SKILLS DEVELOPMENT AND CERTIFICATION FOR TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

RESULT [1]: QUALIFICATION FRAMEWORK FOR THE TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

ACTIVITY ID AND TITLE: R1A1 DESK RESEARCH

PARTNER RESPONSIBLE FOR THIS ACTIVITY

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SELCERT
Skills Development and Certification for Trainers of Synchronous Electronic Learning

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educational organization

CYPRUS CERTIFICATION COMPANY

Program:	Erasmus+
Key Action:	Cooperation for innovation and the exchange of good practices
Project Title:	Skills Development and Certification for Trainers of Synchronous Electronic Learning
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Desk Research Template

Partner: Euro - Idea Fundacja Społeczno - Kulturalna

Country: Poland

PART A: SIMILAR QUALIFICATION FRAMEWORKS IDENTIFIED OR LEARNING OUTCOMES FROM CURRICULA DEALING WITH SYNCHRONOUS ELECTRONIC LEARNING OR FINDINGS FROM ANY RELATED LITERATURE

1. LITERATURE REVIEW

A. Search Protocol

The following search tools have been used

- *Educational Search engines: Google Scholar, Scopus, WorldWideScience, WebOfScience*
- *Normal Search engines: Google*

A thorough search in the aforementioned search engines was undertaken.

The key terms used were “E-learning trainer qualifications”, “E-learning qualification framework”, “E-learning in Poland”, “Asynchronous learning in Poland”, “E-teacher qualifications in Poland”

B. Findings

A desk research of qualification frameworks on Synchronous Electronic Learning resulted in a small amount of data. We’ve found articles illustrating the lack of proper qualifications for teachers and trainers from over a decade but also recent research papers bringing up the topic of problems related to the COVID-19 pandemic. Further research resulted in findings such as Academic E-learning Association and post-graduate studies for E-teachers, mostly focused on the academic teachers, less on the general trainer professions.

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
1	Google Scholar	E-learning in Poland, Qualification frameworks, Online learning	Dąbrowski, M. (2013), *E-learning in higher education in Poland* http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.ekon-element-000171237019	The article looks at e-learning, i.e. the use of electronic media, information and communication technologies in education. The author claims that the Polish universities need to develop this educational approach in order to respond to students' needs and become competitive. The author presents current trends related to e-learning, Polish legal basis for e-learning, as well as potentials and barriers to its development.
2	Google Scholar	E-learning in Poland, Qualification frameworks, Online learning	Tomczyk, Ł.; Walker, C. (2021), *The emergency (crisis) e-learning as a challenge for teachers in Poland* https://doi.org/10.1007/s10639-021-10539-7	The article was written as a consequence of the COVID-19 pandemic in Poland, which had an impact not only on public health, but also on the functioning of the educational sector. The text is an attempt to summarize the challenges of the e-learning crisis from the perspective of the challenges faced by teachers in Poland. The aim of the research was to explore the characteristics of crisis-learning in Poland from the perspective of teachers' experiences.
3	Google Scholar	E-learning in Poland, Qualification frameworks, Online learning	Stecuła, K.; Wolniak, R. (2022), *Influence of COVID-19 Pandemic on Dissemination of Innovative E-Learning Tools in Higher Education in Poland*	The paper presents the results of the research on the influence of the COVID-19 pandemic on the dissemination of innovative e-learning tools in higher education. Research was carried out in Poland in December 2021 on a sample of 621 students. The main issue that was the subject of the author's analysis was the influence of the COVID-19 pandemic

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
			https://doi.org/10.3390/joitmc8020089	on the change in the use of innovative e-learning tools in university education. After conducting the research and discussing this and related research about e-learning during the pandemic, it was concluded that the percentage of students familiar with the analyzed e-learning tools has increased significantly during the pandemic. The author's research identified three hidden factors (categories) of the used e-learning tools. They include the following categories: popular services and applications adapted to e-learning; popular applications for synchronous meetings adapted to e-learning; and other synchronous and asynchronous e-learning methods. The familiarity with information technology, as well as an interest in innovative e-learning tools, have positive influence on the ease of acquiring content in e-learning. Having the proper resources also positively influences the absorption of e-learning content. On the basis of the achieved results, the authors prepared a model of relations between students' interest in innovative e-learning technology and the resources they possess to participate in e-learning classes. This model enables us to assess which method—elearning, traditional or hybrid—should be used in the given situation

Table 1: Findings from Literature

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2. RELEVANT QUALIFICATION FRAMEWORK IDENTIFIED

A desk research of qualification frameworks on Synchronous Electronic Learning has not produced much. There is paucity of research in that field which makes our project extremely apt and contemporary. Nevertheless, we have managed to recognize some examples of qualification frameworks for online trainers alongside understandings on the skills, competences and advantages of SEL.

RELEVANT QUALIFICATION FRAMEWORK IDENTIFIED - E-teacher – a postgraduate course

The aim of the E-teacher postgraduate course is to acquire knowledge and skills in remote teaching using modern IT tools. The studies are designed to prepare you to independently plan and create remote courses and teach online in asynchronous and synchronous modes.

Number of semesters: 2

Number of ECTS credits; 30

Requirements: A diploma of first or second cycle higher education or a unified master's degree.

Characteristics of the sub-qualifications obtained on completion of the postgraduate programme:

Graduates will acquire the ability to configure and manage an LMS training platform, create websites and educational games (Unity), prepare interactive reports and visualisations and publish them on websites. You will learn the principles of creating and publishing educational materials of high content quality, correlated with proper visual communication.

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Please describe the qualification framework as indicated below[1]:

ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
1	Cyprus/HRDA	Framework for Trainer of Vocational training		Classroom Learning	Describe the ADDIE Model	Develop tools for the evaluation of the programme	Adopt diagnosis of educational needs before designing a programme

Table 2: Relevant Qualification Frameworks

[1] ***Country /Responsible Authority: is the relevant country or the appropriate national or transnational authority***

The scope of the qualification framework: is whether it is (1) Synchronous, (2) Asynchronous and synchronous, (3) Generic on training (4) Electronic and face-to-face, (5) Other

The main learning outcomes (Knowledge, Skills, and Competences) as extracted from the qualification framework

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3. CURRICULA OF TRAININGS DEVELOPED FOR SYNCHRONOUS ELECTRONIC LEARNING CURRICULA

ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
1	E-teacher – a grant project	ProcessTeam	26	Knows the modern ICT technologies, e-learning standards and models of building electronic training content	Applies practical knowledge in the field of visual communication design to create e-learning materials	Uses various sources of information to expand their skills and knowledge of e-learning standards and methods
2	E-teacher – a postgraduate course	Pedagogical University in Krakow	200	Knows the rules for the organization and implementation of e-learning Knows the rules for the selection and purpose of information and communication tools used at various levels of education Knows advanced methods of data visualization Has the necessary knowledge in the field of graphic systems, raster and vector graphics	Uses in practice the knowledge and tools related to the construction of the message and interpersonal communication in the field of e-learning Creates and develops websites Can carry out the installation and configuration process of the LMS system and run additional modules	Can formulate questions to expand their knowledge and understands the need for systematic work on e-learning related projects Understands the need to follow the rules of professional ethics and netiquette Works as a team and understands the need for systematic work on projects

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ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
				characteristics, color models, practical application of the transformation of two-dimensional graphics Has knowledge in the field of visual communication Knows modern technologies and the ways of using it in teaching and learning at all educational stages	Can communicate with the environment through new technologies Can search and prepare materials with the use of new information and communication technologies Uses gamification in educational projects	Shares knowledge with other members of the project team
3	E-teacher – a postgraduate course	MCE (Małopolskie Centrum Edukacji)	Not specified – Duration: 2 semesters	Knows the basics of designing e-learning courses Knows the basics of computer graphics Has knowledge of Google Drive capabilities Knows the importance of modern technologies in both teaching and learning Knows the importance of networks of cooperation and self-education	Can configure and install the e-learning platforms Uses e-learning platforms in the teacher's work (individualization during remote work) Can effectively plan both e-lessons and classroom lessons	Creates space for collaborative learning for students with the use of multimedia Shares knowledge and experience in order to improve the quality of one's own work

Table 3: Relevant Curricula of training

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PART B: SUGGESTED LEARNING OUTCOMES FOR THE QUALIFICATION FRAMEWORK PROPOSED

E-teacher

LEARNING OUTCOMES FOR POSTGRADUATE STUDIES

KNOWLADGE

K01	knows the principles of organisation and implementation of e-learning
K02	knows the types and channels of communication in project teams
K03	knows the principles of selection and destination of information and communication tools used at different levels of education
K04	has the necessary knowledge of: graphic systems, characteristics of raster and vector graphics, colour models, practical application of two-dimensional graphics transformations
K05	has the necessary knowledge of: animation creation and sound editing
K06	has knowledge in the area of visual communication
K07	has the knowledge needed to present textual, graphic and multimedia elements on a website
K08	has knowledge of web technologies and web architecture
K09	is familiar with the basic terminology of computer games and the syntax used in the development of scripts for educational games
K10	knows how to process the data collected and how to present the results obtained
K11	knows advanced methods of data visualisation
K12	knows the mechanism of operation of LMS systems
K13	knows the standards for content packaging and communication of e-learning systems
K14	has knowledge of modern technology and how it can be used in teaching and learning at all stages of education
K15	knows the benefits and limitations of using modern information technology in teaching at all educational stages
K16	has knowledge of the design of educational games and how they can be used in the teaching and learning process at different levels of education
K17	has knowledge of STEM (science, technology, engineering, mathematics) at different levels of education

SKILLS

S01	uses knowledge of the organisation and implementation of e-learning solutions, such as analysis, implementation, evaluation
S02	applies in practice the knowledge and tools related to message construction and interpersonal communication in the field of e-learning
S03	uses advanced tools for creating and editing vector and raster graphics, animation and sound editing

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S04	applies practical knowledge of visual communication design to the creation of e-learning support materials
S05	can design and create a website
S06	can use the tools available to facilitate the creation of web pages
S07	can design a scenario for an educational game and create objects and interactions between them using the Unity engine
S08	can create interactive visualisations
S09	can design dashboards and create interactive reports using Power BI
S10	is able to perform the installation and configuration of the LMS and to run additional modules
S11	can manage users and generate access rights in the LMS
S12	is able to communicate with the public through new technologies
S13	uses BYOD (Bring Your Own Device) to achieve its learning objectives
S14	is able to search for and prepare material using new information and communication technologies
S15	uses gamification in educational projects

SOCIAL COMPETENCES

SC01	knows the limits of his own knowledge and understands the need to supplement it
SC02	uses various sources of information to enhance his/her own skills and knowledge
SC03	is able to formulate questions to deepen his/her knowledge
SC04	works in a team and understands the need to work systematically on projects
SC05	shares knowledge with other members of the project team
SC06	understands the need to comply with professional ethics and netiquette rules

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PART B: SUGGESTED LEARNING OUTCOMES FOR THE QUALIFICATION FRAMEWORK PROPOSED

Please list below learning outcomes identified and relate them to the different phases of the ADDIE MODEL (Addie presented in appendix 1).

