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Advanced Competencies of Teachers to Improve Vocational Education in Applied Technology Schools (ACTIVE- ATS)

Deliverable D3.1. Pedagogical Enhancement Development Programme

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Häme University of Applied Sciences (HAMK)

Project Partners and the Abbreviations

HAMK	Häme University of Applied Sciences, Finland
MoETE	Ministry of Education, Egypt
HU	Helwan University, Egypt
IHKPG MBH	IHK- Projectgesellschaft, Germany



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1. INTRODUCTION

Egypt's TVET system is a large, complex and at the same time an interesting landscape with numerous national stakeholders who have the responsibility for serving around 2.7 million active learners within formal, non-formal and informal TVET institutes/providers. Many challenges of the TVET system have been identified among them e.g. the education programmes that do not address the future of work effectively, and the capacity of teaching and training staff might need some support especially in the practical pedagogical competencies. Also the mechanisms for students' transition to employment or further education pathways needs some development. Quite universal is also the feature of the traditional negative image of the TVET system and its graduates that TVET actors in Egypt also face.

The Advanced Competencies of Teachers to Improve Vocational Education in Applied Technology Schools (ACTIVE-ATS) project is the Capacity Building project funded by the European Union's Erasmus+ Capacity Building - Vocational Education and Training (VET) programme. The project intends to increase the capacity of VET providers in the fields of management, governance, inclusion, quality assurance, and innovation. The goal is that they will be better equipped to engage with private sector and enterprises to explore employment opportunities and jointly develop responsive VET interventions. The ACTIVE-ATS project's one main objective is to strength TVET teachers' and trainers' capacity in Egypt to work in competence-based TVET, which is implemented in a cooperation with the world of work. The project will enhance especially the teachers' and trainers' competencies in pedagogy, student-centered approach, and technical speciality in work-based learning.

The task of creating the Pedagogical Enhancement Development Programme (PEP) is the deliverable under the project Work Package 3. The Pedagogical Enhancement Development Programme (20 ECTS) is the support frame for TVET teachers and trainers and their schools in the project. The pedagogical training that is planned and will be implemented is the project activity in collaboration between with Ministry of Education and Technical Education (MoETE), Egypt, Helwan University (HU), Egypt, Häme University of Applied Sciences (HAMK), Finland, and IHK Projektgesellschaft mbH (IHKPG), Germany. HAMK is the leading partner in developing the pedagogical programme in the project. Five TVET Schools, Applied Technology Schools (ATS) in Egypt are the Associate partners in the project and they are the schools the development activities of the project will be piloted in cooperation. 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. 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. Five of the ATS schools will be engaged in the project activities. They are Badr Applied Technology Schools for Mechatronics, Electro Misr Applied Technology School, Mohamed Metwally El-Shawry Applied Technology School, Volkswagen Applied Technology School, and We Applied Technology School. The teachers and trainers of these schools (10 participants of each school x 5 schools = 50 teachers) participate in the project as a direct target group. The PEP is composed of onsite workshops, online learning and industrial attachment also using Moodle as the digital educational platform for the project collaboration between the Associate partners and the beneficiaries. In these schools there are altogether 1300 students and 175 staff in these five schools. 50 teachers and trainers will take part in the pilot activities of the project. The ATS private sector partners will be involved in several project activities as well. The commitment of MoETE and ATS enables the grounds for genuine medium and long-term impacts on the project's outputs.

This report (D3.1) clarifies the Pedagogical Programme to be implemented in 2023-2024, its objectives, schedule and outcomes. As the background for the Programme objectives we first present the information that we have already gathered in the ACTIVE-ATS project and that are reported in the project deliverables D2.1 *Analysis report of the surveys for TVET teachers and interviews of stakeholders* and D2.3 *The definition of teachers' role in TVET: Actions to include in the implementation of WP3 and WP4*.

2. Actions to be included in the Pedagogical Programme

The ACTIVE-ATS project report D2.3 focuses on identifying the main features of the competence-based approach in TVET based on international models, studies, and reports primarily in Finland and Germany. In this framework the analysis of the TVET education in Egypt including prominent challenges that face this sector, is made in the report. In addition, the special role of the new model of Advanced Technology Schools in the Egypt education context is presented. At the end of the report D2.3 (2023) the following recommendations are proposed for action for the ACTIVE-ATS project and other activities in the future to achieve optimal success within the Egyptian context. We'll pay careful attention to these recommendations (below) in planning and implementing the Pedagogical Programme of the ACTIVE-ATS project.

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. (Quote from ACTIVE-ATS D2.3, 2023).

