of vocational action competence in Germany

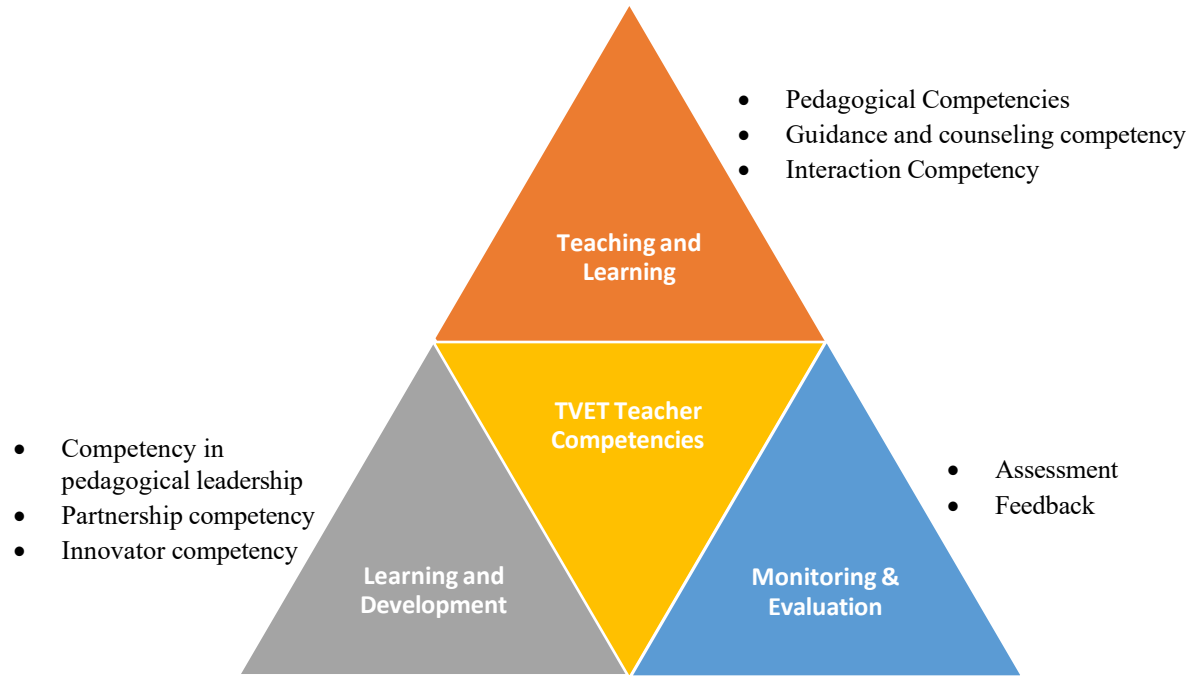
Source: ReferNet Germany.

Conclusion:

Previously explored international models have confirmed the importance of the adoption of a clear framework for the pedagogical competencies of teachers in the TVET sector. It highlights what makes a teacher competent enough to support learning in this important sector and provides for its capacity development activities, certification, and licensing, monitoring and evaluation, and above all the graduate profile from the TVET sector in

relevance to the development needs.
The following diagram sums up the types and categories of competencies that TVET teachers should possess and work on developing:

Figure 2: Teacher competencies in TVET sector



Source: Developed by author based on the Annukka Tapani and Arto O. Salonen, Identifying teachers' competencies in Finnish vocational education

Some of the competencies are cross-cutting for example, the communication competency that is necessary for all other categories of competencies (teaching, feedback, collaboration, assessment…) Similarly, ICT competency would support other sets of competencies. Hence, It is crucial for the Egyptian TVET sector to adopt a well-integrated competencies framework for teachers' capacity development and training.