Stage of the ADDIE Model	Knowledge	Skills	Competences
Analysis	Understanding the difference between online lessons and classroom lessons Understanding the rules of e-learning and being able to describe different models of online learning Understanding what gamification is and what impact it has on online learning	Applying gained knowledge for identifying the potential threats of online learning Applying gained knowledge for identifying the potential gains from online learning	Showing understatement of the need to follow the rules of professional ethics and netiquette Being prepared for interventions and extending a helping hand to the students
Design	Recognizing the vital competencies of online learning Listing the milestone plan for different stages of online learning	Designing the e-learning course and additional materials for the students Designing the lessons based on rules of gamification	Being inclusive in the approach of the plan creation of online classes

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Stage of the ADDIE Model	Knowledge	Skills	Competences
Development	Listing the important methods of online learning Understanding popular platforms and software used for online learning	Creating the needed materials and any assets that are useful for both teacher and students	Implementing techniques for online classes, having in mind targeting them for a broad, diverse group of students
Implementation	Listing necessary steps for issue-free access to e-learning platform/software Listing potential issues that can happen during user's access	Testing the NET connection, quality of presented assets and being aware of errors Managing both the students' participation and the teacher's quality of teaching	Showing empathy and understanding for all kinds of students during online classes
Evaluation	Listing useful methods for data evaluation Defying methods of assessment within online learning space	Picking a suitable way of gathering feedback from the students Evaluating the teaching program based on the feedback (opinions on e-learning platform, diversity of learning techniques, etc)	Being there for the students to offer advice, show encouragement and listen to their feedback Striving for improvement of quality of online classes

Table 4: Suggested Learning Outcomes: ADDIE model

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BIBLIOGRAPHY IN APA

Table 1

1. Dąbrowski, M. (2013). E-learning in higher education in Poland. *Studia BAS*, *3*(35), 203–212 https://depot.ceon.pl/handle/123456789/12238
2. Tomczyk, Ł., Walker, C. The emergency (crisis) e-learning as a challenge for teachers in Poland. *Educ Inf Technol 26*, 6847–6877 (2021). https://doi.org/10.1007/s10639-021-10539-7
3. Steculа K, Wolniak R. Influence of COVID-19 Pandemic on Dissemination of Innovative E-Learning Tools in Higher Education in Poland. Journal of Open Innovation: Technology, Market, and Complexity. 2022; 8(2):89. https://doi.org/10.3390/joitmc8020089

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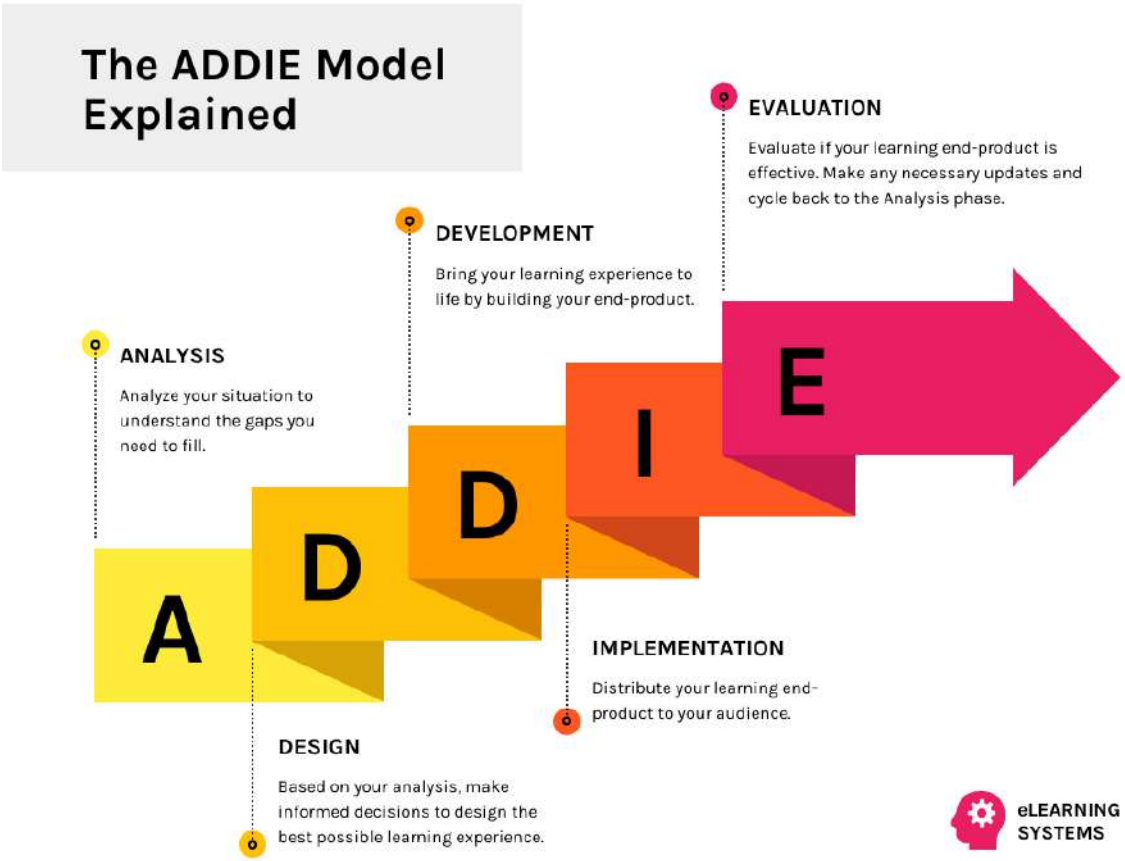
APPENDIX 1: ADDIE MODEL

ADDIE is an instructional systems design (ISD) framework that many instructional designers and training developers use to develop courses. The name is an acronym for the five phases it defines for building training and performance support tools:

- Analysis
- Design
- Development
- Implementation
- Evaluation



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Analysis phase

The analysis phase clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills. Questions the analysis phase addresses include:

- Who are the learners and what are their characteristics?
- What is the desired new behavior?
- What types of learning constraints exist?
- What are the delivery options?
- What are the pedagogical considerations?
- What adult learning theory considerations apply?
- What is the timeline for project completion?

The process of asking these questions is often part of a needs analysis. During the needs analysis instructional designers (IDs) will determine constraints and resources in order to fine tune their plan of action.

Design phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning, and media selection. The design phase should be systematic and specific. *Systematic* means a logical, orderly method that identifies, develops, and evaluates a set of planned strategies for attaining project goals. *Specific* means the team must execute each element of the instructional design plan with attention to detail. The design phase may involve writing a *design document/design proposal* or *concept and structure note* to aid final development.

Development phase

In the development phase, instructional designers and developers create and assemble content assets described in the design phase. If e-learning is involved, programmers develop or integrate technologies. Designers create storyboards. Testers debug materials and procedures. The team reviews and revises the project according to feedback. After completing the development of the course material, the designers should conduct an imperative pilot test; this can be carried out by involving key stakeholders and rehearsing the course material.

Implementation phase

The implementation phase develops procedures for training facilitators and learners. Training facilitators cover the course curriculum, learning outcomes, method of delivery, and testing procedures. Preparation for learners includes training them on new tools (software or hardware) and student registration. Implementation includes evaluation of the design.

Evaluation phase

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The evaluation phase consists of two aspects: formative and summative. Formative evaluation is present in each stage of the ADDIE process, while summative evaluation is conducted on finished instructional programs or products.

Source

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CHECKLIST

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☐ The Repeat Header Row function has been used for all tables

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SELCERT

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LIST OF TABLES

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Desk Research Template

Partner: MMC

Country: Cyprus

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1. LITERATURE REVIEW

A. Search Protocol

The following search tools have been used:

- *Educational Search engines: Google Scholar, Scopus, WorldWideScience, WebOfScience*
- *Normal Search engines: Google*

A thorough search in the aforementioned search engines was undertaken. The key terms used were Synchronous Electronic Learning Qualification Framework, Online learning, E-learning, Vocational Educational Training. The first term yielded minimal results, and the majority of sources were focusing on advantages and disadvantages of SEL alongside asynchronous electronic learning and not necessarily independently.

B. Findings (see Table 1 for the extracted data)

Synthesis of findings from Literature Review

A desk research of literature review on *Synchronous Electronic Learning* (SEL) has not produce any results from Cyprus, concerning research papers and studies. This desk research, alternatively described as literature review, follows the second arm of the criteria for this activity (R1A1) which specifies that there is a need for identifying important skills that a trainer for synchronous electronic learning should have. In that scope, we need to highlight that there is paucity of research in synchronous online learning which makes our project extremely apt, especially in tangent with

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activities ***R1A2, Development of a focus group guide and a framework for qualitative research*** and ***R1A3, Implementation of focus group*** (rationale). Nevertheless, we have managed to recognize some examples of studies which are focusing on the characteristics of a successful trainer for synchronous electronic learning alongside understandings around knowledge, skills, and competences for a quality Qualification Framework (R1/IO1). These studies are of international scope, thus they can provide the results we need, since this is a transnational project.

In detail, a study by Wannapiroon et al (2022) focused on the competence of online instructors around digital skills, with synchronous online learning in education in Thailand. The abilities that were recognised by the researchers focused primarily on: ***1) Analysis of course content, 2) Application of video conference systems, 3) Management of online classes, 4) Management of online learning resources, 5) Management of online learning activities, 6) Development of test, 7) Development of instructional media, 8) Development of instructional videos, 9) Arrangement of active-learning activities, and 10) Online evaluation and assessment of instruction***. These findings are corroborated by Woodcock et al. (2015) who argue that e-learning environments are best suited for a successful learning experience when there is ***1) Ease of use, 2) Safe online environment, 3) Online self-efficacy, and 4) Competency*.** Those characteristics are enhanced by the use of polymedia in online learning in the VET context as the literature showcases (Cox & Prestridge, 2020). In addition to the aforementioned findings, Phelps and Vlachopoulos (2019) whilst focusing on higher education and not specifically in vocational education training they highlight the adoption from the SEL trainer of a state of being called ***digital citizenship***. Digital citizenship is the ethical and responsible use of computers, the internet and digital devices in general. This ethical approach is sometimes linked to ***empathy*** and an empathetic stance a trainer of synchronous online learning should have (Griffin & Mihelic, 2019) for a quality delivery of SEL.

In conclusion, these studies will assist towards the successful completion of a number of activities (i.e., A2: Development of a focus group guide, A5: Composition of the qualification framework) the SEL trainer needs to be able to facilitate a strong individual instructor-and-learner interaction. In addition, a successful SEL trainer should be able to select the appropriate content, methods, techniques and software for a user-centred experience for the learner (Wannapiroon et al., 2022; Woodcock et al., 2015).

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
1	Google Scholar	Synchronous electronic learning, qualification framework, online learning, e-learning	Wannapiroon, P., Nilsook, P., Jitsupa, J., & Chaiyarak, S. (2022). Digital competences of vocational instructors with synchronous online learning in next normal education. International Journal of Instruction, 15(1), 293-310. https://doi.org/10.29333/iji.2022.15117a	This research study was conducted with the following objectives: to develop; evaluate and; investigate the vocational instructors' satisfaction with the online instructional management developed using the synchronous online learning with 2,233 vocational instructors from the Office of the Vocational Education Commission, Ministry of Education, from five regions of Thailand. The research findings revealed that the vocational instructors' digital competence consisted of the following abilities: 1) analysis of course content; 2) application of video conference systems; 3) management of online classes; 4) management of online learning resources; 5) management of online learning activities; 6) development of tests; 7) development of instructional media; 8) development of instructional videos; 9) arrangement of active-learning activities; and 10) online evaluation and assessment of instruction.
2	Google Scholar	Synchronous electronic learning, qualification	Woodcock, S., Sisco, A., & Eady, M.J. (2015). The Learning Experience: Training Teachers	This study examined the effectiveness of an online synchronous platform used for training teachers. A blended learning approach was

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
		framework, online learning, e-learning	Using Online Synchronous Environments. https//doi.org/10.5590/JERAP.2015.05.1.02	implemented. Fifty-three students participated in the course. Qualitative interview data and quantitative survey data were collected about students' experiences using the platform, and analyzed via thematic content analysis and statistical analysis, respectively. The findings show that e-learning synchronous technology is an effective learning tool in enhancing teachers' e-learning competency in subject matter and information communication technology skills. However, preservice teachers' competency to learn and implement e-learning for students is dependent on four hierarchal conditions (a) ease of use, (b) psychologically safe environment, (c) e-learning self-efficacy, and, (d) competency.
3	Google Scholar	Synchronous electronic learning, qualification framework, online learning, e-learning, trainers skills	Phelps, A., & Vlachopoulos, D. (2019). Successful transition to synchronous learning environments in distance education: A research on entry-level synchronous facilitator competencies. *Education and Information Technologies, 25*,	Synchronous education is being integrated at various levels and capacities in distance education offering learners and facilitators a virtual web-conferencing environment where, although they may be geographically separated, they are afforded the flexibility of being virtually present in a shared real-time space. This research aims to reflect on what skills

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			1511-1527. https://doi.org/10.1007/s10639-019-09989-x	synchronous facilitators perceive as necessary for entry-level facilitators to demonstrate competence in to adequately support learners in the synchronous learning environment. Participants were interviewed based on their experience facilitating within the Adobe Connect learning environment and discussed perceived technical/operational, classroom management, communication and design/delivery competencies an entry-level facilitator must possess to foster learner success in a synchronous virtual environment. Based on the data collected, the researchers developed a competency guideline that may assist higher education organizations, leadership and educators in ensuring entry-level facilitators are prepared with the appropriate level of competence to support learners while overcoming the challenges that may arise in such a technology enhanced and dependent environment. The researchers also suggest an orientation pathway to support the entry-level synchronous facilitator with their transition into the synchronous environment.

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
4	Google Scholar	Synchronous electronic learning, qualification framework, online learning, e-learning, trainers skills	Griffin, T., & Mihelic, M. (2019). *Online delivery of VET qualifications: current use and outcomes*, NCVER, Adelaide.	This research paper deals with advantages and disadvantages of online learning in Australia. A number of the teachers and trainers interviewed for the research (from the qualification areas selected for examination) reported that online delivery has changed very little over the past 10 years, with the possible exception of the use of higher-quality graphics and chat bots. Of interest to our review is the semi-structured interviews with teachers/trainers/assessors which give us an understanding on elements that are important for a skillful online trainer.
5	Google Scholar	Synchronous electronic learning, qualification framework, online learning, e-learning, trainers skills	Cox, D., & Prestridge, S.(2020). Understanding fully online teaching in vocational education. *RPTEL* 15, 16. https://doi.org/10.1186/s41039-020-00138-4	Literature has previously reported that student-centred practices are the mark of good pedagogy in online education. In contrast, the competency-based nature of vocational education in Australia has been understood to encourage teacher-centred pedagogy. The likely tensions between these two teaching contexts are not yet understood, and little is yet known about the pedagogy of fully online vocational education teachers. To begin understanding

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
				pedagogy in this context, a wide-ranging digital survey was implemented. Findings revealed that online vocation education teachers conceived good online pedagogy as student-centred, yet student-student learning opportunities were rated lower than teacher-student practices. Notably, enacted practice was consistently more teacher-centred than teachers' ideal, and factors within the teaching context were perceived by teachers as a limitation. They reported their workload to be dominated by marking and administration ahead of student-centred practices such as building rapport. This work is of interest to researchers and institutions navigating the continued expansion of online education and the ongoing demand for effective student-centred practice

Table 1: Findings from Literature

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2. RELEVANT QUALIFICATION FRAMEWORK IDENTIFIED

A desk research of qualification frameworks on Synchronous Electronic Learning has not produced much, especially concerning the topical context. Nevertheless, we have managed to recognize some examples of qualification frameworks for SEL trainers.