Helwan University conducted also the survey in summer 2023 with the purpose to get updated information on the teachers' training needs and views on the competence-based teaching and to creating collaborative knowledge and common understanding about the teachers' role in competence-based education. The focus-group of the questionnaires were teachers and trainers of the Applied Technology Schools, which implement competence- and work-based TVET. The questionnaires were used in the respondents' native language. Semi-structured interviews were also conducted for some TVET stakeholders, i.e. employers, managers of schools, and parents. The objective was to clarify the expectations of the various stakeholder groups toward TVET and how these challenges can be tackled in means of supporting the teachers' competence development. Based on this empirical data and its analyses the following recommendations for improving teachers' professional competence in Applied Technology Schools (ATS) were made (quotes from ACTIVE-ATS D2.1, 2023):

- Improving technology Competence: teachers in Applied Technology Schools must have a background in technology and be skilled in the appropriate technical abilities required in their teaching.
- Developing Pedagogical abilities: Teachers must effective teaching approaches and teaching methods in teaching their students. They must be able to deal with various learning styles of students.
- Promoting Adaptability and flexibility: Teachers' teaching methods must be versatile and flexible. To address the changing requirements of students, they should be open to embracing new technology and instructional approaches.
- Improve Communication and Collaboration Skills: Effective communication skills are required for teachers in Applied Technology Schools since they must communicate complicated technical topics to students in a straightforward and intelligible manner. Collaborations with coworkers, industry professionals, and other stakeholders can further improve the learning experience and give students with significant networking possibilities.
- Encourage problem-solving and critical thinking skills: Encouraging teachers to study and evaluate various solutions can help them think critically and creatively. This will have an impact on their students.
- Assessment and Feedback: Teachers should devise effective assessment techniques for assessing students' comprehension. Giving constructive comments on time can assist students in improving their skills and knowledge. To fully assess students' ability, assessments should incorporate both theoretical and practical components.
- Student-centered approach: Teachers should take a student-centered approach to their instruction, adapting it to the specific needs and interests of their students. This includes identifying and comprehending various learning styles, strengths, and shortcomings. By focusing on improving teachers' professional competence in Applied Technology Schools (ATS), teachers can successfully prepare students for the demands of the modern workforce and assist them to succeed in their studies.

First, these recommendations and conclusions from the empirical data in Egypt confirm the relevance of the existing basic objectives of ACTIVE-ATS project i.e. the development needs in the

teachers' and trainers' competencies in pedagogy, student-centered approach, and technical specialty in work-based learning. Secondly, the conclusions bring up and also confirm the need to provide in the Pedagogical Programme training in assessment, how to increase critical thinking and promote adaptability and flexibility for the teachers' practices.

In planning the Programme we have shared the some horizontal principles about innovative teaching methodologies to incorporating industry trends. We also believe in bridging the gap between theory and practice. ACTIVE-ATS Pedagogical Programme aims to go beyond theoretical knowledge, providing for the programme participants hands-on activities, case studies, and practical assignments that simulate real-world scenarios. The PEP is composed of onsite workshops, online learning and industrial attachment also using Moodle as the digital educational platform for the project collaboration between the Associate partners and the beneficiaries. Collaborative working and peer learning are at the core of the implementation of WP3. The language of the pedagogical enhancement development programme is English. We also believe in the power of a supportive network to drive continuous professional growth and success. In the training period the participants will connect and collaborate with a community of like-minded TVET teachers and trainers that come from five ATS in Egypt. In this collaboration the participants will share best practices, exchange ideas, and build valuable relationships that can enrich their teaching journey. The educational and other development activities of the programme will underline the civic engagement and participation in line with the UN's Sustainable Development Goal 4 Quality Education.

In the following chapters we describe the objectives, schedule and the outcomes of the ACTIVE-ATS Pedagogical Programme.

3. THE OBJECTIVES OF THE PEDAGOGICAL ENHANCEMENT DEVELOPMENT PROGRAMME

The objectives of the PEP are to provide theoretical and practical knowledge of competence-based education and related pedagogies and work-based learning models to all the participants to succeed in their profession and strengthen their capacity to attend Work Package 4 activities. The focus of WP3 is to enhance the target groups' knowledge of student-centred approach and competence-based learning and teachers' changing role in new learning environments.

The objectives are:

- ✓ Enhance participants' capacity to reflect on their own professional starting point and prior knowledge for professional development purposes.
- ✓ Develop participants' knowledge and understanding of learning and teaching methods and technologies in work-based learning in the context of competence-based education.
- ✓ Increase participants' knowledge about student-centred approach, general and soft skills, dialogue and interaction in education and individual needs of learners.

4. THE CONTENTS OF PEDAGOGICAL ENHANCEMENT DEVELOPMENT PROGRAMME

The programme includes 4 modules (a total of 20 ECTS), which are tightly linked to each other. Key themes included in PEP are:

1. Student-centered learning and different learning environments and the role of the teacher in work-based learning.
2. Basic features of competence and competence-based curriculum, learning outcomes, and assessment methods.
3. General and soft skills, dialogue and interaction in education.
4. Accessibility and individual needs and guidance in TVET.