Chapter 3: The TVET education in Egypt

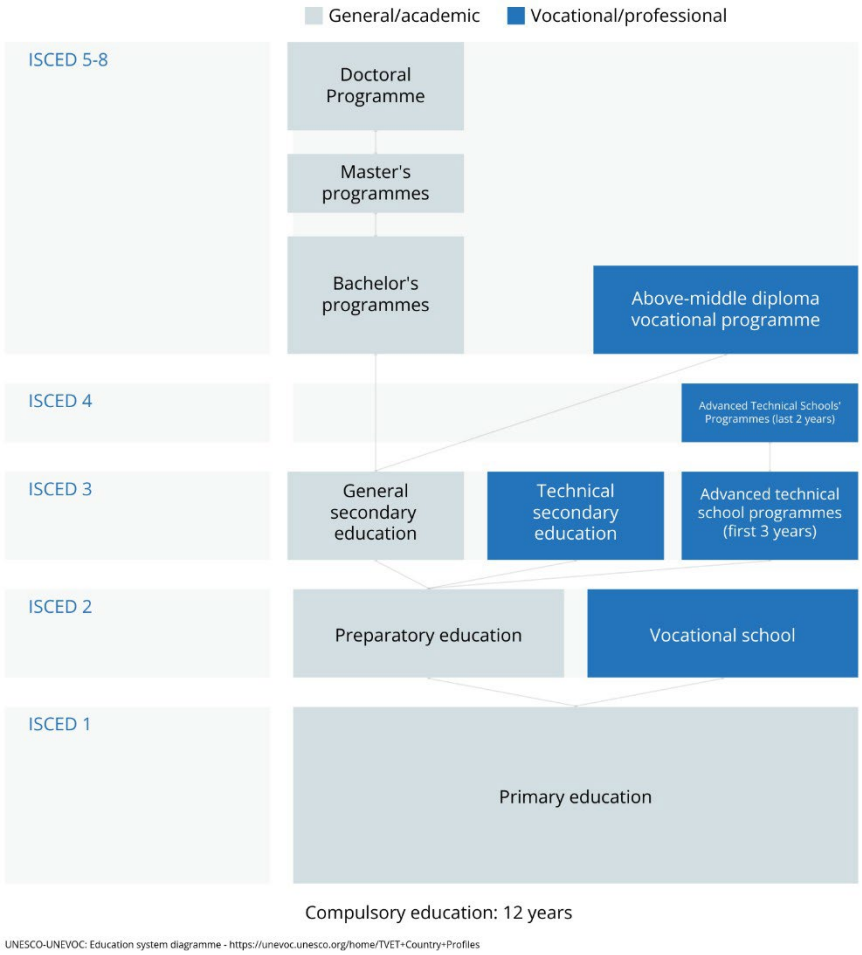
Overview of the Egyptian TVET system:

The Egyptian system is one of the largest in the Middle East and North Africa (MENA), with more than 2,900 different institutions serving around 2 million students in (2018), offering a wide range of programs; pre-university, tertiary, formal and non- formal.

The responsibility for administering these programs lies within a large number of stakeholders, including the Ministry of Education and Technical Education (MOETE), Ministry of Higher Education (MOHE), Ministry of Manpower (MOM), Ministry of Trade and Industry (MOTI), Ministry of Health and Population (MOHP), Education Development Fund (EDF), Ministry of Housing (MOH), in addition to a number of line ministries offering vocational programs for companies operating within theirrespective industries (International Labour Organization, 2021, p. 20)

The following is a diagram that illustrates the education system in Egypt and the position of the TVET sector:

Figure 3: Education system in Egypt



Source: [Dynamic TVET Country Profiles (unesco.org)]

Technical and Vocational Education and Training (TVET) is widely recognized as a major challenge facing the country's efforts to reduce unemployment, create social equality and enhance the country's global competitiveness. TVET in Egypt is a term identified in a Life-long Leaning perspective. It incorporates technical education at preparatory, secondary, and post-secondary technical education levels, vocational education, vocational training, continuing training, and retraining (El-Ashmawi, 2019, p. 7).