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Please describe the qualification framework as indicated below[1]:

ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
1	Cyprus/HRDA	Framework for Trainer of Vocational training	5	Classroom Learning	Describing the ADDIE Model Describing the information sources and the way to collect and use data and information for sectors of economic activity	Developing tools for the evaluation of the programme Applying work areas based on the ADDIE model Designing an online course	Adopting diagnosis of educational needs before designing a programme	This framework is not specifically on synchronous online learning. However, some elements of it can be transformed into SEL mode,

[1] ***Country /Responsible Authority: is the relevant country or the appropriate national or transnational authority***

The scope of the qualification framework: is whether it is (1) Synchronous, (2) Asynchronous and synchronous, (3) Generic on training (4) Electronic and face-to-face, (5) Other

The main learning outcomes (Knowledge, Skills, and Competences) as extracted from the qualification framework

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					Listing the four work areas based on the ADDIE model Defining techniques of collecting data for investigating the personal needs of online learners Defining knowledge, skills, and competences	based on the ADDIE model Applying work areas based on the ADDIE model Applying the techniques of collecting information for recognizing issues Designing and delivering appropriate diagnostic tools for investigating the personal needs of learners		or can be discussed in the focus groups for feedback from trainers. For the purpose of this review, only a number of LOs are shown here. These LOs are the ones that can potentially be transformed into the synchronous electronic modality.

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
2	Cyprus/HDRA	Framework for Trainer of e-learning	7	Asynchronous and Synchronous Electronic Learning	Reporting sources of collecting data for diagnosing needs Defining techniques for collecting data for investigating the personal needs of online learners Describing ways of collaboration between organisations and the local society Defining stages of developing strategic plan for further developing of educational	Using sources of collecting data for diagnosis needs Choosing and applying the appropriate techniques for collecting data during the diagnosis of development needs. Correlating the technical potential of the e-learning tools with their educational potential		This is a framework that includes both synchronous and asynchronous LOs and criteria. For the purpose of this review there is a focus mostly on the synchronous components of this framework.

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					organization and department Naming different tools of e-learning for synchronous electronic learning Describing the technical potential of the tools of synchronous online learning Listing the characteristics of the goal of a programme which uses e-learning. Defining the characteristics of	Choosing the right tool of e-learning for the training Choosing the right plan for connection with internet Developing polymedia material by using multiple digital tools Programming synchronous e-learning Using effectively the e-learning tool		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					learning objectives of an e-learning programme Explaining different ways of organizing the electronic load of the programme Defining technological tools for developing polymedia Reporting the learning circumstances in a modern electronic environment Designing inaugural and concluding	Applying principles for creating the appropriate conditions in synchronous online learning Using appropriate techniques to present most efficiently the electronic learning content Using appropriate techniques to create social, cognitive and didactic presence of the trainer and the learners in the		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					meeting of an e-learning project Using or developing the appropriate techniques of an electronic ice-breaker and electronic energizer during synchronous electronic learning Naming the appropriate techniques of presenting the content of learning Reporting elements relative to body language which need to be taken into	modern electronic classroom Recognizing the characteristics of essential active participation of learners during the implementation of e-learning programs		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					account during the application of electronic learning programs Recognizing elements of effective oral communication during implementation of e-learning programs Describing techniques of solving technical issues during synchronous electronic learning			
3	United Nations	Online Learning framework/ Guidance for the	NA	Synchronous Electronic Learning	Examining the context of the learning programme and determining its	Designing the instructional strategies, activities and assessments that	Take the perspectives of the key stakeholders into	This is a framework created by the UN for internal purposes. That

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
		development of online learning solutions at the United Nations			suitability, feasibility and scalability Conduct a training needs assessment (TNA), or learning needs analysis (LNA), to identify and analyse the problem and specify the need and motivation for training (or suite of activities). Determining if training is feasible, scalable, and the desired solution. Discussing with the client (the team who requested the	will achieve the learning objectives Developing activities that will help learners improve their performance Delivering the learning products to the learners Measure the efficiency and effectiveness of the learning programme Measuring the efficiency and effectiveness of	consideration, such as the client, subject matter experts, learners and reviewers, while designing the learning activity Ensure that the learning activities are hosted in a user-friendly website or learning content management system that has	is the design and implementation of online learning programs within the organization. There are a lot of elements for

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					learning activity) the need and motivation for the training. Analysing the tasks employee need to perform which are related to the learning goals. Identifying subject matter experts (SMEs) to support content design and development. Identify learning experts to support instructional design, development, implementation and evaluation.	the learning programme Gathering samples of target performance (what learners should be able to do after participating in the training). Gathering samples of subpar performance and data on what "needs improvement". Collecting information on target learners'	a responsive interface on any device, such as phones, tablets, laptops and desktops and that it has been tested on each before release. Incorporate feedback to improve the course while in progress.	

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					Developing overarching goals based on data available (learner background information, input from SME(s), previously developed course content). Explicitly linking learning objectives to organisational goals, team needs and learning activity's purpose(s) Formulate learning objectives from the learner's perspective.	background, characteristics, behaviour, experience with the domain and learning needs to inform the design of the learning activity. Provide alternative solutions to learners with technological/location-related challenges. Ensure changes to the learning activity can be made with		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					Create module-level learning objectives that align with overall training programme goals. Ensure learning objectives are Specific, Measurable, Achievable, Realistic and Time bound (SMART) Distinguish between overall activity learning objectives and module-level objectives.	internal resources. Ensure internal consistency and proper flow between tasks, activities and modules. Ensure a gradual increase in complexity. Select the appropriate modality for the learning activity. Establish key performance indicators (KPIs) to measure		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					Differentiate between task objectives and learning activity objectives. Follow recommended technical, design and accessibility standards Determine the minimum bandwidth requirement. Consider application of well established evaluation models to analyze and evaluate the results of your	success of the learning activity. Determine how learning objectives will be measured Use graphics, media and interactive tools to enhance the learning experience and engage learners. Use various strategies to make assessments engaging for learners.		

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					training, such as Kirpatrick's four levels of training evaluation model	Address accessibility in early stages of the development. Test the learning activities on various browsers/operating systems before releasing the final version to ensure proper functioning and access to all elements. Providing easy-to-find instructions, FAQs and/or tutorials to help		

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						learners familiarize themselves with the learning platform and the activities. Provide links to download any plug-in required for the learning activities Ensure that alternative file types and smaller file sizes are available for download. Ensure large files are clearly		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
						marked to inform learners about the time it will take to download those files Ensure that media files, such as videos and images, are compatible with all devices, like desktops, laptops, tablets and mobile phones Ensure that graphics and visuals are used exclusively to achieve learning objectives and		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
						enhance the learning experience Ensure the learning activity is free of errors before launch Ensure easy access to registration information and learning activity description. Provide opportunities for learners to provide feedback about the activity during and after		

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
						the learning process.		

Table 2: Relevant Qualification Frameworks

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3. CURRICULA OF TRAININGS DEVELOPED FOR SYNCHRONOUS ELECTRONIC LEARNING

ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
1	Trainer of e-learning	HRDA	85	Defining the modalities of electronic learning Reporting sources of collecting data for diagnosing needs Defining techniques for collecting data for investigating the personal needs of online learners Describing ways of collaboration between organisations and the local society	Applying the techniques of collecting information for recognizing issues for online learners Using sources of collecting data for diagnosis needs Choosing and applying the appropriate techniques for collecting data during the diagnosis of development needs. Correlating the technical potential of the e-learning	Modeling digital work and learning

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ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
				Defining stages of developing strategic plan for further developing of educational organization and department Naming different tools of e-learning for synchronous electronic learning Describing the technical potential of the tools of synchronous online learning Listing the characteristics of the goal of a programme which uses e-learning. Defining the characteristics of learning objectives of an e-learning programme	tools with their educational potential Choosing the right tool of e-learning for the training Choosing the right plan for connection with internet Developing polymedia material by using multiple digital tools Programming synchronous e-learning Using effectively the e-learning tool Applying principles for creating the appropriate	

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ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
				Explaining different ways of organizing the electronic load of the programme Defining technological tools for developing polymedia Reporting the learning circumstances in a modern electronic environment Designing inaugural and concluding meeting of an e-learning project Using or developing the appropriate techniques of an electronic ice-breaker and electronic energizer during synchronous electronic learning	conditions in synchronous online learning Using appropriate techniques to present most efficiently the electronic learning content Using appropriate techniques to create social, cognitive and didactic presence of the trainer and the learners in the modern electronic classroom Recognizing the characteristics of essential active participation of learners during the implementation of e-learning programs	

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ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
				Naming the appropriate techniques of presenting the content of learning Reporting elements relative to body language which need to be taken into account during the application of electronic learning programs Recognizing elements of effective oral communication during implementation of e-learning programs Describing techniques of solving technical issues during synchronous electronic learning		

Table 3: Relevant Curricula of training

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PART B: SUGGESTED LEARNING OUTCOMES FOR THE QUALIFICATION FRAMEWORK PROPOSED

Please list below learning outcomes identified and relate them to the different phases of the ADDIE MODEL (ADDIE presented in appendix 1).

Stage of the ADDIE Model	Knowledge	Skills	Competences
Analysis	Describing the ADDIE model Listing the four work areas based on the ADDIE model Describing at least one model of online learning Setting learning goals in-line with the standards of e-learning environments Defining online learning Differentiating online from face-to-face learning	Designing an online course based on the ADDIE model Applying work areas based on the ADDIE model Applying the techniques of collecting information for recognizing issues for online learners Formulating needs for online learners considering the e-learning environment Designing and delivering appropriate diagnostic tools	Being aware of the three categories of the learning outcomes (i.e., knowledge, skills, competences) within the electronic environment Adopting the ability to diagnose educational tools for investigating the personal needs of online learners Realizing the differences between the different modalities of electronic learning and having the ability to share those with learners

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Defining techniques of collecting data for investigating the personal needs of online learners Defining synchronous learning mode Differentiating asynchronous from synchronous learning mode Describing techniques of presenting electronic educational content Naming list of activities that might be delivered simultaneously and synchronously	for investigating the personal needs of online learners Designing and developing synchronous e-learning	
Design	Listing sources and ways of collecting and using information for electronic learning using the SMART approach Defining knowledge, skills and competencies of online learning and training	Structuring the training programme in a manner which presents the electronic units coherently Designing educational e-units that can be delivered synchronously	Modeling quality formulation of development of e-learning objectives Modeling digital work and learning

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Defining knowledge, skills and competencies of synchronous learning Listing the educational outcomes of e-learning	Designing an online inaugural meeting Designing an online concluding meeting Designing, using and moderating chat messaging tools	
Development	Defining recommended technological standards Defining the synchronous method of training Naming the techniques for synchronous electronic learning and acknowledging the differentiation between online and non-online materials	Choosing and/or producing the techniques and materials for SEL Transforming educational methods from face-to-face to electronic ones Choosing and/or producing the SEL tools and training	Modelling and delivering effective technological literacy Having heightened awareness and promoting contemporary and quality technological tools among learners

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Recognizing and defining 5 activities of SEL that can help learners improve performance Defining tools and equipment of synchronous online training and learning Naming the materials that incorporate digital aspects (e.g., multimedia) Listing 3 platforms that can be used for SEL Defining the software used and knowledge about their usability	techniques that will be used in the online environment Choosing and/or producing materials that incorporate the digital component (e.g., multimedia) Developing the educational materials that the trainer will use (e.g., online presentations, scenarios for role-playing, gamification etc.)	
Implementation	Describing the preparation process before the actual training Defining error-free access	Listing the learners' expectations considering SEL Listing other educators' expectations considering SEL	Realising the importance of their role as synchronous electronic trainers Showcasing sensibility around inclusivity in the SEL environment