The pre-planned contents of the PEP were enriched by the results of the Needs Assessment Study conducted in Work Packages 2 by Helwan University (see Deliverable 2.3. *“The definition of Teachers’ Role in TVET”*).

5. THE SCHEDULE OF THE PEDAGOGICAL ENHANCEMENT DEVELOPMENT PROGRAMME

The programme includes online and offline learning activities, keynote lectures, peer working and group assignments. PEP includes three offline weeks which are complemented with the final seminar included in Work Package 5. The offline weeks will be implemented in Cairo on Helwan University’s campus (budgeted in HU Meeting services in seminars). The duration of the offline week is 5 days.

1st offline week (11/2023). Introduction to PEP (including objectives, learning methods, and learning environments). Key themes: Student-centred learning and different learning environments. The teachers’ role in work-based learning.

2nd offline week (03/2024). Key themes: Basic features of competence and competence-based curriculum, learning outcomes and assessment in work-based learning.

3rd offline week (06/2024). Key themes: General and soft skills, dialogue and interaction in education and Accessibility, individual needs, and guidance in TVET.

In between the offline weeks, online training (8 webinars each) includes learning assignments, individual and/or peer work and synchronous online sessions (lectures and workshops). The final seminar (10/24) is included in Work Package 5.

6. THE OUTCOMES OF THE PEDAGOGICAL ENHANCEMENT DEVELOPMENT PROGRAMME

The outcomes of the PEP are that the learning objectives of the participants are fulfilled, and the experience supports the creation of the Guidelines for in-service TVET teachers Pedagogical Enhancement Programme execution (Deliverable 3.3.). This PEP Plan document will guide the pilot training implementation. After the pilot training delivery, the necessary modifications, including the contextual special features, will be made to enrich the compiling of the Guidelines.

Annex 1: The PEP Chart

Objectives	Modules/themes/contents	ECTS	Modality & Methods	Assessment
Enhance participants' capacity to reflect on own professional starting point and prior knowledge for professional development purposes.	<p>Sunday (MoE, HU, HAMK)</p> <ul style="list-style-type: none"> ✓ Introduction to PEP (including objectives, learning methods, and learning environments). ✓ ATS Schools? ✓ Introduction to the themes ✓ The objectives of the programme, the project as the learning environment ✓ TVET teachers' development needs during their career according to the survey and interviews. <p>Monday</p> <ul style="list-style-type: none"> ✓ Competence-based curriculum ✓ Interaction between the education system and the society in the VET system ✓ The role of the curriculum in teaching and learning <p>Tuesday</p> <ul style="list-style-type: none"> ✓ Teachers' continuing professional growth. ✓ Their schools as the learning environment ✓ Digital tools (mm. Moodle) <p>Wednesday</p> <ul style="list-style-type: none"> ✓ Student-centred learning and different learning environments. ✓ The participants' observations on the need to develop their own skills and competencies. ✓ Digital tools, continues (ePortfolio) ✓ Moodle environment during the programme ✓ Home assignment <p>Thursday</p> <ul style="list-style-type: none"> ✓ Work-based learning ✓ The collaboration between the school and working life ✓ The teachers' role in work-based learning ✓ Linkage to the WP4 ✓ Next steps 	2	<p>Pre-assignment:</p> <ul style="list-style-type: none"> ✓ The Needs Analysis <p>Offline training in Cairo</p> <ul style="list-style-type: none"> ✓ Groupwork ✓ Pairwork ✓ Learning cafe ✓ Debate ✓ Participatory & reflective lectures ✓ Other participatory methods to showcase the learner-centredness 	<ul style="list-style-type: none"> ✓ Attendance ✓ Own personal development plan
Develop participants' knowledge and understanding of learning and teaching methods and technologies in work-based learning in the	<p>Four webinars on Tuesdays from 13.00 to 15.00 (2 hours)</p> <ol style="list-style-type: none"> 1. webinar <ul style="list-style-type: none"> ✓ Basic features of competence and competence-based curriculum, learning outcomes. ✓ Theories in teaching and learning 2. webinar 	3	<ul style="list-style-type: none"> ✓ Flipped learning ✓ Videos ✓ Structured discussions ✓ Pools ✓ Assignments 	<ul style="list-style-type: none"> ✓ Attendance ✓ Teaching session plan