The current complexity found in Egypt's technical education systems is a result of manyunplanned changes and reforms which accumulated over the two past centuries. Historyrecords the establishment of the agriculture school in the year 1829, and a year later the first industry school was established, and it was until 1911 that the first commercial school had been established. A commercial institute specialized in accountancy was establishedin 1942/1943 and later this institute was transferred to the "Ein Shams" Faculty of Commerce. In the early 50s nine technical institutes were established to cope with Egypt's FiveYears Programs for Industrialization, and qualify technicians needed for State-ownedcompanies. In 1961 the Ministry of Higher Education was established and took over theresponsibility of these institutions from MOE. Some of these technical institutes were transformed into colleges of Engineering, and consequently, the Manufacturing sectorlost the main supplier of technicians and master's level (Hassan & Doyle, 2010, p. 13).

In 1952 the industrial schools were classified into two types, the elementary industrial schools, and the industrial technical secondary schools "three years" type. In 1978, the Ministry of Education started to expand some of the "three years" secondary technical schools to the "5 years" secondary technical schools. This upgrading is intended to prepare master's level technicians and trainers who will teach the practical programs in the 3 years technical schools (Hassan & Doyle, 2010, p. 13)

It's important to mention that there was 8 agriculture institutes until 1968/1969 and according to presidential decree no (1088) for year 1969 those institutes were transferred to faculties of agriculture. But according to the country urgent needs of technicians and the increased demand on the technical education, a number of higher institutes and faculties were established starting form 1988 and until 1995 such as the technology institute in Banha, 2 industry collages in Cairo and Beni Swief , the higher energy institute in Aswan, and in year 1994 the labor university was established. It was only until year, when the Egyptian Government collaborated with the World Bank to start a series of projects to enhance education. Various "Education Enhancement Projects" such as EEP and SEEP focused on the reform of Basic and general education systems. Recently, the number of technical industrial schools is decreased from approximately 1810 schools in 2005, to 1790 schools in 2009. Where as the number of the Commercial Schools was reduced from 976 in 2008 to 749 in 2009. The conversion of technical commercial to general secondary school was recommended by a World Bank Project SEEP. The number of technical

intermediate institutes are 45 institutes until year 2002/2003 (22 industrial, 19 commercial , 4 hotel and tourism and 1 social work) (Hassan & Doyle, 2010, p. 13)

Teachers' training

Since 2006, the GoE has made significant efforts to encourage the professional development of teachers, including TVET teachers. These efforts included the establishment of the teachers' cadre in (2006), the development of a career path (consisting of six levels) and promotional system for teachers, along with a 50 percent increase in the basic pay and the establishment of the Professional Academy for Teachers (PAT) in 2008. Until recently, PAT had been offering both training and accreditation for teachers (International Labour Organization, 2021, p. 52).
Teachers' promotion from one level to the next is subject to completing courses, including writing studies and reports, performance appraisal from their employing institution, and passing tests. Entry-level teachers are appointed as Assistant Teachers for two years; after successfully completing the promotion requirements they are upgraded toTeacher, which is considered as Grade One in the ladder. After four years, if theysuccessfully complete the promotion requirement, the teachers will be upgraded to First Teacher, and then successively to First Teacher A, Expert Teacher, and Master Teacher. Promotion brings with it an increase in the Teaching Allowance as well as a rankincrease on the civil servants' scale, including higher salaries (International Labour Organization, 2021, p. 52).

Further in 2018, the MOETE, initiated a process to establish the **Technical Vocational Education for Teachers' Academy (TVETA),** to become Egypt's recognized training and development institution for technical and vocational teachers, trainers, and assessors.With geographical coverage through branches in governorates, it will offer the needed capacity for teacher training, while accreditation will remain the responsibility of PAT. TVETA is envisaged to offer training to technical education trainers, instructors, teachers, master trainers, assessors, and verifiers (International Labour Organization, 2021, p. 52)

Challenges Facing Technical Education in Egypt

According to Egyptian research, the technical education faces many challenges as follows)81 :78 صفحة ،2020 ،حويل ح.(:

1. **Curricula and study plan which include**:
   - Poor scientific knowledge and inappropriate skills of graduates to the requirements of the labor market.
   - Neglecting technical education programs to develop students' inclination towards specialization.