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Describing steps needed for monitoring progress Naming potential technical issues that might arise during training Listing connection software Listing the learners' expectations considering SEL Listing other educators' expectations considering SEL Listing best practice examples for users Acknowledging and listing 5 accessibility issues for synchronous online learning Defining learner support at all levels of e-learning Understanding and defining peer support at a SEL level	Listing best practice examples for users Acknowledging and listing 5 accessibility issues for synchronous online learning Preparing before delivering the electronic training. This includes the testing of the digital software used Resolving successfully interruptions that might be attributed to connectivity issues Solving without delay technical issues that the learners might be facing during online class Multitasking successfully in an electronic synchronous environment (e.g., presenting,	Facilitating and inspiring quality learning and creativity in the digital environment Showing sensitivity and empathy when communicating online Offering advice, suggestions and encouragement in order to motivate the learners Modeling digital citizenship and responsible, ethical training Accepting difficult learners as challenge for betterment as synchronous electronic trainer Showcasing the ability to resolve conflicts and misunderstandings in an amicable manner Appreciating the importance of evaluation in SEL as a tool for improvement as trainers

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Describing the legal obligations of a synchronous online trainer Describing the ethical obligations of a synchronous online trainer Listing characteristics of effective verbal communication during the implementation of synchronous online learning Referring to elements related to body language that needs to be considered when implementing synchronous online learning	moderating the chat, facilitating the whiteboard option etc.) Literacy in using connection software and their features (e.g., zoom) Incorporating accessibility concerns based on official guidelines when designing synchronous electronic learning programmes Managing heterogeneity of learners' groups and ensuring equal participation Designing and implementing SEL strategies that accommodate peer support during training (e.g., synchronous chat features) Organizing and facilitating students' participation and	

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Stage of the ADDIE Model	Knowledge	Skills	Competences
		providing guidance and support as needed Applying effectively principles of team management and encouragement in creating a strong educational online environment Incorporating the legal criteria for the synchronous online trainer in the delivery of programme Incorporating the ethical obligations recognized by the trainer in the SEL programme Using effectively verbal communication and body language within the digital environment (e.g., camera switched on and clear presentation of the face of the trainer)	

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Stage of the ADDIE Model	Knowledge	Skills	Competences
		Promoting group interaction, collaboration and teamwork via the use of digital tools (e.g., breakout rooms)	
Evaluation	Defining types of assessment in synchronous electronic environment Identifying and defining synchronous online keystones, tools and evaluation techniques Describing the Kirkpatrick Philips model considering the synchronous electronic environment Recognizing and defining evaluation data after their collection	Choosing and/or creating the appropriate tools for measurement satisfaction Choosing and/or creating the appropriate questions and scales of measurement most appropriate for an electronic environment of learning Delivering a quality analysis (both quantitative and qualitative) of the evaluation data for reaching right conclusions Evaluating their programmes using an amended to the	

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Stage of the ADDIE Model	Knowledge	Skills	Competences
		virtual environment version of the Kirckpatrick Philips model	

Table 4: Suggested Learning Outcomes: ADDIE model

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CONCLUSION

Synthesis of findings from all actions (Literature Review, Qualification Frameworks, Curriculum)

In spite of the considerable paucity of resources at a local level (Cyprus) pertinent to skills of a successful SEL trainer the synthesis of the literature review for the research studies, of the qualification frameworks of Cyprus and the UN and the curricula, provide us with some initial understandings that will help towards: *1) The creation of the guide for the focus groups that follow* (R1A2), and overall, for 2*) the creation of the Qualification Framework (R1/IO1)*. That will be achieved through the themes arisen from this desk research and which have already created a draft outline of work areas and units for the QF. These themes can be recognized as follows:

- **ADDIE model stages**

The ADDIE model and its five stages can be used as a foundation for the focus groups guide and the QF. A skeleton of the QF with the work areas based on that has already been envisioned.

- **The digital classroom – Engaging students in electronic learning**

It is a concept that allows for the creation of an environment which allows for the live interaction of learners with other learners but with their trainers as well. There is a strong collaboration at a distance.

- **Technological competence of the trainer**

Trainers must know how to use learning management systems and online learning software and tools, as well as how to develop effective training materials with audio-video editing and advanced content authoring tools and software. The trainer needs to have the ability to design and implement online content through ***online techniques use*** (e.g., online presentations, group work etc.).

- **Ethical online environment – Digital Citizenship**

A good trainer needs to consider the ethical ramifications of their work in a synchronous online mode. Trainers have a duty of care to make sure that the wellbeing of learners is safeguarded during an online program. At the same time the trainers need to have the ability to engage positively and critically in the digital environment with other learners and the trainer.

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- **Social and other skills of the trainer -Effective communication in an electronic environment**

This considers the social and other skills for the trainer in an online environment. For example, using verbal, non-verbal communication and body language. It also considers issues related to creativity, collaboration and interaction between learners and within group contexts.

- **Online evaluation**

A quality SEL trainer will be able to employ effectiveness measuring and evaluation tools through a digital mode.

In conclusion, these studies will assist towards the successful completion of a number of activities (i.e., A2: Development of a focus group guide, A5: Composition of the qualification framework) the SEL trainer needs to be able to facilitate a strong individual instructor-and-learner interaction. In addition, a successful SEL trainer should be able to select the appropriate content, methods, techniques and software for a user-centred experience for the learner (Wannapiroon et al., 2022; Woodcock et al., 2015).

We need to consider that this is the work from one partner, *MMC in Cyprus*. The importance of the collaborative nature of this work needs to be highlighted as the collation of the work done from all the partners will enhance the quality of this work.

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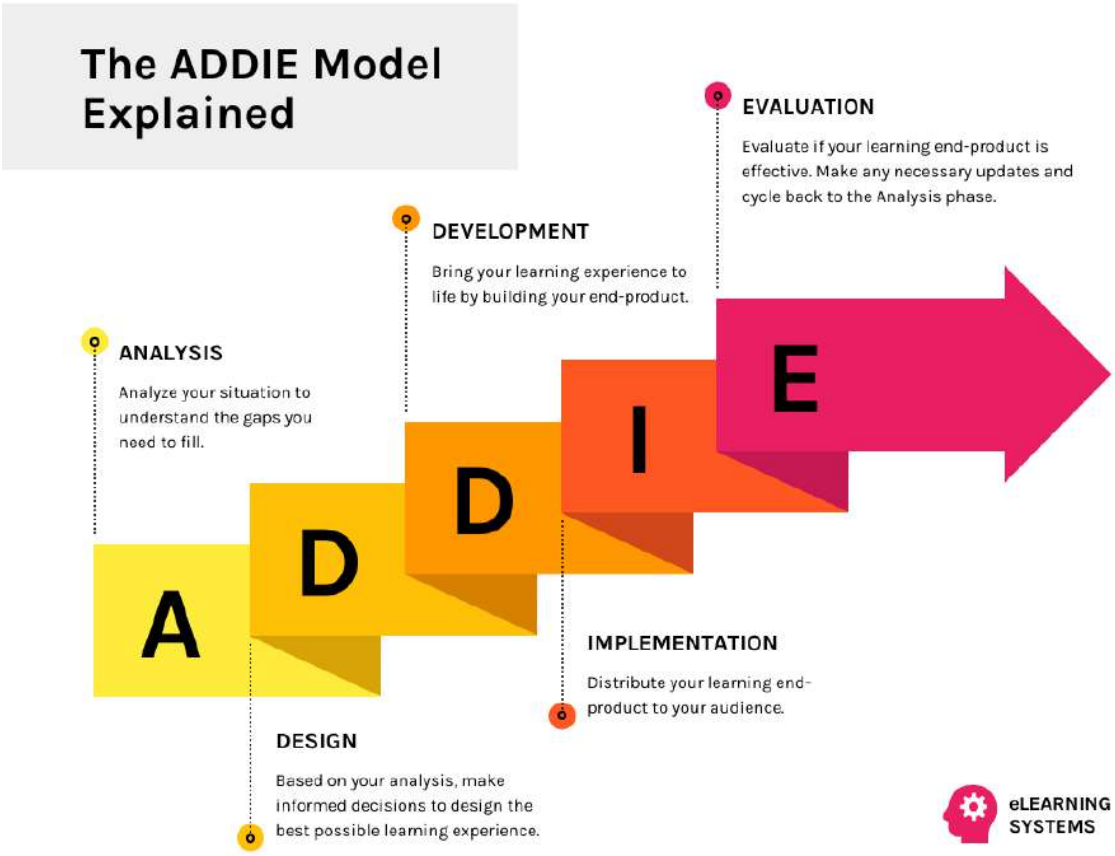
APPENDIX 1: ADDIE MODEL

ADDIE is an instructional systems design (ISD) framework that many instructional designers and training developers use to develop courses. The name is an acronym for the five phases it defines for building training and performance support tools:

- Analysis
- Design
- Development
- Implementation
- Evaluation



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Analysis phase

The analysis phase clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills. Questions the analysis phase addresses include:

- Who are the learners and what are their characteristics?
- What is the desired new behavior?
- What types of learning constraints exist?
- What are the delivery options?
- What are the pedagogical considerations?
- What adult learning theory considerations apply?
- What is the timeline for project completion?

The process of asking these questions is often part of a needs analysis. During the needs analysis instructional designers (IDs) will determine constraints and resources in order to fine tune their plan of action.

Design phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning, and media selection. The design phase should be systematic and specific. *Systematic* means a logical, orderly method that identifies, develops, and evaluates a set of planned strategies for attaining project goals. *Specific* means the team must execute each element of the instructional design plan with attention to detail. The design phase may involve writing a *design document/design proposal* or *concept and structure note* to aid final development.

Development phase

In the development phase, instructional designers and developers create and assemble content assets described in the design phase. If e-learning is involved, programmers develop or integrate technologies. Designers create storyboards. Testers debug materials and procedures. The team reviews and revises the project according to feedback. After completing the development of the course material, the designers should conduct an imperative pilot test; this can be carried out by involving key stakeholders and rehearsing the course material.

Implementation phase

The implementation phase develops procedures for training facilitators and learners. Training facilitators cover the course curriculum, learning outcomes, method of delivery, and testing procedures. Preparation for learners includes training them on new tools (software or hardware) and student registration. Implementation includes evaluation of the design.

Evaluation phase

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The evaluation phase consists of two aspects: formative and summative. Formative evaluation is present in each stage of the ADDIE process, while summative evaluation is conducted on finished instructional programs or products.

Source

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SKILLS DEVELOPMENT AND CERTIFICATION FOR TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

SELCERT

Skills Development and Certification for Trainers of Synchronous Electronic Learning

RESULT [1]: QUALIFICATION FRAMEWORK FOR THE TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

ACTIVITY ID AND TITLE: R1A1 DESK RESEARCH

PARTNER RESPONSIBLE FOR THIS ACTIVITY

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SELCERT
Skills Development and Certification for Trainers of Synchronous Electronic Learning

Folkuniversitetet

MMC Mediterranean Management Centre

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MMC Mediterranean Management Centre

OMEGA TECHNOLOGY

Asnor
Associazione Nazionale Orientatori

Folkuniversitetet

DIMITRA
educational organization

CYPRUS CERTIFICATION COMPANY

Program:	Erasmus+
Key Action:	Cooperation for innovation and the exchange of good practices
Project Title:	Skills Development and Certification for Trainers of Synchronous Electronic Learning
Project Acronym:	SELCERT
Project Agreement Number:	2021-2-PL01-KA220-VET-000051360
Project Start Date:	01/03/2021
Project End Date:	31/05/2024

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Desk Research Template

Partner: Folkuniversitetet

Country: Sweden

PART A: SIMILAR QUALIFICATION FRAMEWORKS IDENTIFIED OR LEARNING OUTCOMES FROM CURRICULA DEALING WITH SYNCHRONOUS ELECTRONIC LEARNING OR FINDINGS FROM ANY RELATED LITERATURE

1. LITERATURE REVIEW

A. Search Protocol

The following search tools have been used

- *Educational Search engines: Google Scholar, Scopus*
- *Normal Search engines: Google*

A thorough search in the aforementioned search engines was undertaken.

The key terms used were synchronous online learning, online teaching, qualification frameworks for synchronous electronic learning,

B. Findings

The research conducted in Sweden didn't produce much in the relation to Qualification Frameworks. However, in Sweden many researches were done in order to explore different aspects of online learning and ways of improving this aspect of education. COVID19 disease caused a rapid transition into online learning. Both students and teachers had to look for new solutions how to make virtual classroom as effective as the normal ones.

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The most challenging part was for the teacher to find what are the best alternatives to replace the most important factors for learning process and to make sure that students make progress, the grading system is fair and the evaluation process provides positive results. Information and Communication Technologies (ICT) is a necessary and valuable tool which can help to achieve the main goals of online education. On a national policy level the System of Qualification from National Agency for Higher Education (HSV) mentions ICT in initial teacher education in only one sentence: "To obtain a teacher's degree, the student teacher has to show the ability to use information technology in teaching and the pedagogical development and realize the role of mass media in this respect". (HSV, 2007. Examensordningen). The researches provided in the table below contain summaries from researches in Sweden, which can contribute to the developing of Qualification Framework for the trainers of synchronous online learning.