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<p>context of competency-based education.</p>	<ul style="list-style-type: none"> ✓ Different learning styles ✓ Inclusive education. 3. webinar ✓ Soft skills and generic competencies here as they are linked to competence descriptions. ✓ Planning of competence-based learning (taking into account different theories, learning styles, inclusion, and integrating the soft skills) Home assignment (to plan a teaching session. The plan will serve as a case study used in the continuation). 4. webinar ✓ Presentations of the plans and feedback ✓ Assessment methods in competency-based learning 			
<p>Increase participants' knowledge about student-centred approach, general and soft skills, dialogue and interaction in education and individual needs of learners.</p>	<p>Sunday</p> <ul style="list-style-type: none"> ✓ Accessibility, inclusion, and individualization in TVET. ✓ Working on the study session plans: individualization <p>Monday</p> <ul style="list-style-type: none"> ✓ Enriching the student-centred methods ✓ Enriching student-centred assessment methods <p>Tuesday</p> <ul style="list-style-type: none"> ✓ Attaching the soft and general skills into the plan ✓ Dialogue and interaction <p>Wednesday</p> <ul style="list-style-type: none"> ✓ Development of the plans (clarifying learning objectives, methods, assessment and individualization of competence based TVET) ✓ Presentations of the updated plans <p>Thursday</p> <ul style="list-style-type: none"> ✓ Competence-based curriculum, learning outcomes and assessment in work-based learning. ✓ Orientation to on-the-job learning periods 	<p>2</p>	<p>Offline training in Cairo</p> <ul style="list-style-type: none"> ✓ Groupwork ✓ Pairwork ✓ Learning cafe ✓ Debate ✓ Participatory & reflective lectures ✓ Other participatory methods to showcase the learner-centredness 	<ul style="list-style-type: none"> ✓ Attendance ✓ Individual ePortfolio, first draft
	<p>Four webinars on Tuesdays from 13.00 to 15.00 (2 hours)</p> <ol style="list-style-type: none"> 1. webinar <ul style="list-style-type: none"> ✓ Introduction to international practices and research in CBVET ✓ Home assignments (literature review and project work, which feed into the Guidelines) ✓ Selected topics: Digital solutions and digital pedagogics in CBVET 	<p>3</p>	<p>Online webinars</p> <ul style="list-style-type: none"> ✓ Presentations from the participants (of the articles) ✓ Support on the project work 	<ul style="list-style-type: none"> ✓ Attendance ✓ Literature review/ presentation

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	<p>2. webinar</p> <ul style="list-style-type: none"> ✓ Selected topics: Greening CBVET ✓ Selected topics: Career guidance and counselling in TVET <p>3. webinar</p> <ul style="list-style-type: none"> ✓ Presentations of the literature reviews <p>4. webinar</p> <ul style="list-style-type: none"> ✓ Presentations of the literature reviews ✓ Instructions for the work-based learning period 			
Update technical skills and learn how to better guide students in work-based learning	<p>On-the-job /work-based learning (1 month)</p> <p>Contents:</p> <ul style="list-style-type: none"> ✓ Updating technical skills ✓ General preview on WP4 	4	On-the-job learning Can be linked to the project work	✓ Certificate from the workplace
Develop the CBET practices in own institution	Project work	4	Group work	✓ Project work document
	<p>Sunday</p> <ul style="list-style-type: none"> ✓ Outcomes of the work-based period ✓ Continuous Professional Development through technical updates ✓ Learnings for how to guide students in work-based learning. <p>Monday</p> <ul style="list-style-type: none"> ✓ Presentations of the project works and feedback. <p>Tuesday</p> <ul style="list-style-type: none"> ✓ Presentations of the project works and feedback. <p>Wednesday</p> <ul style="list-style-type: none"> ✓ Assessing own learning and own personal development plan <p>Thursday</p> <ul style="list-style-type: none"> ✓ Finalization of the programme, evaluation, and feedback 	2	<p>Offline training in Cairo</p> <ul style="list-style-type: none"> ✓ Groupwork ✓ Pairwork ✓ Learning cafe ✓ Debate ✓ Participatory & reflective lectures ✓ Other participatory methods to showcase the learner-centredness ✓ Fair (=presentations of the project works) 	<ul style="list-style-type: none"> ✓ Attendance ✓ Presentation of the project work ✓ Individual ePortfolio
Dissemination	Presentation of the selected project works and certificates of PEP 20 ECTS in the Final seminar	Total 20 ECTS	✓ presentations	

Annex 2: Selected further readings

Adel Ahmed & Khairy Sayed: Development of the competency-based training system in Assiut-ITEC: A case study. *Competency-based Education* 5. 2020.

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Zhang, Z., Tian, J.; Zhao, Z., Zhou, W.; Sun, F.; Que, Y.; He, X. Factors Influencing Vocational Education and Training Teachers' Professional Competence Based on a Large-Scale Diagnostic Method: A Decade of Data from China Sustainability 14. 2022.