- Weak evaluation and follow-up systems, which leads to a decrease in the level of quality in technical education.
- The courses and curricula do not keep pace with the modern requirements of development

2. **Professional development of teachers**
   - The great shortage of teachers of scientific subjects in technical education and the lack of interest in their training.
   - The scarcity of teachers in some disciplines and the inefficiency of their distribution.
   - Poor professional competence of some teachers in different disciplines and their failure to keep pace with modern technological developments.

3. **Management and organization field**
   - The lack of sufficient data on the current and future needs of technical manpower, which leads to a lack of proper planning.
   - The multiplicity of authorities responsible for technical education.
   - The system of coordination and admission to technical education schools, and the distribution of students according to the group without regard to tendencies and preparations or taking into account the actual needs of the labor market.

4. **Funding for the technical education sector, capabilities and equipment**
   - small number of specialized vocational schools and high student density.
   - The deterioration of the infrastructure of most schools.
   - Lack of supplies, equipment, and training hours in relation to the number of students.

5. **Society's view of the field of technical education**
   - Lack of awareness of society and students of the value of vocational-technical education and their reluctance to it

The triple challenge for TVET teachers and trainers in Egypt

In Egypt, the image of teachers as low-paid, low-skilled, and inexperienced persists (UNEVOC, 2013). This is equally true for TVET teachers and trainers, whose status and career prospects are viewed to be lower than that of general education teachers (ETF and World Bank, 2006). TVET teachers have lower earnings as they cannot generate additional income from private tutoring, which is more common in general education. In 2010, the share of teachers who were not yet tested and licensed is highest in technical حويل ح.،)2020(

secondary education (around 12%) compared to primary, preparatory, and general secondary education (MOE, 2011). Interlocutors reported that TVET teachers in vocational preparatory schools are evaluated less than general education teachers. The main part of teachers' training programs still goes on general education rather than technical education and teachers in practical workshops face many problems due to lack of resources to update equipment, labs, devices, and materials)2020 ،حويل م(

Although national education policy has paid increased attention to improving the situation of the teaching force overall and some progress must be acknowledged (i.e., goals and targets set by the 5-year NESP, the establishment of the Teachers' Cadre, creation of the Teachers' Academy) there have not yet been any major changes. Besides the persistent structural problems that face all teachers in Egypt, TVET teachers and trainers face a triple interconnected challenge: weak pre-service training, coupled with appropriate in-service professional development, connected with limited workplace experience (OECD, 2015, pp. 126 - 127)

Applied Technology Schools (ATS) - The New Flagship Brand of Schools by the Ministry of Education and Technical Education

The Ministry of Education and Technical Education is currently establishing a new brand of schools called Applied Technology Schools (ATS) in partnership with large private sector companies. Three ATSs started operations this academic year 2018/19, a further seven are in the pipeline to operate in 2019/20 and the plan is to establish 100 such schools by 2030.

The main features or guiding principles of ATS

- Quality - The system is built on an uncompromised focus on quality through partnership with international awarding bodies which the private sector partner contracts.
- WBL - The new system maintains a balanced equation between work-based learning and classroom learning to produce a competitive human being with a balanced personal character and skills foundation.
- Demand-Driven - Employers become a real and committed partner in the system to ensure it continues to be driven by first-hand local and global industry demands trends and priorities.
- Learner-centered - The new system will produce a productive, competitive local and international worker as well as a good leader in his community.
- Real change - Industry enhances the management of the school to promote a culture change in the system where work ethics of productivity, efficiency, and quality are the norm.
- Partnership with industry - this new competency- based partnership model will

play a major role in enhancing the business environment itself with a new developed workforce that targets transforming Egypt into a global manufacturing destination.