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
1	Google	Qualification framework for e-learning trainer sweden	Simon Skog. (May 2022). A Theoretical Framework for Synchronous Remote Teaching?: Reshaping the Pedagogical Triangle. Journal of Digital Social Research. VOL. 4, NO. 2, 2022, 86–97	This research explores synchronous remote teaching as a pedagogical practice and elaborates upon a framework with which to understand the practice theoretically. Sweden has experience of conducting lessons in the following way: students are in the classroom while the teacher is holding the lesson remotely. The pedagogical triangle was used as a fundamental principal to organize remote studying environment. To achieve the best performance in the classroom the Facilitator position was added to the structure. The main goal of such decision was to ensure the effectiveness of technology. The triangle has been reshaped into a pyramid, and three additional relationships emerge: teacher–facilitator, facilitator–content, and facilitator–student. Such way of communications provides more comprehensive idea of the relationship in remote teaching. (Pettersson &From, 2018; Öjefors Stark & From, 2020)

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2	Google	Qualification framework for teachers of synchronous electronic learning sweden	Hrastinski, S., Keller, C., & Carlsson, S. A. (2010). Design exemplars for synchronous e-learning: A design theory approach. Computers & Education, 55(2), 652-662.	The main goal of this research was to identify the criteria and develop designs that are the most appropriate for SEL. The previous theoretical works were analyzed and series of empirical studies were done in order to finalize the following 4 areas for intervention with SEL: 1) Use synchronous e-learning to support strong group-wide relations. 2)Use synchronous e-learning to support weak class-wide relations. 3) Use synchronous e-learning for task support. 4) Use synchronous e-learning for social support. Key conclusions from the research are: 1) it is more effective to have small group for SEL sessions than big ones. However, large groups also can be useful but combining it with the future division to smaller groups. 2) According to the number of participants should be developed and prepared the structure of the lesson; 3) Videoconferencing is important part of the SEL and is a key to success in remote learning; 4) meetings have to be scheduled in advance on a weekly basis; 5) environment during sessions should enhance socializing.

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3	Google	Qualification framework for online e-learning sweden	Gerd Pettersson, Gunilla Nässtrom. (2020). Educator's digital competence in Swedish rural schools. European Journal of Open, Distance and e-Learning Vol. 23 / No. 2. Umeå University, Sweden	This research covers in total 20 teachers and 4 schools in remote areas of north of Sweden, and aimed to find out the digital competency level of teachers in remote areas. The research took into consideration two main criteria: age and qualification of teachers. One of the most valuable results are that teacher's confidence in usage of ITC is highly important in remote teaching. It is indicated to be more individual achievement and teachers do not know about their colleague competencies. The more confident the teacher is, the more often they use technologies. More confident they are – more they use ITC. This study shows that the teachers' self-estimated digital competence differs between the age groups and teaching qualifications. Hsu and Chen (2018) found that younger teachers seem to have more technological knowledge and Meyer and Xu (2009) that older teachers find it more difficult to keep up with new technologies. The following statistic was identified: 1) the most confident are the ones between 50 and 59 years old (and they use ICT more comparing to other groups); 2) teachers between 30-39 use ICT every day as well as the previous age group of teacher however they do not feel confident

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				in their digital competency comparing to their colleagues.

Table 1: Findings from Literature

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2. RELEVANT QUALIFICATION FRAMEWORK IDENTIFIED

Please describe the qualification framework as indicated below[1]:

There are no Qualification Frameworks produced dedicated only to synchronous electronic learning. However, it can be useful for future developing to analyze existing frameworks in educational sector. In the table below, you can find Swedish Qualification Framework (SeQF). It has eight levels corresponding to the qualification levels of the European Qualifications Framework for Lifelong Learning (EQF). SeQF qualification levels 1-5 cover knowledge, skills and competencies acquired within compulsory school and upper secondary school, while SeQF qualification levels 6-8 cover knowledge, skills and competencies acquired within higher education

[1] ***Country /Responsible Authority: is the relevant country or the appropriate national or transnational authority***

The scope of the qualification framework: is whether it is (1) Synchronous, (2) Asynchronous and synchronous, (3) Generic on training (4) Electronic and face-to-face, (5) Other

The main learning outcomes (Knowledge, Skills, and Competences) as extracted from the qualification framrwork

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
1	Sweden / The Swedish National Agency for Higher Vocational Education	The Swedish National Qualifications Framework (SeQF)	1		**1st Level:** Can demonstrate: basic general knowledge within a field of work or study, understanding the essentials of simple instructions and descriptions in a field of work or study.	**1st Level:** Can: perform routine tasks in a field of work or study, follow simple instructions and descriptions in a field of work or study.	**1st Level:** Can: under leadership perform simple tasks and cooperate with others.
			2		**2nd Level:** Can demonstrate: broadened knowledge in field of work or study, knows how to collect,	**2nd Level:** Can: apply specified rules, methods and tools for performing allocated tasks, follow instructions and descriptions in a field of work or study,	**2nd level:** Can: perform work or studies with some autonomy and take responsibility for simple tasks,

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
			3		scompile and present facts. **3rd Level:** Can demonstrate: the knowledge required to accomplish tasks within a field of work or study, knowledge of different working methods for collecting, systematising and	search for and process facts in several fields of work or study. **3rd Level:** Can: select and use information using specified methods, tools and materials, perform tasks autonomously and in a group within given timeframes, autonomously search for and process information, communicate	cooperate under supervision and participate in producing shared results, evaluate how their own tasks were performed. **3rd Level:** Can: take responsibility for their learning and that allocated tasks are completed, assess their own and common results, assess information from different sources.

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
			4		presenting information. **4th Level:** Can demonstrate: depth of knowledge within a field of work or study, knowledge of models and methods in a field of work or study.	experience and knowledge in their own language. **4th Level:** Can: select and use relevant concepts, theories, models, materials, tools and methods in a field of work or study, follow instructions and perform defined practical and theoretical tasks within given timeframes, communicate in at least one foreign language within the current field of work or study.	**4th Level:** Can: take initiative, reflect on, organise and conduct work and studies in an autonomous manner, autonomously process the content of a field of work or study that may lead to further learning and professional development, critically review and independently assess a choice of

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
			5		**5th Level:** Can demonstrate: specialised knowledge in field of work or study, knowledge and an	**5th Level:** Can: plan, conduct and identify resources for conducting specialised tasks, solve abstract problems in a field of work or study,	sources, assess and draw conclusions from their own and shared results, take responsibility when cooperating with others and, to a limited extent, lead and assess the work of others. **5th Level:** Can: independently treat the content of a field of work or study that leads to further learning and professional development, supervise work or

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
			6		overview of fields surrounding their own field of work or study, knowledge of work processes and quality criteria within a field of work or study. **6th Level:** Can demonstrate: advanced knowledge in a field of work or study's main area, insight into the field's established methods for knowledge development, in-depth knowledge	communicate commitments and solutions in a field of work or study in at least one foreign language **6th Level:** Can: identify, formulate, analyse and solve problems and perform complex tasks, communicate commitments and solutions in the field of work or study in national and international contexts.	study activities and complete existing projects. **6th Level:** Can: assess information and methods in the field of work or study with consideration for the relevant social, ethical and scholarly aspects, apply specialised knowledge for development in a field of work or study, take responsibility for

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
			7		in part of the field and can navigate current research and development issues in the field. **7th Level:** Can demonstrate: very advanced knowledge of a field of work or study, in-depth knowledge of research and development methods in the field, deep insight into current	**7th Level:** Can: participate in research and development work, identify and formulate problem statements, analyse, assess and solve sophisticated and complex tasks, communicate the knowledge base and conclusions associated with the research or	leading the development of individuals and groups in this work. **7th Level:** Can: assess a field of work or study's information, facts and methods with regards to relevant aspects, identify the need for further knowledge, assess the opportunities and limitations of a field, take responsibility for leading their own field of work or study, take

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
			8		research and development issues in the field. **8th Level:** Can demonstrate: the most sophisticated and systematic knowledge in a field of work, study or research, up to date specialist knowledge within a well-defined	field in national and international contexts. **8th Level:** Can: analyse, synthesise and critically review and assess complex phenomena, conceptions and situations, plan and conduct development or research work and other high-level tasks, communicate the	responsibility for the results of their own research or development work. **8th Level:** Can: evaluate the field of work or study's research or development work, create and select your own research /innovation / development tasks, assess the opportunities and limitations of high-quality development work or science, take responsibility for how the results of

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
					subfield and overview of surrounding fields, mastery of methods for knowledge development in general and methods in the specific field of work, study or research in particular.	results of development and research in national and international contexts.	development or research are used, take responsibility for or lead professional and organisational development.

Table 2: Relevant Qualification Framework

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3. CURRICULA OF TRAININGS DEVELOPED FOR SYNCHRONOUS ELECTRONIC LEARNING CURRICULA

No curricula of trainings for synchronous learning were found. There are available trainings for improving teacher's skills in online learning however they are not accessible for free and need to be purchased for receiving enough and comprehensive information for using it as an example for our future work.

ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)

Table 3: Relevant Curricula of training

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PART B: SUGGESTED LEARNING OUTCOMES FOR THE QUALIFICATION FRAMEWORK PROPOSED

Please list below learning outcomes identified and relate them to the different phases of the ADDIE MODEL (Addie presented in appendix 1).

Stage of the ADDIE Model	Knowledge	Skills	Competences
Analysis	learning outcomes teacher aims to achieve evidences that the learning outcomes are achieved ways to identify students' needs understanding of facilitator's role in SEL peculiarities of restrictions that students may have	ability to use ADDIE model getting information in different ways about students' background identify the current level of student's knowledge and needs delegate organizational tasks to facilitator ability to counteract personal and students' restrictions	Assessment for identifying the current condition and gaps. Finding opportunities and ways for improvement.
Design	Choose channels of communication Schedule regular meetings	Creating learning curricula by choosing the most relevant information	Plan development

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Making plan or structure of the lessons according to the group specifics Feedback coordination Grading system	Structure and categorize information	
Development	Methods of teaching Technical knowledge of platforms and programs Knowledge of best ways of delivering information	Ability to create learning content Technical Skills of platform usage Predicting accidents which can occur in the course of the lessons Risk management	Adapting existing tools to specific cases in teachers' every day work
Implementation	How to create friendly environment on the lessons Effective communications methods	Teacher's confidence in using the platform Encourage confidence of students	Teacher-student communication expertise

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Best ways to provide students with support		
Evaluation	How to organize the gathered information Finding mistakes	Flexibility – capable to change according to the feedback Criticize the work	Creating questioners for students to get the feedback Looking for improvement strategies

Table 4: Suggested Learning Outcomes: ADDIE model

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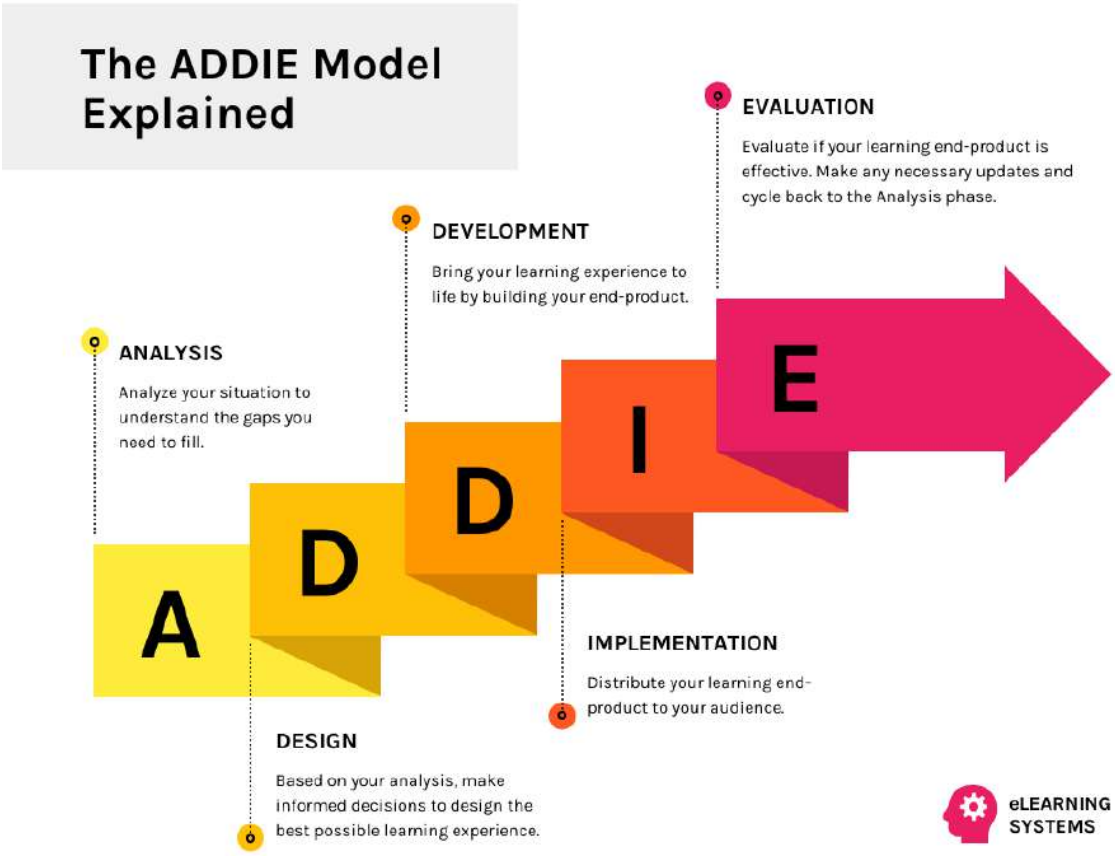
APPENDIX 1: ADDIE MODEL

ADDIE is an instructional systems design (ISD) framework that many instructional designers and training developers use to develop courses. The name is an acronym for the five phases it defines for building training and performance support tools:

- Analysis
- Design
- Development
- Implementation
- Evaluation



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Analysis phase

The analysis phase clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills. Questions the analysis phase addresses include:

- Who are the learners and what are their characteristics?
- What is the desired new behavior?
- What types of learning constraints exist?
- What are the delivery options?
- What are the pedagogical considerations?
- What adult learning theory considerations apply?
- What is the timeline for project completion?