- The partnership is based on a protocol agreement signed between the Minister of Education and Technical Education and the private sector company for a duration of between 6 and 10 years (with possibility of extensions for the same period as the initial contract duration). Based on this agreement, the responsibilities of each partner are as follows:

Responsibilities of the Ministry of Education and Technical Education

1. Provide and existing or new school and training equipment and labs in good condition.
2. Continues to cover basic utility costs for the school.
3. Provides a pool of teachers and administrators for selection by a joint committee from the MoETE and the partner company. Including an Academic Manager for the school
4. Cover current salaries for selected MoETE teachers and administrators
5. Facilitate all bureaucratic processes and permits, issue relevant laws and decrees to empower the new system, and enable the partners to engage and commit like having a special admission and selection criterion for the students.
6. Partners with international accreditation bodies to provide international-level accreditation and certifications for the new schools and their graduates.
7. Partners to set up qualification units to help qualify the teachers and staff to the required standards
8. Create new branding and communication identity for the new brand of Applied Technology Schools to improve the image of technical education to attract the best students.

Responsibilities of the Private Sector Partner

1. Recruit an Executive manage for the school to manage the operation with the Academic School manager provided by the MoETE.

2. Develop a business plan in collaboration with Schools Management Council that ensures the financial sustainability of the school while maintaining its not-for-profit nature.

3. Cover running costs of operations according to the business plan (including bonuses and incentives for the MoETE teachers, and salaries for new teaching personnel according to performance).

4. Facilitate the work-based learning and on-the-job training portion of the study programme for all students, whether at their own establishments or at others within the school's geographic vicinity.

5. Support and promote employment opportunities and networking for the school graduates.
6. Upgrade the school facilities, educational resources and equipment if needed to meet the appropriate standards of operation.
7. Promote the school amongst the business community and other stakeholders to secure on-the-job training placements and scholarships for the students.
8. Support HR development and capacity building of school teams (e.g., teachers and administrative personnel certifications, periodic training, and professional development, etc.) (UNESCO, 2019)

Objectives of applied technology schools (ATSs)

The Objectives of the applied technology schools are to:

- Applying international standards in modern teaching, assessment, and educational curricula.
- Providing a distinct learning environment for students and teachers in schools or practical training sites.
- Preparing qualified graduates to work in the local and international markets,
- Preparing the best teacher and mentors according to the latest internationalsystems and standards.

The nature of applied technology schools' curricula

The curricula at the Applied Technology Schools consist of three components:

- Basic and cultural sciences.
- Technical science in the field of specialization.
- Practical training inside factories and companies.

Students' admission in Applied Technology Schools

- The degree of admission is determined annually in each school of applied technology, after the result of the preparatory certificate.
- All participants must pass admission tests in mathematics, English language, & Arabic language, and personal interviews conducted by the Applied Technology Schools Operation and Management Unit in cooperation with the industrial partner (Megahed, 2023)

Challenges and Constraints

According to the UNESCO Report (2019), the SWOT analysis of implementing PPP (including WBL) in the TVET sector has indicated many weaknesses and threats, some of which the project has a direct impact on (El-Ashmawi, 2019, p. 46):

Weaknesses:

- No structure for training in-company tutors and instructors.
- The assessment system in general and within the on-the-job part needs restructuring.
- Funding mechanisms are not clear and inconsistent.

Threats:

- Learners and parents continue to value academic tracks rather than TVET and WBL.

In addition, specific challenges and constraints in implementing PPP in TVET have been mentioned,

some of which the current project has a direct impact on:

- **Teachers and Trainers Capacity Building**

In this regard, it was highlighted that one of the main challenges facing applied technology schools in Egypt is the low educational competence of teachers and trainers. The report pointed out that in-company tutors and mentors are usually experienced supervisors, engineers, or production specialists depending on the occupation at hand, however almost in all cases companies do not have specialized trainers nor are they formally qualified or certified trainers. Only very few exceptions exist, like in the El Sweedy school where some of the theoretical trainers are professional experts and the company also employs a German expert to overlook the technical aspect of the school and also provides training for the in-company practical instructors. The situation for technical and practical teachers and instructors in the TSSs (including dual system instructors) and PVTD responsible for off-the-job training is not very structured and sometimes unclear. These teachers and instructors can receive their initial education from different sources like Universities (e.g. Faculties of engineering, agriculture, tourism, commerce), the four Industrial Education faculties, or from technical education five-year programmes. It is not clear whether they are subjected to the one-year intensive education diploma as in the case of general or core-subject teachers. Trainers have thus a varied range of qualifications, sometimes with little or no specialist trainer training. The main qualification does not appear to be a (pedagogical) trainer competence, but rather the possession of an academic degree, often in a subject not necessarily related to the one taught78. This is often reflected in the training methods employed, which are very traditional and not student-centered (El-Ashmawi, 2019, p. 60).

- **Underdeveloped Funding Mechanism:**

According to the World Bank's SABER report (2014), poor financial management, resulting from a lack of procedures to ensure that funds are appropriately allocated to achieve system efficiency and equity, and weak quality assurance are major challenges that need to be urgently addressed. Critical weaknesses in funding arrangements include the failure to link public funding to performance, limited investment by the private sector, underdeveloped regulations in resource utilization, and the absence of any formal monitoring and evaluation of the impact of training programs on beneficiaries. The above messages are interrelated and are relevant to the Public Private Partnerships (PPP) within the TVET system and require the government to work on a comprehensive system for quality assurance and financial management. This will require direction, leadership, and clarity in the roles of all existing institutions. The workforce development system cannot improve under the current state of fragmentation, overlap, and piecemeal approaches (El-Ashmawi, 2019, p. 52).

To conclude, strengthening TVET teachers' and trainers' capacity to work in competence-based TVET has a significant role to play in facing such weaknesses, threats, and challenges faced by ATS in Egypt. In this regard, teachers and trainers capacity building helps in:

- Improving the teaching and pedagogical skills of teachers and trainers, and thus improving the educational environment in a better way that keeps pace with international criteria.
- Enabling teachers and trainers to improve the practical and applied skills that graduates need in the job market.
- Improving assessment and monitoring systems, increasing transparency regarding the quality of technical education, improving training and education levels, and enhancing the skills of teachers and trainers to ensure the quality of education.
- Enabling trainees to respond to job market requirements and enhance their chances of obtaining employment and achieving success in their professional lives.
- Providing the necessary resources needed to train teachers and trainers on pedagogical skills and knowledge.
- Improving teachers and trainers professional skills and knowledge, developing their abilities to use modern technology in education, improving the quality of technical education, and thus

ensuring its alignment with market requirements.

- Improving teaching methods and using effective teaching techniques that stimulate and encourage students to participate actively in class, which helps improve student interaction and learning levels and reduce pressure on the teacher.
- Developing teacher skills in classroom management, identifying effective strategies and methods for organizing and managing the classroom appropriately, achieving discipline and focus in the classroom, and reducing the psychological pressure on the teacher and students.
- Improving communication with students and parents, providing more information about lessons, schedules, and academic activities, and providing effective communication channels to receive inquiries and complaints, which helps improve communication between the teacher, students, and parents, and achieve a suitable and comfortable learning environment for everyone.

In addition, competency-based training can contribute to dealing with limited resources in several ways, including:

- Improving resource management by identifying effective priorities and allocations for distributing limited resources appropriately and achieving maximum benefit from them.
- Enhancing the use of technology to provide creative solutions for dealing with limited resources, such as using software, smart applications, and devices to improve productivity and reduce expenses.
- Developing teachers' and trainers' skills and improving their performance to achieve efficiency in using limited resources and improving the quality of products or services.
- Improving time management and effective planning of activities and tasks to achieve maximum benefit from limited resources and improve productivity and quality.