The process of asking these questions is often part of a needs analysis. During the needs analysis instructional designers (IDs) will determine constraints and resources in order to fine tune their plan of action.

Design phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning, and media selection. The design phase should be systematic and specific. *Systematic* means a logical, orderly method that identifies, develops, and evaluates a set of planned strategies for attaining project goals. *Specific* means the team must execute each element of the instructional design plan with attention to detail. The design phase may involve writing a *design document/design proposal* or *concept and structure note* to aid final development.

Development phase

In the development phase, instructional designers and developers create and assemble content assets described in the design phase. If e-learning is involved, programmers develop or integrate technologies. Designers create storyboards. Testers debug materials and procedures. The team reviews and revises the project according to feedback. After completing the development of the course material, the designers should conduct an imperative pilot test; this can be carried out by involving key stakeholders and rehearsing the course material.

Implementation phase

The implementation phase develops procedures for training facilitators and learners. Training facilitators cover the course curriculum, learning outcomes, method of delivery, and testing procedures. Preparation for learners includes training them on new tools (software or hardware) and student registration. Implementation includes evaluation of the design.

Evaluation phase

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The evaluation phase consists of two aspects: formative and summative. Formative evaluation is present in each stage of the ADDIE process, while summative evaluation is conducted on finished instructional programs or products.

Source

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CHECKLIST

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SKILLS DEVELOPMENT AND CERTIFICATION FOR TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

Skills Development and Certification for Trainers of Synchronous Electronic Learning

RESULT [1]: QUALIFICATION FRAMEWORK FOR THE TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

ACTIVITY ID AND TITLE: R1A1 DESK RESEARCH

PARTNER RESPONSIBLE FOR THIS ACTIVITY

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SELCERT
Skills Development and Certification for Trainers of Synchronous Electronic Learning

MMC Mediterranean Management Centre

Coordinated by

Euro-idea

Partners

MMC Mediterranean Management Centre

OMEGA TECHNOLOGY

Asnor
Associazione Nazionale Orientatori

Folkuniversitetet

DIMITRA
educational organization

CYPRUS CERTIFICATION COMPANY

Program:	Erasmus+
Key Action:	Cooperation for innovation and the exchange of good practices
Project Title:	Skills Development and Certification for Trainers of Synchronous Electronic Learning
Project Acronym:	SELCERT
Project Agreement Number:	2021-2-PL01-KA220-VET-000051360
Project Start Date:	01/03/2021
Project End Date:	31/05/2024

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LIST OF TABLES

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Desk Research Template

Partner: DIMITRA
Country: Greece

PART A: SIMILAR QUALIFICATION FRAMEWORKS IDENTIFIED OR LEARNING OUTCOMES FROM CURRICULA DEALING WITH SYNCHRONOUS ELECTRONIC LEARNING OR FINDINGS FROM ANY RELATED LITERATURE

1. LITERATURE REVIEW

A. Search Protocol

The tools used are the following:

- *Educational Search engines: Google Scholar*
- *Normal Search engines: Google*

A thorough search in the aforementioned search engines was undertaken.
The key terms used were online synchronous learning, online teaching, qualification frameworks for synchronous electronic learning, Asynchronous learning in Greece, digital qualifications for trainers, qualifications framework for online training.

B. Findings (see Table 1 for the extracted data)

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
1	Google Scholar	Synchronous electronic learning, qualification framework, online learning, e-learning	Punie, Y., Redecker, C., European Framework for the Digital Competence of Educators: DigCompEdu, EUR 28775 EN, Publications Office of the European Union, Luxembourg, 2017, doi:10.2760/178382	This study presents a framework for the development of educators' digital competence in Europe. It aims to help Member States in their efforts to promote the digital competence of their citizens and boost innovation in education. The framework is intended to support national, regional and local efforts in fostering educators' digital competence, by offering a common frame of reference, with a common language and logic
2	Google Scholar	Competences, european qualifications framework, quality provision, training of trainers	Theodosopoulou, M., Siassiakos, K., & Theodosopoulou, V. (2009). Greek adult education moving forward in the knowledge society. Problems of Education in the 21st Century, 15, 163.	Adult Education is a major contributing force to Lifelong Learning, as inclusive and fl exible continuing education can help people adapt to the everchanging needs of labour markets and close the knowledge gap. Adult education can play a positive role to economic growth and social cohesion, by helping people become lifelong learners. In order to achieve this, adult education has to reach low skilled adults with literacy issues, upgrade competences of all adult population and offer a transparent system of recognition of competences and provide better educational programmes by ensuring the effi ciency of trainers. These three challenges are

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
				examined both in the european as well as in the greek context.
3	Google Scholar	Continuing Education; Digital Skills; Digital Readiness; Digital Teaching; Teacher Digital Skills; Teacher Professional Development	Perifanou, M., Economides, A. A., & Tzafilkou, K. (2021). Teachers' Digital Skills Readiness During COVID-19 Pandemic. *International Journal of Emerging Technologies in Learning (iJET)*, *16*(08), pp. 238–251. https://doi.org/10.3991/ijet.v16i08.21011	The COVID-19 crisis revealed the necessity for teachers to have digital skills in order to effectively teach online. Teachers should be able to exploit, use, and apply digital technologies in all educational activities. This paper investigates teachers' perceptions regarding their digital skills for performing their teaching and professional responsibilities during the pandemic. More than eight hundred teachers participated in a survey regarding the use of digital technologies in their teaching and their professional responsibilities. Indicative digital tools that can be used by digital competent teachers are also presented to cover all areas of the teachers' professional activities. Their answers revealed that they mostly used digital tools for finding, evaluating, and developing educational resources as well for teaching. They also used digital tools for self-study, students' assessment, as well as interacting and communicating with students. However, they hardly used digital tools for other teaching activities such as feedback and final evaluation of the students, or revising the educational

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				resources. Finally, they could not deal with long-term planning, management, and development of either their school or education in general. Although it is important for teachers to effectively respond to their daily emergent teaching responsibilities, consideration should also be given to the long-term planning and development of the digital school and digital education in general.
4	Google Scholar	Digital skills, Fourth Industrial Revolution, Industry 4.0, Internet, Education,	Tsekeris, C. (2019). Surviving and thriving in the Fourth Industrial Revolution: Digital skills for education and society. *Homo Virtualis*.	This concise article maintains that, in times of structural and persistent crisis, Europe needs to effectively tackle the multiple challenges and existential fears by cultivating a strong and dynamical digital skills ecosystem, based on collective values and the fundamental liberal principles of co-creation, co-evolution, and collective intelligence, over against the obsolete principles of optimisation and top-down administration and control. This will arguably result in upgrading humanism (humanism 2.0) and democracy (democracy 2.0), and in boosting responsible innovation and, therefore, adaptiveness, as well as in translating technological progress into inclusive and sustainable economic growth, and risks into creative opportunities for all citizens.

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
5	Google Scholar		Innovating pedagogy 2022 : exploring new forms of teaching, learning and assessment, to guide educators and policy makers. Institute of Educational Technology, The Open University Walton Hall, Milton Keynes, MK7 6AA, United Kingdom Universitat Oberta de Catalunya, Rambla del Poblenou, 156, 08018 Barcelona, Spain	This series of reports explores new forms of teaching, learning and assessment for an interactive world, to guide teachers and policy makers in productive innovation. This tenth report proposes another set of innovations that are already in currency but have not yet had a profound influence on education. To produce the report, a group of academics at the Institute of Educational Technology in The Open University, UK, collaborated with researchers from the Open University of Catalonia, Spain. A long list of pedagogical innovations was proposed and then pared down to ten that have the potential to provoke major shifts in educational practice. Finally, ten sketches of innovative pedagogies were compiled, based on a review of published studies and other sources.
6	Google Scholar	Competence skills policy social investment, learning outcomes	Telling, K., & Serapioni, M. (2019). The rise and change of the competence strategy: Reflections on twenty-five years of skills policies in the EU. European Educational Research Journal, 18(4), 387–406. https://doi.org/10.1177/1474904119840558	The principal aim of this article is to provide a historical overview of 25 years of competence policy in the European Union, highlighting connections between past and current initiatives and outlining possible scenarios for the decade to come. The article presents the social investment turn in social policy as the critical political background against which the emergence of a competence strategy in

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
				European Union education policy should be analysed and understood. The competence strategy, it is argued, finds its roots in a renewed attention at the European Union level for harmonising educational outputs and labour market demands. While trying to produce a schematic history of the emergence and change of the competence strategy, the article does not seek to offer strict definitions of competence itself; instead, it conveys the nebulous and context-dependent nature of the concept.
7	Google Scholar	Competences, european qualifications framework, quality provision	Nascimbeni, F., Villar-Onrubia, D., Wimpenny, K., & Burgos, D. (2018, June). A new approach to digital competence building for university educators in Europe. In *EDEN Conference Proceedings* (No. 1, pp. 242-248).	Learning how to teach in an environment where digital ICTs are increasingly ubiquitous implies a fundamental change in routine teaching practices and learning experiences. Issues such as online identity building, trust dynamics and knowledge management come to the foreground with potential for enabling meaningful participation and increasing access of excluded learners (OpenMatt, 2016). Further, while too often presented as technology - driven responses, visions of the role and responsibilities of educators are shaped by and embody particular views on how institutions (and society at large) should operate

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
8	Google Scholar	Qualifications Framework, VET teacher competence framework	Chakroun, B. (2019). National Qualifications Framework and TVET teacher competence frameworks: A neglected dimension of qualifications reforms?. *European Journal of Education*, *54*(3), 370-388.	This article examines the interplay between qualification systems reforms and technical and vocational education and training (TVET) teachers' competences and qualifications in the context of the future of work and learning, and the United Nations Sustainable Development Agenda. The article reviews international standards and trends and examines a range of country case studies. The concluding section focuses on future scenarios for TVET Teachers Competence frameworks.
9	Google Scholar	Digital skills Digital competencies Assessment DigComp framework	Jashari, X., Fetaji, B., Nussbaumer, A., Gütl, C. (2021). Assessing Digital Skills and Competencies for Different Groups and Devising a Conceptual Model to Support Teaching and Training. In: Auer, M., May, D. (eds) Cross Reality and Data Science in Engineering. REV 2020. Advances in Intelligent Systems and Computing, vol 1231. Springer, Cham.	The assessment of digital skills and competencies required to make use of digital resources poses several challenges. In order to evaluate the current situation and trends, this research study initially presents a review of history, existing trends and digital competence frameworks, learning and teaching methodologies for digital literacy and provides insights and recommendations. The review of existing framework and methods used to assess digital skills of different groups has revealed that self-assessment is an assessment category that most often results in an overestimation of own digital skills by respondents. To address such

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified - Abstract
				deficiencies, a digital competency model (DigComp) was created in 2013, as part of the EU Education and Training Agenda 2020. This model describes which skills and competencies are needed to use digital technologies in a confident, critical, collaborative and creative way and to accomplish the goals related to work, learning, and leisure in a digital society. Starting from the existing framework, this research study devises a conceptual model to support teaching and training. Each user group requires a different approach in order to accurately evaluate their digital competences; therefore, the use of a flexible and integrated approach is necessary. The model proposed in this study describes which skills should be learned, how they should be taught, and how they can be assessed.

Table 1: Findings from Literature

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2. RELEVANT QUALIFICATION FRAMEWORK IDENTIFIED

There are no Qualification Frameworks produced dedicated only to synchronous electronic learning. However, it can be useful for future developing to analyze existing frameworks in educational sector.