As for society's view of TEVET and valuing academic tracks rather than TVET, improving teaching and pedagogical skills and educational techniques, enhancing teachers' abilities to use available educational technology, and updating teaching skills to meet the needs of the labor market and industry requirements can contribute to improving society's view of technical education and providing necessary support for students, equipping them with the skills and knowledge necessary to achieve success in the job market.

Chapter 4: Actions to Include in the Implementation of WP3 and WP4

Based on the explored international models as well as the elaborated TVET system challenges in Egypt, The current chapter is extracting the actions to include in the design of the survey tools as well as the implementation of WP3 and WP4.

The study has previously explored a few definitions for the term ”competency” for teachers and the following definition is the one adopted by the current ACTIVE-ATS project:

> Competency refers to "a combination of knowledge, skills, values, and attitudes that appear in the ability to achieve specific achievements that lead to effective work in a particular field" The professional competencies for the teacher of the Applied Technology Schools (ATS) are "***The sum of what the teacher of applied technology schools should possess in terms of academic knowledge, performance skills, mental abilities, and orientations related to the teaching profession, which he acquires in order to reflect on his teaching practices and behaviors that enable him to carry out his roles efficiently and effectively***".

Teacher Competencies Matrix

The analysis of the competencies that were explored in the international models of ILO, Finnish and German systems, competencies are clustered into categories, subcategories, and competencies. Hence, for the purpose of the survey design, competencies were grouped and clustered based on their type to guide the formulation of the relevant sets of competencies. The following matrix has been concluded for the design of the survey tools drawing on the Finnish and German TVET teacher competencies and that is designed as follows:

Figure 4: Teacher competencies matrix needed for constructing survey tools.

Main category	Generic category (competencies)	Sub-category (skills)	Tools				
			questionnaire for Teachers	questionnaire for Trainers	Interview with School Leaders	Interview with Companies	Interview with Parents
teaching and learning	Pedagogical Competencies	• teaching skills	✓	✓	✓	✓	✓
		• regeneration of pedagogical skills,	✓	✓	✓	✓	✓
		• using innovative teaching methods and trying new ways of teaching	✓	✓	✓	✓	✓
		• being familiar with the curricula and qualifications	✓	✓	✓	✓	✓
		• transforming skills: teacher-counsellor, teacher-guide	✓	✓			✓
		• understanding the diverse life worlds of students	✓	✓	✓	✓	✓
		• educational skills	✓	✓	✓	✓	✓

Main category	Generic category (competencies)	Sub-category (skills)	Tools				
			questionnaire for Teachers	questionnaire for Trainers	Interview with School Leaders	Interview with Companies	Interview with Parents
		• recognising individual learning opportunities	✓		✓	✓	
		• facilitating skills	✓				✓
		• expert in a trade or vocation (subject matter knowledge)	✓	✓	✓	✓	✓
		• innovative, entrepreneurial, creative teacher	✓	✓	✓	✓	
	Guidance and counseling competency	• nurturing skills	✓	✓		✓	✓
		• supporting individual learning pathways (study personalisation)	✓		✓		
		• supporting learners' initiatives and self-efficacy	✓	✓	✓	✓	
		• identification and recognition of competencies	✓		✓	✓	
		• study counsellor, teacher guide					
		• knowledge about the educational system as a whole			✓		
		• positive attitude towards learning opportunities					
		• empathy skills			✓		✓
		• dialogue skills	✓	✓	✓	✓	✓
		• coaching skills	✓	✓	✓	✓	✓
	Interaction Competency	• creating and ensuring a positive learning atmosphere	✓	✓	✓		✓
		• skills to support the students' self-esteem	✓	✓			✓
		• digital teaching skills	✓	✓	✓	✓	✓
		• creating a sense of belonging					
learning and development	Competency in pedagogical leadership	• management	✓	✓	✓	✓	
		• taking care of student well-being		✓			✓