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Please describe the qualification framework as indicated below[1]:

ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
1	NQF for lifelong learning, the Hellenic Qualifications Framework (HQF),		1		Has acquired basic general knowledge related to the working environment that may serve as input into lifelong learning paths	Can apply basic knowledge and perform a specific range of simple tasks; has basic and recurring social skills.	Can perform simple and repetitive tasks by applying basic knowledge and skills under direct supervision in a structured	
			2		Has acquired basic general knowledge related to a field of work or study that allow them to	Can apply basic knowledge and perform a variety of complex tasks in	Can perform tasks in a specific field of work or study under	

[1] ***Country /Responsible Authority: is the relevant country or the appropriate national or transnational authority***
The scope of the qualification framework: is whether it is (1) Synchronous, (2) Asynchronous and synchronous, (3) Generic on training (4) Electronic and face-to-face, (5) Other
The main learning outcomes (Knowledge, Skills, and Competences) as extracted from the qualification framework

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					understand the procedures for implementing basic tasks and instructions	a field of work or study; has communication skills.	limited supervision and/or with some autonomy in a structured context.	
			3		Has acquired basic general knowledge that allows them to understand the relationship of theoretical knowledge and information with a field of work or study; understands the components and procedures appropriate to complex tasks and instructions.	Can demonstrate broad cognitive and practical skill in successful execution of complex tasks both in intimate and non-intimate contexts; has communication skills and problem-solving capabilities through selecting and	Can perform tasks autonomously in a particular field of work or study; has the ability to adjust their behavior depending on the needs of problem solving; takes initiatives in specified fields of work	

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
						applying basic methodologies, tools, materials and information.	or study and acts under supervision in implementing emergency procedures of quality control.	
			4		Has acquired a wide range of theoretical knowledge and intelligence analysis allowing them to understand the field of work or study and apply data and processes in a general context.	Can use fluently the knowledge and ability to apply a range of techniques and specialized skills in a field of work or study; has communication skills at the level of theoretical and technical information and can find	May perform independently qualitative and quantitative tasks in a specific field of work or study that requires professional competence; has the ability to oversee the quality and	

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
						solutions to specific problems in a field of work or study.	quantity of work of other people with responsibility and autonomy; demonstrates an increased level of key competences that can serve as the basis for studying higher education.	
			5		Demonstrates comprehensive, specialized, factual and theoretical knowledge within a field of work or study and is aware	Holds a wide range of cognitive and practical skills required to find creative solutions to	Can manage and supervise, in the context of a specific task or learning process, in which	

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
					of the limits of knowledge.	abstract problems.	unforeseen changes can occur; can revise and develop both their personal performance and that of others.	
			6		Has advanced knowledge of a field of work or study, involving critical understanding of theories and principles.	Possesses advanced skills and has the ability to demonstrate the virtuosity and innovation required to solve complex and unpredictable problems in a specialized field of work or study.	Can manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; can assume	

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
							responsibility for managing the professional development of individuals and groups.	
			7		Has highly specialized knowledge, some of which is cutting-edge knowledge in a field of work or study and which is the basis for original thinking; has a critical awareness of knowledge issues in a field and at the interface of different fields.	Holds specialized problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields.	Can manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; can take responsibility for contributing to professional knowledge	

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
							and practices and/or for the performance evaluation of strategy groups.	
				8	Has knowledge at the most advanced levels of a field of work or study and at the interface with other fields.	Has acquired very advanced and specialized skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation for enlarging and redefining existing knowledge or	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study	

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)	Comments
						existing professional practice.	contexts including research.	

Table 2: Relevant Qualification Frameworks

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3. CURRICULA OF TRAININGS DEVELOPED FOR SYNCHRONOUS ELECTRONIC LEARNING

There were no synchronous learning training curricula to be discovered. There are courses available to help teachers become more proficient with online learning, but they are not available for free and must be purchased in order to receive sufficient and complete knowledge to use as a model for our future work.

ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)

Table 3: Relevant Curricula of training

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PART B: SUGGESTED LEARNING OUTCOMES FOR THE QUALIFICATION FRAMEWORK PROPOSED

Please list below learning outcomes identified and relate them to the different phases of the ADDIE MODEL (ADDIE presented in appendix 1).

Stage of the ADDIE Model	Knowledge	Skills	Competences
Analysis	Being aware of the technical potential of, and procedures used to create e-content, such as e-books and instructional videos conscious and active involvement in the entire cognitive process undertaking specific actions at each of the stages of cognitive processing: perception, learning and memory, retrieval, and thinking Understanding, developing, and putting into practice metacognitive strategies – e.g. self-questioning, reflection, active listening strategies, planning how to go about a task	applying instructional design principles, models, and theories	Understanding the learning and teaching affordances and limitations of current communication tools Complying with legal, ethical, and copyright issues and standards

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	Cognitive robustness – sound study habits internalized The content of the discipline – the origin, evolution, recent developments, and trends of the subject matter Learning styles, the learner-centred approach, collaborative learning, the repercussions of virtual learning environment on teaching and learning		
Design	Educational purposefulness – setting educationally worthwhile learning objectives Forging an identity and digital presence – making oneself known	Tailoring learning goals and objectives that correspond to learners' profile	Structuring and planning the course

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	to others through introductions (e.g. self-description, personal disclosure, and hints of one's personality), showing an ongoing presence	Formulating instructional strategies that comply with learning goals and objectives Formulating learning activities and workload for students which provide students opportunities for interaction Organizing course topics into modules Formulating assessment activities Developing a course outline that encompasses all course components Developing a repository of appropriate and varied learning resources that	

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Stage of the ADDIE Model	Knowledge	Skills	Competences
		attend to different learning styles Showing the links and interactions of the subject and content	
Development		Skills in using computer hardware and software Applying a well-considered set of engaging and effective communication tools to promote student - teacher, student - content, and student - student interaction	
Implementation	Imperviousness to uncertainty – able to thrive in ambiguous learning situations Learning responsibility – able to coordinate, regulate and take	Command of Learning Management Systems (LMS) Downloading course documents and study materials	The ability to modify and/or adapt to one's physical environment to learn more effectively

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Stage of the ADDIE Model	Knowledge	Skills	Competences
	control of one's own learning process	Viewing recorded presentations and videos Uploading assignments Sending and receiving emails with course-assigned accounts Interacting in online discussions – viewing teachers' and other students' posts and posting responses Participating in live video conferences	

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Stage of the ADDIE Model	Knowledge	Skills	Competences
		Making effective use of other online tools such as blogs, discussion boards, chatrooms, wikis, virtual reality Web literacy – included here are skills in finding out study materials from a variety of sources such as: Effectively using search engines by employing advanced search commands, Sorting out Web resources by applying selection criteria such as the authority of the source, purpose, adequacy of the	

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Stage of the ADDIE Model	Knowledge	Skills	Competences
		content, Understanding copyrights and plagiarism in a virtual setting	
Evaluation	Defining criteria to evaluate individual and group performance	Developing well-considered and well-designed assignments, quizzes, and tests to measure whether students have achieved course outcomes expected for the course Conducting research on classroom teaching then interpreting and integrating research findings and results with the relevant pedagogical processes Using students' feedback to fine-tune the selection of technical tools to present the pedagogical activities	Effectively aligning learning objectives with assessment strategies

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Table 4: Suggested Learning Outcomes: ADDIE model

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Examples

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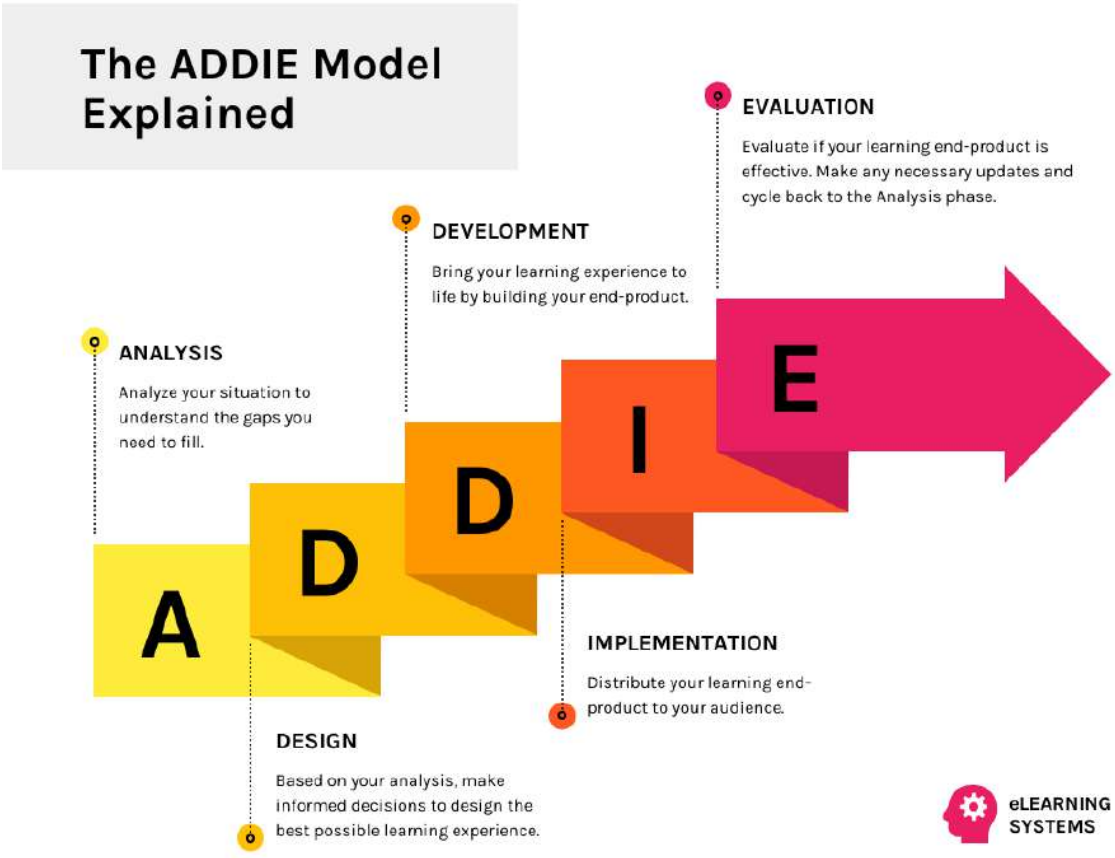
APPENDIX 1: ADDIE MODEL

ADDIE is an instructional systems design (ISD) framework that many instructional designers and training developers use to develop courses. The name is an acronym for the five phases it defines for building training and performance support tools:

- Analysis
- Design
- Development
- Implementation
- Evaluation



Analysis phase

The analysis phase clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills. Questions the analysis phase addresses include:

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- Who are the learners and what are their characteristics?
- What is the desired new behavior?
- What types of learning constraints exist?
- What are the delivery options?
- What are the pedagogical considerations?
- What adult learning theory considerations apply?
- What is the timeline for project completion?

The process of asking these questions is often part of a needs analysis. During the needs analysis instructional designers (IDs) will determine constraints and resources in order to fine tune their plan of action.

Design phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning, and media selection. The design phase should be systematic and specific. *Systematic* means a logical, orderly method that identifies, develops, and evaluates a set of planned strategies for attaining project goals. *Specific* means the team must execute each element of the instructional design plan with attention to detail. The design phase may involve writing a *design document/design proposal* or *concept and structure note* to aid final development.

Development phase

In the development phase, instructional designers and developers create and assemble content assets described in the design phase. If e-learning is involved, programmers develop or integrate technologies. Designers create storyboards. Testers debug materials and procedures. The team reviews and revises the project according to feedback. After completing the development of the course material, the designers should conduct an imperative pilot test; this can be carried out by involving key stakeholders and rehearsing the course material.

Implementation phase

The implementation phase develops procedures for training facilitators and learners. Training facilitators cover the course curriculum, learning outcomes, method of delivery, and testing procedures. Preparation for learners includes training them on new tools (software or hardware) and student registration. Implementation includes evaluation of the design.

Evaluation phase

The evaluation phase consists of two aspects: formative and summative. Formative evaluation is present in each stage of the ADDIE process, while summative evaluation is conducted on finished instructional programs or products.