Main category	Generic category (competencies)	Sub-category (skills)	Tools				
			questionnaire for Teachers	questionnaire for Trainers	Interview with School Leaders	Interview with Companies	Interview with Parents
		• skills to adopt new roles	✓	✓	✓	✓	✓
		• self-reflection	✓	✓	✓		
		• ability to multitask	✓	✓	✓	✓	
		• ability to cope with fragmented work					
	Partnership competency	• cooperation skills (will and attitude to ensure cooperation)	✓	✓	✓	✓	
		• enabling authentic learning	✓				
		• helping stakeholders with guidance and documentation regarding multi-professional networking	✓	✓	✓	✓	
		• multi-sectoral networking					
		• organizational regeneration					
		• greater participation in social practices	✓	✓		✓	✓
		• taking care of partnerships	✓	✓	✓	✓	
		• shared expertise (e.g. team teaching, pair teaching)					
		• bridge building skills					
		• consulting skills					✓
	Innovator competency	• marketing skills				✓	
		• economical understanding					
		• knowledge about competent employees			✓	✓	
		• understanding of quality				✓	

Main category	Generic category (competencies)	Sub-category (skills)	Tools				
			questionnaire for Teachers	questionnaire for Trainers	Interview with School Leaders	Interview with Companies	Interview with Parents
		• reflection and resilience skills	✓	✓			
		• attitudinal skills for mental development	✓	✓			
		• developing learning environments	✓	✓	✓		
		• developing working life	✓	✓	✓		✓
		• transforming society	✓	✓	✓	✓	✓
monitoring and evaluation	Assessment	• documenting the students' learning process	✓	✓	✓	✓	✓
		• sharing assessment knowledge in authentic learning environments					
		• willingness to help working life partners with assessment	✓	✓		✓	
	Feedback	• The ability to objectively analyze and evaluate performance	✓	✓	✓	✓	✓
		• Identifying areas that require development or improvement	✓	✓		✓	✓
		• Providing constructive and positive feedback	✓	✓	✓		
		• Delivering feedback in a timely manner	✓				
		• Receiving feedback effectively and utilizing it to improve performance and develop skills		✓	✓		

Hence, Both WP4 and WP5 should be integrating the whole set of competencies that the Egyptian TVET sector needs to integrate into the newly introduced ATS model.

The following are further recommendations for the implementation of WP4 & WP5.

Recommendations

For the ACTIVE-ATS project and other activities in the future with the aim to achieve optimal success within the Egyptian context, the following recommendations are proposed for action:

1. Including both teachers and trainers of the ATS in the capacity development process.
2. Provide training for the whole school teaching and training staff and not use the cascading model of training of trainers specifically in the initial training phase to guarantee a standardized level of quality.
3. Develop teachers' and trainers' abilities for problem-solving and troubleshooting for them to be able to overcome bureaucracy and lack of resources that they might encounter while carrying out their responsibilities and duties.
4. It is favorable to involve the private sector and industry in the identification of teachers' competencies from their perspective.
5. It is equally important to involve the school leaders in the identification of teachers' competencies from their perspective.
6. Parents' and students' perspectives are also needed in identifying teachers' competencies within the Egyptian sector.
7. Quantitative data as well as qualitative data are required in the needs assessment phase.
8. Close coordination with the Ministry of Education and Technical Education (MOETE) is needed for allocating convenient time slots for data collection tools.
9. A post-training survey is needed to collect feedback from ATS teachers and trainers on the relevance and applicability of the training to the Egyptian context.
10. Technology-related tools that are needed for training are to be coordinated in advance with the training hosting venue including reliable internet access.
11. Translation into Arabic is needed during the training to guarantee the maximum level of comprehension and interaction with ATS teachers and trainers.
12. Integration of interactive training strategies that allow participants to simulate, apply and reflect on the acquisition of the targeted pedagogical competencies is needed during training.
13. Although some studies have criticized the Finnish VET teachers' competencies model as being "fragmented", it was seen as being very convenient to the Egyptian context because it responds to the fragmented day-to-day work of vocational teachers at schools, hence regarded as appropriate.

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