Source

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☒ Captions have been used for all tables
☒ The Repeat Header Row function has been used for all tables
☒ The list of tables has been updated
☒ Captions have been used for all figures
☒ The list of figures has been updated
☒ The footer is complete

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SKILLS DEVELOPMENT AND CERTIFICATION FOR TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

RESULT [1]: QUALIFICATION FRAMEWORK FOR THE TRAINERS OF SYNCHRONOUS ELECTRONIC LEARNING

ACTIVITY ID AND TITLE: R1A1 DESK RESEARCH

PARTNER RESPONSIBLE FOR THIS ACTIVITY

Associazione Nazionale Orientatori Asnor - Italy

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SELCERT
Skills Development and Certification for Trainers of Synchronous Electronic Learning

Asnor
Associazione Nazionale Orientatori

Coordinated by

Euro-idea

Partners

MMC Mediterranean Management Centre

OMEGA TECHNOLOGY

Asnor
Associazione Nazionale Orientatori

Folkuniversitetet

DIMITRA educational organization

CYPRUS CERTIFICATION COMPANY

Program:	Erasmus+
Key Action:	Cooperation for innovation and the exchange of good practices
Project Title:	Skills Development and Certification for Trainers of Synchronous Electronic Learning
Project Acronym:	SELCERT
Project Agreement Number:	2021-2-PL01-KA220-VET-000051360
Project Start Date:	01/03/2021
Project End Date:	31/05/2024

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Desk Research Template

Partner: Asnor
Country: Italy

PART A: SIMILAR QUALIFICATION FRAMEWORKS IDENTIFIED OR LEARNING OUTCOMES FROM CURRICULA DEALING WITH SYNCHRONOUS ELECTRONIC LEARNING OR FINDINGS FROM ANY RELATED LITERATURE

1. LITERATURE REVIEW

A. Search Protocol

The following search tools have been used

- *Educational Search engines: Google Scholar, Researchgate*
- *Normal Search engines: Google*

A thorough search in the aforementioned search engines was undertaken.
The key terms used were “Synchronous Electronic learning qualifications”, “Synchronous e-learning qualifications”, “electronic learning qualifications” and “e-learning qualifications”.

B. Findings

A desk research of qualification frameworks on Synchronous Electronic Learning has not produced much. There is a guideline by the Italian Ministry of Education, University and Research on integrated digital education made available and further developed under the pressure of the intensive e-learning during the covid-19 crisis and its forced intensive use during and after the lockdown.
No qualification framework for online trainers has been found.

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
1	Google	Synchronous electronic learning qualification	Italian Ministry of Education, University and Research GUIDELINE on integrated digital education https://www.miur.gov.it/documents/20182/0/ALL.+A+_+Linee_Guida_DDI_.pdf/f0eeb0b4-bb7e-1d8e-4809-a359a8a7512f	This guideline is provided by the Italian Ministry of Education including a full regulation on integrated digital education to be used by the schools. It includes also a regulation on the tolls to be used, time management, settings about privacy, assessment, evaluation, special needs, roles of the parents, training for teachers, framework is provided by The Human Resource Development Authority of Cyprus (HRDA). This framework focuses on e-learning trainers with specific work areas that include needs analysis, design and development, implementation and evaluation. There are criteria and elements of both synchronous and asynchronous online learning modes for a trainer.

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
2	Google Scholar	Synchronous electronic learning qualification framework	Research paper on methodological criteria for online education and training by Pier Cesare Rivoltella – Università Cattolica di Milano https://d1wqtxts1xzle7.cloudfront.net/37425114/Criteri_metodologici_per_la_formazione_on_line-with-cover-page-v2.pdf?Expires=1657622775&Signature=JXI1Q5fdkUsDivez~WoFp3UxMARByqekQ7Uh0d7P~a1f1nE8OIsyIgaAVaGXuIfhstP7m81HIAQ9D~B2tCODpq51iBuarmcTo8k6GxQTicaI36UQvaq-106mOuY28OIozLTIaY4aucGE6fcW14MYHA1FZwPr604yHP590izaKjYeNjAc3kh0IU3kVke461v	This research paper is about the role of the educator/tutor in the electronic learning starting from the designing phase, formats, supporting materials and then focusing on the human resources. In the document the researcher is trying to define the different phases of e-learning: phases, tools, learning models, where to pay special attention

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
			YQXTpcTeIKfxbfF4pGxttDB7g~R~Fn~jpc1Ckg5SlQ4fBuVvkb3IRzbpLKYQWda6F0NOdcNMhqtrp1zdnEiP9RQeTlI-fsIplOccmTuje9H3wzPskfYBvRwy5vt3RKhK44y4b34WAedK9i5qnPDBkiw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA	
3	Google Scholar	Synchronous electronic learning qualification framework	Book: Diana Laurillard, Teaching as a Design Science, Building Pedagogical Patterns for Learning and Technology, 2012 Routledge https://www.routledge.com/Teaching-as-a-Design-Science-Building-Pedagogical-Patterns-for-	The most relevant book detected about Synchronous electronic learning is that one. Book description: Teaching is changing. It is no longer simply about passing on knowledge to the next generation. Teachers in the twenty-first century, in all educational sectors, have to cope with an ever-changing cultural and technological environment. Teaching is now a design science. Like other design professionals

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
			Learning/Laurillard/p/book/9780415803878	– architects, engineers, programmers – teachers have to work out creative and evidence-based ways of improving what they do. Yet teaching is not treated as a design profession. Every day, teachers design and test new ways of teaching, using learning technology to help their students. Sadly, their discoveries often remain local. By representing and communicating their best ideas as structured pedagogical patterns, teachers could develop this vital professional knowledge collectively. Teacher professional development has not embedded in the teacher's everyday role the idea that they could discover something worth communicating to

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ID	Selected search engine or database	Selected search term(s)/ Keyword	Reference	Very short summary of what has been identified
				other teachers, or build on each others' ideas. Could the culture change? From this unique perspective on the nature of teaching, Diana Laurillard argues that a twenty-first century education system needs teachers who work collaboratively to design effective and innovative teaching.

Table 1: Findings from Literature

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2. RELEVANT QUALIFICATION FRAMEWORK IDENTIFIED

A desk research of qualification frameworks on Synchronous Electronic Learning has not produced much.
No general qualification framework has been found.
Some schools have applied the guideline by the Italian Ministry of Education, University and Research on integrated digital education with slight change about the tools to be used and some specific details about their organisation.
The only available framework found is about the e-learning on job security. A regulation made by the Italian State and the regional governments on July 2016 focused on electronic learning to cover the mandatory learning for workers about job security.
The system made available by the educational providers should be managed under a continuous monitoring process Learning Management System (LMS). The course and its modules have to be realised under international standards named Shareable Content Object Reference Model (SCORM) or similar. The curricula of the trainers with skills and competencies are clearly defined including responsible/mangers, mentor/tutors, process tutor, platform developer.

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Please describe the qualification framework as indicated below[1]:

ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
1	Italian Agreement between State and regional governments	Framework for trainer in Job security on workplaces for workers		Synchronous e-learning on job security (also continuous updates)	Job security and prevention on the workplace for workers. It includes health and safety on the the workplace and it is designed on the real job tasks and in accordance with its risk analysis.	Learn how to work and operate in a safe and health workplace	The framework includes basic courses and updates for 7 professional categories as stated by the Italian Law D.Lgs 81/2008 e.g. security manager, worker, security coordinator, manager for security and safety.

[1] ***Country /Responsible Authority: is the relevant country or the appropriate national or transnational authority***
The scope of the qualification framework: is whether it is (1) Synchronous, (2) Asynchronous and synchronous, (3) Generic on training (4) Electronic and face-to-face, (5) Other
The main learning outcomes (Knowledge, Skills, and Competences) as extracted from the qualification framrwork

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ID	Country/Responsible Authority	Qualification Framework	EQF Level (if applicable)	Scope of Qualification Framework	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
							The competences are different per each category

Table 2: Relevant Qualification Frameworks

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3. CURRICULA OF TRAININGS DEVELOPED FOR SYNCHRONOUS ELECTRONIC LEARNING CURRICULA

No general curricula of trainings has been found.
Curricula of trainers in Job security on workplaces for worker in line with Italian Agreement between State and regional governments are described in the following table:

ID	Title of training programme	Training Provider	Duration (Hours)	Main learning Outcomes (Knowledge)	Main learning Outcomes (Skills)	Main learning Outcomes (Competences)
1	Training in Job security on workplaces for worker	In line with Italian Agreement between State and regional governments		The main learning outcome is about Job security on workplaces for worker for different professional profiles	Minimum skills for 4 different professional profiles in security and health in workplaces	Description of the competences for 4 different professional profiles in security and health in workplaces

Table 3: Relevant Curricula of training

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Tabella 2		Gestione didattica e tecnica
Figura	**Requisiti**	**Profili di competenza**
Responsabile/coordinatore scientifico	- Esperienza almeno triennale in materia di SSL - Formatore/docente ai sensi del d.interm. 6/03/2013	Cura l'articolazione del corso e la strutturazione dei contenuti garantendo la coerenza e l'efficacia del percorso formativo.
Mentor/tutor di contenuto	- Formatore/docente ai sensi del d.interm. 6/03/2013	Assicura e presidia il supporto scientifico di assistenza ai discenti per l'apprendimento dei contenuti.
Tutor di processo		Assicura il supporto ai partecipanti mediante la gestione delle dinamiche di interazione, interfaccia e accesso ai diversi ambienti didattici e ai contenuti, monitorandone la fruizione.
Sviluppatore della piattaforma		Sviluppa il progetto formativo nell'ambito della piattaforma e ne garantisce la gestione tecnica.

Table 4: skills and competences in Italian language about training in Job security on workplaces for worker

Source: https://www.puntosicuro.it/informazione-formazione-addestramento-C-56/la-formazione-learning-prevista-per-la-sicurezza-sul-lavoro-AR-17854/

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PART B: SUGGESTED LEARNING OUTCOMES FOR THE QUALIFICATION FRAMEWORK PROPOSED

Please list below learning outcomes identified and relate them to the different phases of the ADDIE MODEL (Addie presented in appendix 1).

Stage of the ADDIE Model	Knowledge	Skills	Competences
Analysis			
Design			
Development			
Implementation			
Evaluation			

Table 5: Suggested Learning Outcomes: ADDIE model

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Diana Laurillard, Teaching as a Design Science, Building Pedagogical Patterns for Learning and Technology, 2012 Routledge
Research paper: Pier Cesare Rivoltella, Criteri metodologici per l'apprendimento e la formazione on line, Università Cattolica di Milano
Italian law D. Lgs. 81/2008
Italian Agreement between State and regional governments on 7th July 2016

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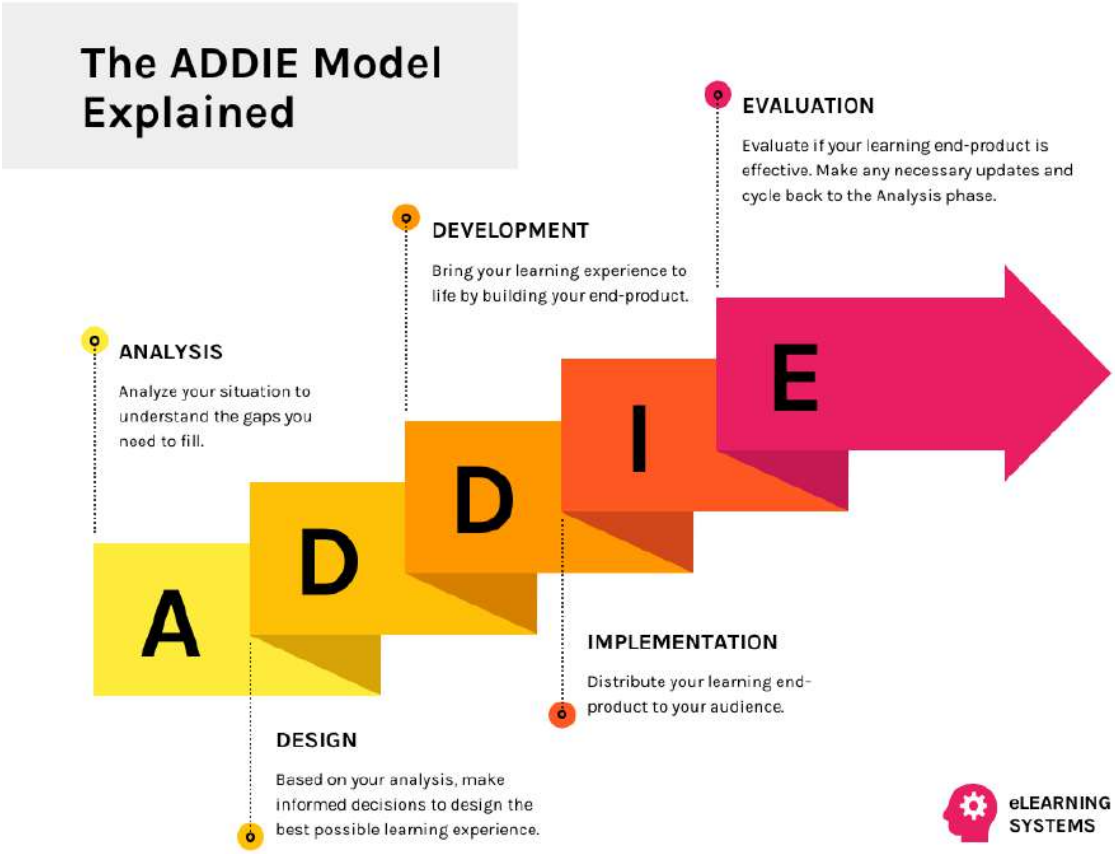

Analysis phase

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The analysis phase clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills. Questions the analysis phase addresses include:

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Evaluation phase

The evaluation phase consists of two aspects: formative and summative. Formative evaluation is present in each stage of the ADDIE process, while summative evaluation is conducted on finished instructional programs or products.

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☐ The table of contents has been updated
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